*ARMY TM 1-1730-229-40
AIR FORCE TO 35C2-3-473-1

TECHNICAL MANUAL

SUSTAINMENT MAINTENANCE MANUAL
FOR

POWER UNIT, AVIATION,
MULTI-OUTPUT GTED ELECTRICAL,

HYDRAULIC, PNEUMATIC (AGPU)

WHEEL MOUNTED, SELF-PROPELLED, TOWABLE

AC - 400 HZ, 3 PH, 0.8 PF, 115/200V

DC - 28 VOLT

PNEUMATIC - 60 LBS/MIN. AT 40 PSIG

HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. MEP 83-360A NSN 1730-01-144-1897
MEP 83-360A (EIC: UEG)

PART NO. MEP 83-360D NSN 1730-01-466-9371
MEP 83-360D (EIC: UDG)

PART NO. 1024250 NSN 1730-01-552-2313
MEP 83-360E (EIC: UDH)

*This manual supersedes TM 55-1730-229-34, dated 1 December 1986, including all changes.

HEADQUARTERS, DEPARTMENT OF THE ARMY
29 APRIL 2009

WARNING SUMMARY

WARNING SUMMARY

This warning summary contains general safety warnings and hazardous materials warnings that must be understood and applied during operation and maintenance of this equipment. Failure to observe these precautions could result in serious injury or death to personnel.

WARNING

PRECAUTIONARY DATA

Personnel performing instructions involving operations, procedures, and practices which are included or implied in this technical manual shall observe the following instructions. Disregard of these warnings and precautionary information can cause serious injury, death, or an aborted mission.

WARNING

DEATH

Death or severe burns may result if personnel fail to observe safety precautions. Do not operate the AGPU until the ground stud has been connected to a suitable ground. Disconnect the battery connector before removing and installing components. Remove all rings, watches, and other jewelry when performing maintenance on this equipment. Do not attempt to service or otherwise make any adjustments, connections, or re-connections of wires or cables until AGPU is shut down and completely de-energized. Never connect or disconnect power cables with AC or DC energized.

WARNING

HIGH VOLTAGE

High voltage is produced when this AGPU is in operation.

WARNING

ACCESS DOORS

Open access doors may be blown shut if AGPU is operated in close proximity to hovering or taxiing aircraft.

WARNING SUMMARY – Continued

WARNING

HIGH TEMPERATURE HYDRAULIC FLUID

If 240 °F light on Hydraulic Control Panel illuminates, reduce output pressure and allow fluid to cool until 240 °F light goes off and 160 °F light illuminates. When hydraulic system temperature reads 275 °F, the HIGH TEMP light will come on and hydraulic output will stop. Unexpected hydraulic output stoppage will cause damage to the aircraft and personnel.

WARNING

HYDRAULIC FLUID

Hydraulic fluid under high pressure is generated (up to 3300 psi) as a result of operation of the AGPU. Do not expose any part of the body to a high pressure leak in the hydraulic system. Never attempt to connect or disconnect hydraulic fittings under high pressure. Ensure that hoses are in good condition, not kinked, and securely connected to aircraft before applying hydraulic power. Wear gloves and eye protection (goggles or face shield) when operating hydraulic systems.

WARNING

EXTREMELY HOT AIR

Extremely hot air under pressure is generated by the AGPU pneumatic system. Allow pneumatic hose and fitting to cool before touching. Wear gloves and eye protection (goggles or face shield) when operating pneumatic system.

Never set PNEUMATIC POWER switch to ON unless pneumatic hose fitting is securely attached to aircraft. The hose will attempt to straighten out with power applied, and whip around violently if not securely attached to aircraft.

WARNING

NOISE

Operating level of this generator can cause hearing damage. Ear protectors, as recommended by the medical or safety officer, must be worn when working near the AGPU. Require all personnel within 9.1 meters of the AGPU to wear Army approved hearing protectors, earplugs or noise muffs, when the turbine engine is operating.

WARNING SUMMARY – Continued

WARNING

CLEANING COMPOUND SOLVENT, MIL-PRF-680

Cleaning Compound Solvent, MIL-PRF-680, is combustible and toxic to eyes, skin, and respiratory tract. Wear protective gloves and goggles/face shield. Avoid repeated or prolonged contact. Use only in well-ventilated areas (or use approved respirator as determined by local safety/industrial hygiene personnel). Keep away from open flames or other sources of ignition.

When using solvents, clean parts in a well-ventilated area. Avoid inhalation of solvent fumes and prolonged exposure to skin to cleaning solvent. Wash exposed skin thoroughly. Degreasing solvent (MIL-PRF-680) used to clean parts is potentially dangerous to personnel and property. Do not use near open flame or excessive heat. Flash point of solvent is 100 to 138 °F (38 to 59 °C).

WARNING

DANGEROUS GASES

Batteries generate explosive gas during charging: therefore, utilize extreme caution, do not smoke, or use open flame in the vicinity of the AGPU when servicing batteries.

Exhaust discharge contains noxious and deadly flames and is very hot. Do not operate AGPU in enclosed areas unless exhaust discharge is properly vented to the outside. Do not operate under overhangs, helicopter blades, or trees.

Do not operate the AGPU until the ground stud has been connected to a suitable ground.

To avoid sparking between filler nozzle and fuel tank, always maintain metal to metal contact between filler nozzle and fuel tank when filling fuel tank.

Do not smoke or use open flame in the vicinity of the AGPU while refueling.

WARNING

ACETONE, ASTM-D329

Acetone is extremely flammable and toxic to eyes, skin, and respiratory tract. Wear protective gloves and goggles/face shield. Avoid repeated or prolonged contact. Use only in well ventilated areas (or use approved respirator as determined by local safety/hygiene personnel). Keep away from open flames, sparks, hot surfaces or other sources of ignition.

WARNING SUMMARY – Continued

WARNING

ASBESTOS

Breathing asbestos fibers/dust can cause cancer and lung disease. Consult local industrial hygiene/safety representative for specific asbestos operating procedures. Do not work with asbestos materials unless assigned protective equipment is worn.

WARNING

ISOPROPYL ALCOHOL, T-T-I-735

Isopropyl alcohol is flammable and toxic to eyes, skin, and respiratory tract. Wear protective gloves and goggles/face shield. Avoid repeated or prolonged contact. Use only in well ventilated areas (or use approved respirator as determined by local safety/industrial hygiene personnel). Keep away from open flames, sparks, or other sources of ignition.

LIST OF EFFECTIVE PAGES/WORK PACKAGES

INSERT LATEST UPDATED PAGES/WORK PACKAGES. DESTROY SUPERSEDED DATA.

Dates of issue for original and changed pages/work packages are:

Original ……29 APR 2009

THE TOTAL NUMBER OF PAGES FOR FRONT AND REAR MATTER IS 155 AND THE TOTAL NUMBER OF WORK PACKAGES IN THIS MANUAL IS 171 CONSISTING OF THE FOLLOWING:

Page / WP No.	*Change No.	Page / WP No.	*Change No.	Page / WP No.	*Change No.	Page / WP No.	*Change No.
Cover	0	WP 0028 00	0	WP 0064 00	0	WP 0100 00	0
a - d	0	WP 0029 00	0	WP 0065 00	0	WP 0101 00	0
A - B	0	WP 0030 00	0	WP 0066 00	0	WP 0102 00	0
i - v	0	WP 0031 00	0	WP 0067 00	0	WP 0103 00	0
vi Blank	0	WP 0032 00	0	WP 0068 00	0	WP 0104 00	0
vii - viii	0	WP 0033 00	0	WP 0069 00	0	WP 0105 00	0
Chapter 1 Title Page	0	WP 0034 00	0	WP 0070 00	0	WP 0106 00	0
WP 0001 00	0	WP 0035 00	0	WP 0071 00	0	WP 0107 00	0
WP 0002 00	0	WP 0036 00	0	WP 0072 00	0	WP 0108 00	0
WP 0003 00	0	WP 0037 00	0	WP 0073 00	0	WP 0109 00	0
WP 0004 00	0	WP 0038 00	0	WP 0074 00	0	WP 0110 00	0
WP 0005 00	0	WP 0039 00	0	WP 0075 00	0	WP 0111 00	0
WP 0006 00	0	WP 0040 00	0	WP 0076 00	0	WP 0112 00	0
Chapter 2Title Page	0	WP 0041 00	0	WP 0077 00	0	WP 0113 00	0
WP 0007 00	0	WP 0042 00	0	WP 0078 00	0	WP 0114 00	0
WP 0008 00	0	WP 0043 00	0	WP 0079 00	0	WP 0115 00	0
WP 0009 00	0	WP 0044 00	0	WP 0080 00	0	WP 0116 00	0
WP 0010 00	0	WP 0045 00	0	WP 0081 00	0	WP 0117 00	0
WP 0011 00	0	WP 0046 00	0	WP 0082 00	0	WP 0118 00	0
WP 0012 00	0	WP 0047 00	0	WP 0083 00	0	WP 0119 00	0
WP 0013 00	0	WP 0048 00	0	WP 0084 00	0	WP 0120 00	0
Chapter 3 Title Page	0	WP 0049 00	0	WP 0085 00	0	WP 0121 00	0
WP 0014 00	0	WP 0050 00	0	WP 0086 00	0	WP 0122 00	0
WP 0015 00	0	WP 0051 00	0	WP 0087 00	0	WP 0123 00	0
WP 0016 00	0	WP 0052 00	0	WP 0088 00	0	WP 0124 00	0
WP 0017 00	0	WP 0053 00	0	WP 0089 00	0	WP 0125 00	0
WP 0018 00	0	WP 0054 00	0	WP 0090 00	0	WP 0126 00	0
WP 0019 00	0	WP 0055 00	0	WP 0091 00	0	WP 0127 00	0
WP 0020 00	0	WP 0056 00	0	WP 0092 00	0	WP 0128 00	0
WP 0021 00	0	WP 0057 00	0	WP 0093 00	0	WP 0129 00	0
WP 0022 00	0	WP 0058 00	0	WP 0094 00	0	WP 0130 00	0
WP 0023 00	0	WP 0059 00	0	WP 0095 00	0	WP 0131 00	0
WP 0024 00	0	WP 0060 00	0	WP 0096 00	0	WP 0132 00	0
WP 0025 00	0	WP 0061 00	0	WP 0097 00	0	WP 0133 00	0
WP 0026 00	0	WP 0062 00	0	WP 0098 00	0	WP 0134 00	0
WP 0027 00	0	WP 0063 00	0	WP 0099 00	0	WP 0135 00	0

* Zero in this column indicates an original page or work package

INSERT LATEST UPDATED PAGES/WORK PACKAGES. DESTROY SUPERSEDED DATA.

Page / WP No.	*Change No.	Page / WP No.	*Change No.	Page / WP No.	*Change No.	Page / WP No.	*Change No.
WP 0136 00	0	FP-7	0	FP-50 Blank	0	FP-93	0
WP 0137 00	0	FP-8 Blank	0	FP-51	0	FP-94 Blank	0
WP 0138 00	0	FP-9	0	FP-52 Blank	0	FP-95	0
WP 0139 00	0	FP-10 Blank	0	FP-53	0	FP-96 Blank	0
WP 0140 00	0	FP-11	0	FP-54 Blank	0	FP-97	0
WP 0141 00	0	FP-12 Blank	0	FP-55	0	FP-98 Blank	0
WP 0142 00	0	FP-13	0	FP-56 Blank	0	FP-99	0
WP 0143 00	0	FP-14 Blank	0	FP-57	0	FP-100 Blank	0
WP 0144 00	0	FP-15	0	FP-58 Blank	0	FP-101	0
WP 0145 00	0	FP-16 Blank	0	FP-59	0	FP-102 Blank	0
WP 0146 00	0	FP-17	0	FP-60 Blank	0	FP-103	0
WP 0147 00	0	FP-18 Blank	0	FP-61	0	FP-104 Blank	0
WP 0148 00	0	FP-19	0	FP-62 Blank	0	FP-105	0
WP 0149 00	0	FP-20 Blank	0	FP-63	0	FP-106 Blank	0
WP 0150 00	0	FP-21	0	FP-64 Blank	0	FP-107	0
WP 0151 00	0	FP-22 Blank	0	FP-65	0	FP-108 Blank	0
WP 0152 00	0	FP-23	0	FP-66 Blank	0	FP-109	0
WP 0153 00	0	FP-24 Blank	0	FP-67	0	FP-110 Blank	0
WP 0154 00	0	FP-25	0	FP-68 Blank	0	FP-111	0
WP 0155 00	0	FP-26 Blank	0	FP-69	0	FP-112 Blank	0
WP 0156 00	0	FP-27	0	FP-70 Blank	0	FP-113	0
WP 0157 00	0	FP-28 Blank	0	FP-71	0	FP-114 Blank	0
WP 0158 00	0	FP-29	0	FP-72 Blank	0	FP-115	0
WP 0159 00	0	FP-30 Blank	0	FP-73	0	FP-116 Blank	0
WP 0160 00	0	FP-31	0	FP-74 Blank	0	FP-117	0
WP 0161 00	0	FP-32 Blank	0	FP-75	0	FP-118 Blank	0
WP 0162 00	0	FP-33	0	FP-76 Blank	0	FP-119	0
WP 0163 00	0	FP-34 Blank	0	FP-77	0	FP-120 Blank	0
WP 0164 00	0	FP-35	0	FP-78 Blank	0	FP-121	0
WP 0165 00	0	FP-36 Blank	0	FP-79	0	FP-122 Blank	0
Chapter 4 Title Page	0	FP-37	0	FP-80 Blank	0	FP-123	0
WP 0166 00	0	FP-38 Blank	0	FP-81	0	FP-124 Blank	0
WP 0167 00	0	FP-39	0	FP-82 Blank	0	FP-125	0
WP 0168 00	0	FP-40 Blank	0	FP-83	0	FP-126 Blank	0
WP 0169 00	0	FP-41	0	FP-84 Blank	0	FP-127	0
WP 0170 00	0	FP-42 Blank	0	FP-85	0	FP-128 Blank	0
WP 0171 00	0	FP-43	0	FP-86 Blank	0		
FP-1	0	FP-44 Blank	0	FP-87	0		
FP-2 Blank	0	FP-45	0	FP-88 Blank	0		
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* Zero in this column indicates an original page or work package

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C., 29 April 2009

TECHNICAL MANUAL

SUSTAINMENT MAINTENANCE MANUAL

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MEP 83-360D (EIC: UDG)
PART NO. 1024250 NSN 1730-01-552-2313
MEP 83-360E (EIC: UDH)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can improve this manual. If you find mistakes or if you know of a way to improve procedures, please let us know.

1. (A) Army - You can improve this manual. If you find any mistakes or if you know of a way to improve these procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms), located in the back of this manual, directly to: Commander, U.S. Army Aviation and Missile Command, ATTN: AMSAM-MMC-MA-NP, Redstone Arsenal, AL 35898-5000. A reply will be furnished to you. You may also send in your comments electronically to our E-mail address: 2028@redstone.army.mil or by fax 256-842-6546/DSN 788-6546. For the World Wide Web use: https://amcom2028.redstone.army.mil. Instructions for sending an electronic 2028 may be found at the back of this manual immediately preceding the hard copy 2028.
2. (F) Air Force - AFTO Form 22 directly to: Commander, Sacramento Air Logistics Center, ATTN: MMEDT, McClellan Air Force Base, CA 95652, in accordance with TO-00-5-1.

*This manual supersedesTM 55-1730-229-34, dated 1 December 1986, including all changes.

TABLE OF CONTENTS

TABLE OF CONTENTS – Continued

WP Sequence No.

TABLE OF CONTENTS – Continued

TABLE OF CONTENTS – Continued

HOW TO USE THIS MANUAL

HOW TO USE THIS MANUAL

Purpose and Scope

This technical manual provides Operator's Aviation Unit and Intermediate usage and maintenance information for the Aviation Ground Power Unit (AGPU), P/N MEP 83-360A, P/N MEP 83-360D and P/N MEP 83-360E. The information includes component and assembly description, usage information, maintenance and supporting data.

ARRANGEMENT, IDENTIFICATION, AND LOCATION OF FRONT MATTER, CHAPTERS, WORK PACKAGES, AND REAR MATTER

Front Matter

The front matter includes such items as the Warning Summary, List of Effective Pages, Table of Contents and How To Use.

Chapters and Work Packages

The WP's contain information pertinent to the performance of specific tasks. Each WP is maintained as a separate entity. The WP's are grouped into Chapters based on overall content. WP's are arranged in numerical sequence regardless of chapter division. The chapter divisions and the WP's contained within the chapters are listed in the Table Of Contents.

Chapter 1 – General Information, Equipment Description, and Theory of Operation. Information required providing the user with a physical and functionally explaining how the equipment operates.
Chapter 2 – Operator Instructions. This chapter provides a description of the operator controls and indicators, and provides instructions for operating the equipment in detail.
Chapter 3 – Troubleshooting Procedures. The troubleshooting procedures are presented according to the fault symptoms observed during the operational check procedures in Chapter 4.
Chapter 4 – Maintenance Instructions. This chapter provides information on performing preventive and corrective maintenance actions. Included are instructions concerning inspection, preventive maintenance checks and services, operational check and repair actions including subassembly/component removal installation procedures.
Chapter 5 – Supporting Information. This chapter provides information to support the maintenance actions in Chapter 4. Included are a list of reference material, Maintenance Allocation Chart (MAC), which identifies maintenance actions and their maintenance levels.

FINDING INSTRUCTIONS YOU NEED

Primary paragraph title heads in bolded upper case letters

Secondary level paragraphs are denoted by bolded headings set in Upper and Lower Case Type. These paragraphs always relate to and are subordinate to the most recent primary paragraph heading.

Tables are titled, numbered, and listed in the table of contents under the chapter and WP they appear and if you follow the leader line the last digit is the page number of the WP where the table is shown.

Limited Applicability

Some portions of this publication are not applicable to all services. These portions are prefixed to indicate the services to which they pertain. (A) for Army and (F) for Air Force. Positions not prefixed are applicable to all services.

Levels of Maintenance Accomplishment

a. (A, MC) Army and Marine Corps users shall refer to the Maintenance Allocation Chart for tasks and levels of maintenance to be performed.

HOW TO USE THIS MANUAL – Continued

b. (F) Air Force users shall accomplish maintenance at the user level consistent with their capability in accordance with policies established in AFM 66-1.

CHAPTER 1

GENERAL INFORMATION,

EQUIPMENT DESCRIPTION AND THEORY OF OPERATION

FOR

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,

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LIN: P44627

(PART NO. 83-360A) (NSN: 1730-01-144-1897)

(MEP 83-360A)

(PART NO. 83-360D) (NSN: 1730-01-466-9371)

(MEP 83-360D)

(PART NO. 1024250) (NSN: 1730-01-552-2313)

(MEP 83-360E)

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU) WHEEL MOUNTED, SELF-PROPELLED, TOWABLE AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V DC - 28 VOLT PNEUMATIC - 60 LBS/MIN. AT 40 PSIG HYDRAULIC - 15.2 GPM AT 3300 PSIG LIN: P44627 PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A) EIC: UEG PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D) EIC: UDG PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E) EIC: UDH

GENERAL INFORMATION

SCOPE

This manual is for use in operating and maintaining the Multi-Output Aviation Power Units, MEP 83-360A and MEP 83-360D/E referred to as the Aviation Ground Power Unit (AGPU), as allocated by the Maintenance Allocation Chart (MAC). It provides information on the operation, Preventive Maintenance Checks and Services (PMCS), and field level maintenance.

The MEP 83-360D/E have been modified by application of MWO 55-1730-229-50-2. This MWO is applied to AGPUs that support the power requirements of the AH-64D, Longbow Apache helicopter. While these power units have been assigned a new part number and NSN because of the changes in AC and DC output ratings, there are only minor changes to the operation and maintenance of the modified AGPUs.

MWO 1-1730-229-50-4 can be applied to both MEP 83-360A and MEP 83-360D AGPUs. Which when applied to MEP 83-360A and MEP 83-360D, changes the model to the MEP 83-360E.

MAINTENANCE FORMS, RECORDS, AND REPORTS

The following forms and records are required for maintaining and reporting the Aviation Ground Power Unit (AGPU). DA PAM 750-8, AR 700-138, and TB 43-0211 are the applicable references.

1. DA Form 2404 (Equipment Inspection and Maintenance Worksheet): used to record results of the operator before, during and after PMCS. Used to record deficiencies noted from the operator PMCS and also used as an itemized checklist for Field Maintenance requirements. DA Form 2404 will be maintained in AGPU logbook.
2. DD Form 314 (Preventive Maintenance Schedule and Record): Used to record Organizational PMCS (weekly/40 hours, monthly/100 hours, semi-annual/250 hours, annually/500 hours and per hour of operation requirements) on the front side. Army Oil Analysis Program (AOAP) sampling requirements are to be included on this form. Used to record NMC days on the backside as required by DA PAM 738-750 and AR 700-138. DD Form 314 will be maintained in AGPU logbook.
3. DA Form 2408-20 (Oil Analysis Log): used to record oil sample results for the hydraulic system (50 hours/30 days) and the engine (50 hours/180 days).
4. DD Form 2026 (Oil Analysis Request): Used to submit the Hydraulic system and engine oil samples to the oil laboratory (maintain last completed 2026 IAW TB 43-0211).
5. DA Form 2408-5 (Equipment Modification Record): used to record Modification Work Order (MWO) applications. Complete heading IAW DA PAM 750-8 and maintain in AGPU logbook.
6. DA Form 2406 (Materiel Condition Status): used to record monthly readiness status for the AGPU IAW AR 700-138 and DA PAM 750-8.
7. For units/facilities utilizing ULLS-G, refer to DA PAM 750-8 and the ULLS-G user manual for the automated equivalency Forms and Records and use as directed.

(F) Maintenance forms and records used by Air Force personnel are prescribed in AFM-66-1 and the applicable 00-2-Series Technical Orders.

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your Aviation Ground Power Unit needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. If you have internet access, the easiest and fastest way to report problems or suggestions is to go to https://aeps.ria.army.mil/aepspublic.cfm (scroll down and choose the "Submit Quality Deficiency Report" bar). The internet form lets you choose to submit an EIR, a Product Quality Deficiency Report (PQDR), or a Warranty Claim Action (WCA). You may also submit your information using an SF 368 (Product Quality Deficiency Report). You can send your SF 368 via e-mail, regular mail, or facsimile using the addresses/facsimile numbers specified in DA PAM 750-8, Functional Users Manual for the Total Army Maintenance Management System (TAMMS). We will send you a reply. For submitting PQDR's using either the AEPS website, email tocfo@redstone.army.mil, or mail directly to: U.S. Army AMCOM, ATTN: AMSAM-MMC-MA-NM, Sparkman Center, Redstone Arsenal, Alabama, 35898-5000.

CORROSION PREVENTION AND CONTROL (CPC)

CPC of Army material is a continuing concern. It is important that any corrosion problems with this item be reported so that the problem can be corrected and improvements can be made to prevent the problem in future items. Corrosion specifically occurs with metals. It is an electrochemical process that causes the degradation of metals. It is commonly caused by exposure to moisture, acids, bases, or salts. An example is the rusting of iron. Corrosion damage in metals can be seen, depending on the metal, as tarnishing, pitting, fogging, surface residue, and/or cracking. Plastics, composites, and rubbers can also degrade. Degradation is caused by thermal (heat), oxidation (oxygen), salvation (solvents), or photolytic (light, typically UV) processes. The most common exposures are excessive heat or light. Damage from these processes will appear as cracking, softening, swelling, and/or breaking. A PQDR should be submitted to the address specified in DA PAM 750-8, Functional Users Manual for the Army Maintenance Management System (TAMMS).

DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

(A) Army personnel shall refer to TM 750-244-1-3, Procedures for Destruction of Aviation Ground Support Equipment (FSC 1700) to Prevent Enemy Use.

PREPARATION FOR STORAGE OR SHIPMENT

NOTE: Damage will occur during shipping to the propulsion system gear drives if left in drive during shipping.

1. (A) Army personnel shall refer to TB 740-97-2 and TM 1-1500-204-23 (Series), General Aircraft Maintenance Manual.
2. (F) Air Force personnel shall refer to TO 35-1-4, Processing and Inspection of Aerospace Ground Equipment, for the end item Generator Sets and to TO 38-1-5 for installed engine.

LIST OF ABBREVIATIONS/ACRONYMS

AC	Alternating Current
AGPU	Aviation Ground Power Unit
ALSS	Aviation Life Support System
AMC	Aviation Maintenance Company
amp	Ampere
AOAP	Army Oil Analysis Program
AR	Army Regulation
ARM/FLD	Armature/Field
ASB	Aviation Support Battalion
BAT	Battery
BAT CHGR	Battery Charger
BDAR	Battle Damage Assessment and Repair
BLK	Black
CBL	Cable
cc	Cubic Centimeter
ccw	Counter Clockwise
CG	Center of Gravity

LIST OF ABBREVIATIONS/ACRONYMS – CONTINUED

CHG	Charge
cw	Clockwise
CONUS	Continental United States
CPC	Corrosion Preventive Compound
DA	Department of the Army
DBA	Decibel
DC	Direct Current
DISCH	Discharge
DoD	Department of Defense
EAT	External Air Transport
ECU	Electronic Control Unit
EGT	Electronic Gas Temperature
EIR	Equipment Improvement Request
eng	Engine
EXT	External
FLTR	Filter
FCU	Fuel Control Unit
FM	Field Manual
FO	Fold Out
GCU	Generator Control Unit
GND	Ground
gpm	Gallons Per Minute
GSE	Ground Servicing Equipment
GTED	Gas Turbine Engine Driven
HOT	High Oil Temperature
HYD	Hydraulic
HZ	Hertz
ID	Identification
INTL	Internal
KVA	Kilovoltamp
KW	Kilowatt
lb/hr	Pounds Per Hour
lbs	Pounds
LCV	Load Control Valve
L.O.	Lubrication Order
LOP	Low Oil Pressure
m	Meter
M	Monthly
MAC	Maintenance Allocation Chart
MAX	Maximum
MAX. CONT.	Maximum Continuos
MEP	Mobile Electric Power
MIN	Minimum
MOC	Maintenance Operational Check
MWO	Modification Work Order
n.c.	Never Closed
n.o.	Never Open
NEG	Negative
NI-CAD	Nickel Cadmium
No.	Number
NSN	National Stock Number
OCONUS	Outside Continental United States

LIST OF ABBREVIATIONS/ACRONYMS – CONTINUED

OD	Outer Diameter
PAM	Pamphlet
PF	Power Factor
PH	Phase
PM	Permanent Magnet
PMCS	Preventive Maintenance Checks and Services
PN	Part Number
Pneu	Pneumatic
POS	Positive
PQDR	Product Quality Deficiency Report
Pres	Pressure
PSIG	Pounds per Square Inch Gravity
RES	Resistor
rpm	Revolutions per Minute
RPSTL	Repair Parts and Special Tools List
SECM	Shop Equipment Contact Maintenance
SMR	Source Maintenance and Recoverability
SW	Switch
TAMMS	Total Army maintenance Management System
TASMG	Theater Aviation Sustainment Maintenance
TB	Technical Bulletin
TEMP	Temperature
TM	Technical Manual
TO	Technical Order
TRU	Transformer Rectifier Unit
Trans	Transmitter
U/I	Unit of Issue
USAF	United States Air Force
UUT	Unit Under Test
V	Volt
VAC	Volts, Alternating Current
VDC	Volts, Direct Current
W	Weekly
WHT	White
WP	Work Package

QUALITY OF MATERIAL

NA

SAFETY, CARE, AND HANDLING

NA

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

EQUIPMENT CHARACTERISTICS, CAPABILITIES AND FEATURES

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

DESCRIPTION

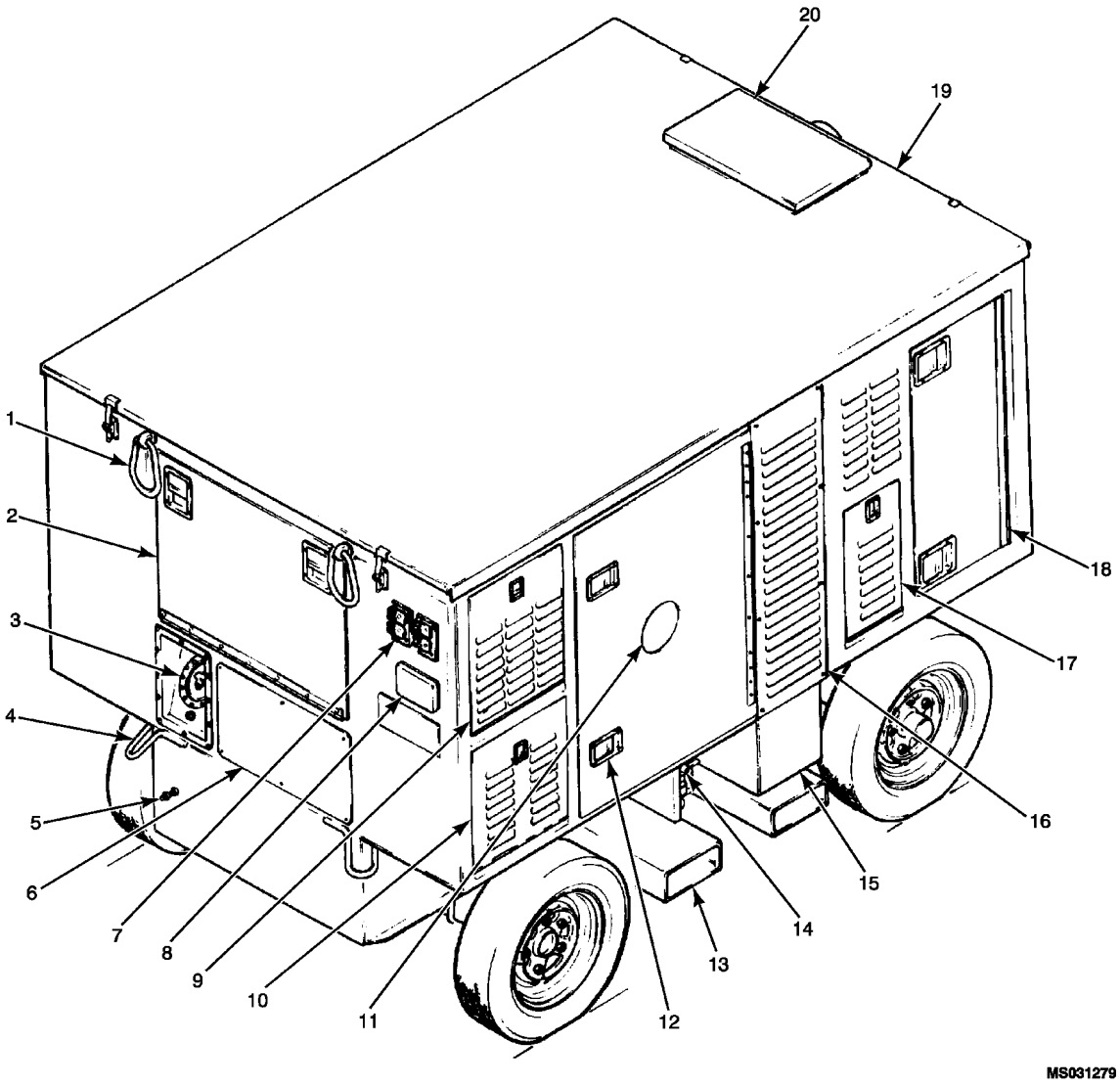
General

The Aviation Ground Power Unit (AGPU), MEP 83-360A and MEP 83-360D/E, is a gas turbine engine-driven, wheel mounted, self-propelled (up to 3 mph on flat surface), enclosed unit. The AGPU can be towed (20 mph maximum on improved surfaces and 10 mph maximum on unimproved surfaces) and is air transportable. It should be notes that tow pintle height should not exceed 28” to center of pintle height. The AGPU provides AC/DC electrical, hydraulic, and pneumatic power. The power is available individually, or in any combination. The AGPU provides the ground power requirements for aircraft such as the following: AH-64, AH-1, UH-1, UH-60, CH-47 and C-12. Control and regulation of the AGPU electrical and pneumatic systems is semiautomatic. Electronic devices monitor and regulate electrical voltage, frequency, and current, as well as pneumatic outputs. Control of the hydraulic system is semiautomatic, in that the operator must set hydraulic pressure and select operating modes.

Exterior Features

A view of the AGPU from the right rear is shown in Figure 1 and Figure 2. Figure 5 through Figure 11 show interior views with the rear and right side access doors open. Figure 3 and Figure 4 show a view of the left front.

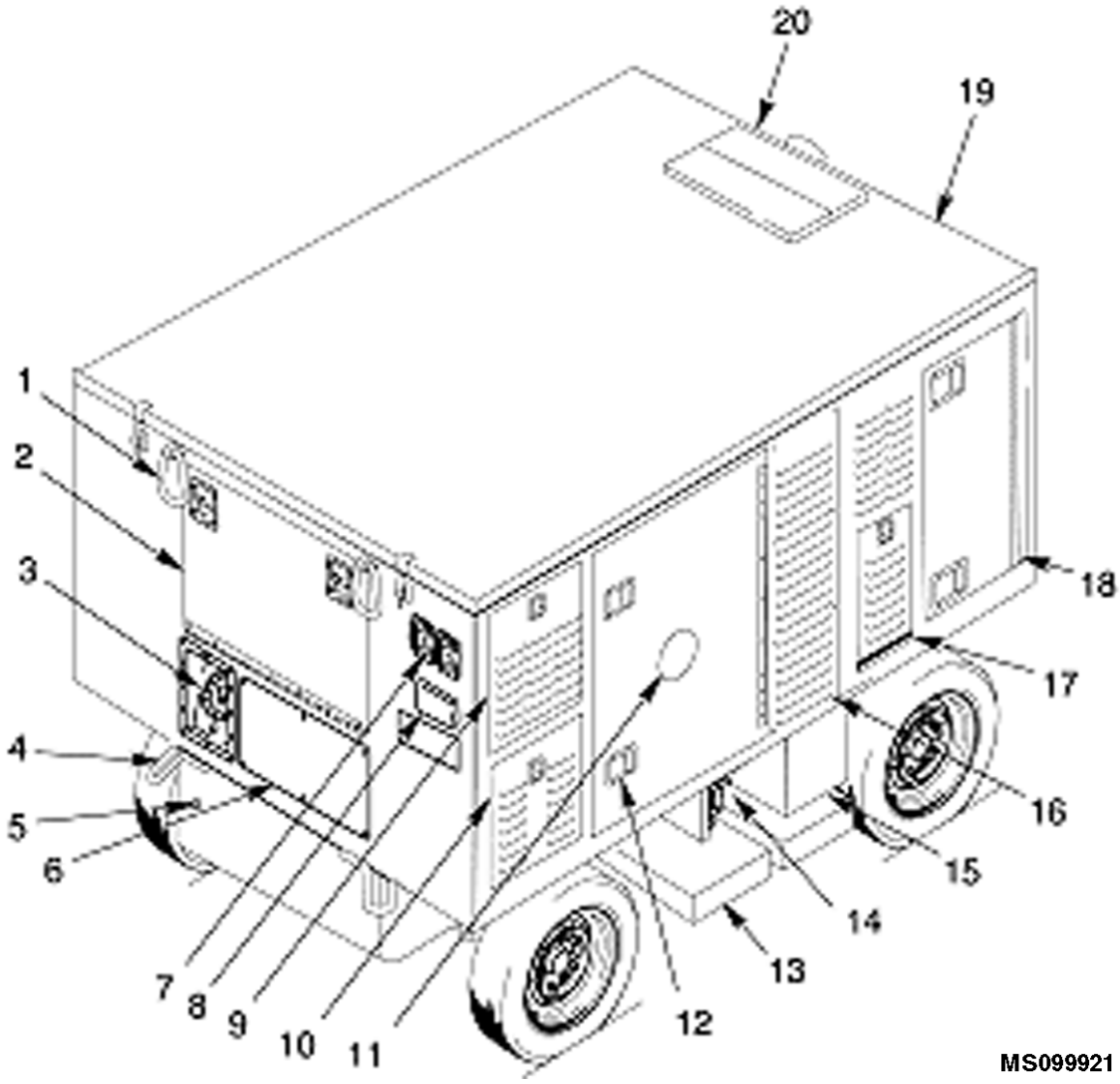
EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



1. Lifting Eye (4)	8. Slave Receptacle	15. Cover, Air Cleaner Exhaust
2. Access Door, Control Panel	9. Access Door, Electrical Trays	16. Cover, Air Intake
3. Fuel Fill	10. Access Door, Battery	17. Access Door, HYD Filters
4. Tie Down (4)	11. Access Door, Engine Pre-heat	18. Access Door, HYD Control Panel
5. Ground Stud	12. Access Door, Engine	19. Roof
6. Access Cover, Battery Charger	13. Forklift Pocket (2)	20. Exhaust Flapper
7. Convenience Outlets	14. Four Way Valve	

Figure 1. AGPU, Right Rear Three Quarter View (MEP 83-360A).

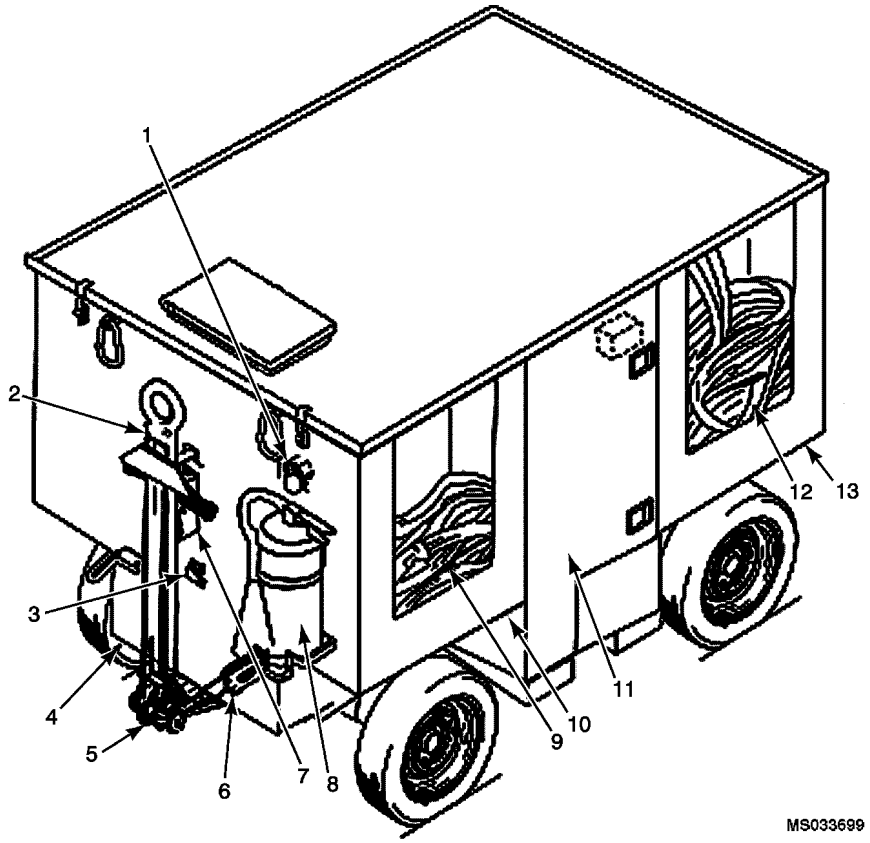
EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



1. Lifting Eye (4)
2. Access Door, Control Panel
3. Fuel Fill
4. Tie down (4)
5. Ground Stud
6. Access Cover, Battery Charger
7. Convenience Outlets
8. Slave Receptacle
9. Access Door, Electrical Trays
10. Access Door, Battery
11. Access Door, Engine Pre-heat
12. Access Door, Engine
13. Forklift Pocket (2)
14, Four Way Valve
15. Cover, Air Cleaner Exhaust
16. Cover, Air Intake
17. Access Door, HYD Filters
18. Access Door, HYD Control Panel
19. Roof
20. Exhaust Flapper (2)

Figure 2. Right Rear Three Quarter View, MEP 83-360D/E.

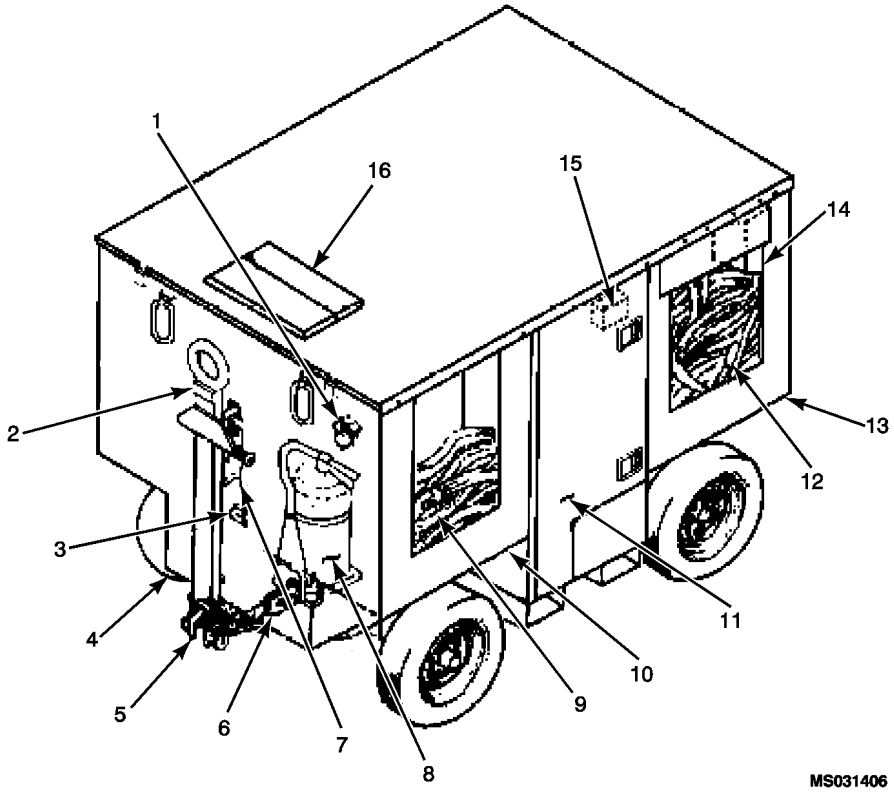
EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



1. Emergency Stop Switch
2. Tow Bar
3. Drain Cover, Exhaust Ejector
4. Fuel Tank
5. Tow Bar Latch
6. Parking Brake
7. Speed/Direction Control Assembly
8. Fire Extinguisher
9. AC Cable
10. Storage Compartment
11. Access Door, Pneumatic Hose
12. DC Cable
13. Storage Compartment

Figure 3. Left Front, Three Quarter View, MEP 83-360A.

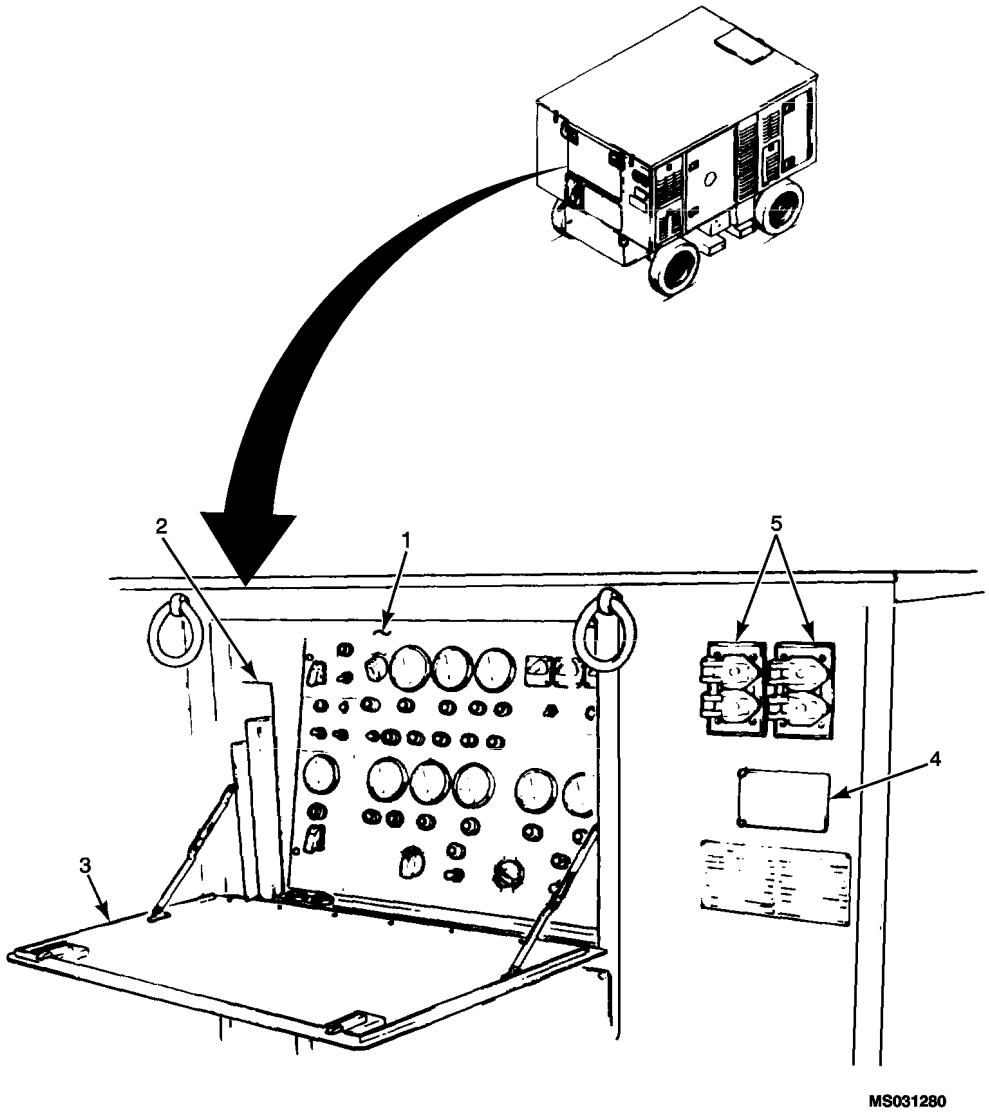
EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



1. Emergency Stop Switch
2. Tow Bar
3. Drain Cover, Exhaust Ejector
4. Fuel Tank
5. Tow Bar Latch
6. Parking Brake
7. Speed/Direction Control Assembly
8. Fire Extinguisher
9. AC Cable
10. Storage Compartment
11. Access Door Pneumatic Hose
12. DC Cable
13. Storage Compartment
14. 28 VDC TRU
15. DC/AC Converter, 110 VAC, 60 Hz
16. Dual Exhaust Flapper MEP 83-360D and MEP 83-360E (Only)

Figure 4. Left Front, Three Quarter View, MEP 83-360D/E.

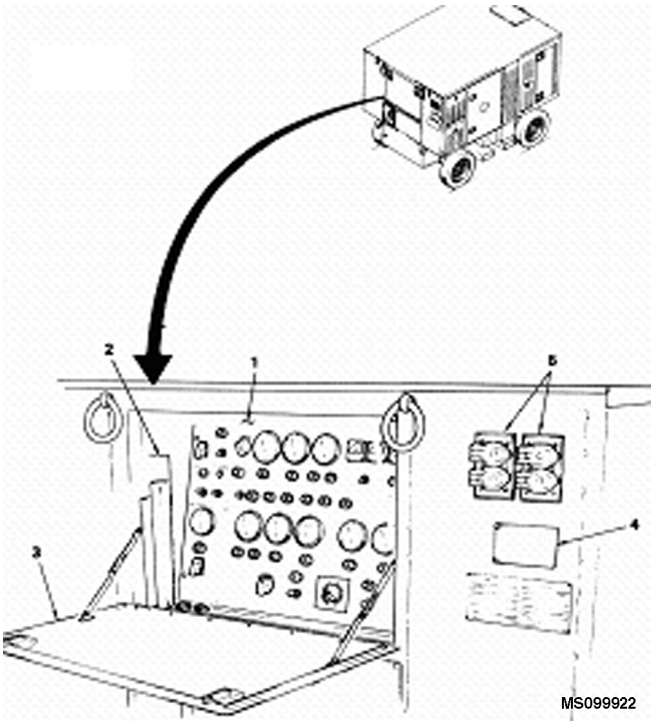
EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



1. Control Panel
2. Compartment, Manuals
3. Access Door, Control Panel
4. Slave Receptacle (24 VDC)
5. Convenience Outlets

Figure 5. Control Panel and Electrical Outlets, MEP 83-360A.

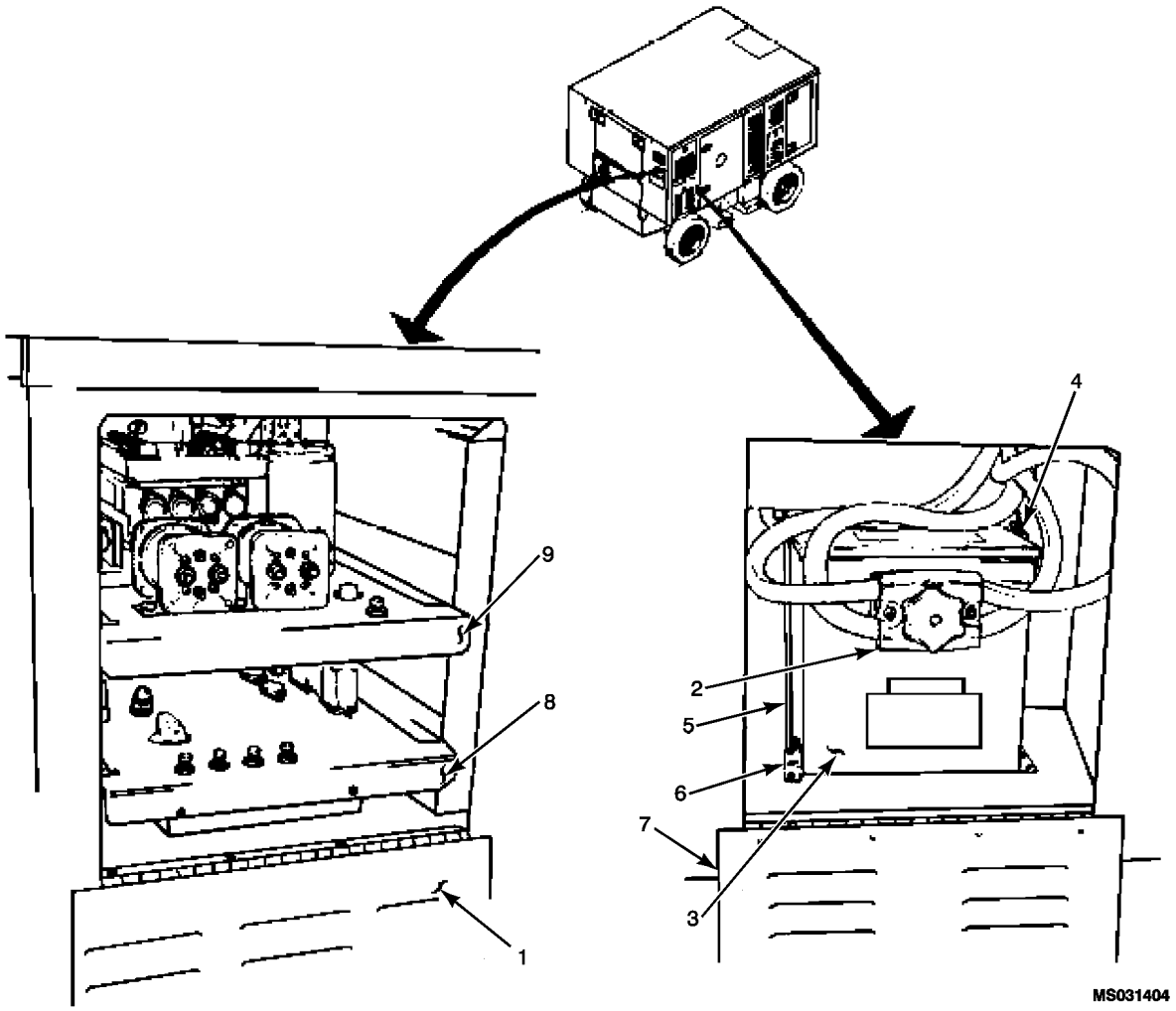
EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



1. Control Panel
2. Compartment, Manuals
3. Access Door, Control Panel
4. Slave Receptacle
5. Convenience Outlets

Figure 6. Control Panel and Electrical Outlets, MEP 83-360D/E.

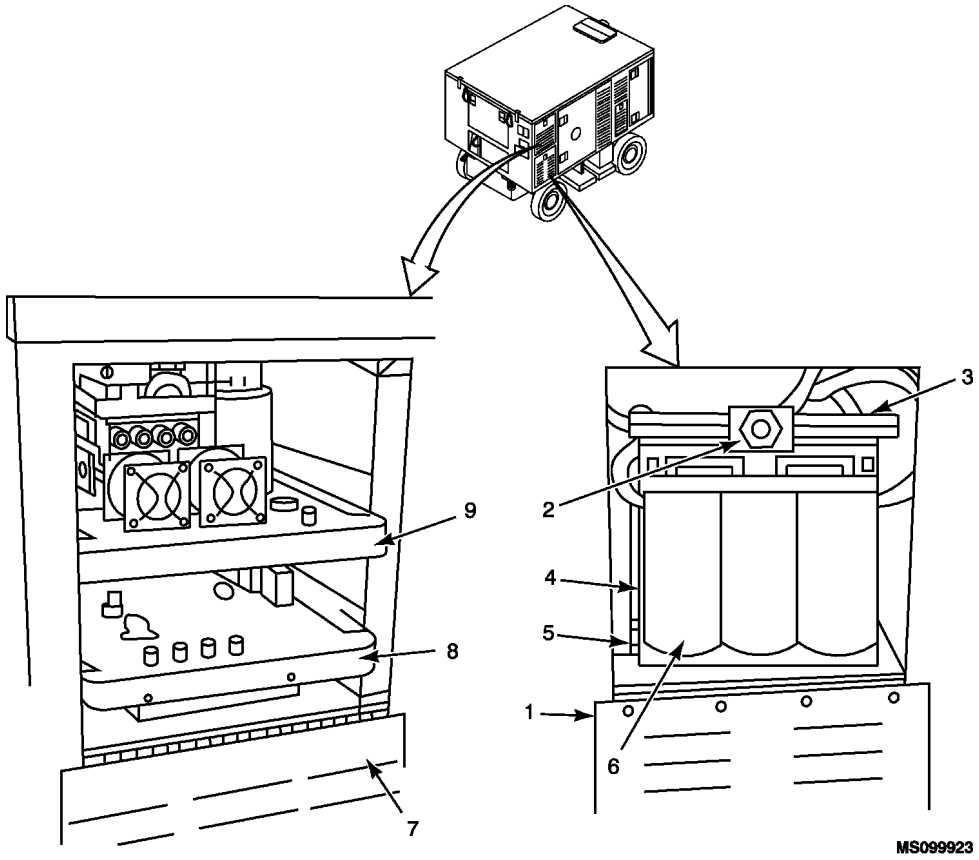
EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



1. Access Door (Open)	4. Wing Nut	7. Battery Access Door
2. Connector, Battery	5. Hold down Rod	8. Lower Tray
3. Battery	6. Guide	9. Upper Tray

Figure 7. Electrical and Battery Compartments, MEP 83-360A (Only).

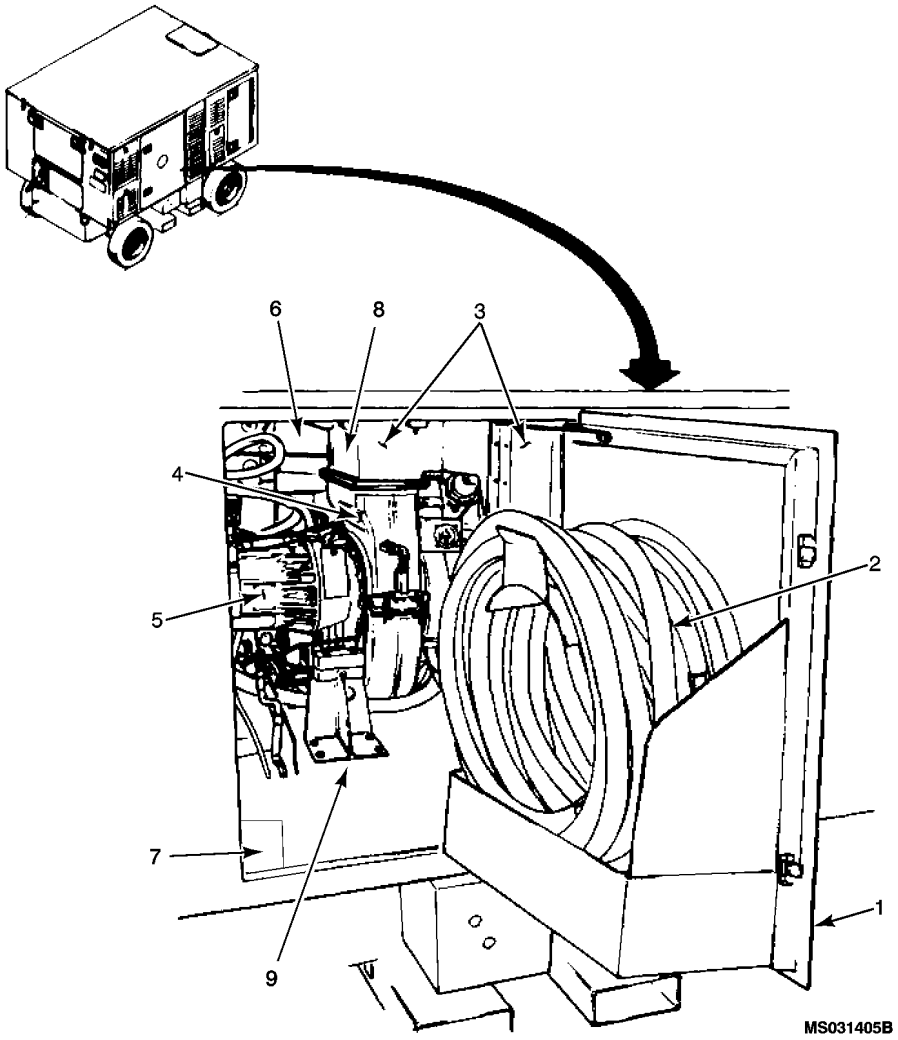
EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



1. Access Door (Open)
2. Connector, Battery
3. Wing Nut
4. Hold-down Rod
5. Guide
6. Battery
7. Access Door (Open)
8. Lower Tray
9. Upper Tray

Figure 8. Electrical and Battery Compartments, MEP 83-360D/E.

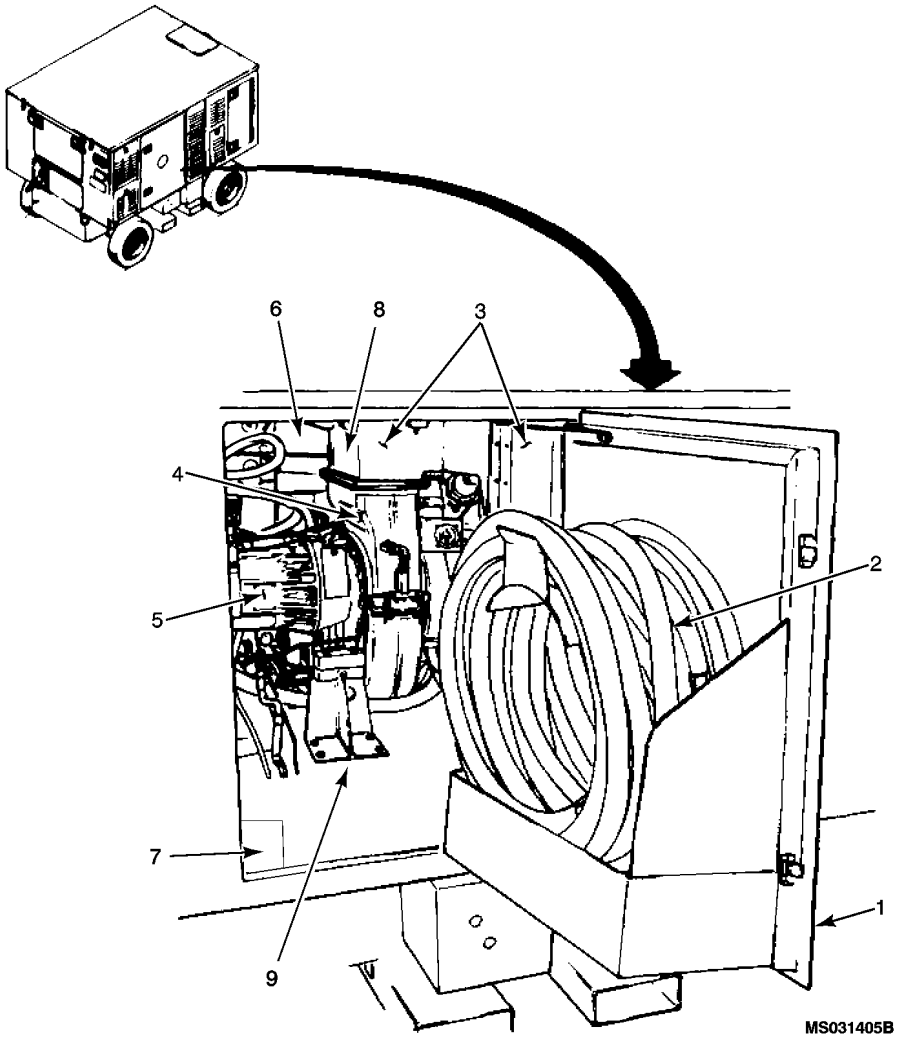
EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



1. Door, Access
2. Hydraulic Hoses (Storage)
3. Air Intake Duct Assembly
4. Engine
5. Generator
6. Purge/Oil Adaptor
7. Dual Service Manifold
8. Air Intake Duct Assy Spring Loaded Bypass Door
9. Engine Mount

Figure 9. Engine Compartment (MEP 83-360A).

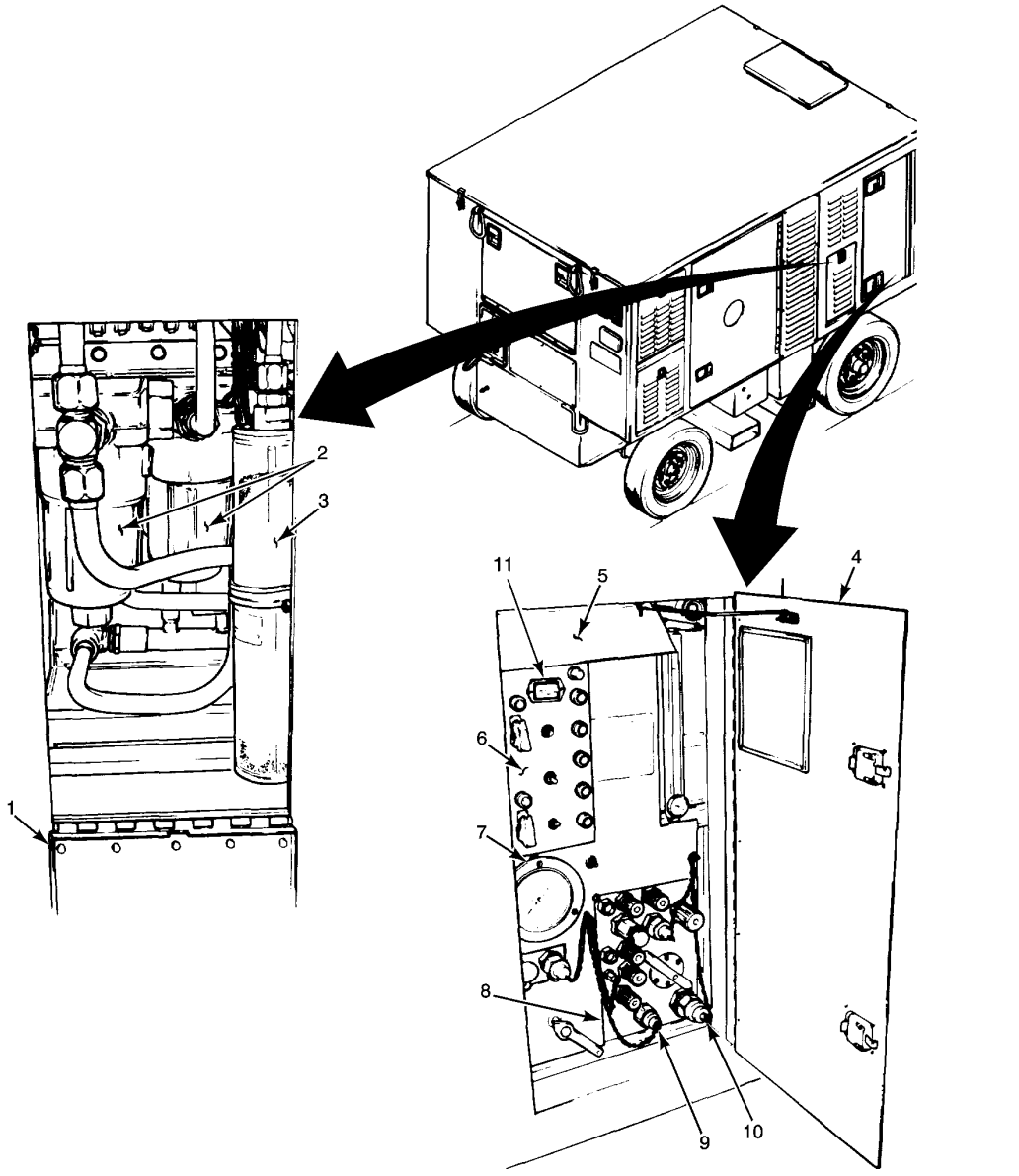
EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



1. Door, Access
2. Hydraulic Hoses (Storage)
3. Air Intake Duct Assembly
4. Engine
5. Alternator
6. Purge/Oil Adaptor
7. Dual Service Manifold
8. Air Intake Duct Assy Spring Loaded Bypass Door
9. Engine Mount

Figure 10. Engine Compartment, MEP 83-360D/E.

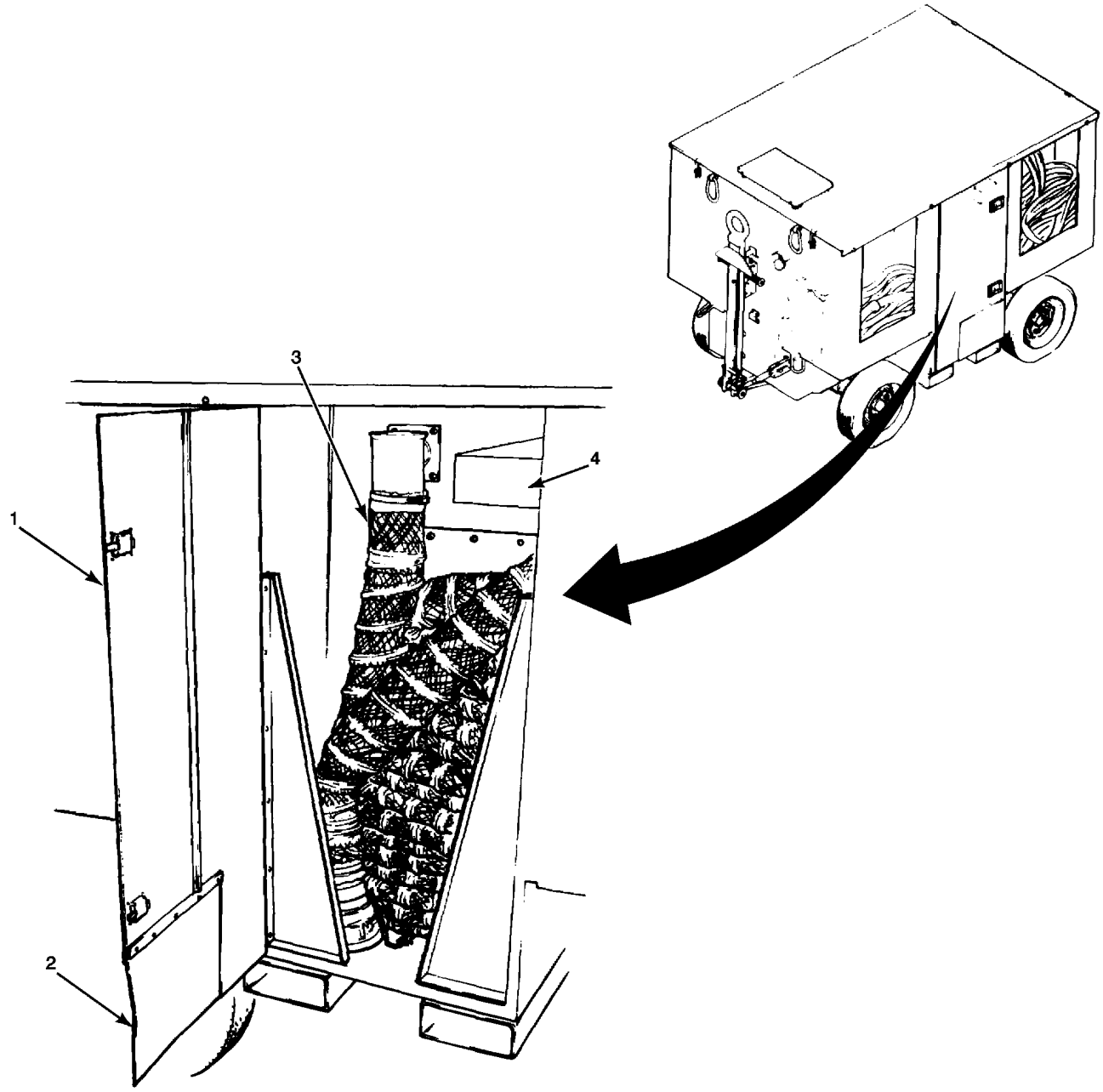
EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



1. Access Door, Hyd Filters
2. Hydraulic Filters
3. Vent Dryer
4. Access Door, Hyd Control Panel
5. Rain Shield
6. Electrical Panel
7. Pressure Gauge
8. Hydraulic Manifold
9. Fitting, Output (High Pressure)
10. Fitting, Output (Low Pressure)
11. Hour Meter

Figure 11. Hydraulic Filters and Control Panel, MEP 83-360A and MEP 83-360D/E.

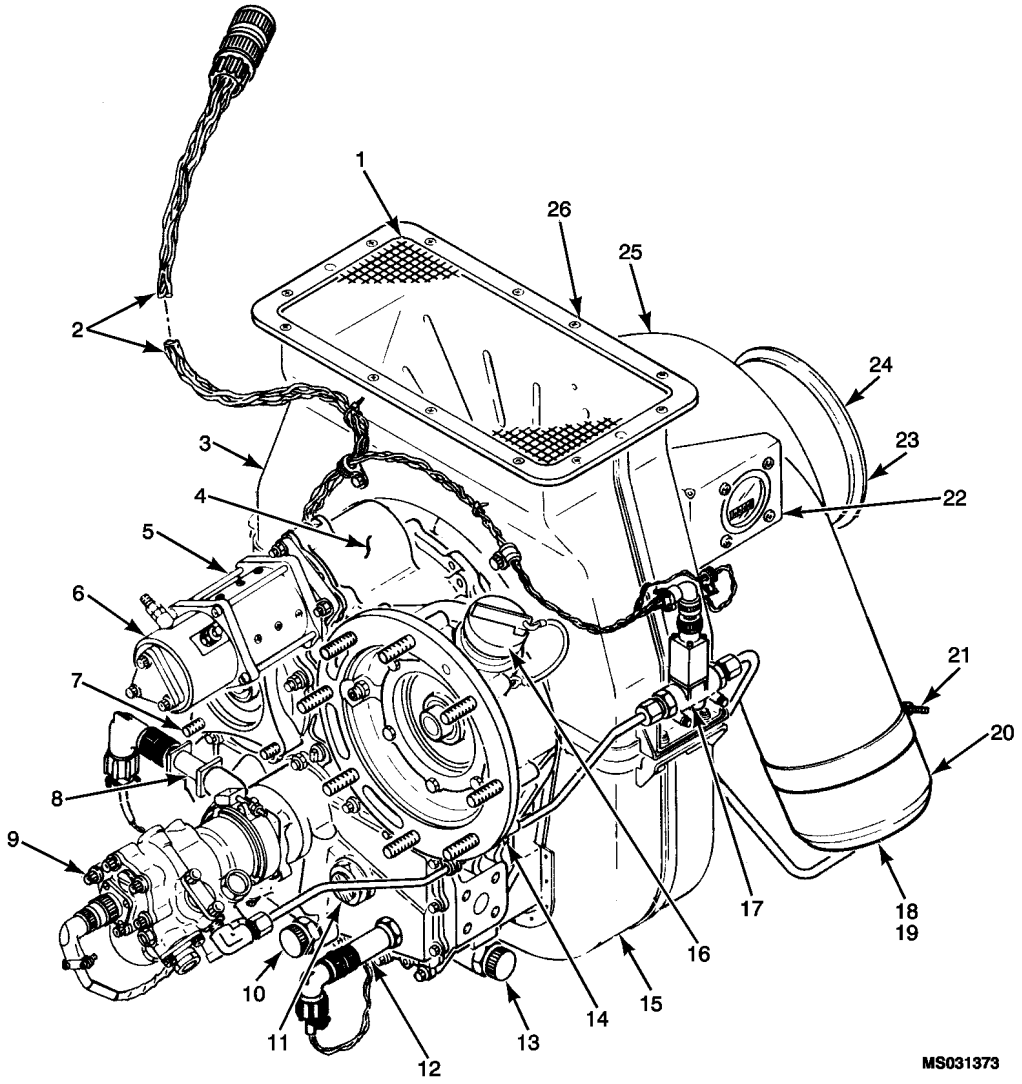
EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



1. Door, Access
2. Flap, Flexible Rubber
3. Pneumatic Hose
4. DC/AC Inverter (110 VAC, 60 Hz Convenience Receptacles)

Figure 12. Pneumatic Hose Storage, MEP 83-360A and MEP 83-360D/E.

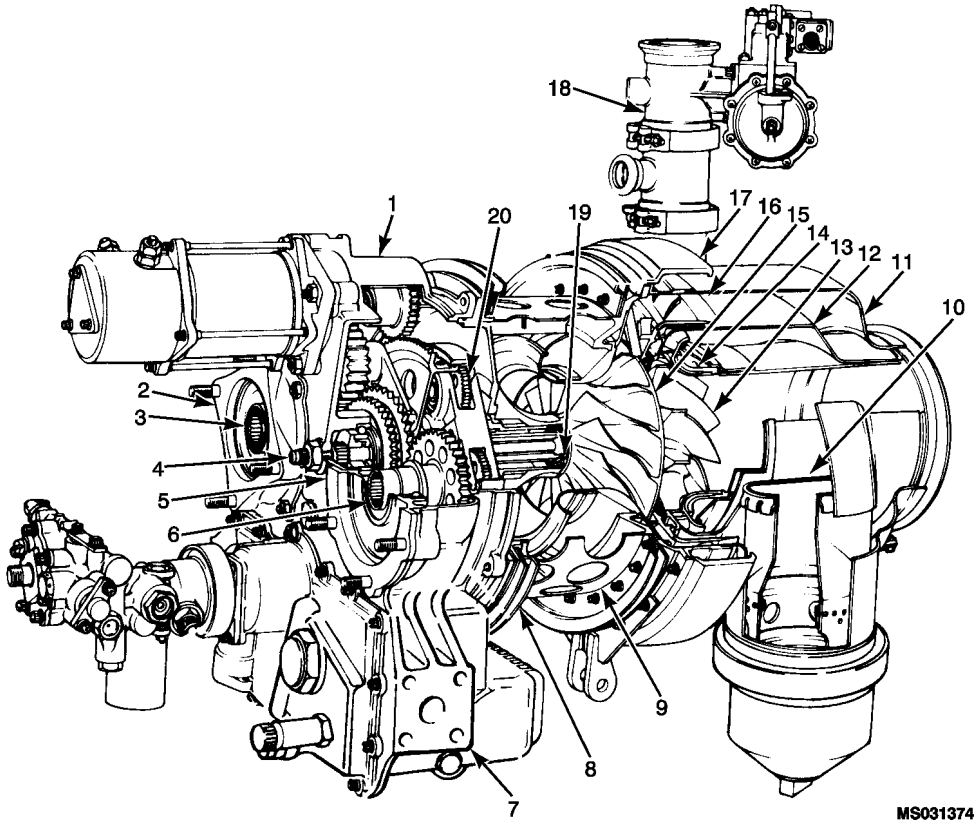
EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



1. Inlet Duct Screen
2. Wiring Harness
3. Inlet Duct (Upper Half)
4. Gearcase Assembly
5. Speed Sensor (Not Shown)
6. Starter Assembly
7. Hydraulic Pump Pad
8. Low Oil Pressure Switch
9. Fuel Control Unit
10. Magnetic Drain Plug (Gearcase)
11. Sight Level Indicator (Oil)
12. High Oil Temperature Switch
13. Magnetic Plug (Overflow)
14. Generator Pad
15. Inlet Duct (Lower Half)
16. Oil Fill Cap
17. Fuel Solenoid
18. Fuel Nozzle (Not Shown)
19. Igniter Plug (Not Shown)
20. Combustor Cap
21. Combustor Clamp
22. Hourmeter
23. Thermocouple (Not Shown)
24. Exhaust Nozzle Output
25. Ignition Unit (Not Shown)
26. Load Control Valve (Not Shown)

Figure 13. Gas Turbine Engine (GTE), MEP 83-360A and MEP 83-360D/E.

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



1. Gearcase Assembly	8. Inlet Duct Fitting	15. Compressor Rotor
2. Hydraulic Pump Pad	9. Compressor Inlet Housing	16. Deflector
3. Hydraulic Pump Splined Drive	10. Combustor Chamber	17. Containment Ring
4. Vent	11. Turbine Plenum	18. Load Control Valve
5. Generator Pad	12. Torus Scroll	19. Compressor Bearing
6. Generator Splined Drive	13. Turbine Rotor	20. Planetary Gear Set
7. Side Mounting Pad (2)	14. Deswirl Assembly	

Figure 14. Engine/Gearcase Assembly, Cutaway View, MEP 83-360A and MEP 83-360D/E.

ENGINE/GEARCASE

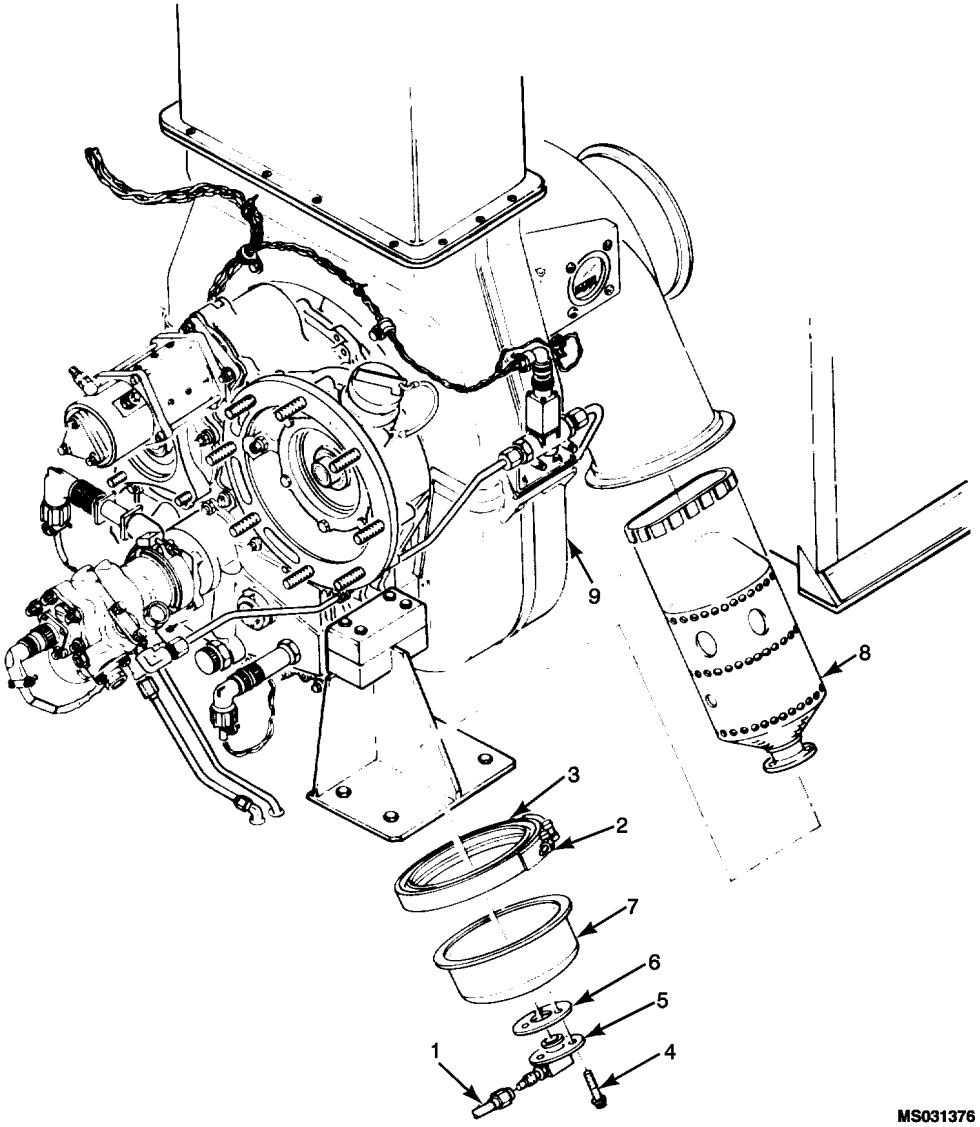
The Gas Turbine Engine (GTE), Figure 13, provides pneumatic power in the form of clean compressed air for operation of the aircraft main engine start system, environmental system, and other equipment or systems. The engine also provides mechanical power in the form of rotational shaft power for driving a generator and hydraulic pump. The engine delivers pneumatic and shaft power simultaneously or independently.

1. Once started, the engine runs up to 100 percent governed speed of 58,737 rpm (+300 rpm, -570 rpm) and automatically maintains that speed until shutdown. Constant speed is maintained by the fuel control unit (Figure 13, Item 9), which varies fuel supplied to the combustion chamber via the fuel nozzle (Figure 13, Item 18). Engine speed is determined by a speed sensor (Figure 13, Item 5), which supplies electrical pulses to an electronic control unit. The electronic control unit sends electrical commands to the fuel control unit to increase or decrease fuel to the combustion chamber (Figure 14, Item 10).
2. Engine power is developed through compression of outside air by a single entry centrifugal compressor. The compressed air, when mixed with fuel and ignited, drives a radial inward-flow turbine rotor. The rotating shaft power of the turbine rotor drives the compressor and the output drive shaft to the gearcase assembly.

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED

Compressor Section

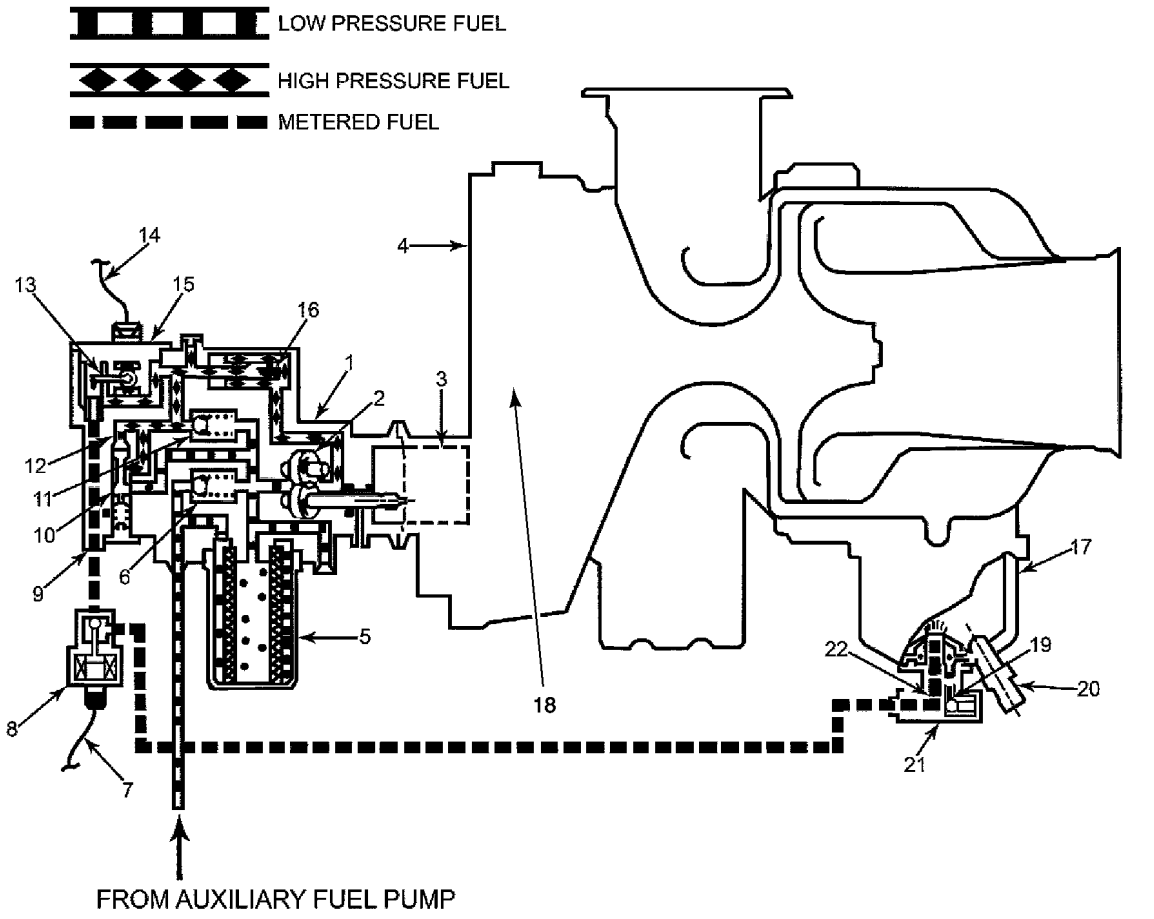
The compressor section, Figure 14, consists of a compressor inlet housing (Figure 14, Item 9), a compressor housing assembly, a single stage centrifugal compressor rotor (Figure 14, Item 15), and a diffuser. The compressor provides compressed air to the turbine section, and for external use as bleed air. The inlet housing assembly houses a planetary gear set (Figure 14, Item 20), which drives the gear train in the gearcase assembly (Figure 14, Item 1).



1. Fuel Line	4. Bolt	7. Combustion Chamber Cap
2. Nut	5. Fuel Nozzle	8. Combustion Chamber
3. Clamp	6. Gasket	9. Engine

Figure 15. Combustor Assembly, MEP 83-360A and MEP 83-360D/E.

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



1. Fuel Control Unit
2. High Pressure Pump
3. Oil Pump Assembly
4. Engine
5. Fuel Inlet Filter
6. Filter Bypass Valve
7. Wiring to ECU (ECU not shown)
8. Fuel Solenoid, Shutdown
9. Metered Fuel Outlet
10. Differential Pressure Valve
11. Ultimate Relief Valve
12. Orifice
13. Metering Valve
14. Wiring to ECU (ECU not shown)
15. Torque Motor
16. Strainer Element
17. Combustor
18. Compressor Air
19. Secondary Flow
20. Igniter Plug
21. Fuel Divider and Fuel Nozzle
22. Primary Flow

Figure 16. Fuel Control Schematic, MEP 83-360A and MEP 83-360D/E.

Combustor Assembly

The combustor assembly, Figure 15, consists of a fuel nozzle (Figure 15, Item 5) mounted on the combustion chamber cap (Figure 15, Item 7). Fuel delivered to the nozzle assembly is sprayed into the combustion chamber (Figure 15, Item 8) and mixes with compressor discharge air. The fuel-air mixture is ignited by the igniter plug (Figure 16, Item 20) and burns, creating hot combustion gases required to drive the turbine rotor.

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED

Turbine Section

The turbine section, Figure 14, consists of a turbine plenum (Figure 14, Item 11), a torus scroll, a deswirl assembly (Figure 14, Item 14), a turbine nozzle, a turbine rotor (Figure 14, Item 13), a labyrinth seal assembly, and a combustion chamber (Figure 14, Item 10). Compressed air from the compressor section passes through the deswirl deflector and enters the turbine plenum assembly where combustion takes place. The combustion gases flow through the torus scroll and the turbine nozzle to the turbine rotor causing rotation and driving the planetary gear system, which drives the gear train in the gearcase assembly. A containment ring (Figure 14, Item 17) is provided to protect personnel if the blades of the turbine were to disintegrate because of an overspeed or over temperature condition.

Gearcase Assembly

The gearcase assembly (Figure 13, Item 4) provides pads (Figure 13, Item 7 and Item 14) for mounting and driving a hydraulic pump and a generator. The gearcase assembly also provides mounting bosses for a low oil pressure switch (Figure 13, Item 8), a speed sensor (Figure 13, Item 5), and a high oil temperature switch (Figure 13, Item 12). An oil pump housing is located on the lower front of the gearcase assembly. It encloses a rotary oil pump assembly and provides a mounting pad for the fuel control unit (Figure 13, Item 9) and mounting bosses for magnetic drain plugs (Figure 13, Item 10 and Item 13).

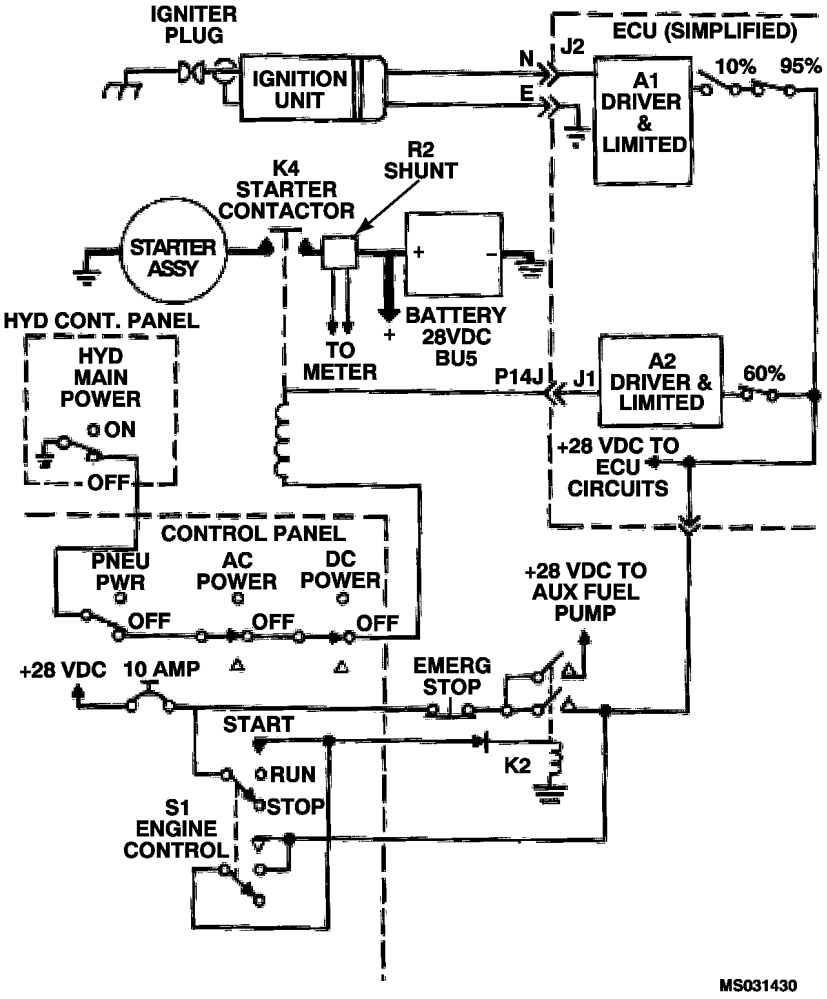


Figure 17. Ignition and Starter Circuits, MEP 83-360A and MEP 83-360D/E.

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED

Ignition System

The ignition system, Figure 17, consist of: an ignition unit, an igniter plug, control circuits, switches, relays, and contactors. The ignition unit is energized by application of +28 VDC from the ECU control circuit. Power (+28 VDC) is applied to an ECU A1 driver and limiter when the ENGINE CONTROL switch is set to START/RUN positions. Note that an electronic switch in the ECU prevents power from being applied to the ignition unit until the engine reaches 10% speed during the start cycle. Another switch in the ECU removes power from the ignition unit when the engine reaches 95% speed. When energized, the ignition unit provides intermittent high voltage pulses to create a spark across the air gap of the igniter plug. The igniter plug ignites the air/fuel mixture in the engine combustion chamber during the start cycle.

Starter Assembly

The starter is energized by a starter contactor when the ENGINE CONTROL switch is set to the START position. The circuit path that energizes the starter contactor is from the battery, through a 10 AMP circuit breaker, through the EMERG STOP switch (normally closed), through the latched contacts of relay K2, to the ECU. The +28 VDC is applied to A2 driver and limiter circuit in the ECU through an electronic switch that opens when the engine reaches 60% speed during the start cycle. The circuit path to ground through the starter contactor coil is through auxiliary contacts on four control switches: DC POWER, AC POWER, PNEUMATIC POWER, and HYD MAIN POWER. All four of these switches must be set to the OFF position to provide a ground circuit.

Engine Controls

The primary engine control is the ECU located in the AGPU electrical bulkhead (WP 0044 00). The ECU receives and sends signals to the engine mounted controls (Figure 13) through the engine wiring harness (Figure 13, Item 2). Engine mounted controls and sensors consist of the fuel control unit (Figure 13, Item 9), the load control valve (Figure 13, Item 26), low oil pressure switch (Figure 13, Item 8), high oil temperature switch (Figure 13, Item 12), and the fuel shutdown solenoid (Figure 13, Item 17). (Refer to WP 0043 00 through WP 0046 00 for maintenance of the engine mounted DC sensors).

Fuel Control Unit (FCU)

The fuel control unit (Figure 16, Item 1) is mounted on the front of the gearcase oil pump housing assembly. The fuel control unit consists of a fuel inlet filter (Figure 16, Item 5), high pressure pump (Figure 16, Item 2), strainer element (Figure 16, Item 16), torque motor (Figure 16, Item 15), metering valve (Figure 16, Item 13), relief valve (Figure 16, Item 11), differential pressure valve (Figure 16, Item 10), and a filter bypass valve (Figure 16, Item 6). Fuel from the AGPU auxiliary fuel pump (WP 0072 00, Figure 1, Item 10) entering the fuel control unit passes through the inlet filter (Figure 16, Item 5) and to the high pressure pump (Figure 16, Item 2). Fuel leaving the pump branches to the metering valve (Figure 16, Item 13), differential pressure valve (Figure 16, Item 10), and relief valve (Figure 16, Item 11). The differential pressure valve maintains a constant pressure drop across the metering valve (Figure 16, Item 13) so the flow is proportional to the valve area. Valve area is modulated by torque motor (Figure 16, Item 15) electrical signal inputs from the electronic control unit (ECU). Fuel flow passes from the metering valve and out the metered fuel outlet (Figure 16, Item 9) to the shutdown fuel solenoid (Figure 16, Item 8).

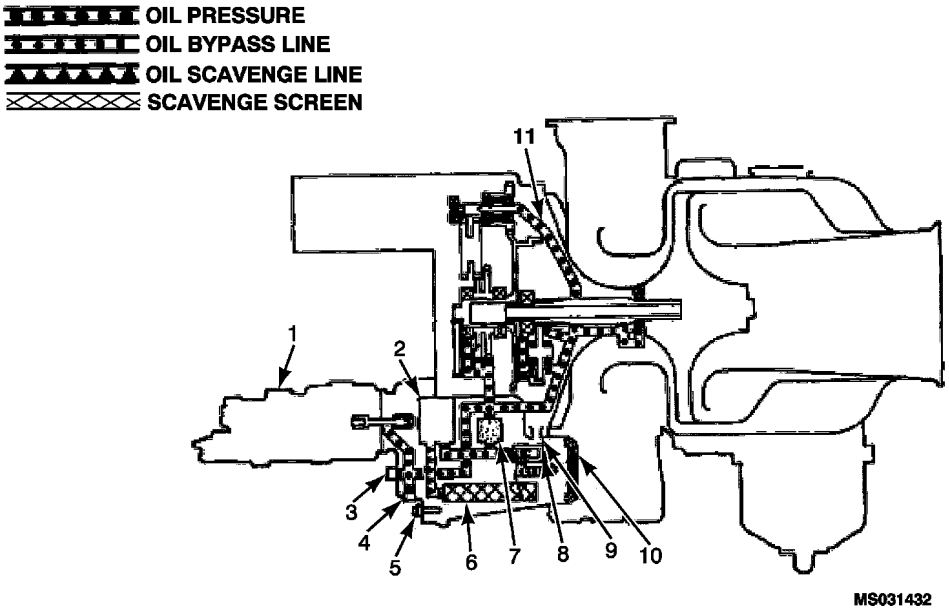
Shutdown Fuel Solenoid

The shutdown fuel solenoid (Figure 16, Item 8) controls the flow (on/off) of fuel to the fuel nozzle (Figure 16, Item 21). The solenoid is normally closed (n.c.) with no +28 VDC power applied, shutting off fuel to the fuel nozzle. The solenoid is controlled by the Electronic Control Unit (ECU). During engine start/run operations, the ECU applies +28 VDC to open the solenoid when the engine reaches 10% speed, and maintains the voltage during normal engine operation. Removing +28 VDC from the fuel solenoid is the only way to immediately shut down engine, since the engine requires no ignition once it reaches governed (100%) speed. The fuel solenoid is closed by removal of +28 VDC by anyone (or combination of) the following conditions:

1. EMERG STOP push button switch pressed.
2. Control panel MASTER SWITCH set to OFF.
3. Control panel ENGINE CONTROL switch set to OFF (normal method of engine shutdown).

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED

4. Automatic shutdown by electronic control unit (ECU) for: over-speed, high exhaust gas temperature (EGT), low oil pressure, high oil temperature, or over-current (related to solenoid, ignition unit, LCV torque motor, start relay coil, or generator interlock circuits).
5. An inoperative hour meter will also prevent the start of the engine.



1. Fuel Control Assembly
2. Rotary Oil Pump Assembly
3. Low Oil Pressure (LOP) Switch
4. High Oil Temp (HOT) Switch
5. Magnetic Drain Plug (2)
6. Scavenge Screen Pickup and Strainer
7. Oil Filter Element
8. Oil Pressure Regulating Valve
9. Return Oil
10. Cooling Fins
11. Oil Distribution Manifold

Figure 18. Lubrication System Schematic, MEP 83-360A and MEP 83-360D/E.

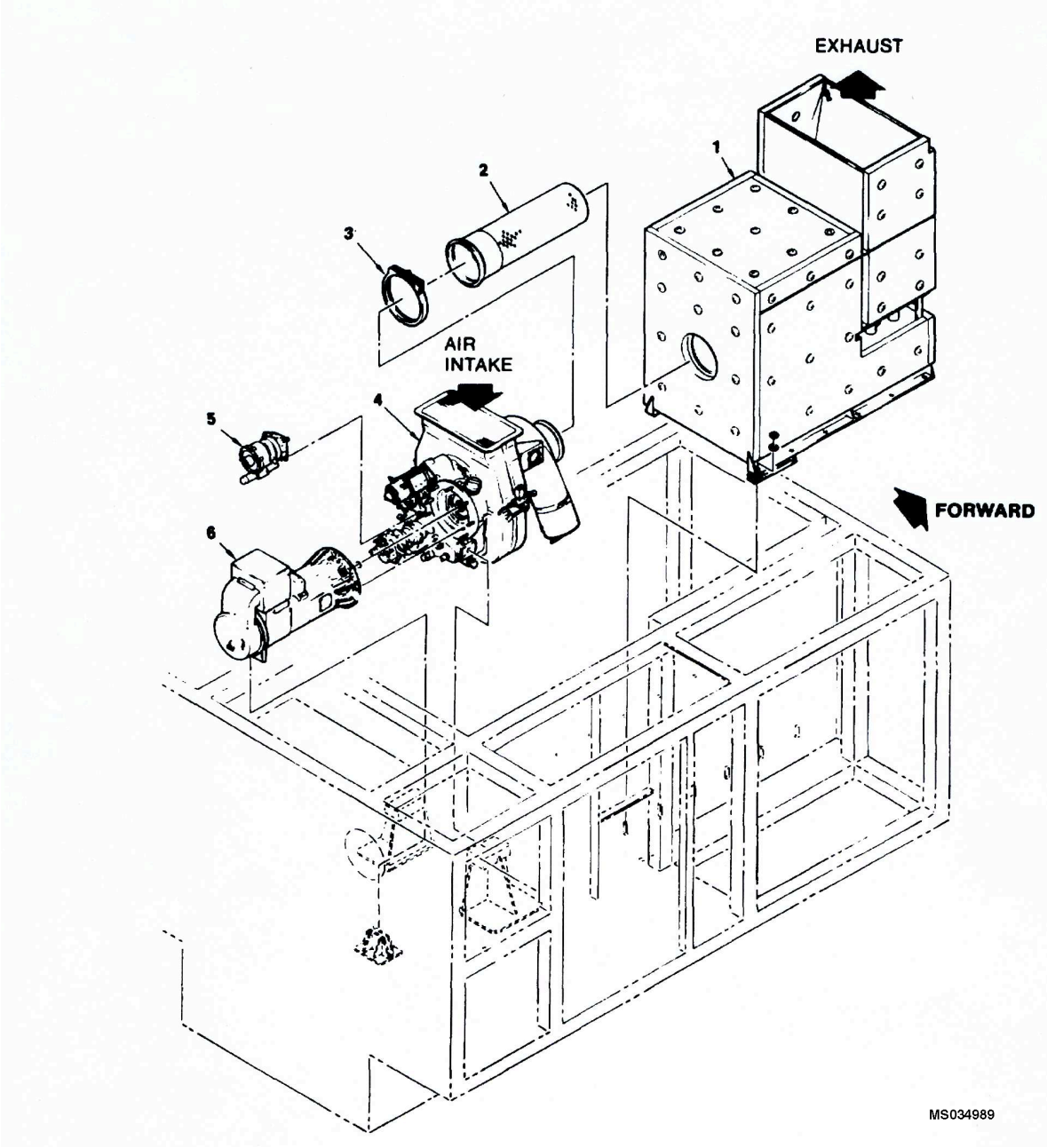
Engine Lubrication System

The engine lubrication system is comprised of a rotary oil pump assembly (Figure 18, Item 2), an oil pressure regulating valve (Figure 18, Item 8), an oil filter element (Figure 18, Item 7), an oil distribution manifold (Figure 18, Item 11), a scavenge screen pickup and strainer (Figure 18, Item 6), a sight level indicator, and two magnetic drain plugs (Figure 18, Item 5). Also associated with the lubrication system are a low oil pressure switch and a high oil temperature switch (covered in WP 0044 00 and WP 0045 00).

The rotary oil pump assembly is located in the oil pump housing on the gearcase assembly. The pump assembly receives oil from the oil sump through a suction tube connected to a pickup and strainer. The pump supplies oil under pressure to the oil pressure regulating valve, which regulates the oil pressure to 35 to 55 psig by bypassing some of the oil back to the oil sump.

Oil is routed to an oil distribution manifold through a replaceable oil filter element. The oil distribution manifold is mounted in the compressor section and delivers oil to the meshing points of the planetary gear system. Oil is routed through internal passages to provide lubrication at the main shaft bearings, gear meshing points, and the starter clutch. Oil from the lubrication points flows back into the oil sump to replenish the constantly circulating oil supply.

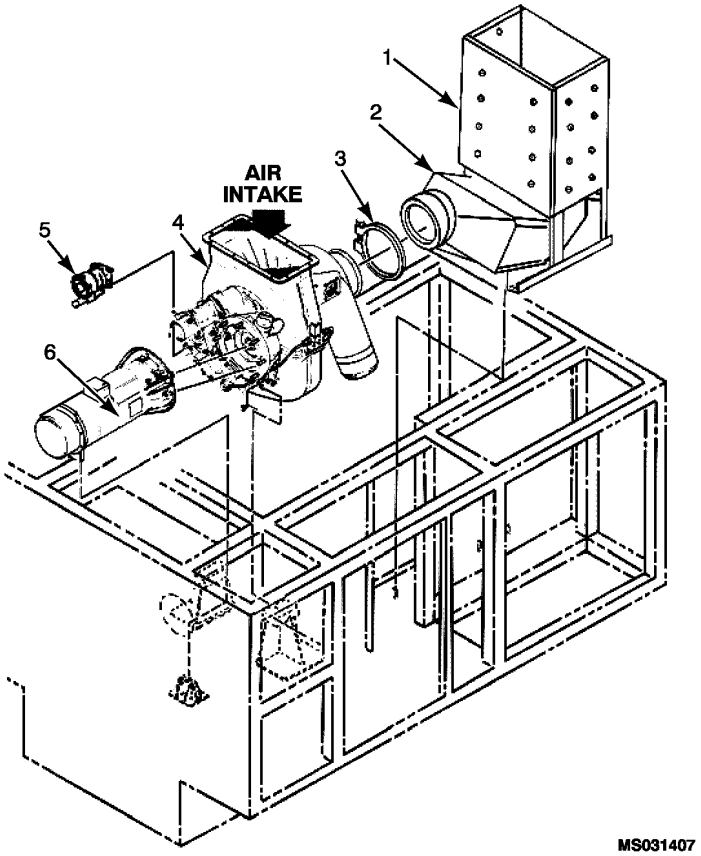
EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



1. Exhaust Ejector
2. Inlet Tube, Exhaust Ejector
3. Ring, Coupling
4. Gas Turbine Engine (GTE)
5. Hydraulic Pump
6. A/C Generator

Figure 19. Engine, Generator, Hydraulic Pump and Exhaust Ejector, MEP 83-360A (Only).

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



1. Exhaust Ejector
2. Exhaust Plenum
3. Ring, Coupling
4. Gas Turbine Engine (GTE)
5. Hydraulic Pump
6. Alternator

Figure 20. Engine, Alternator, Hydraulic Pump and Exhaust Ejector Assembly, MEP 83-360D/E.

CAUTION

GCU CSV3370-2 can **ONLY** be used on AGPU, MEP 83-360A.

CAUTION

GCU CSV3370-3 can **ONLY** be used on AGPU, MEP 83-360D/E.

Generator (MEP 83-360A Only)

The generator (Figure 19, Item 6) is a self-cooled, continuous duty, AC/DC, self-excited, brushless unit. It includes a permanent magnet stator and rotor, an exciter stator and rotor, and a main DC rotating field and AC stator. The main AC stator incorporates three sets of three phase windings. One set of main stator windings provides the 115/200 VAC 400 Hz output. The AC outputs of the other two windings are full-wave rectified to provide 28 VDC output. The permanent magnet provides a three phase output whenever the generator is driven by the engine. When the engine reaches 95 percent speed, a relay connects the permanent magnet output to the generator control unit (GCU) (P/N CSV3370-2) located behind the control panel. The GCU (P/N CSV3370-2) rectifies this AC voltage to provide DC control voltage for

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED

the GCU (P/N CSV3370-2) and DC excitation voltage for the generator exciter field. The exciter provides a three phase output which varies in magnitude with the field excitation. GCU CSV3370-2 can **ONLY** be used on AGPU, 83-360A.

Alternator (MEP 83-360D/E Only)

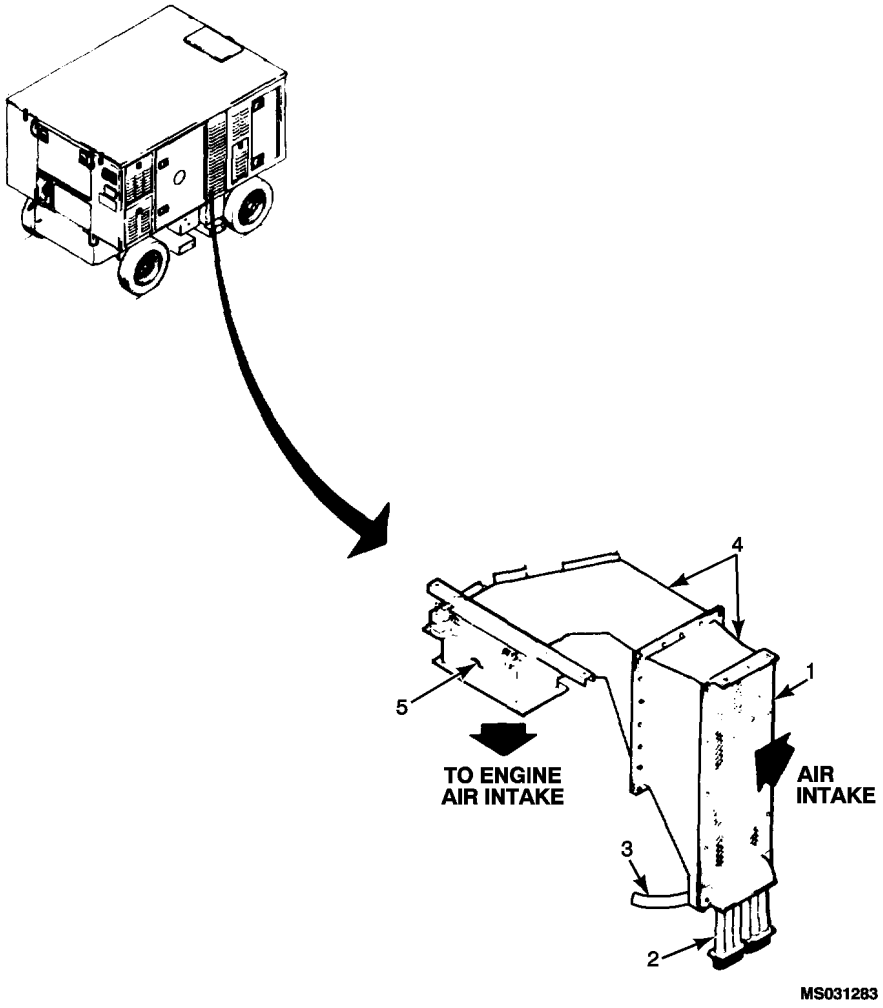
The MEP 83-360D/E AC alternator (Figure 20, Item 6) is also a self-cooled, continuous duty, self-excited, brushless unit only without the two windings used to provide 28 VDC output. The rectangular box on the top of the alternator is eliminated. It contained the DC output terminals and the alternator control unit (GCU) (P/N CSV3370-3) connector, which is located on the primary housing of the AC alternator. Since AC power is still needed, even when only DC is being supplied by the TRU, the CURRENT LIMIT SELECTOR switch is rewired so that the GCU (P/N CSV3370-3) is always monitoring the AC output. GCU CSV3370-3 can **ONLY** be used on AGPU, MEP 83-360D/E.

The exciter voltage is half-wave rectified and applied to the alternator main DC rotating field. The magnitude of the three phase voltage generated in the main stator windings is a function of the ampere turns of the field windings, which is, in turn, a function of the exciter field excitation. The GCU (P/N CSV3370-3) monitors the alternator AC or DC output (depending upon which output is selected at the AGPU control panel) and controls the exciter field as required to keep the selected output within limits.

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED

NOTE

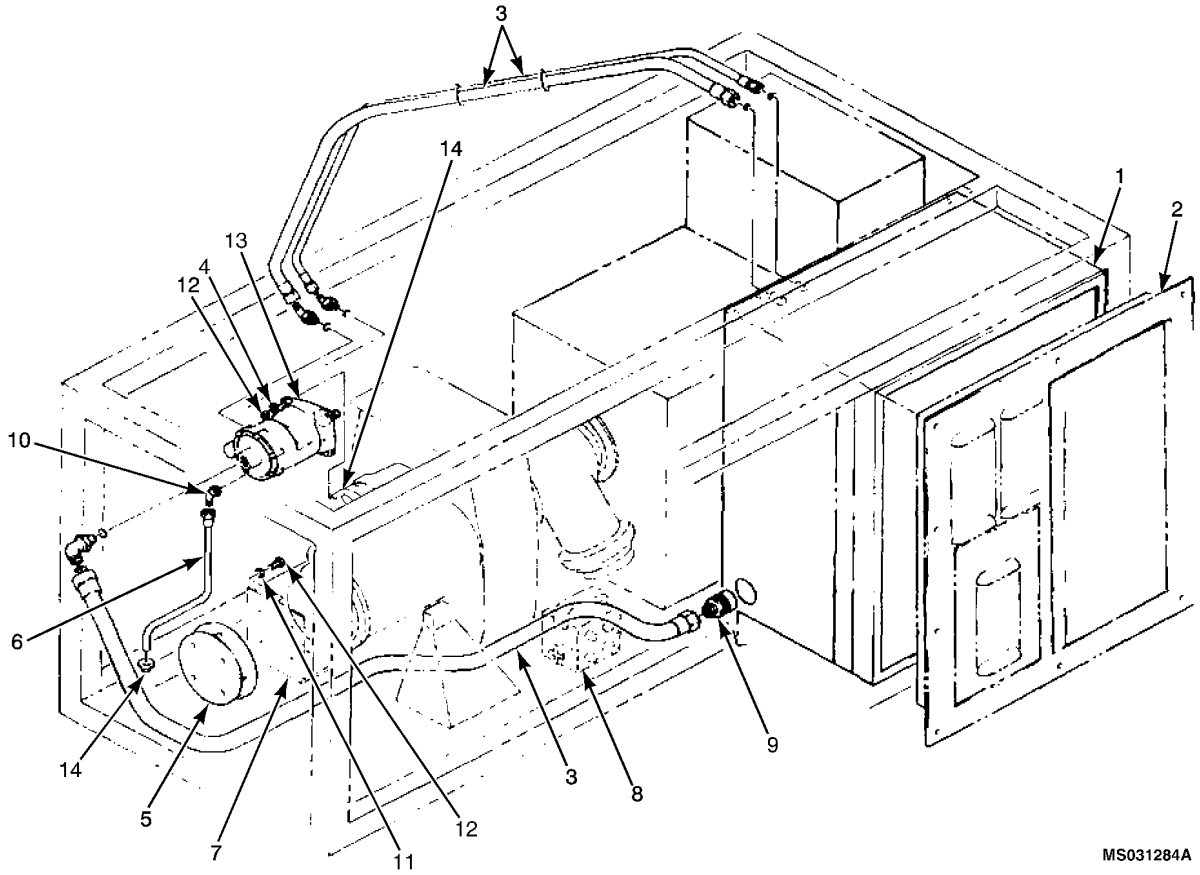
The exhaust ejector (Figure 19, Item 1) and exhaust ejector inlet tube (Figure 19, Item 2) are being replaced with a low back-pressure exhaust installation (Figure 20, Item 1). This installation will be incorporated in the 83-360D/E AGPU and on other AGPUs whenever replacement of the current ejector assembly is required.



1. Air Cleaning Assembly
2. Scavenge Tubes
3. Bleed Air Hose (from Engine)
4. Air Intake Duct Assembly
5. Bypass Door

Figure 21. Engine Air Intake System, MEP 83-360A and MEP 83-360D/E.

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



1. Hydraulic Module	6. Drain Tube	11. Nut
2. Front Panel Assembly	7. Storage Bracket	12. Washer
3. Hose	8. Dual Service Manifold	13. Gearcase Pad
4. Hydraulic Pump	9. Pump Fitting	14. Grommet
5. Spacer	10. Elbow, Inlet	

Figure 22. Hydraulic Module, Pump, Lines and Hoses, MEP 83-360A and MEP 83-360D/E.

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED

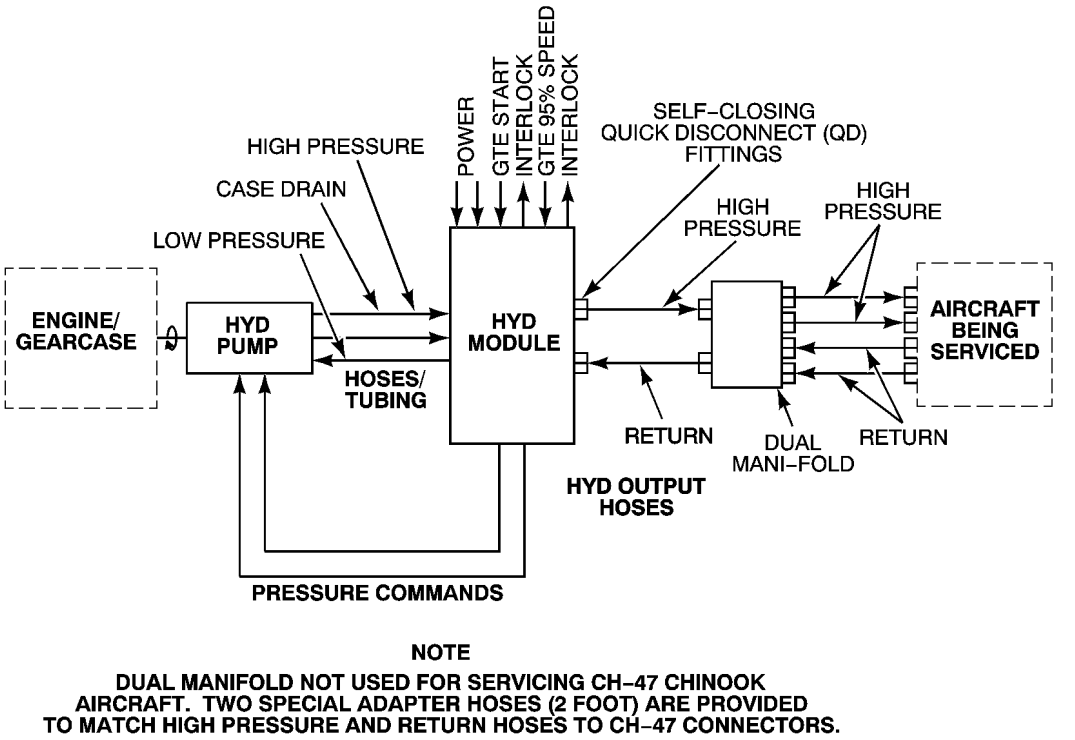


Figure 23. Hydraulic System, Simplified, MEP83-360A and MEP83-360D/E.

NOTE

Dual manifold not used for servicing CH-47 Chinook Aircraft. Two special adapter hoses (2 foot) are provided to match high pressure and return hoses to CH-47 connectors.

HYDRAULIC SYSTEM

The hydraulic system (Figure 23) consists of a hydraulic pump (mounted on engine gearcase), a hydraulic module, a dual manifold, and hydraulic hoses and lines.

The hydraulic system provides adjustable high pressure hydraulic power up to 3,300 psig at 15.2 gpm to an aircraft. This hydraulic power can be used to drive aircraft hydraulic systems, fill aircraft reservoirs, or flush aircraft hydraulic systems. Output pressure to the aircraft is adjusted by the operator at the hydraulic module control panel. Hydraulic pressure, once set, remains constant regardless of the flow rate demanded by the aircraft (up to the maximum flow rate of 15.2 gpm). The hydraulic system uses fluid MIL-PRF-83282 or MIL-PRF-5606. Fluid MIL-PRF-5606 is limited to low temperatures of -40°F.

Hydraulic Pump

The hydraulic pump (with pressure compensation controls enclosed) bolts to the engine/gearcase pump mounting pad. The pump is driven by the engine/gearcase at approximately 8,000 rpm. For units not requiring hydraulic power, a spacer is provided to bolt between the engine/gearcase and pump. This spacer disconnects the pump from the drive gear. This eliminates unnecessary wear on the pump, and reduces load on the engine (since the pump must maintain a minimum 500 psig pressure for self-lubrication). The hydraulic system must never be operated without sufficient hydraulic fluid, or pump will be damaged. The pump receives a low pressure fluid from the hydraulic module reservoir and supplies high pressure hydraulic power. The pump is designed to allow hydraulic fluid to leak through the bearings for cooling and lubrication. This fluid is routed from the pump case drain back to the reservoir. The pump receives

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED

electrical commands set by the operator from the hydraulic module control panel for an increase or decrease of output fluid pressure.

Hydraulic Module

Refer to WP 0116 00 for removal and installation of hydraulic module. The hydraulic module (Figure 24) contains all controls (fluid and electrical) for the hydraulic system. The module contains a nine gallon reservoir with attachments for manual filling and draining, overflow, and removal of moisture from vent air that enters as fluid level changes. High pressure (2 micron) and return (5 micron) filters have throwaway elements. The filters have built-in electrical circuits that illuminate the CHANGE FILTER light on the control panel when the filter elements need changing. The accumulator (pressurized with nitrogen), heat exchanger, gauge, valves and plumbing complete the makeup of the hydraulic module.

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED

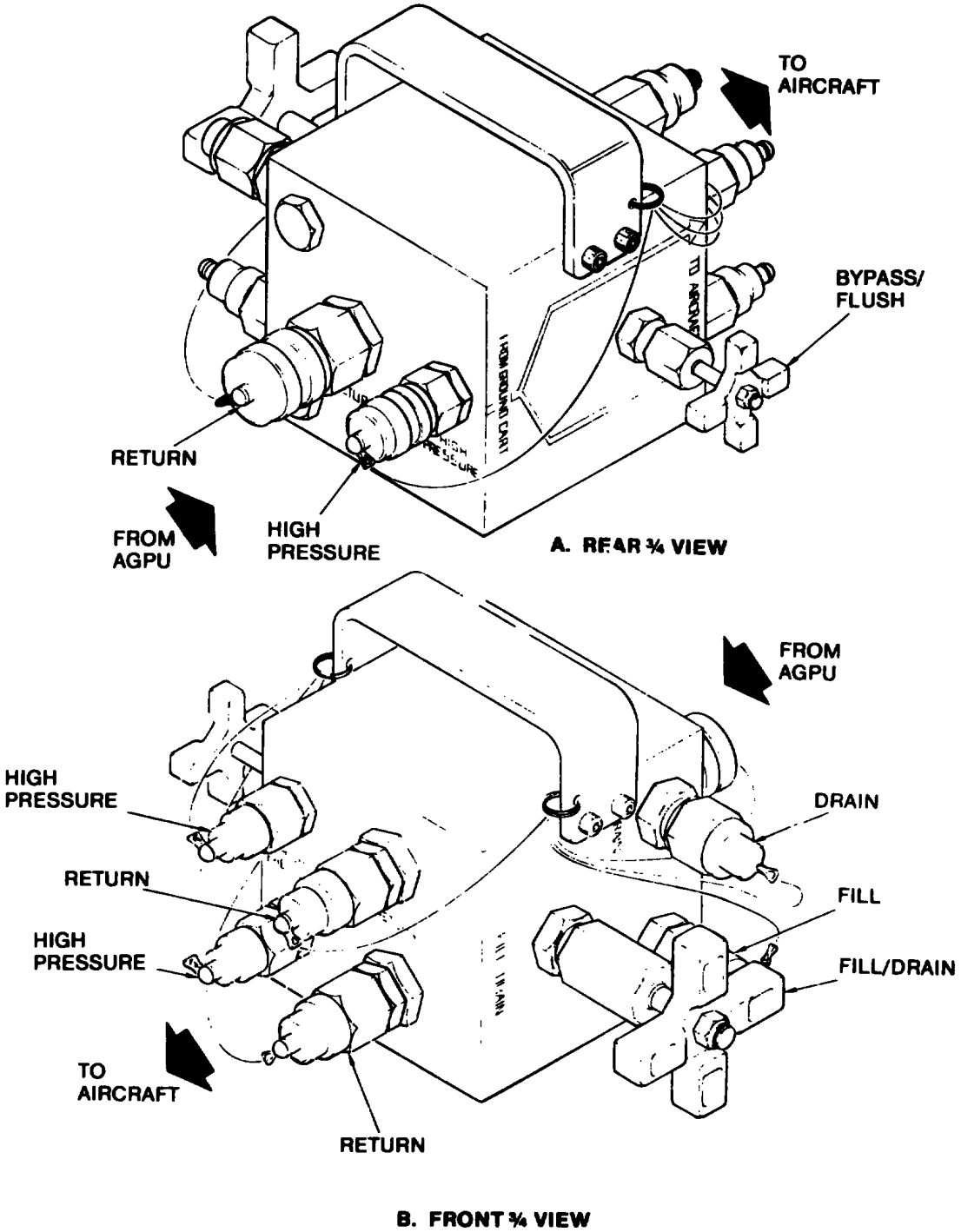


Figure 24. Hydraulic Dual Service Manifold (Old Type) MEP 83-360A and MEP 83-360D/E.

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED

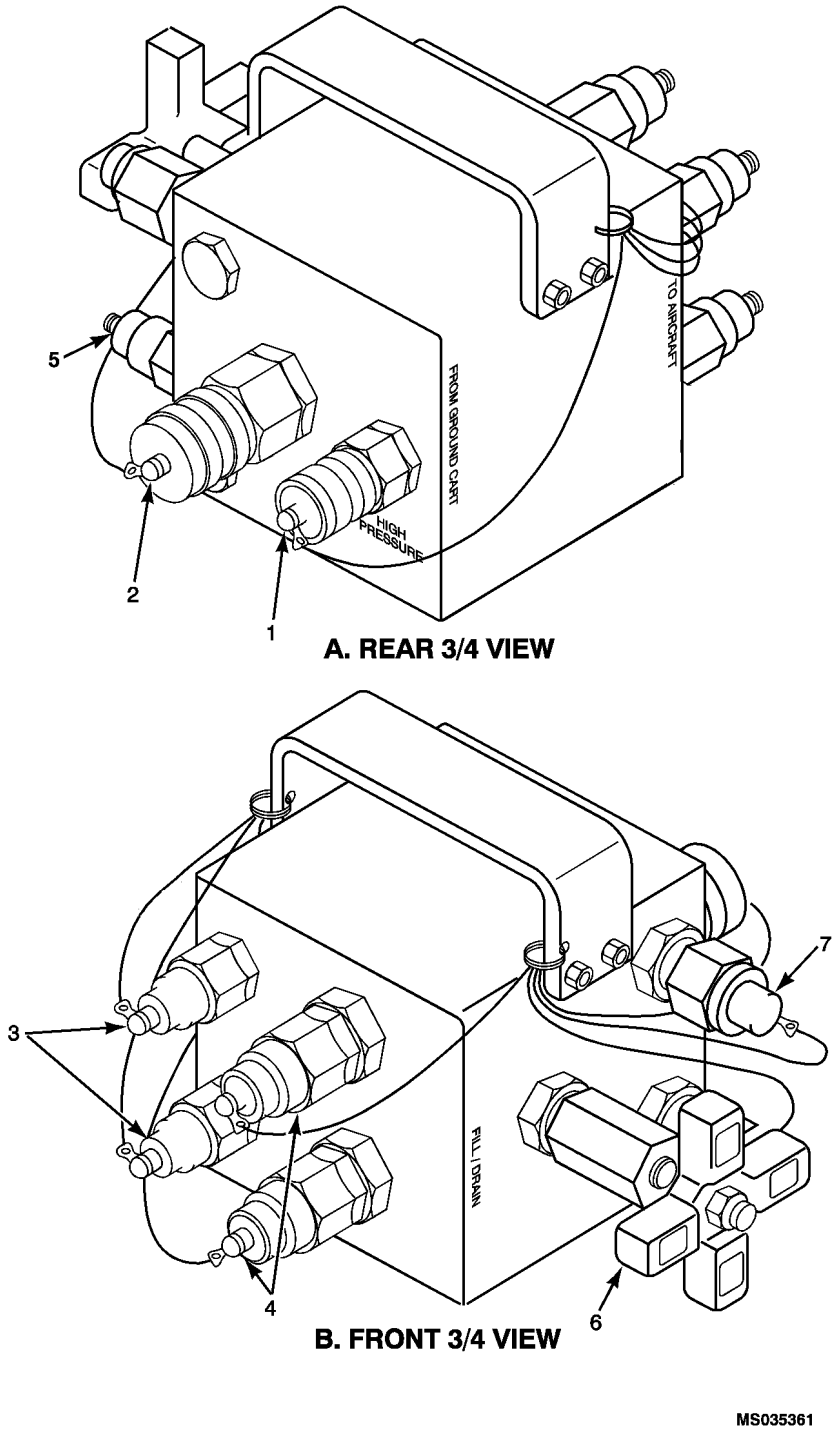


Figure 25. Hydraulic Dual Service Manifold (New Type) MEP 83-360A and MEP 83-360D/E.

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED

Dual Service Manifold

A separate dual service manifold (Figure 24) is included in the hydraulic system to accommodate the need for dual outlet and return connections. The single input is branched to two equal output lines, and two returns are combined into a single return path. Valves and fluid ports are provided for filling and draining hoses. If dual manifold is damaged beyond repair, replace with a serviceable unit.

Hoses and Lines

Plumbing between the pump and module consists of fixed tubing with sections of hose at the end near the pump. The hoses between the hydraulic module and dual manifold are 30 feet long. The output (high pressure) hose is 1/2-inch diameter and the return (low pressure) hose is 3/4-inch diameter. The four (two output and two return) adapter hoses are ten feet long.

Hydraulic system is designed to perform only with hoses provided in Table 1. Extension or "Y" hoses degrade AGPU hydraulic performance.

Table 1. Hydraulic 10 ft. and 2 ft. Adapter Hoses.

AIRCRAFT	Output (High Pressure Hose)		Return (Low Pressure Hose)	
	Part Number	Quantity	Part Number	Quantity
AH-64 (Apache)	83-14831	2-10 ft.	83-14825	2-10 ft.
AH-1 (Huey Cobra)	83-14831	2-10 ft.	83-14825	2-10 ft.
OH-58 (Kiowa)	83-14831	2-10 ft.	83-14825	2-10 ft.
UH-1 (Iroquois)	83-14831	1-10 ft.	83-14825	1-10 ft.
UH-60 (Blackhawk)	83-14831	2-10 ft.	83-14825	2-10 ft.
CH-47 (Chinook)	83-14831	1-10 ft. and 1-2 ft. (adaptor)	83-14825	1-10 ft. and 1-2 ft. (adaptor)
C-12 (Huron)	83-14831	2-10 ft.	83-14825	2-10 ft.

Hydraulic Oil Sampling/Purge Adapter

Purpose. The Hydraulic Oil Sampling/Purge Adapter allows the AGPU (all) hoses to be included in the self-inflation process. (This self-inflation process is performed prior to connecting the AGPU to an aircraft to prevent and contamination contained in the connector and/or hoses from being introduced into the aircraft. In addition to self-filtration, this Hydraulic Oil Sampling/Purge Adapter will also allow the operator to draw an oil sample from the hydraulic system during operation for all aircraft adapters and hoses.)

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED

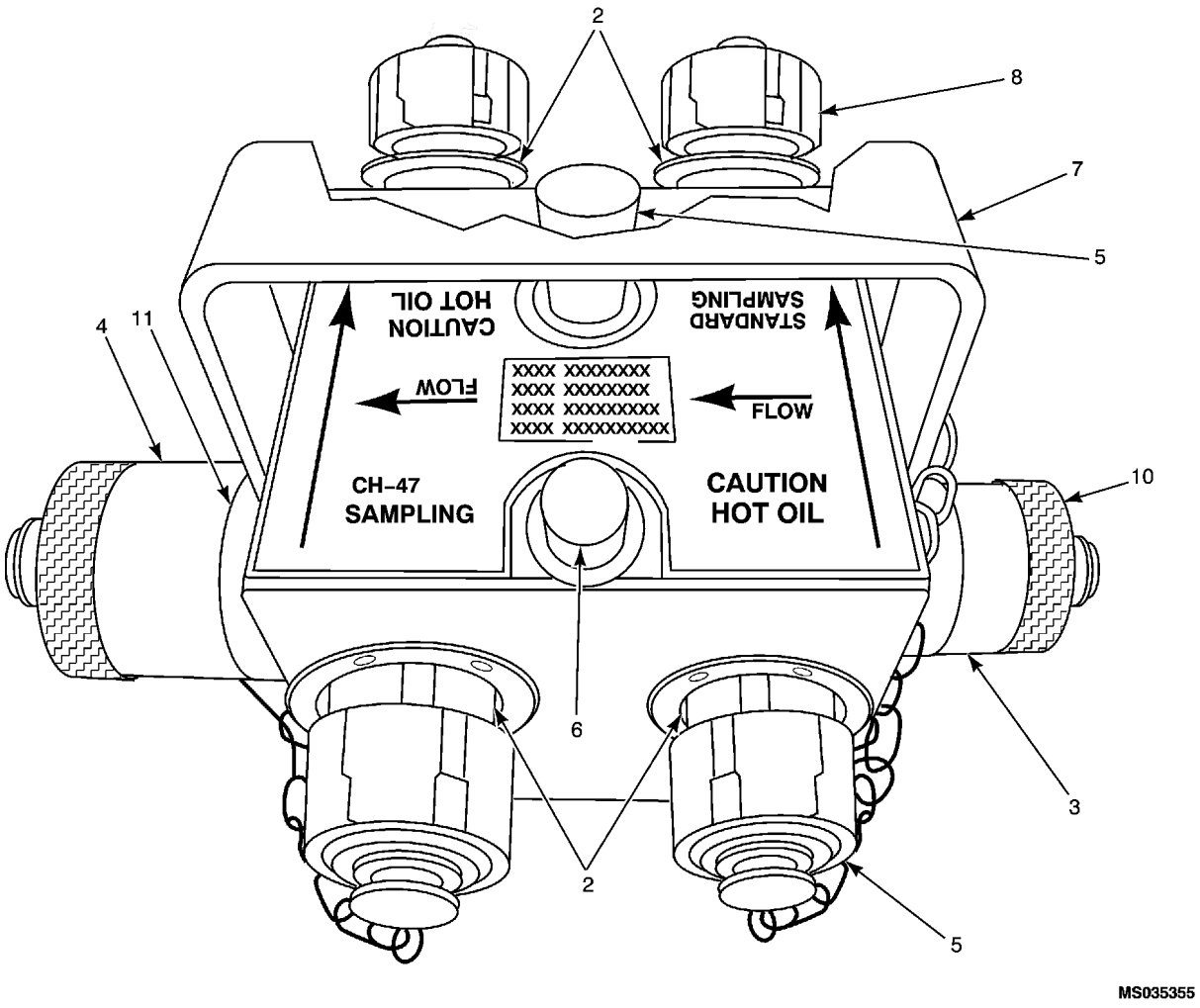


Figure 26. Hydraulic Oil Sampling/Purge Adapter, MEP 83-360A and MEP 83-360D/E.

1. High Pressure Input QD's for all AIRCRAFT Except CH-47
2. Low Pressure Input QD's for all AIRCRAFT Except CH-47
3. High Pressure QD for CH-47 AIRCRAFT ONLY
4. Low Pressure QD for CH-47 AIRCRAFT ONLY
5. Oil Sampling Port (Mister) for all Hoses Except CH-47 2-foot Adaptor Hoses
6. Oil Sampling Port (Mister) for CH-47 2-foot Adaptor Hoses
7. Storage/Carrying Handle
8. QD High Pressure Dust cap
9. QD Low Pressure Dust cap
10. CH-47 QD High Pressure Dust Cap
11. CH-47 QD Low Pressure Dust Cap

Hydraulic System Function

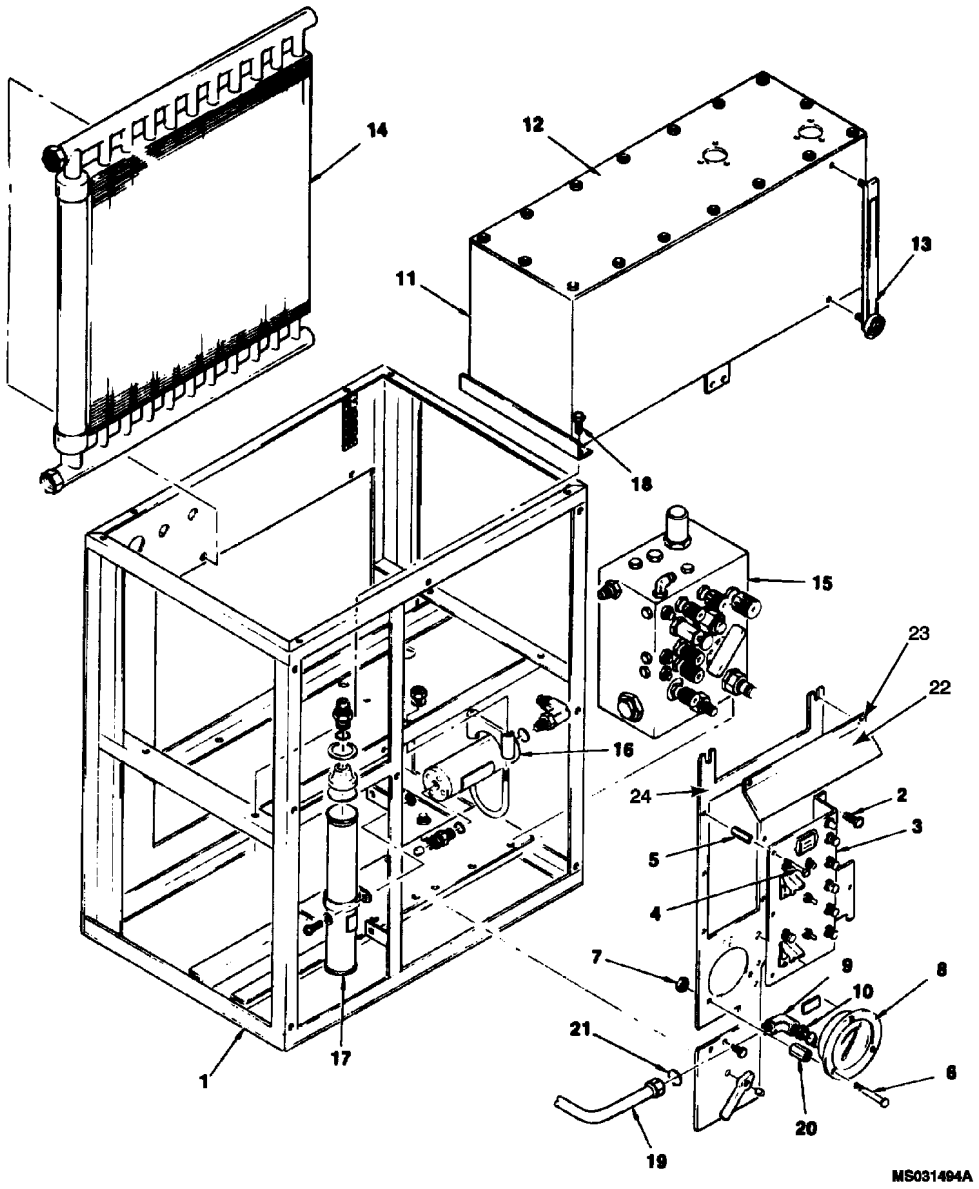
The most common hydraulic system operating mode is that of supplying hydraulic power to an aircraft. The hydraulic flow diagram for this mode is on FO 10. A schematic of the hydraulic system electrical controls and indicators is shown on FO 9. Hydraulic flow diagrams for other modes of operation are shown on FO 11 (servicing aircraft using aircraft reservoir), FO 12 (warming fluid in module), FO 13 (warming fluid in hoses), and FO 14 (bleeding air).

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED

Hydraulic fluid from the AGPU reservoir is routed through a reservoir selector valve and passes four temperature sensors to the hydraulic pump. The temperature sensors (TS1 through TS4 on FO 9) are set to close at various temperatures. The 70 °F sensor (TS1) causes SYSTEM READY light DS5 to illuminate. This indicates that the hydraulic fluid is at the minimum temperature for operation. Sensors TS2 and TS3 illuminate 160°F and 240 °F indicator lights. If hydraulic fluid reaches 275°F, TS4 activates to illuminate HI TEMP light. Activation of TS4 also interrupts the circuit to the load valve pilot solenoid, and shuts down hydraulic power to aircraft.

If 240 °F light on Hydraulic Control Panel illuminates, reduce output pressure and allow fluid to cool until 240 °F light goes off and 160 °F light illuminates. When hydraulic system temperature reads 275 °F, the HIGH TEMP light will come on and hydraulic output will stop. Hydraulic system may operate continuously with 160 °F light illuminated on Hydraulic Control Panel.

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



1. Frame	6. Bolt	11. Reservoir	16. Accumulator	21. Seal
2. Screw	7. Nut	12. Reservoir Top Cover	17. Vent Dryer	22. Rain Shield
3. Electrical Control Panel	8. Gauge	13. Temp/Level Gauge	18. Bolt	23. Bolt
4. Bolt	9. Elbow	14. Cooler (Heat Exchanger)	19. Gauge Tube Assembly	24. Frame
5. Standoff	10. Jam Nut	15. Manifold	20. Standoff	

Figure 27. Hydraulic Module Major Components.

The pump provides hydraulic pressure as commanded by the PRESSURE switch (refer to FO 9). The two pressure command lines to the pump carry 28 VDC which positions the pressure adjustment mechanism inside the pump. When output connector pin G is at 28 VDC (pin H is the return) the pump mechanism operates to increase pressure. When the applied voltage is reversed on the pump input leads, the mechanism operates to decrease pressure. The PRESSURE

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED

switch is spring loaded to its unconnected center position. So the pump pressure mechanism remains in the last position it was set to by the operator unless power to the hydraulic module is turned off. When POWER switch S1 is set to OFF, output connector pin H is connected to 28 VDC and pin G becomes the return line. This causes the pump mechanism to move to the position of minimum pressure (500 psig).

Prior to servicing an aircraft the PRESSURE RELIEF valve (refer to FO 10) is set to the maximum allowable pressure for that particular aircraft. If the operator increases the pump pressure beyond the allowable maximum, the PRESSURE RELIEF valve will open to prevent excess pressure.

A high and low pressure filter is provided to remove any solid contamination in the hydraulic fluid. A switch is connected across each filter. If the filter gets dirty and the difference between input and output fluid pressure exceeds 50 psi the switch closes. As shown on FO 9, closure of either pressure switch DS1 or DS2 causes the REPLACE FILTER light to illuminate.

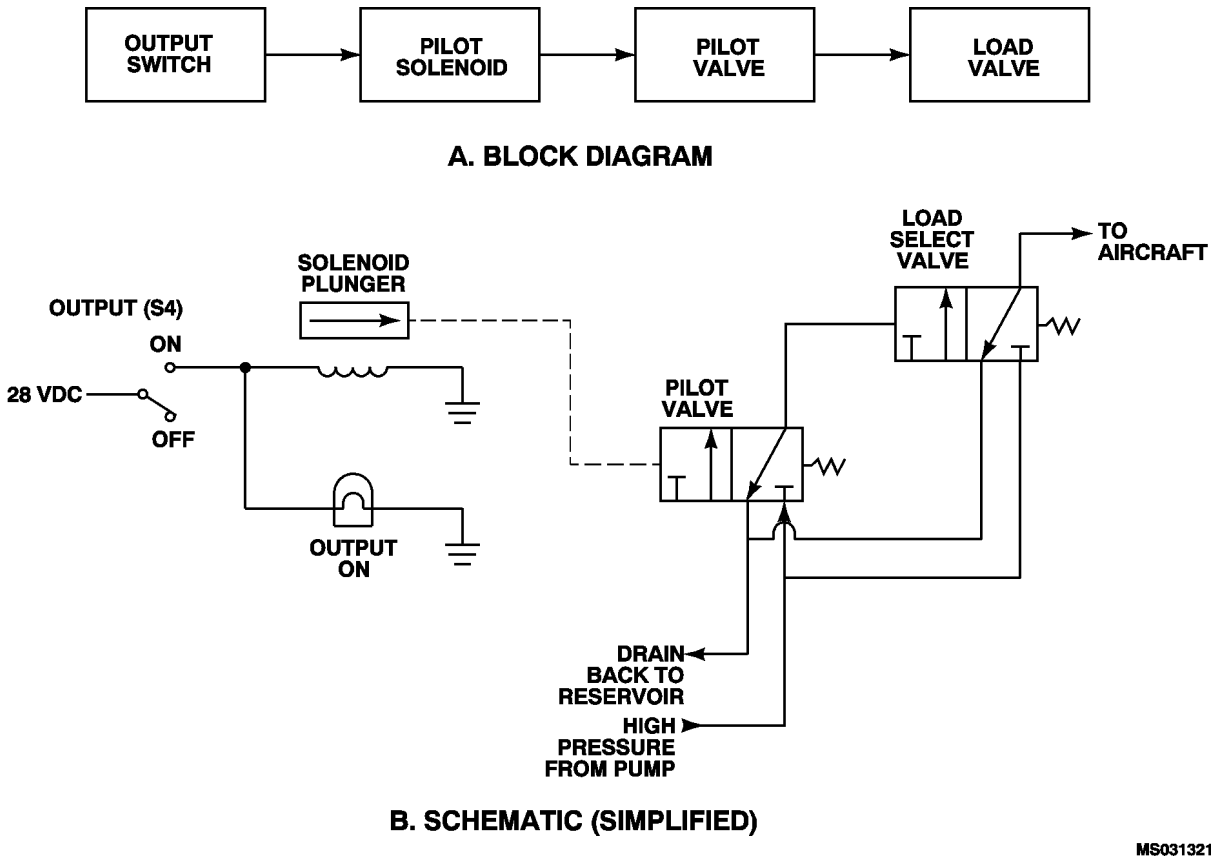


Figure 28. Load Valve Operation.

NOTE

For all hydraulic controls refer to TM 1-1730-229-13, Operator Instructions.

Load Valve Operation

The accumulator, (refer to FO 10), stores hydraulic pressure and reduces pressure fluctuations at aircraft input ports. The OUTPUT PRESSURE gauge provides the operator with an indication of pressure being applied. The HIGH PRESSURE BYPASS valve provides a path for circulation of hydraulic fluid when either the load valve is closed or when hoses to the aircraft (or dual manifold) are not connected. Restrictions in the HIGH PRESSURE BYPASS valve

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED

line and in the dual manifold bypass line provide a back-pressure of 500 psi when the bypass valve is open. This back-pressure is required for proper pump operation.

Application of hydraulic power to the aircraft is controlled by the load select valve. As shown in, operation of the load select valve involves three steps as follows:

1. OUTPUT switch S-4 is set to ON, which applies 28 VDC to the pilot valve solenoid and OUTPUT ON indicator.
2. Activation of the solenoid pushes the pilot valve against the spring allowing high pressure fluid to be applied to the load valve.
3. Fluid pressure pushes the load valve against its spring allowing hydraulic system output to be applied to the aircraft.

When the OUTPUT switch is set to OFF, the solenoid, pilot and load valves all return to their original positions and the fluid pressure trapped between the valves is released back to the reservoir. The output and return hoses are each 30 feet in length. The output hose is 1/2 inch in diameter and the return hose is 3/4 inch. Quick disconnects containing check valves on each end hold the fluid in the hose so it will not drain out between uses. Protective caps are attached to keep quick disconnect fittings clean when hoses are not in use.

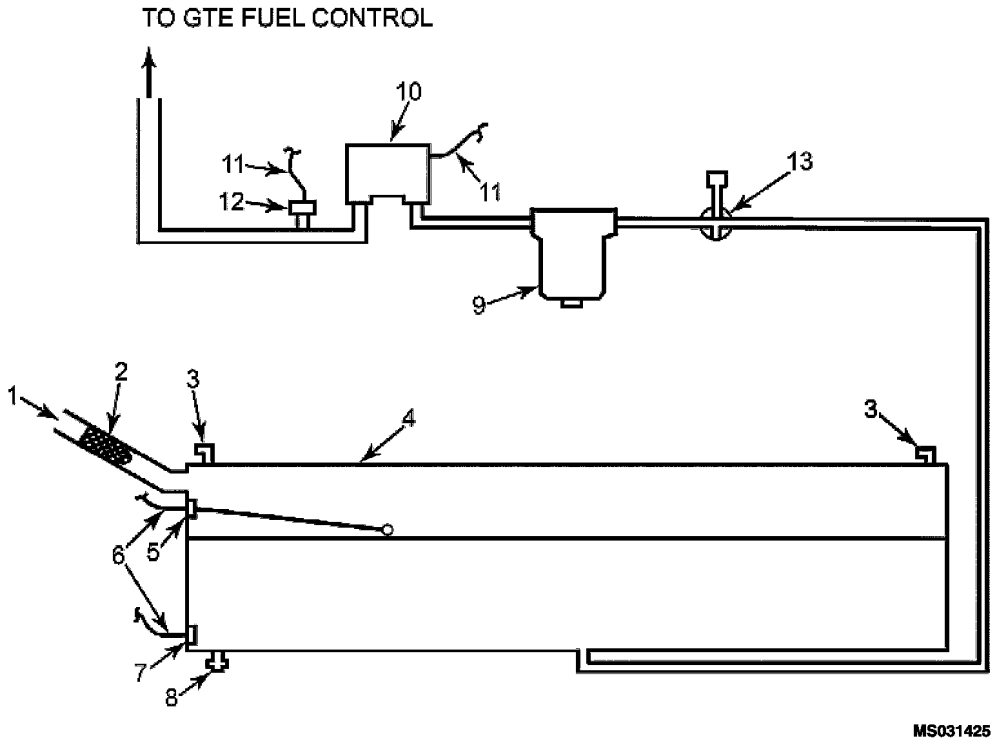
The dual service manifold is provided because some aircraft require two high pressure and two return connections. This need is satisfied by dual connections on the manifold and the use of four 10 foot hoses. The dual manifold provides additional fill and drain ports and valves. Quick disconnects with check valves minimize fluid loss.

Return line components include the RETURN BYPASS valve and heat exchanger. The RETURN BYPASS valve (when set to the OFF position) provides 65 psi of back-pressure to the aircraft. This is required for proper servicing of certain aircraft. In the BYPASS position, no back-pressure is provided. The heat exchanger cools the hydraulic fluid by transferring heat from the fluid to ambient air. The heat exchanger is located at the back of the hydraulic module allowing for escape of heated air. A 10 psi relief valve is parallel to the heat exchanger to allow cool fluid to bypass the heat exchanger. This relief valve is inside the heat exchanger and not separately replaceable.

Attachments to the hydraulic module reservoir permit filling and allowing the system to vent. When filling the system with hydraulic fluid (at either the SYSTEM FILL, dual manifold FILL, or extra fill ports) the air in the reservoir is allowed to escape through the overflow channel. This is also true of excess hydraulic fluid in the reservoir. Air coming into the reservoir (when hydraulic fluid level drops) passes through the filter drier. This unit removes moisture and other contamination from the air before it enters the reservoir.

FO 10 shows the main flow path when hydraulic fluid is supplied by the reservoir in the aircraft being serviced. FO 12 and FO 13 show how cold fluid is circulated through the system to warm it to operating temperature. Warming is accomplished by opening the HIGH PRESSURE BYPASS valve slightly; heat is generated by the friction of forcing the fluid through a small opening. FO 14 shows the flow while bleeding air from the system. This same flow applies when filling or adding fluid to the system.

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



1. Fuel Fill	5. Fuel Level Sensor	9. Auxiliary Fuel Filter
2. Strainer	6. Wiring to Control Panel	10. Auxiliary Fuel Pump
3. Vent Hose Fitting	7. Low Fuel Sensor	11. Wiring to Control Panel
4. Fuel Tank	8. Drain	12. Pressure Sensor
		13. Four Way Fuel Selector Valve

Figure 29. Fuel Supply System, MEP 83-360A and MEP 83-360D/E.

FUEL SUPPLY SYSTEM

The fuel supply system (Figure 29), consists of a fuel tank (Figure 29, Item 4), auxiliary fuel filter (Figure 29, Item 9), auxiliary fuel pump (Figure 29, Item 10), Fuel Control Unit (FCU), (Figure 29), shutdown fuel solenoid (Figure 29, Item 13) fuel nozzle (Figure 29, Item 13) and a four way fuel valve (Figure 29, Item 13).

Fuel Tank

The fuel tank (Figure 29, Item 4) is fitted with a low fuel sensor (Figure 29, Item 7) and a fuel level sensor (Figure 29, Item 5). The low fuel sensor is electrically connected to an amber LOW FUEL indicator light on the control panel. The LOW FUEL indicator illuminates when approximately 30 minutes of engine operating time remains. The fuel level sensor is electrically connected to a FUEL meter on the control panel.

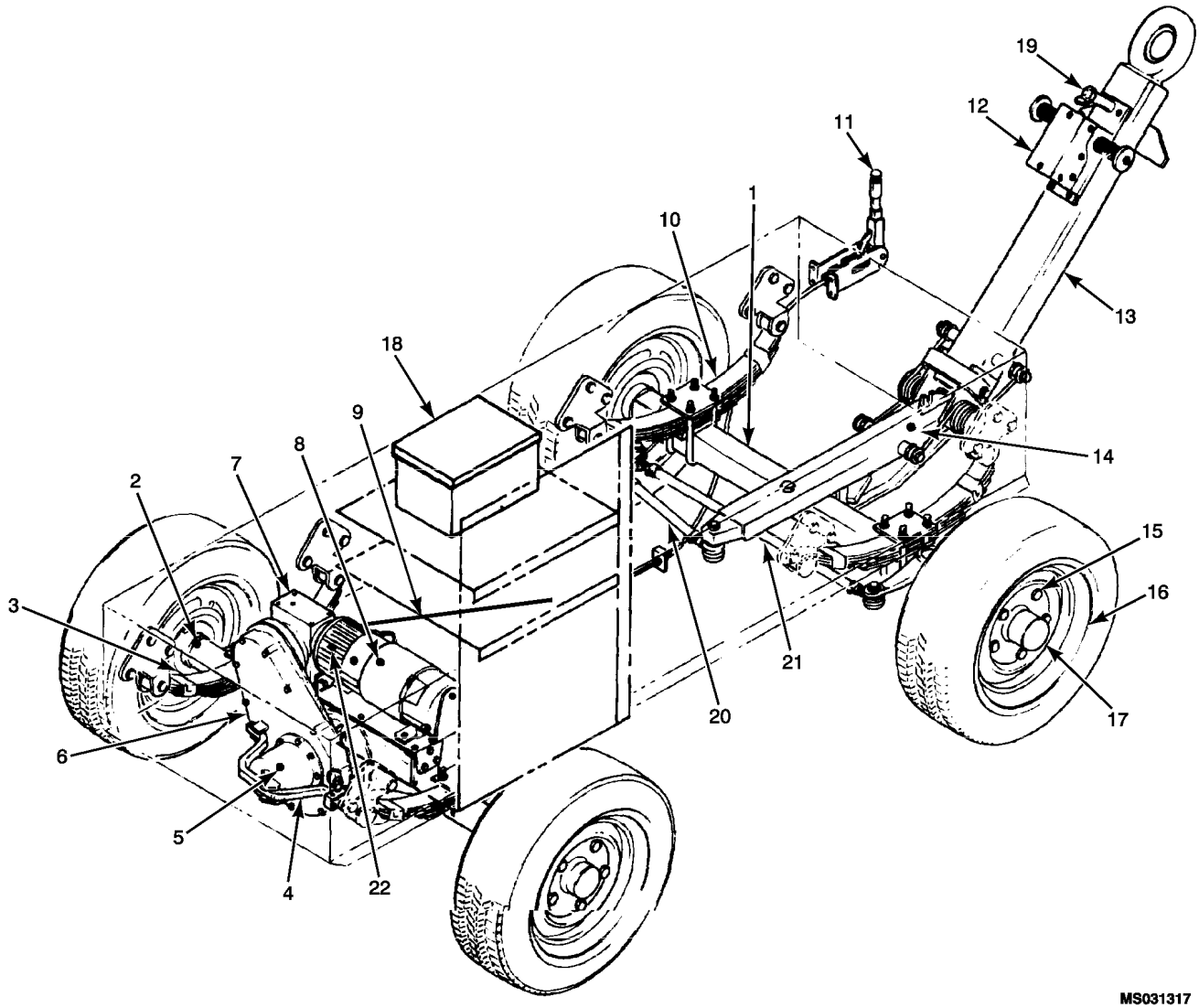
Four Way Fuel Selector Valve

The four way fuel selector valve (Figure 29, Item 13) enables an external fuel source to be connected to the AGPU for operation of the engine. Three of the four valve positions are used, the fourth position is blanked. The four way fuel valve also acts as a shut-off cock isolating the engine from the fuel source.

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED

Auxiliary Fuel Pump and Filter

The auxiliary fuel pump (Figure 29, Item 10) is activated by +28 VDC (battery voltage) when the GTE ENGINE CONTROL switch on the control panel is set to START (and RUN) position. The fuel pump draws fuel from the tank through an auxiliary fuel filter (Figure 29, Item 9) and provides low pressure fuel to the fuel control unit (refer to Figure 15).



1. Front Axle	7. Gear Drive	13. Tow Bar	19. Dead Man Switch
2. Rear Axle Assembly	8. Traction Motor	14. Draw Bar, Steering	20. Tie Rod
3. Rear Leaf Spring	9. Brake Cable Assembly	15. Lug Nut	21. Steering Link
4. Clutch Lever	10. Front Leaf Spring	16. Wheel and Tire Assembly	22. Electric Brake Assembly
5. Clutch Assembly	11. Hand Brake	17. Wheel Spindle (Hub)	
6. Chain Drive Assembly	12. Speed/Direction Control Assembly	18. Motor Controller (located on upper tray in electrical compartment)	

Figure 30. Propulsion System, MEP 83-360A and MEP 83-360D/E.

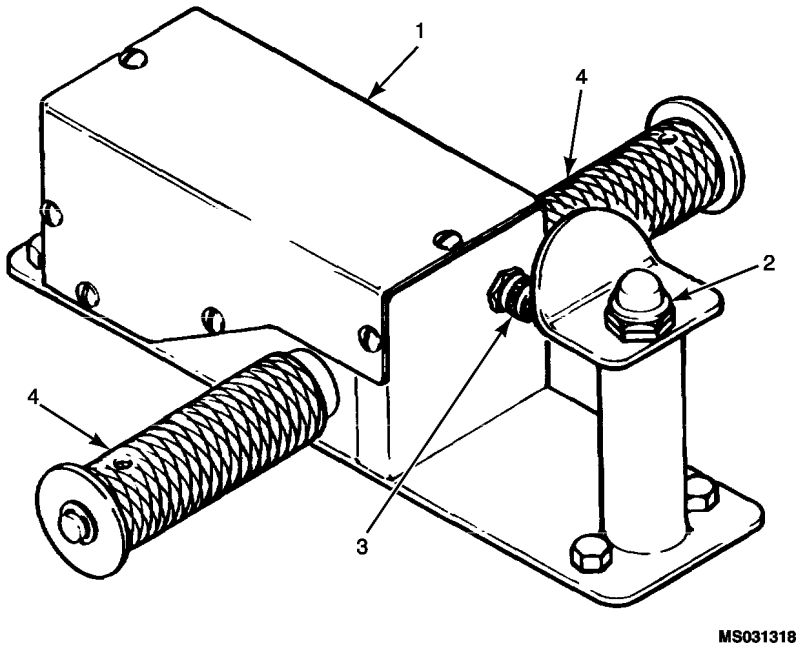
EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED

PROPULSION SYSTEM

The propulsion system (Figure 30), provides suspension, steering, brakes, and drive power for the AGPU. A speed/direction control assembly (Figure 30, Item 12) mounted on a tow bar (Figure 30, Item 13) allows the operator to control the forward/reverse directions and speed (up to 3 mph on flat surface) in self-propulsion mode. The tow bar is also used to steer the AGPU when using self-propulsion mode. Drive power is provided by a DC traction motor (Figure 30, Item 8) driving a conventional rear axle assembly. An electric brake assembly (Figure 30, Item 22) is provided. Application of DC drive power to the traction motor is controlled by a motor controller (Figure 30, Item 18) and relays located on the upper tray in the electrical compartment. The motor controller receives signals from the speed/direction control assembly. The drive train consists of a gear box (Figure 30, Item 7), chain drive (Figure 30, Item 6), manual clutch assembly (Figure 30, Item 5), and rear axle assembly (Figure 30, Item 2). A dead man switch (Figure 30, Item 19) on the speed/direction control assembly must be held in while operating the propulsion system. If the switch is released (intentionally or accidentally) during operation, power is removed from the traction motor and the electric brake. Removing electrical power applies the electric brake. Additionally, the speed/direction control assembly contains a mercury switch which deactivates the propulsion system when the tow bar is raised. Conventional drum brakes are provided on the rear wheels. The brakes are set by a hand brake lever (Figure 30, Item 11) on the front of the AGPU which is connected to the brake assemblies by a brake cable assembly (Figure 30, Item 9).

Motor Controller

The motor controller (Figure 30, Item 18) and the forward and reverse relays are mounted on the upper tray in the electrical compartment. The motor controller receives +28 VDC from the control panel and control signals from the speed/direction control unit. It sends DC drive voltage to the traction motor armature and speed control signals to the traction motor field windings. The control signals from the speed/direction control assembly consist of forward or reverse relay activation signals from internal micro switches and variable speed control signals from the internal variable resistors. Both sets of signals are selected by the twist grips.



1. Speed/Direction Control Assembly
2. Dead Man Switch
3. Do Not Tow Indicator Light
4. Twist Grip

Figure 31. Tow Bar Controls, MEP 83-360A and MEP 83-360D/E.

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED

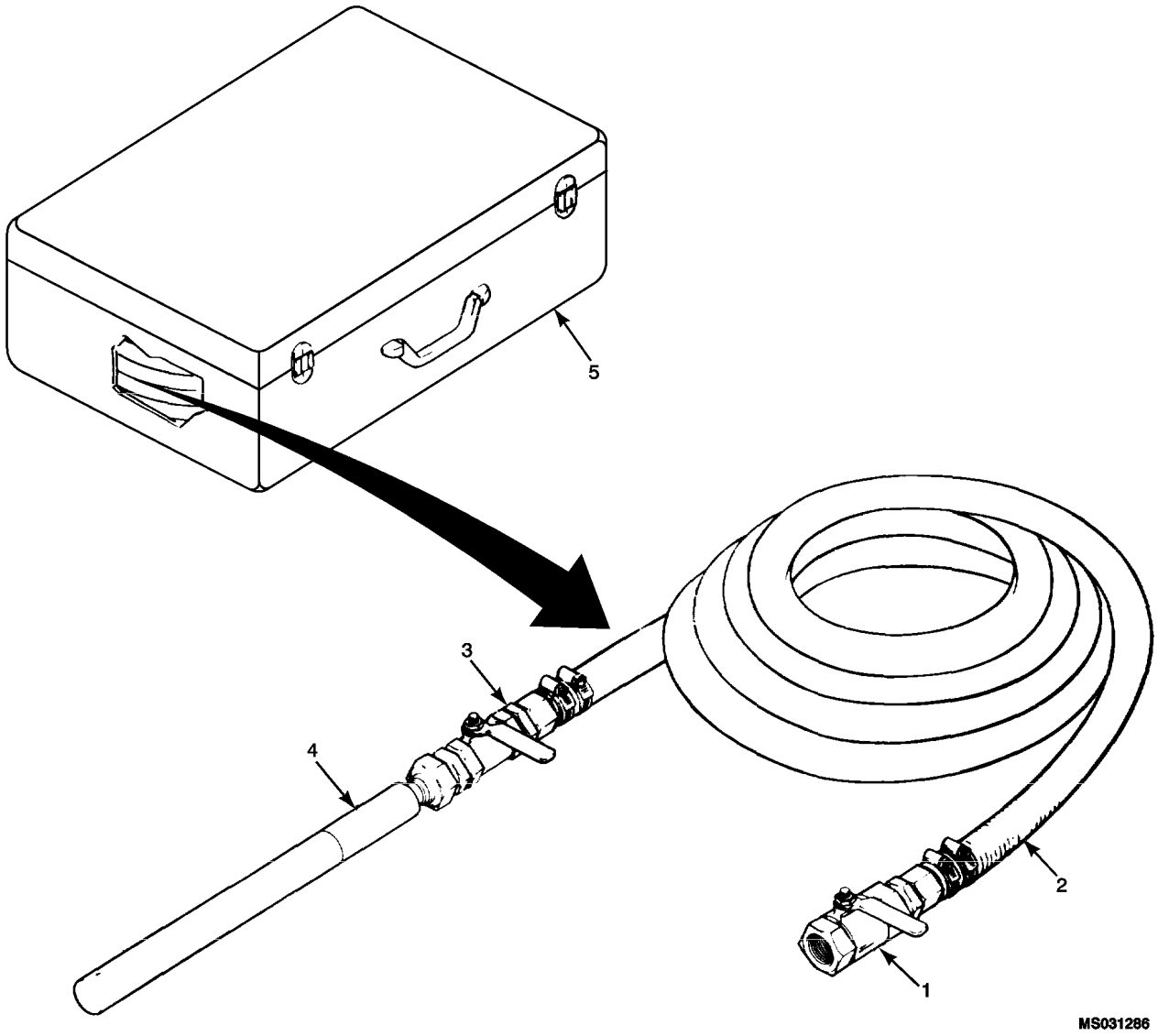
Speed/Direction Control Assembly

The speed/direction control assembly (Figure 31, Item 1) provides both the direction (forward and reverse) and the speed commands to the AGPU propulsion motor. The assembly mounts on the tow bar close to the lunette eye. It is connected to the motor by a wiring harness that runs under the tow bar and is protected by the tow bar channel. Forward and reverse selection as well as speed are determined by the position of the control twist grips (Figure 31, Item 4). The twist grips can be actuated from either side of the tow bar. The twist grips are spring loaded to a neutral, no-propulsion position. The twist grips rotate in either direction, one way controlling forward direction and speed, and the other way reverse direction and speed. The controller contains an emergency dead man switch that must be depressed to operate the speed/direction controls. Release of the switch disconnects all power to the traction motor. A mercury switch is in the same line as the dead man switch. The mercury switch opens the power system supply when the tow bar is raised to approximately 60 degrees or more from horizontal. The assembly also incorporates an Do Not Tow indicator light (Figure 31, Item 3) with a press-to test feature that is illuminated when the propulsion motor clutch is engaged.

Brake Assembly

The AGPU uses rear-wheel brakes that are controlled by an operator-activated mechanical lever connected to the brakes on a cable. The brakes are standard, automotive-type drum units using replaceable brake shoes.

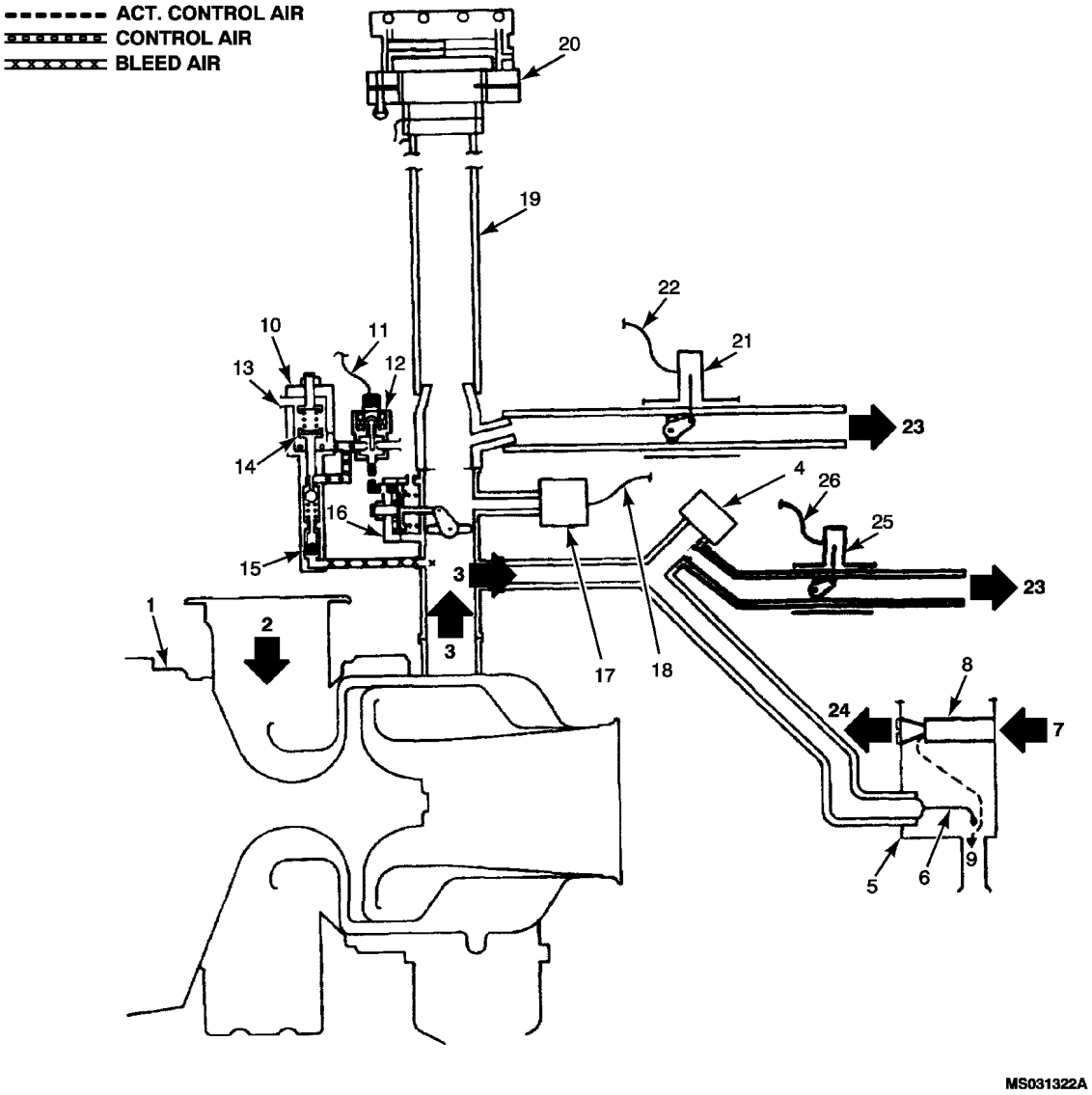
EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



1. Shutoff Valve, Hose
2. Hose
3. Shutoff Valve, Nozzle
4. Nozzle
5. Case, Storage

Figure 32. Deicer Kit, MEP 83-360A and MEP 83-360D/E.

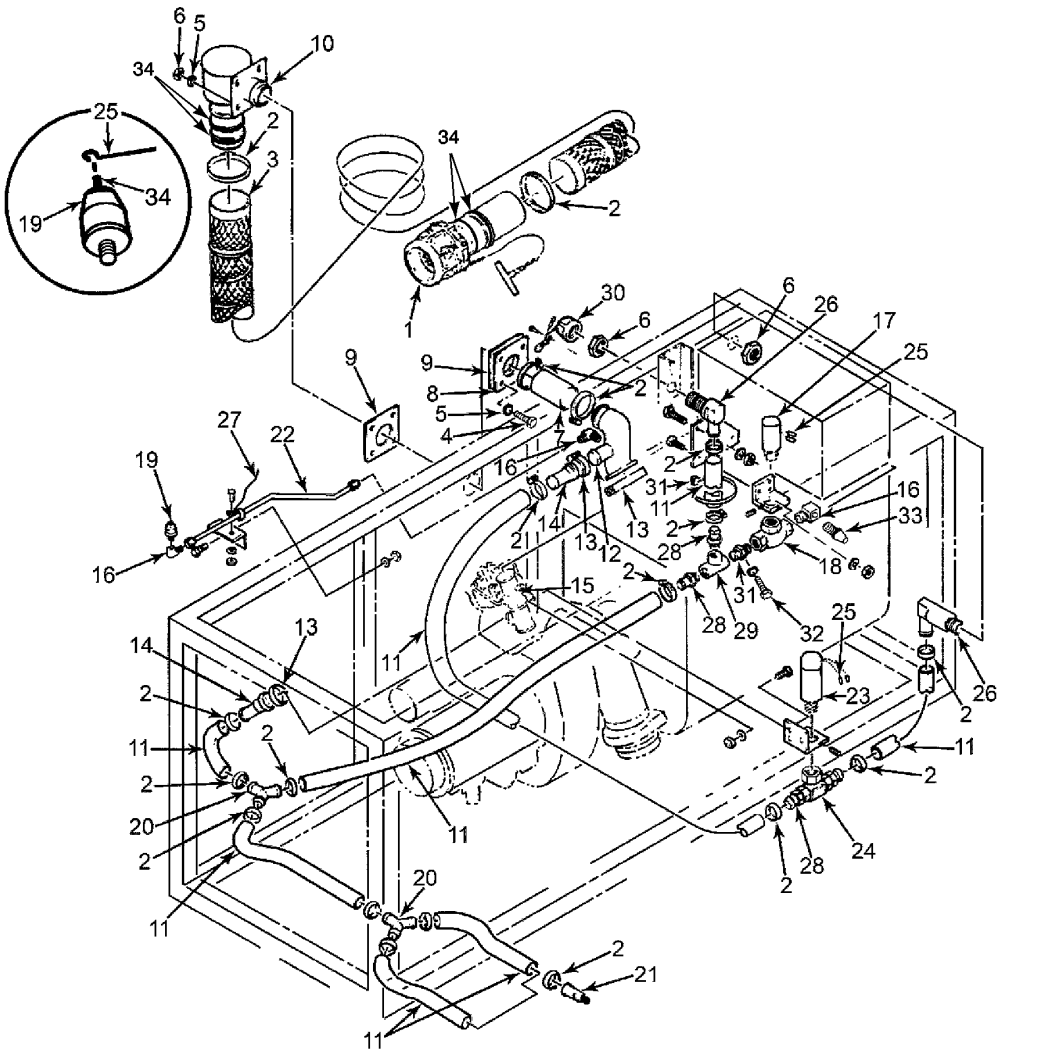
EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



1. Engine
2. Compressor Air Inlet
3. Bleed Air
4. Deicer Fitting
5. Air Cleaner
6. Nozzle (6)
7. Air Intake
8. Air Cleaner Tube
9. Dirt Out Scavenge Tubes
10. Load Control Valve (LCV)
11. Wiring to ECU
12. LCV Torque Motor
13. Ambient Sensing
14. Control Pressure Regulator
15. Filter
16. Pneumatic Actuator
17. Pressure Transducer
18. Wiring to Control Panel
19. Pneumatic Hose
20. Coupler
21. Solenoid Valve (Air Dump)
22. Wiring to Control Panel
23. Air Dump to Exhaust Ejector
24. Clean Air to Engine
25. Solenoid Valve (Surge Control)
26. Wiring to Control Panel

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED

Figure 33. Pneumatic System Diagram, MEP 83-360A and MEP 83-360D/E.



1. Coupling, Aircraft	9. Gasket, Bulkhead	17. Solenoid, n.c.	26. Elbow, Bulkhead
2. Clamp, Hose	10. Elbow, Bulkhead	18. Valve, Surge Control	27. Wire, Ground
3. Hose, Pneumatic Output	11. Hose, Pneumatic, 1-Inch	19. Transducer, Pressure	28. Fitting, Pipe
4. Bolt	12. Manifold, LCV Adapter	20. Y Fitting	29. Tee, Pipe
5. Washer	13. Clamp, Marmon	21. Fitting, Air Cleaner	30. Cap, Deicing Port
6. Nut	14. Flange, Adapter	22. Tube Assembly	31. Union, Pipe
7. Hose, Pneumatic, 2 1/2 id	15. Load Control Valve	23. Solenoid, n.o.	32. Plug, Self-Tapping
8. Flange	16. Elbow, Pipe	24. Valve, Pressure Release	33. Muffler
		25. Electrical Leads	34. Inner Hose Clamps

Figure 34. Pneumatic System, MEP 83-360A and MEP 83-360D/E.

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED

PNEUMATIC SYSTEM

The pneumatic system (Figure 33 and Figure 34) consists of a pneumatic hose; two solenoid valves, pressure transducer, Load Control Valve (LCV), hoses, couplers, clamps, adapters, and fittings. The LCV is mounted on, and is an integral part of the GTE. Maintenance of the LCV is covered in WP 0083 00. An optional deicer kit (Figure 32), is available. The kit consists of a fifty-foot hose assembly, supply valve and a deicer nozzle assembly. The supply valve connects to a normally capped outlet on the left interior bulkhead of the AGPU, AC cable/storage compartment.

Pneumatic System

Figure 33 is a simplified diagram of the pneumatic system. Bleed air (Figure 33, Item 3) is taken from the engine compressor section and routed through a load control valve (LCV) (Figure 33, Item 10) to the aircraft through a pneumatic hose (Figure 33, Item 19). The LCV controls application of pneumatic power to the aircraft by opening and closing a shutter with the pneumatic actuator (Figure 33, Item 16). Bleed air is only applied to the aircraft when the PNEUMATIC POWER switch (S11) on the control panel is set to ON.

Scavenge Bleed Air

A small amount of bleed air (Figure 33, Item 3) is continually used by the air cleaner (Figure 33, Item 5) when the engine is running. Bleed air is routed to six nozzles (Figure 33, Item 6) on the bottom of the air cleaner. Air flowing through these nozzles creates a partial vacuum inside the air cleaner housing. This pulls dirt separated by the centrifugal air cleaner tubes (Figure 33, Item 8) out of the housing and expels the dirt out scavenge tubes (Figure 33, Item 9) on the bottom air cleaner.

Load Control Valve (LCV)

The LCV is controlled by the electronic control unit (ECU). The ECU receives a signal to open the LCV when the PNEUMATIC POWER switch on the control panel is set to ON position. The LCV consists of a housing containing a filter (Figure 33, Item 15), control pressure regulator (Figure 33, Item 14), restrictor, rate control orifice, LCV torque motor (Figure 33, Item 12), and a pneumatic actuator (Figure 33, Item 16). Compressor bleed air enters through a passage in the valve housing and through the filter to the spring and ambient pressure regulated control pressure regulator. Regulated air pressure is routed through a restrictor and a rate control orifice, and across a torque motor controlled valve. The torque motor control valve applies the regulated air to a pneumatic actuator, which opens or closes the attached valve plate.

Over Temperature Protection

During full-load operations using electrical and/or hydraulic power plus pneumatic power, the LCV functions to prevent excessive engine exhaust gas temperatures. When the PNEUMATIC POWER switch is set to ON, the LCV will maintain a full open position until exhaust gas temperature (EGT) approaches the control point 1230°F (666°C). At this time the ECU applies a signal to the LCV torque motor (Figure 33, Item 12) to adjust the valve plate to maintain the control point EGT. The sequence will provide a nearly constant bleed air pressure at a reduced value in the event of over temperature conditions. Without this capability, the EGT would be exceeded, and the ECU would shutdown engine.

Hose Air Dump Solenoid Valve

This solenoid valve (Figure 33, Item 21) is open when the PNEUMATIC POWER switch is set to OFF. Setting the switch to ON applies a voltage to the solenoid, closing the valve. The purpose of this solenoid valve is to relieve pneumatic hose pressure prior to disconnecting hose from aircraft.

Pressure Transducer

A pressure transducer (Figure 33, Item 17) monitors pneumatic pressure to aircraft. Pressure is converted to an electrical signal, which is sent to a meter on the control panel.

Surge Control Valve (SCV)

This solenoid valve (Figure 33, Item 25) opens when the CURRENT LIMIT SELECTOR switch S11 is set to 45KW or 1,000A on the 83-360A and when set to AH-64D on the 83-360D and 83-360E. On the 83-360A, the 28VDC signal to open the valve is routed through both the PNEUMATIC POWER switch S8 and the CURRENT LIMIT SELECTOR switch S11 so that the surge control valve will not open whenever pneumatic power is ON. On the 83-360D and 83-360E the 28 VDC signal is routed directly to the CURRENT LIMIT SELECTOR switch, which then operates the

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED

surge control valve, whether the pneumatic power is ON of OFF. This valve is needed to off load the GTE compressor to eliminate stall. This is necessary when large shaft horsepower is required.

Frame and Housing Components

The frame and housing (Figure 1) consists of a frame (one-piece welded), panels (welded to frame), lifting eyes, covers, access doors, roof assembly (Figure 1), exhaust ejector assembly (WP 0158 00, Figure 1), air intake duct assembly (Figure 9), and engine/generator mount (WP 0162 00, Figure 1).

Frame Construction

The frame is constructed of steel channel pieces welded together to form a unitized, one-piece assembly. Steel panels are welded to the frame assembly to form the housing. Four lifting eyes are attached to the frame assembly. A roof assembly is attached to the housing by two latches on each end of the roof. An exhaust flapper is attached to the roof, which Is opened by exhaust gas from the exhaust ejector when the engine is started.

Covers

Covers (and shields) are shown in Figure 1, Figure 2, Figure 4, and Figure 12.

Access Doors

There are seven access doors plus an exhaust flapper, Figure 1 and Figure 4. These include:

1. Control panel access door (rear of AGPU).
2. Electrical trays access door (right upper rear of AGPU).
3. Battery access door (right lower rear of AGPU).
4. Engine access door (right center of AGPU).
5. Hydraulic filter access door (located in hydraulic module front panel, right front of AGPU).
6. Hydraulic control panel access door (located in hydraulic module front panel, right front of AGPU).
7. Pneumatic hose access door (left center of AGPU).

Air Cleaner

The air cleaner is located behind a louvered intake cover (Figure 1, Item 16). The air cleaner functions as an inertial inlet air particle separator. A cutaway view of the air cleaner is shown in WP 0021 00, Figure 1. Outside (dirty) air is drawn through air cleaner tubes mounted in the housing. The air cleaner tubes contain fixed vanes that spin the air, throwing dirt particles to the walls of the tubes. The dirt is expelled out of openings in the tubes and is pulled out of the air cleaner housing by a scavenge air system. The scavenge air system consists of six nozzles mounted in the bottom of the air cleaner housing. A small amount of bleed air is routed from the engine compressor through hoses to the nozzles. The bleed air is forced through the six nozzles into six ejector tubes. This effectively creates a partial vacuum in the housing to eject the dirt particles out of the ejector tubes.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

Refer to WP 0003 00.

EQUIPMENT DATA

Refer to WP 0004 00.

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

Refer to WP 0002 00.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

COMPONENTS OF THE DC ELECTRICAL AND CONTROL SYSTEM

General

Electrical components are identified on schematics and wiring diagrams by reference designators. Reference designators include one or two letters followed by one or more number, such as K1. The letter K identifies the component type (relay), and the number 1 identifies a specific relay. Some electrical components are mounted directly to the AGPU mainframe, while others are mounted on removable assemblies with unit designators. AGPU unit designators include unit 1 (control panel), unit 2 (upper electrical tray), and unit 3 (lower electrical tray). Throughout these procedures, reference designators are preceded by the unit designator where applicable. For example K1 identifies a relay mounted on the AGPU mainframe (electrical bulkhead in this instance), and 3K1 identifies a relay mounted on the lower electrical tray.

The DC electrical and control system includes the master DC power control; lights control; and the electrical control portions of the Ga Turbine Engine (GTE), fuel, and pneumatic systems.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

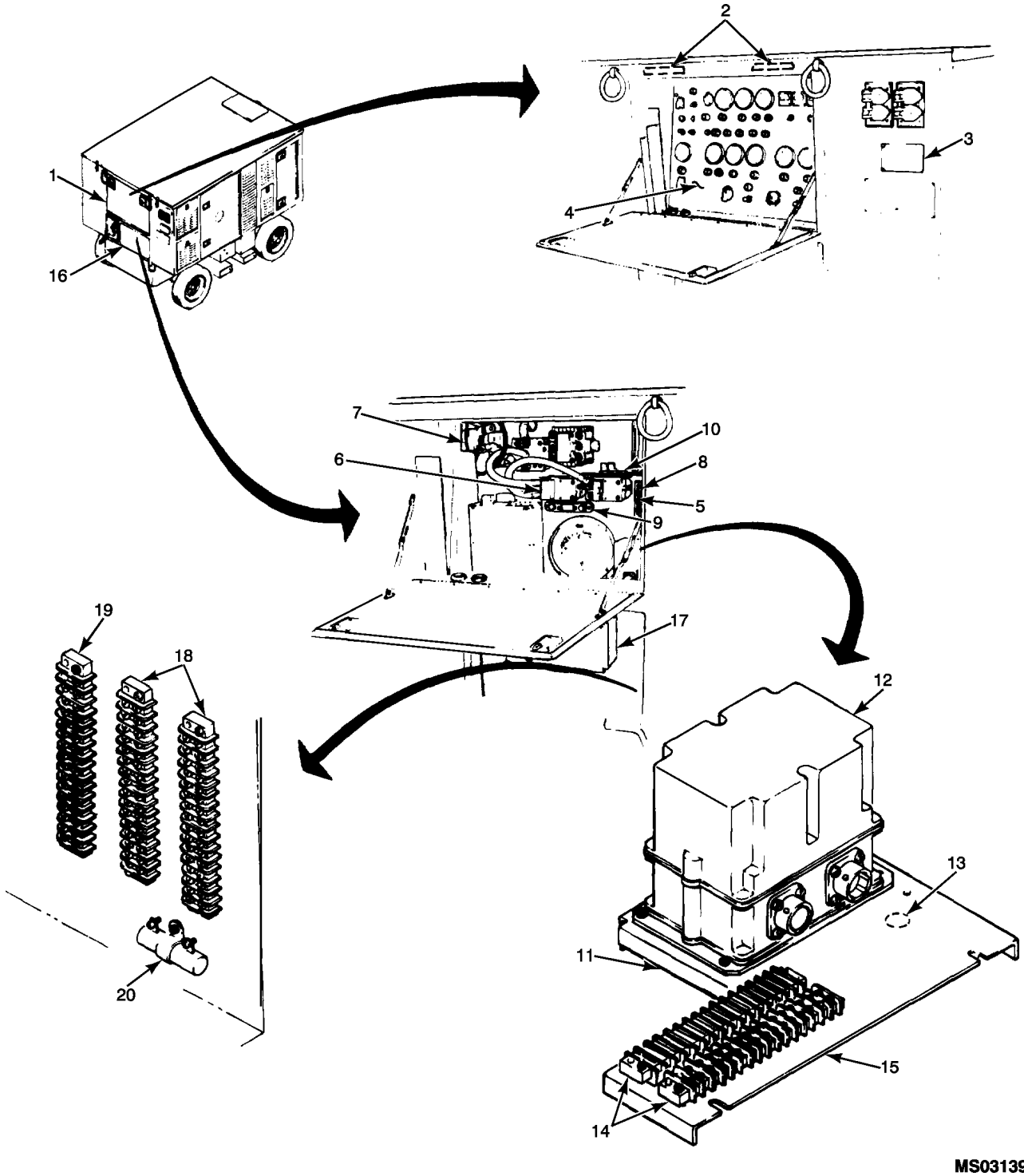


Figure 1. DC Electrical and Control System Components, MEP 83-360A and MEP 83-360D/E (Sheet 1 of 3).

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

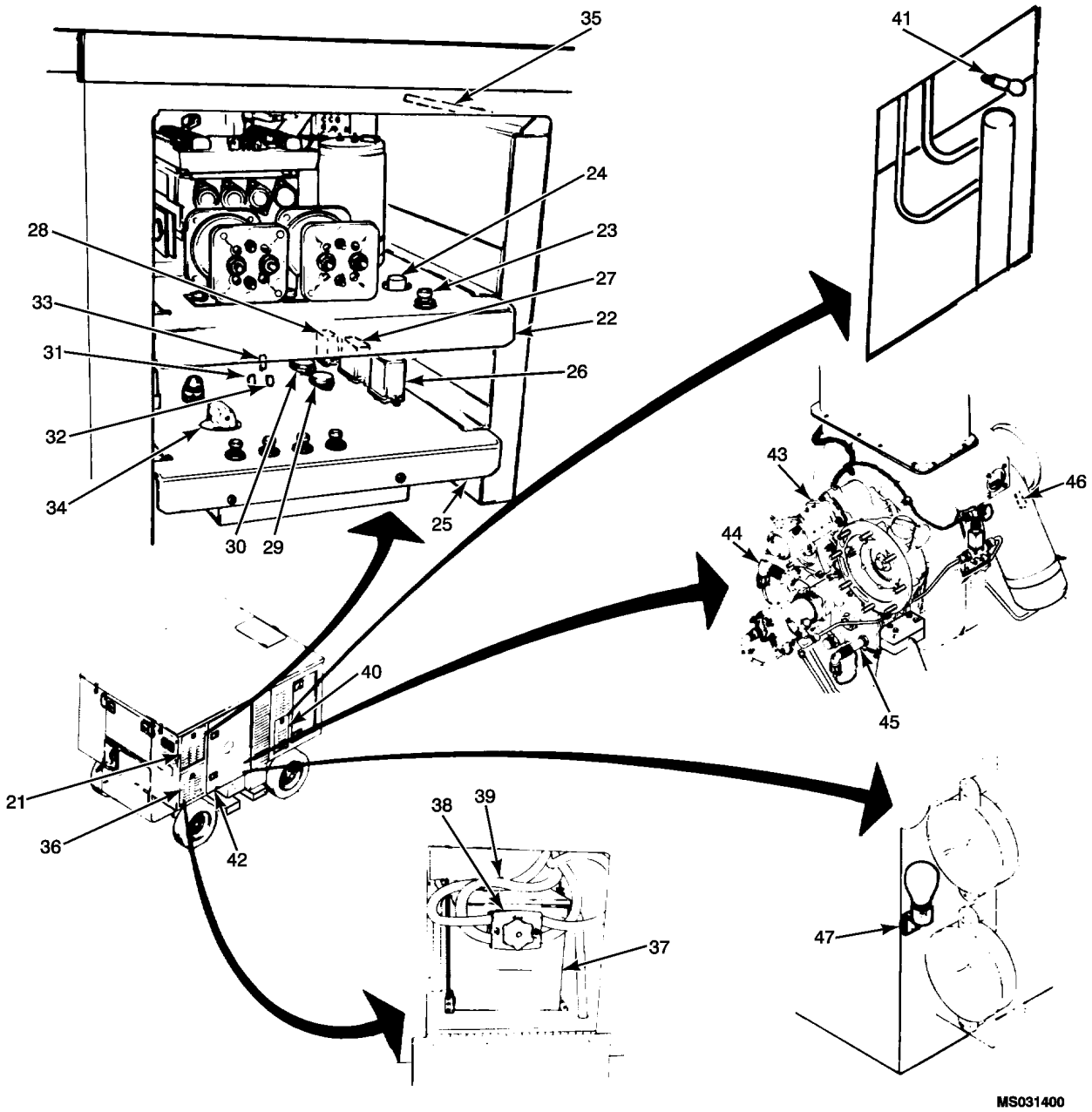


Figure 1. DC Electrical and Control System Components, MEP 83-360A and MEP 83-360D/E (Sheet 2 of 3).

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

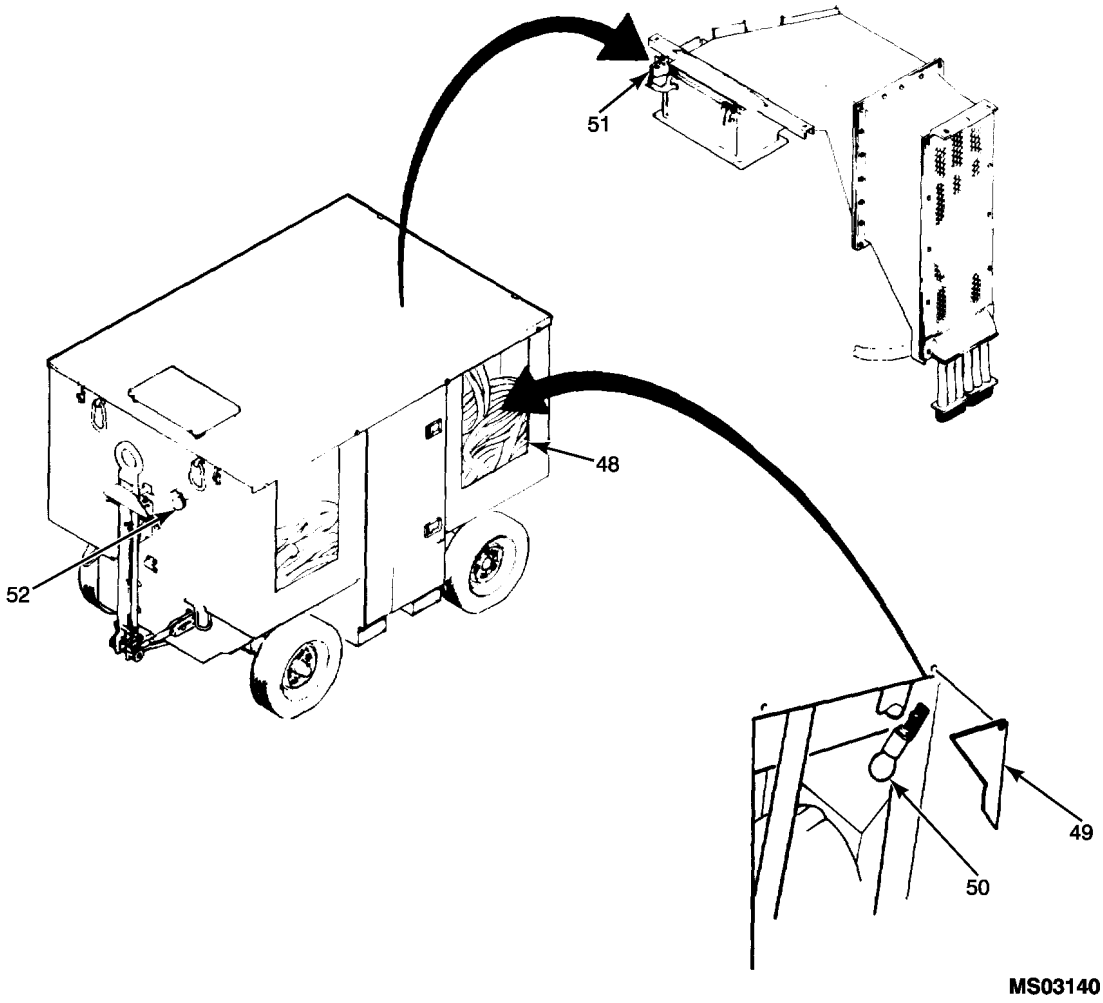


Figure 1. DC Electrical and Control System Components, MEP 83-360A and MEP 83-360D/E (Sheet 3 of 3).

Table 1. DC Electrical and Control System Major Components.

Component	Location (Figure 1)	Installation Fig. Ref.	Schematic/Wiring Diagram Fig. Ref.
Control panel access door (ref.)	1		
Control panel lamps	2	WP 0055 00, Figure 1	FO 2
Slave receptacle (J19)	3	WP 0036 00, Figure 1	FO 1
Control panel (ref.)	4		
GTE starter contactor (K4)	5	WP 0066 00, Figure 2	FO 1, FO-3 (Sheet 1 of 2)
Battery output/Traction Motor contactor (K3)	6	WP 0066 00, Figure 2	FO 1

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

Table 1. DC Electrical and Control System Major Components. – Continued

Component	Location (Figure 1)	Installation Fig. Ref.	Schematic/Wiring Diagram Fig. Ref.
DC output shunt (R1)	7	WP 0066 00, Figure 2	FO 1, FO 5
Starter shunt (R2)	8	WP 0066 00, Figure 2	FO 1
Battery shunt (R3)	9	WP 0066 00, Figure 2	FO 1
Ground terminal board	10	WP 0058 00, Figure 1, WP 0058 00, Figure 5	FO 1, FO 2FO-3 (Sheet 1 of 2)FO 3 (Sheet 2 of 2)FO 4FO 5FO 6 (Sheet 2 of 2)FO 9
Electrical bay subfloor (ref.)	11		
Electronic control unit (ECU) (A2)	12	WP 0049 00, Figure 1	FO 3
Electrical compartment temperature switch (S1)	13	WP 0049 00, Figure 1	FO 3 (Sheet 2 of 2)
Terminal board TB1	14	WP 0058 00, Figure 1, WP 0058 00, Figure 2	FO 2, FO-3 (Sheet 1 of 2), FO 4, FO 7
Terminal board TB2	15	WP 0058 00, Figure 1,WP 0058 00, Figure 3	FO 2, FO-3 (Sheet 1 of 2), FO 3 (Sheet 2 of 2), FO 8
Battery charger access cover (ref.)	16		
Battery charger (A3)	17	WP 0039 00, Figure 2	
Terminal board TB3	18	WP 0058 00, Figure 1, WP 0058 00, Figure 4	FO 1, FO-3 (Sheet 1 of 2), FO 3 (Sheet 2 of 2), FO 8
Terminal board TB4	19	WP 0058 00, Figure 1	FO-3 (Sheet 1 of 2), FO 8
Resistor R6	20	WP 0058 00, Figure 1	FO 7
Electrical trays access door	21		FO 1
Upper Tray	22		FO 1
Battery Charger Circuit Breaker (35 AMP)(3CB2)	23	WP 0050 00, Figure 1	FO 1

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

Table 1. DC Electrical and Control System Major Components. – Continued

Component	Location (Figure 1)	Installation Fig. Ref.	Schematic/Wiring Diagram Fig. Ref.
Battery charger circuit breaker (70 amp) (3CB1)	24	WP 0050 00, Figure 1	FO 1
Lower tray	25		
95% enable relay (3K1)	26	WP 0048 00, Figure 1	FO-3 (Sheet 1 of 2), FO 5, FO 9
Starter latching relay (3K2)	27	WP 0048 00, Figure 1	FO-3 (Sheet 1 of 2)
Battery/charger transfer (3K3)	28	WP 0048 00, Figure 1	FO 1
Panel lamp voltage regulator (3VR1)	29	WP 0057 00, Figure 1	FO 2
Utility lamp voltage regulator (3VR2)	30	WP 0060 00, Figure 1	FO 2
Power diodes (3CR7P)	31	WP 0057 00, Figure 1	FO 1
Power diodes (3CR8P)	32	WP 0057 00, Figure 1	FO 1
Power diodes (3CR9P)	33	WP 0057 00, Figure 1	FO 1
Battery charger output select switch (3S1)	34	WP 0052 00, Figure 1	FO 1
Generator DC Load Resistor (R4)	35	WP 0059 00, Figure 1	FO 1
Battery Access Door (ref.)	36		
Batteries	37	WP 0036 00, Figure 1	FO 1
Battery Terminal Adapter (PI7)	38	WP 0037 00, Figure 1	FO 1
Battery Cables	39	WP 0037 00, Figure 1	FO 1
Hydraulic Filter Access Door (ref.)	40		FO 1
Hydraulic Utility Lamp	41	WP 0055 00, Figure 1	FO 2
Engine Access Door (ref.)	42		
GTE Speed Sensor	43	WP 0043 00, Figure 1	FO 3 (Sheet 2 of 2)

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

Table 1. DC Electrical and Control System Major Components. – Continued

Component	Location (Figure 1)	Installation Fig. Ref.	Schematic/Wiring Diagram Fig. Ref.
Low Oil Pressure Switch	44	WP 0043 00, Figure 1	FO 3 (Sheet 2 of 2)
High Oil Pressure Switch	45	WP 0043 00, Figure 1	FO 3 (Sheet 2 of 2)
Thermocouple	46	WP 0043 00, Figure 1	FO 3 (Sheet 2 of 2)
Engine Utility Lamp	47	WP 0055 00, Figure 1	FO 2
DC Cable Compartment (ref.)	48		
Fuel Access Cover (ref.)	49		
Fuel Utility Lamp	50	WP 0055 00, Figure 1	FO 2
Inlet Filter Blocked Switch (S3)	51	WP 0054 00, Figure 1	FO 3 (Sheet 2 of 2)
Emergency Stop Switch (S2)	52	WP 0053 00, Figure 1	FO-3 (Sheet 1 of 2), FO 7
Forward propulsion relay (2K1)	53	WP 0146 00, Figure 1	FO 8
Reverse propulsion relay (2K2)	54	WP 0146 00, Figure 1	FO 8
Propulsion motor controller (A1)	55	WP 0146 00, Figure 3	FO 8

Master DC Power Control System. (Refer to FO 1.)

NOTE

The control panel controls and instruments associated with these systems are described with this section. Maintenance of the control panel controls and instruments is provided in WP 0107 00.

The master DC power control system includes the battery, slave receptacle J19, battery output/traction motor, contactor K3, DC output shunt R1, starter shunt R2, battery charge/discharge shunt R3, battery charger transfer relay 3K3, battery charger, charger input circuit breakers 2CB1 and 2CB2, charger output select switch 3S1, resistors (R4 and TB3-R1), and associated control panel switches and instruments.

1. Battery power is applied directly to slave receptacle J19. Battery power is applied via shunt R3, battery/charger transfer relay 3K3, diode TB3-CR5P, and resistor TB3-R1 to illuminate CHRG/BAT FAULT light 1DS7. Battery power is also applied via shunt R3 to the propulsion system (WP 0148 00). All other battery and charger power is controlled by the control panel MASTER SWITCH 1S2. When switch 1S2 is turned on, battery power is applied via shunt R3, relay 3K3, and 1S2 to control panel circuit breakers 1CB1 and 1CB2, and to the hydraulic system (WP 0110 00). GTE circuit breaker 1CB2 controls DC power to the GTE control system, and LIGHTS circuit breaker 1CB1 controls DC power to the lights, fuel system and pneumatic control system. The current through

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

shunt R3 is indicated on control panel BATTERY CHG/DISCH meter 1M6. Switch 1S2 also grounds control panel BATTERY VOLTAGE meter 1M4 which indicates battery voltage.

2. When the MASTER SWITCH is on and other switches are in the proper positions for engine start, the GTE control circuits activate starter contactor K4 (Refer to FO 3). Battery power is then applied via starter shunt R2 and contactor K4 to engine starter motor MG1. The current through the starter shunt is indicated on the control panel STARTER CURRENT meter 1M5 (FO-1). Contactor K4 is deactivated when engine speed reaches 60%.

NOTE

On the 83-360D and 83-360E, the alternator output is provided directly to the TRU at the line side of the AC contactor. The TRU output is then connected to the battery charger and controls as described in the rest of this section.

3. When the engine speed reaches 95%, the generator provides a 28 VDC output. The generator DC output is applied via circuit breaker 2CB1 to the battery charger 50 amp section and via 2CB2 to the charger 20 amp section. The charger 50 amp section supplies and outputs regulated at 28.5, 30.5, or 32 VDC (±1 VDC), as selected by charger output select switch 3S1. The charger 20 amp selection supplies a 22 to 32 VDC output. The 20 amp output activates battery/charger transfer relay 3K3. When activated, relay 3K3 removes battery power from the DC control circuits and applies the 20 amps section output to the control circuits. Relay 3K3 also removes battery power from the CHRG/BAT FAULT light. The charger 50 amp output section is used to charge the battery. If the battery charge rate is less than 50 milliamps, the charger's 28 VDC signal diode TB3-CR4 and resistor TB3-R1 will illuminate the CHRG/BAT FAULT light.
4. The battery charger serves as a component of the generator DC output filter. When the battery is fully charged, the full load of the charger is not sufficient to keep the ripple on the generator DC output within limits. Therefore, load resistor R4 is connected in parallel with the charger 20 amp section input to increase the load and keep the ripple within limits.
5. The battery output (or combined battery and charger output if engine is running) can be connected to the AGPU DC output cable or made available to the propulsion system traction motor. This occurs when control panel DC POWER switch 1S12 is OFF and BATTERY OUTPUT switch 1S5 is ON, which activates battery output/traction motor contactor K3.
6. Power diodes 3CR7 through 3CR9 prevent the GTE control circuits from shutting down the engine because of a generator DC output or battery charger failure. If the generator DC output or charger 20 amp section fails, the 20 amp section output decays gradually. Battery/charger transfer relay 3K3 does not drop out until the potential across the relay coil drops to approximately 18 VDC. If diodes 3CR7 through 3CR9 were not connected as shown, the GTE DC control power could drop to 18 VDC before relay 3K3 drops out and switches to battery power. The GTE ECU is designed to shut down the engine if the GTE DC control power drops to approximately 18 VDC. For this reason, battery voltage is connected via diodes CR8 and CR9 to the GTE control circuits. The voltage drop across zener diode 3CR8 (4.3v) and diode 3CR9 (0.7v) reduces battery voltage (24 VDC) to 19 VDC. The 19 VDC battery voltage is sufficient to keep the engine running when the charger output drops below 19 VDC, but is lower than the normal charger output so that no GTE control power is drawn from the battery when the charger is operating normally. Steering diode 3CR9 prevents the charger normal output (relay 3K3 activated) from seeking the lower voltage level at the anode of 3CR8. Steering diode 3CR7 prevents the 19 VDC battery voltage from holding relay 3K3 on when the charger output drops below the normal 18 VDC level required to keep the relay activated.

Lights Control System (Refer to FO 2).

The lights control system includes panel lamps DS101 and DS102, utility lamps DS103 through DS105, control panel indicator lamps 1DS1 through 1DS21, a steering diode for each indicator lamp, voltage regulators 3VR1 and 3VR2, and control panel switches (1S4, 1S6, and 1S7). DC power is available whenever the MASTER switch and LIGHTS circuit breaker 1CB1 are on.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

1. DC power is applied directly to the panel lights (located above main control panel) when PANEL switch 1S6 is in the BRT position. Power is applied to the panel lamps via 3VR1 when the switch is in the DIM position. 3VR1 limits the panel lamp voltage to 14 VDC to reduce lamp intensity.
2. DC power is applied directly to the utility lamps (fuel, engine, and hydraulic) when UTILITY switch 1S7 is in the BRT position. Power is applied to the utility lamps via 3VR2 when the switch is in the DIM position. 3VR2 limits the utility lamp voltage to 14 VDC.
3. Some of the control panel indicator lamps (1DS1, 1DS2, 1DS7, 1DS11, 1DS13 through 1DS19, and 1DS21) are permanently grounded. During operation, the associated control circuit applies a voltage to the lamp positive terminal to illuminate the lamp. PRESS TO TEST switch 1S4 (when pressed) applies DC power via steering diodes to illuminate all of the permanently grounded lamps. The diodes prevent a voltage input to one lamp from illuminating other lamps.
4. The other control panel indicator lamps (1DS3 through 1DS6, 1DS8 through 1DS10, 1DS12, and 1DS20) are permanently connected to DC power (after MASTER SWITCH is turned on). During operation, the associated indicator lamp control provides a ground return at the lamp negative terminal to illuminate the lamp. The PRESS TO TEST switch (when pressed) provides a ground return to illuminate all the lamps. The diodes prevent a voltage to one lamp from illuminating other lamps.

GTE Control System

The control system consists of the Electronic Control Unit (ECU), starter latching relay 3K2, starter contactor K4, 95 percent enable relay 3K1, compartment temperature switch S1, speed sensor, low oil pressure switch, hot oil temperature switch, thermocouple, steering diodes (TB1-CR1, TB2-CR2, TB3-CR3 through CR8, and 1CR9), and associated control panel switches and instruments.

1. When system power output switches (control panel PNEUMATIC POWER 1S8, AC POWER 1S10, and DC POWER 1S12, and hydraulic module POWER switch 4S1) are all off, a ground return is provided for the starter contactor K4 coil. Engine start is then initiated by momentarily setting ENGINE CONTROL switch 1S1 to the START position, which applies DC control power to activate starter latch relay 3K2. DC control power is then applied via the latch relay to the auxiliary fuel pump and the ECU. When the ENGINE CONTROL switch is released to the RUN position, DC control power is applied by EMERG STOP switch S2 and relay 3K2 to latch the relay on. The ECU applies DC power to activate starter contactor K4. Contactor K4 then connects the battery output to the engine starter which motors (cranks) the engine. The contactor also applies battery power via diode TB2-CR2 to illuminate control panel STARTER ON light 1DS2.
2. Throughout engine start and run operations, the ECU monitors the engine Low Oil Pressure (LOP) switch, High Oil Temperature (HOT) switch, Exhaust Gas Temperature (EGT) thermocouple, and monopole speed sensor. Prior to engine start, the LOP switch is closed and provides a ground return (via diode TB3-CR8) to illuminate the control panel LOW OIL PRESS lamp 1DS10. When the engine is started and engine oil pressure rises to 31 psi, the LOP switch opens to extinguish the LOW OIL PRESS lamp. The HOT switch is closed when engine oil temperature is below 275°F, and opens above 275°F. The thermocouple generates a small voltage proportional to engine EGT. The ECU temperature sensor and EGT readout circuit amplifies the thermocouple output to the level required to drive the control panel EGT meter 1M1. The EGT meter indicates exhaust gas temperature in degrees Fahrenheit. The monopole speed sensor generates a signal proportional in frequency to engine speed. The ECU converts the speed sensor frequency to a DC voltage to drive the control panel %RPM meter 1M2. The %RPM meter indicates engine speed as a percentage of normal full-load speed (58,667 rpm).
3. The ECU uses engine speed to control start and run events as follows :

Table 2. ECU Start and Run Events.

Engine Speed (rpm)	Event
10%	Opens fuel shutdown solenoid (WP 0072 00)
	Activates engine ignition unit (WP 0090 00)

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

Table 2. ECU Start and Run Events. – Continued

Engine Speed (rpm)	Event
25-95%	Modulates fuel control torque motor (WP 0072 00)
60%	Deactivates starter contactor K4 (WP 0090 00)
95%	Enables load control valve (WP 0083 00) Disables engine ignition unit (WP 0090 00) Activates 95% enable relay which enables generator (WP 0049 00) Enables engine hour meter

4. The ECU includes fault logic which closes the fuel shutdown solenoid and disables the engine ignition unit if any of the following faults occur:
    1. Low oil pressure (less than 31 psi) for more than 10 seconds after the engine reaches 95% rpm.
    2. High oil temperature (greater than 275 °F) for more than 1 second.
    3. Engine speed exceeds 110% rpm.
    4. Loss of speed sensing (no output from monopole speed sensor) after 95% rpm has been reached.
    5. EGT exceeds 1300 °F at engine speed above 60% rpm, or exceeds 1255 °F at 100% engine speed.
    6. Loss of EGT sensing (no output from thermocouple).
    7. Current in ECU output circuits (ignition unit, Load Control Valve (LCV) solenoid, fuel shutdown solenoid, starter contactor K4, or 95% generator enable relay 3K1) exceeds limits for more than 3 seconds.
5. If any of the above faults occur, the engine is automatically shut down. The ECU fault shutdown latch provides a ground on one of five lines: LOP, HOT, O/C (over-current), O/S (engine over-speed), and O/T (EGT over-temperature). This ground illuminates the appropriate control panel fault lamp. The ground is latched on until DC power is removed from the ECU. Diodes TB3-CR3 through CR8 are connected in the fault lamp circuits to prevent the ECU from shutting down the engine during a lamp test. As described in paragraph “Lights Control System”, a ground is applied to the negative terminals on the fault lamps when the PRESS TO TEST switch is pressed. If diodes TB3-CR3 through CR8 were not present, the ECU fault logic would see the lamp test grounds as faults, and would shut down the engine.
6. Temperatures above 160 °F may cause damage to the printed circuit boards within the ECU. Temperature sensor S1 is mounted in the electrical compartment next to the ECU. If the temperature exceeds 160 °F, the sensor connects DC power to illuminate the control panel COMPT/GEN HI TEMP caution lamp 1DS11. This lamp is also illuminated when the temperature of the generator AC windings exceeds limits (WP 0049 00).
7. Control panel INLET FILTER BLOCKED caution lamp 1DS8 is illuminated when switch S3 mounted on the engine air-inlet duct closes. The switch is closed when the air-inlet bypass door is opened, indicating that the air cleaner is blocked.
8. The engine is normally shut down by setting the ENGINE CONTROL switch to OFF. The engine can also be shut down by setting the MASTER SWITCH to OFF, opening the GTE 10 amp circuit breaker, or pressing the EMERG STOP switch. In any case, the starter latching relay is unlatched and removes DC power from the ECU.

Fuel Indication System (Refer to FO 4.)

The fuel indication system consists of fuel level sensor (transmitter) MT1, low fuel level sensor switch S4, low fuel pressure sensor switch S5, resistor TB1-R1, zener diode TB1-CR1, meter 1M3, and indicator lamps 1DS5 and 1DS6. Maintenance of the fuel sensors (all located in the fuel tank) is covered in WP 0072 00.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

FUEL meter 1M3 indicates the fuel level in the tank. When the MASTER SWITCH is ON, DC power is applied via current limiting resistor TB1-R1 to the meter positive terminal. Zener diode limits the voltage across the meter to 5.1 VDC. The circuit is completed to ground via fuel level sensor (transmitter) MT1. The fuel level sensor is a variable resistor. The resistance changes with the level of fuel in the fuel tank. The value of resistance for a given level of fuel controls the amount of voltage applied to the meter. As the fuel level changes, the resistance changes and the meter indication changes. Low fuel level switch S1Q closed when there is 17 gallons or less of fuel, remaining, and illuminates LOW FUEL caution lamp 1DS5. Low fuel pressure switch S5 closes when fuel pressure drops below 2 psi, and illuminates LOW FUEL PRESS lamp 1DS6.

Pneumatic Control System. (Refer to FO 7.)

The pneumatic control system consists of meter 1M7, resistor R6, zener diode TB1-CR1, pressure transducer MT2, pressure relief valve L1, hose air dump solenoid valve L1H-1, surge control solenoid valve L1H-2, and load control valve. Maintenance of the load control valve (mounted on the engine) and its internal pressure relief valve is covered in WP 0089 00.

1. The load control valve is enabled (grounded) when the PNEUMATIC POWER switch 1S8 is set to ON. Operation of the load control valve is then controlled by the electronic control unit as a function of EGT. The PNEUMATIC POWER switch applied DC power to illuminate PNEUMATIC POWER light 1DS13, and to close pressure relief valve L1. The switch also applies DC power via current limiting resistor R6 to PSIG PNEUMATIC meter 1M7. Zener diode TB1-CR1 limits the voltage across the meter to +12 VDC. The circuit is completed to ground via pressure transducer MT2. The resistance of the pressure transducer and thus the meter indication is a function of pressure in the pneumatic output hose.
2. The air hose dump solenoid valve L1H-1 is normally open and is closed only when the PNEUMATIC POWER switch 1S8 is set to ON. When OFF, the valve opens and automatically dumps the air pressure from the air hose. The surge control valve L1H-2 is used to bleed off a portion of the GTE compressor output to delay the onset of compressor stall. This increases the available shaft horsepower for high electrical or hydraulic loads. The surge control valve L1H-2 is controlled by the PNEUMATIC POWER switch 1S8 and the CURRENT LIMIT SELECTOR switch 1S11 settings, depending on the model and manufacturer of the AGPU. On all 83-360A models, power to operate the surge control valve is routed through the PNEUMATIC POWER switch 1S8 to the CURRENT LIMIT SELECTOR switch so that the surge control valve will not open if the PNEUMATIC POWER 1S8 is ON. On all AGPUs, the surge control valve opens when the CURRENT LIMIT SELECTOR SWITCH 1S11 is set to 45 KW and the PNEUMATIC POWER switch 1S8 is OFF. On A models with serial numbers 1036 and higher, the surge control valve also opens at the 30 KW setting with the PNEUMATICS POWER OFF. On the 83-360D and 83-360E, a jumper is installed on the PNEUMATIC POWER 1S8 allowing the surge control valve L1H-2 to open even when the pneumatic system is ON. The surge control valve does not open at the 30 KW setting of the CURRENT LIMIT SELECTOR switch 1S11 on the MEP 83-360D/E.

Propulsion Control System. (Refer to FO 8.)

The propulsion control system consist of drive switch 1S3 and light 1DS1 on the control panel; motor speed controller 2A1, forward relay, 2K1, and reverse relay 2K2 located in the upper tray; circuit breaker 3CB7 in the lower tray; clutch switch S4; and speed direction control assembly HS1 located on the towbar. When the DRIVE switch 1S3 is activated, the motor controller 2A1 receives +28 VDC from the control panel and control signals from the speed/direction control unit HS1. It sends DC drive voltage to the traction motor B1 armature and speed control signals to the traction motor field windings. The control signals from the speed/direction control assembly HS1 consist of forward 2K1 and reverse 2K2 relay activation signals from internal micro switches and variable speed control signals from internal variable resistors. Both sets of signals are selected by the twist grips.

COMPONENTS OF THE ELECTRICAL POWER GENERATION AND CONTROL SYSTEM

General

The major components control systems are listed in, of the electrical power generation and with location and figure references. Electrical components are identified by reference designators. Refer to Table 1, DC Electrical and Control System Major Components for explanation of reference designators.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

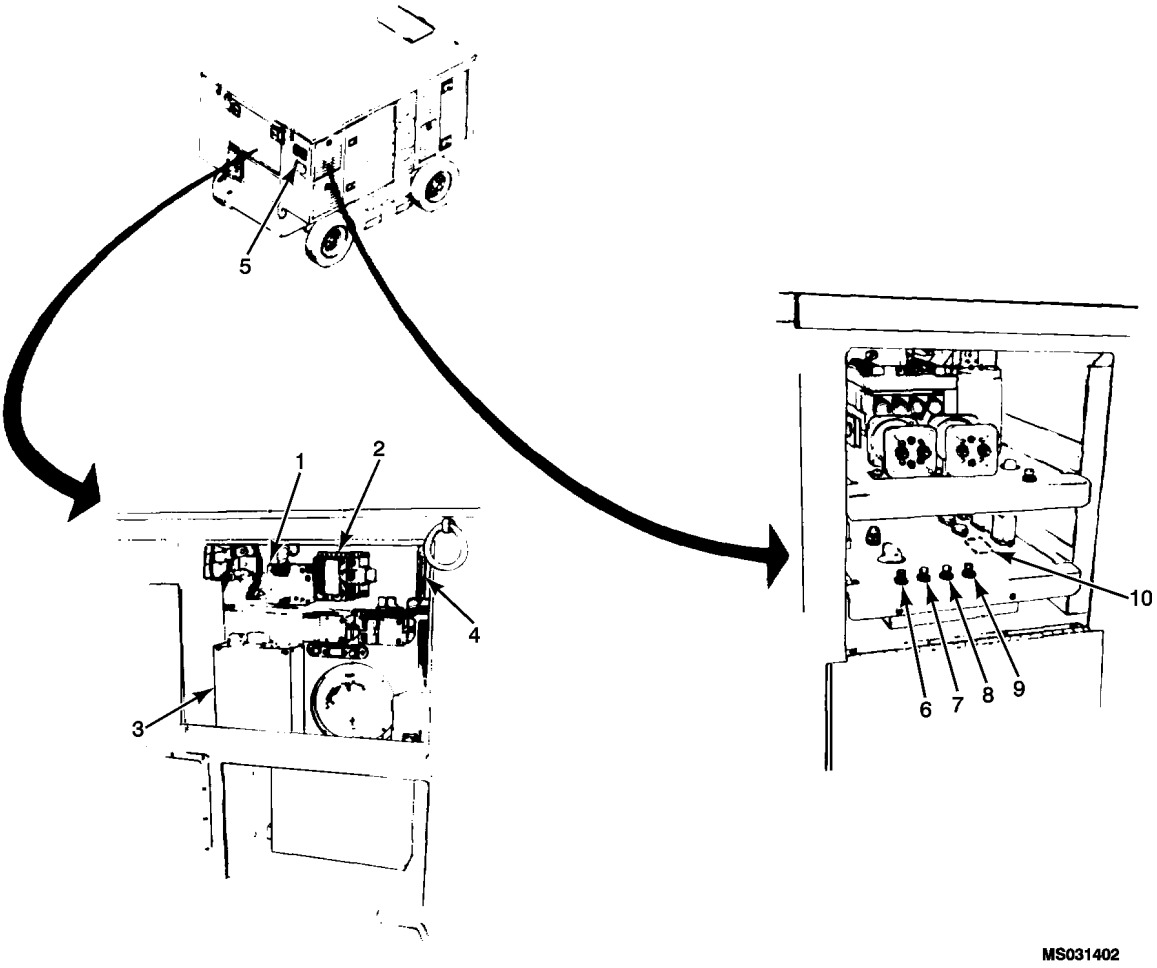
Table 3. Electrical Power Generation and Control System.

Component	Location	Installation Fig. Ref.	Schematic/Wiring Diagram Fig. Ref.
DC Contactor (K2)	Figure 2, Item 1	WP 0062 00, Figure 1	FO 1, FO 5
AC Contactor (K1)	Figure 2, Item 2	WP 0062 00, Figure 1	FO 6
Generator Control Unit (GCU) (A1)	Figure 2, Item 3	WP 0062 00, Figure 1	FO 5, FO 6
Current Transformers, AC Output (T2-T4)	Figure 3, Item 1 through 4	WP 0064 00, Figure 1	FO-6 (Sheet 1 of 2)
Current Transformers, GCU Input (T1)	Figure 2, Item 4	WP 0062 00, Figure 1	FO-6 (Sheet 1 of 2)
AC/DC Generator (G1)	Figure 3, Item 1	WP 0064 00, Figure 1	FO 5, FO-6 (Sheet 1 of 2)
AC Generator (G1) **(83-360D/E only)**	Figure 3, Item 5	WP 0065 00, Figure 1	FO 5, FO-6 (Sheet 1 of 2)
AC to DC Transformer Rectifier Unit (TRU) **(83-360D/E only)**	Figure 4, Item 4	WP 0065 00, Figure 1	FO 2, FO-6 (Sheet 1 of 2)
AC Convenience receptacles (J1-J4)	Figure 2, Item 5	WP 0067 00, Figure 1	FO-6 (Sheet 1 of 2)
AC Circuit Breakers (3CB303CB6)	Figure 2, Item 6 through 9	WP 0067 00, Figure 1	FO-6 (Sheet 1 of 2)
Frequency Transducer	Figure 2, Item 10	WP 0067 00, Figure 1	FO 6 (Sheet 2 of 2)
DC Output Power Cable (W11)	Figure 4, Item 2	WP 0069 00, Figure 1	FO 5
AC Output Power Cable (W6)	Figure 4, Item 1	WP 0069 00, Figure 1	FO-6 (Sheet 1 of 2)

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

Table 3. Electrical Power Generation and Control System. – Continued

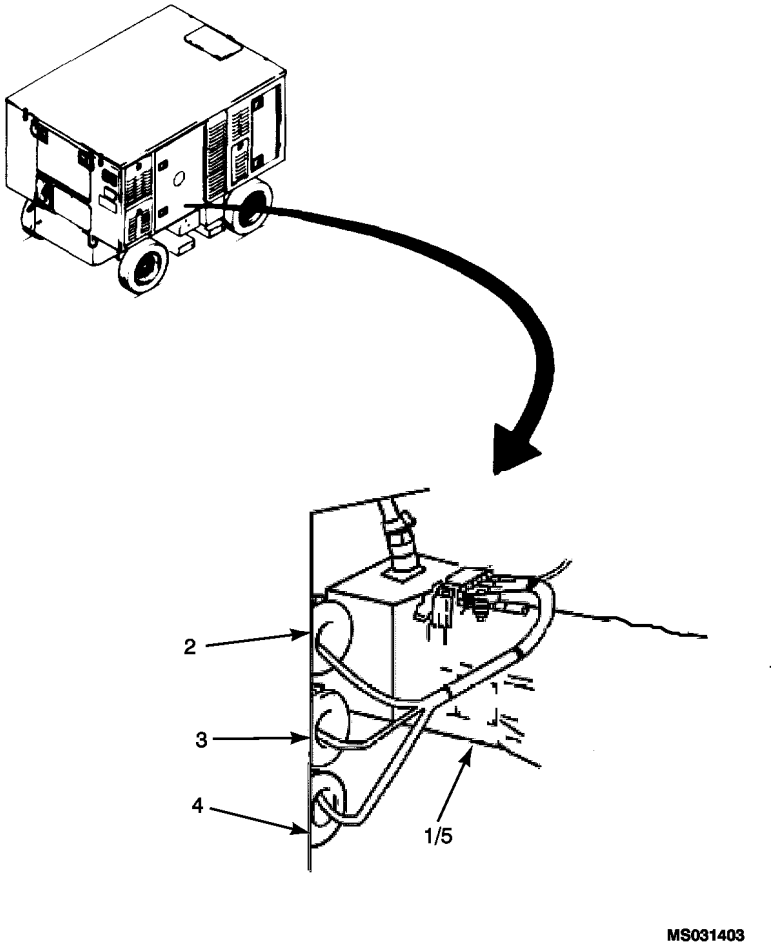
Component	Location	Installation Fig. Ref.	Schematic/Wiring Diagram Fig. Ref.
DC to AC Inverter	Figure 4, Item 3	WP 0067 00, Figure 1	FO 5



1. DC Contactor (K2)
2. AC Contactor (K1)
3. Generator Control Unit (A2)
4. Current Transformer (T1)
5. AC Convenience Receptacles
6. Circuit Breaker (3CB6)
7. Circuit Breaker (3CB5)
8. Circuit Breaker (3CB4)
9. Circuit Breaker (3CB3)
10. Frequency Transducer (mounted to underside of tray)

Figure 2. Electrical Bay and Electrical Tray Compartment.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED



1. AC/DC Generator (G1) 83-360A (only)
2. AC Output Current Transformer (T2)
3. AC Output Current Transformer (T3)
4. AC Output Current Transformer (T4)
5. AC Alternator (G1) 83-360D/E (Only)

Figure 3. Generator and AC Output Current Transformers.

NOTE

The control panel controls and instruments associated with these systems are described in this section. Maintenance of the control panel components is covered in WP 0032 00.

The electrical power generation and control system components are grouped in two functional systems: DC power generation and control, and AC power generation and control.

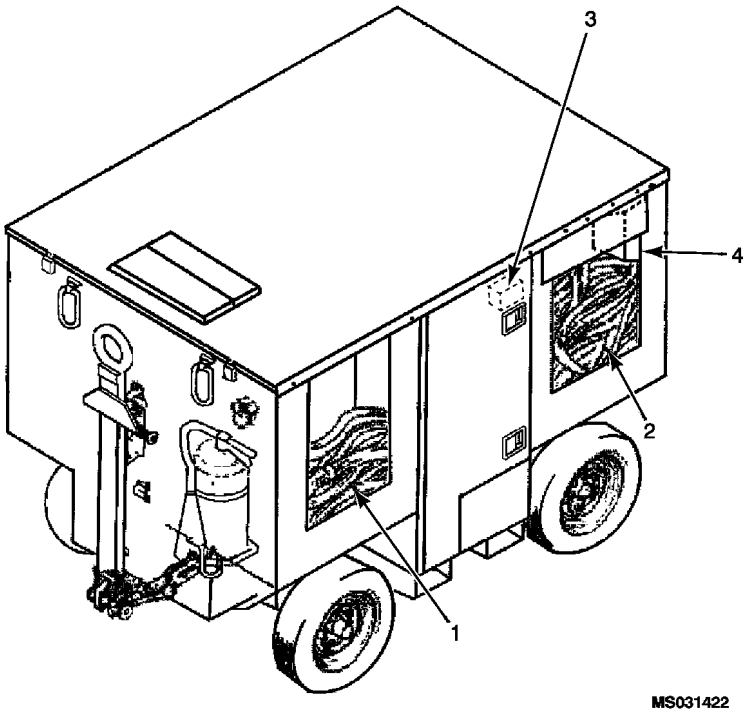
DC Power Generation and Control

This system is shown schematically in the FO 5 for MEP 83-360A and FO-19 (Sheet 1 of 2) for MEP 83-360D/E. The DC system includes the DC sections of the AC/DC generator and GCU, DC output contactor (K2), shunt (R1), 95% enable relay (3K1), DC to AC inverter, and associated control panel switches and instruments. Maintenance of shunt (R1) and relay (3K1), AC to DC transformer rectifier unit (MEP 83-360D/E only) is provided in WP 0049 00.

1. The generator includes two Permanent Magnet (PM) stator windings, an exciter field, and two stator windings and rectifier unit (not shown) which provides the generator DC output. Whenever the engine is running, the PM sta-

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

tor windings provide three phase AC voltage. The output of one PM winding is rectified and regulated by GCU circuits to provide 15 VDC operating and control voltage for the GCU logic circuits. When engine speed reaches 95% rpm, relay 3K1 is activated and connects the output of the other PM winding to the GCU. This AC voltage is rectified and enables the GCU exciter field control amplifier. The required to keep the voltage of the generator at 28 VDC. On the MEP 83-360D/E, the only DC output of the alternator is from the two permanent magnet stator winding, which is rectified to provide power to the GCU.



1. AC Output Power Cable (W6)
2. DC Output Power Cable (W11)
3. DC/AC Inverter (PS1)
4. TRU

Figure 4. Output Power Cables, 400Hz AC to DC TRU, and DC to 60 Hz Inverter, MEP 83-360D/E.

2. If the control panel CURRENT LIMIT SELECTOR switch 1S11 is in a DC position and there are no DC voltage or over current faults, the GCU system logic applies 28 VDC to the coil of DC output contactor K2. When the DC POWER switch 1S12 is set to ON, the contactor is energized and connects the generator 28 VDC output to the DC output cable. The contactor also applies the 28 VDC to illuminate the DC POWER ON lamp 1DS21. DC output voltage is indicated on the DC VOLTS meter 1M11 and DC output current is indicated on DC AMPS meter 1M12. On the MEP 83-360D/E all the AGPU's DC output power is supplied by the TRU, which is powered from the AC output of the generator. The GCU on the 83-360D/E must remain in the AC mode to regulate this AC output. The GCU has been disconnected from the DC contactor K2 and a jumper has been installed to allow the contactor to close whenever the DC POWER switch is set to ON.
3. The GCU monitors the generator DC output continuously for the following possible faults: under voltage, over voltage, over current, or high ripple. On the MEP 83-360D/E the GCU can only operate in the AC mode. DC current limiting and DC voltage fault monitoring are not provided.
4. The under voltage limit is set at 22 VDC and the over voltage is set at 32 VDC. The ripple limit is 2 to 3 volts (peak to mean) from 10 Hz to 40 KHz. The over current limit is set by control panel CURRENT LIMIT SELECTOR switch 1S11 at 200, 500, 700, or 1000 amps. When a fault is detected, the GCU system logic deactivates the DC contac-

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

tor or removes generator field excitation to protect the generator and output circuits. The GCU logic also illuminates the appropriate control panel fault lamp (VOLTAGE FAULT DS18 or OVERCURRENT 1DS19). The TRU used on the MEP 83-360D/E is a rugged solid-state power converter currently used on the AH-64A helicopter to provide essential DC power. It has a minimum continuous output voltage of 26 VDC at a 250 amp and 25 VDC at 350 amp output. Ripple is 1.5 volt maximum. Maximum output is 500 amps for 1 minute, 1000 amps for 5 seconds.

5. The possible generator DC faults are summarized in Table 4 along with the protective action and fault lamp indications. After a fault occurs, the GCU system fault logic is latched until the control panel DC POWER switch 1S12 is set (momentarily) to RESET, or MASTER switch is set to OFF. The TRU on the MEP 83-360D/E is protected by an overheat indicator. Activation of this switch will illuminate the DC OVER CURRENT light (DS19) on the control panel. Neither the TRU nor the GCU can open the DC contactor to prevent continued overheating of the TRU. Activation of the overheat indicator is most often caused by a failure of the TRU cooling fan. Table 4 is not applicable to the MEP 83-360D/E.
6. The DC to AC inverter converts DC power (generator DC output or battery power) to 115 VAC 60 Hz power (500 watts). The inverter provides for operation of low power AC equipment that cannot be operated from generator 400 Hz AC output. This inverter is located in the pneumatic hose storage area.

AC Power Generation and Control

This system is shown schematically in FO 6. The AC system includes the AC/DC sections of the AC/DC generator and generator control unit (GCU), AC output contactor K1, current transformers T1-T4, frequency transducer, circuit breakers 3CB3-3CB6, AC convenience receptacles J1-J4, and associated control panel controls and instruments.

1. The generator includes PM stator windings that provide power for GCU operation and generator field excitations. When the control panel CURRENT LIMIT SELECTOR switch is in any AC position, the GCU varies the generator exciter field as required to keep the generator AC output voltage within limits. A thermal switch near the AC winding provides an indication when the temperature of the AC winding exceeds normal limits. If the switch closes, the GCU system logic illuminates COMPT/GEN HI caution lamp 1DS11. This lamp is also illuminated when the electrical compartment temperature switch S1E is closed.
2. If the CURRENT LIMIT SELECTOR switch 1S11 is in any AC position and there are no AC voltage or over-current faults, the GCU system logic applies 28 VDC to the coil of AC output contactor K1. When the AC POWER switch 1S10 is set to ON, the contactor is energized and connects the generator AC outputs to the AC output cable, and to convenience receptacles J1-J4. Each convenience receptacle is protected by a 15 amp circuit breaker. The contactor also provides a ground to illuminate AC POWER ON lamp 1DS20.

Table 4. Generator DC Faults, MEP 83-360A Only.

Fault					Protective Action	Fault Lamp Indication During Fault	Fault Lamp Indication (Latched) After Fault
	Current for CURRENT LIMIT SELECTOR Switch Settings						
Voltage	200A	500A	700A	1000A			
Normal (22-32 VDC)	>200 <1000	>500 <1000	>700 <1000		None (Refer to note)	None	None
	>1000	>1000	>1000	>1000	Field excitation remove after 30 seconds	OVER CURRENT	VOLTAGE FAULT after 5 second delay

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

Table 4. Generator DC Faults, MEP 83-360A Only. – Continued

<22 VDC	<200	<500	<700	<1000	DC contactor opened after 4-7 seconds	None	VOLTAGE FAULT
	>200 <1000	>500 <1000	>700 <1000			OVER CURRENT	
	>1000	>1000	>1000	>1000			
>32 VDC					DC contactor opened	None	VOLTAGE FAULT
Ripple High					DC contactor opened	None	VOLTAGE FAULT

Note: When voltage is within nominal limits and output current is less than 1000 amps, the generator will continue to operate regardless of CURRENT LIMIT SELECTOR switch setting. The GCU will reduce field excitation to reduce generator voltage as current increases above the selected limit. The voltage will drop below the normal limit (21 ±1 VDC) and the GCU will open the DC contactor when current exceeds the values listed below:

CURRENT LIMIT SELECTOR

Switch Setting	Actual Current Limit
200A	255 to 280 amps
500A	635 to 700 amps
700A	955 to 1000 amps

Note: > indicates greater than, < indicates less than, ≤ indicates equal to or less than.

3. Current transformer T1 provides voltages to the GCU proportional to the current in each phase of the generator output. Each of the current transformers T2-T4 provides a voltage output proportional to current in one phase of the generator AC output. One of the transformers, depending on the position of the AC PHASE SELECT switch 1S9, is connected to the AC % LOAD meter M9 when the AC contactor is activated. Also, one phase of the frequency transducer is connected, the frequency transducer driven AC Hertz meter 1M10.
4. The GCU monitor the generator AC output continuously for the following possible faults: under voltage, over voltage, over current, or under frequency.
5. The under voltage limit is set at 108 vrms and the over voltage limit is set at 118 vrms. The under frequency is set at 375 Hz. The over current is set by control panel CURRENT LIMIT SELECTOR 1S11 at 10KW, 20 KW, 30KW, or 45 KW. On the MEP 83-360D/E the current limit settings are: 17KVA, 38 KVA, 59 KVA (AH-64A.H-60), and 90 KVA (AH-64D). When a fault is detected, the GCU system logic deactivates the AC contactor or removes generator field excitation to protect the generator and output circuits. The GCU logic also illuminates the appropriate control panel fault lamp (OVER VOLTAGE 1DS14, UNDER VOLTAGE 1DS15, OVER CURRENT 1DS16, or UNDER FREQUENCY 1DS17)
6. The possible generator AC faults are summarized in Table 1 (83-360A only) and Table 2 (MEP 83-360D/E only) along with the protective action and fault lamp indications. After a fault occurs, the GCU system logic is latched until the control panel AC POWER switch 1DS10 is set (momentarily) to RESET, or MASTER switch is set to OFF.

Table 5. Generator AC Faults, MEP 83-360A Only.

Fault					Protective Action	Fault lamp indication during fault	Indication (latched) after fault
Voltage/Frequency	Current for CURRENT LIMIT SELECTOR Switch Settings						
	10KW (36A/ØØ)	20 KW (72A/Ø)	30KW (108A/Ø)	45KW (162A/Ø)			

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

Table 5. Generator AC Faults, MEP 83-360A Only. – Continued

Voltage Normal (108-118vrms)	>10, <45	>20, <45	>30, <25		None (Refer to note)	None	None
	>45	>45	>45	>45	Field excitation removed after 30 seconds	OVER CURRENT	UNDER VOLTAGE after 5 second delay
Voltage <108 vrms	≤10	≤20	≤30	≤45	AC contactor opened after 7 seconds	None	UNDER VOLTAGE
	>10, <45	>20, <45	>30, <45			OVER CURRENT	
	>45	>45	>45	>45			
Voltage >118 vrms					AC contactor opened	None	OVER VOLTAGE
Frequency <398 Hz					AC contactor opened	None	UNDER FREQUENCY

NOTE: When voltage is within normal limits and output power is less than 45 KW, the generator will continue to operate regardless of CURRENT LIMIT SELECTOR switch setting. The GCU will reduce field excitation to reduce generator voltage as current increases above the selected limit. The voltage will drop below the normal limit (104 ±4 VAC) and the GCU will open the AC contactor when current exceeds the values listed below:

CURRENT LIMIT SELECTOR Switch Setting	Actual Current Limit
10 KW (36A/Ø)	13.25 to 14.35 KW (48 to 52 A/Ø)
20 KW (72 A/Ø)	26.5 to 28.7 KW (96 to 104 A/Ø)
30 KW (108 A/Ø)	39.75 to 42.78 KW (144 to 155 A/Ø)

NOTE: > indicates greater than, < indicates less than, ≤ indicates equal to or less than.

Table 6. AC Faults, MEP 83-360D/E Only.

Fault						Fault lamp Indication during Fault	Indication (Latched) After fault
Voltage/ Frequency	Current for CURRENT LIMIT SELECTOR Switch Settings				Protective Action		
	17 Kva	38 Kva	59 Kva	90 Kva	None (Refer to note)		
Voltage Normal (108-118 vrms)	>50, <191	>110, <191	>170, <191		None (Refer to note)	None	None
	<191	<191	<191	<191	Field excitation removed after 30 seconds	OVER CURRENT	UNDER VOLTAGE after 5 second delay
Voltage >108 vrms					AC contactor opened	None	OVER VOLTAGE

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

Table 6. AC Faults, MEP 83-360D/E Only. – Continued

Frequency <375 Hz					AC contactor opened	None	UNDER FREQUENCY
NOTE: **TBD** CURRENT LIMIT SELECTOR Switch Setting 17 KVA 38.4 (48.0 KVA) Cont 38 KVA 30.0 KW (37.5 KVA) cont with 250 ampres 28 VDC output for TRU 59 KVA 66.0 KW (82.5 KVA) for 30 seconds 90 KVA <191							

EQUIPMENT DATA

Refer to WP 0004 00.

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU) WHEEL MOUNTED, SELF-PROPELLED, TOWABLE AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V DC - 28 VOLT PNEUMATIC - 60 LBS/MIN. AT 40 PSIG HYDRAULIC - 15.2 GPM AT 3300 PSIG LIN: P44627 PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A) EIC: UEG PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D) EIC: UDG PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E) EIC: UDH

EQUIPMENT DATA

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

Refer to WP 0002 00.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

Refer to WP 0003 00.

EQUIPMENT DATA

DIFFERENCES BETWEEN MODELS

Model Number MEP 83-360A

MEP 83-360A is the original AGPU having a combined AC/DC generator and for which this technical manual was originally written. There are two sets of serial numbers for the AGPU. Serial numbers for 001 through 659 were produced by what is now BAE Systems, Ontario, CA. Serial numbers 1001 through 1155 were produced by Engineered Air Systems, St. Louis, MO.

1. Battery Charger: Serial number 001, 002, 004, 005, and 009 have 20 amp battery chargers instead of the 50 amp battery chargers supplied by with all other AGPUs.
2. Mounting Hardware: There are minor differences in component mounting hardware (screws, nuts, rivets) and frame and housing components (doors, panels, covers) between the AGPU serial numbers 001 through 020, and serial numbers 021 and on. These differences should be noted prior to any maintenance or repair actions.
3. Locating the CURRENT LIMIT SELECTOR switch to the 30 KW setting in addition to the 45 KW setting, will cause the surge control valve to open on serial numbers 1012, 1032, and 1036 through 1155. The continuous bleed of GTE compressor output through a 1/4 inch diameter hole in the union at the input to the surge control valve has also been eliminated on these same serial numbered AGPUs.

Model Number MEP 83-360D

MEP 83-360D, this new Model Number has been assigned to selected AGPUs used to support the AH-64D, Longbow Apache helicopter that have been modified by MWO 1-1730-229-50-2 to upgrade the 400 Hertz, AC, output and the gas turbine engine performance. The upgraded AGPU has a new AC generator, a modified Generator Control Unit (GCU), a Transformer Rectifier Unit (TRU), a modified exhaust ejector, and associated wiring changes. Serial numbers are not changed when MWO 1-1730-229-50-2 is applied. Part numbers are not changed when MWO 1-1730-229-50-4 is applied.

1. The primary hardware change incorporated by MWO 1-1730-229-50-2 is a replacement of the generator, which has a combined 37.5 KVA AC and 700 amp DC output, with 48 KVA AC alternator. The MEP 83-360D/E alternator is also a self-cooled, continuous duty, self-excited, brushless unit, but doesn't have the two windings used to provide 28 VDC output. The rectangular box on the top of the alternator is eliminated. It contained the DC output terminals and the Generator Control Unit (GCU) connector, which is located onto the primary housing of the AC

EQUIPMENT DATA – CONTINUED

alternator. The connections to the output terminals are changed to maintain the proper direction of rotation. (Refer to WP 0065 00, Figure 1.)

2. The GCU has been modified to control the larger capacity AC alternator. While the current limits may change, this modified GCU cannot be used with the combined AC/DC generator on P/N MEP 83-360A. Since AC power is still needed, even when only DC is being supplied by the TRU, the CURRENT LIMIT SELECTOR switch is rewired so that the GCU is always monitoring the AC output.
3. An aircraft (AH-64A) type, 400 Hertz to 28 VDC, Transformer Rectifier Unit (TRU) is used on the MEP 83-360D/E to power the battery charger, the 60 Hertz inverter and to start or service DC aircraft. The TRU is mounted to the inside of the DC cable storage bay. A rubber flap is attached to the lid to reduce exposure of the TRU to rain or snow. The TRU output is connected to the DC contactor as shown on FO 5, DC Power Generation and Control System Schematic/Wiring Diagram.
4. The exhaust ejector assembly on the MEP 83-360D/E has also been modified to reduce the back-pressure.
5. The continuous bleed of GTE compressor output on all P/N MEP 83-360D/E, is plugged and the jumper installed on the current limit switch for serial numbers 1012, 1032, and 1036 through 1155 is removed. The surge control valve opens only when the CURRENT LIMIT switch is set at the AH-64D/90KVA setting. The setting of the pneumatic system switch no longer controls the function of the surge control valve. A muffler has been added to the outlet of the surge control valve.
6. The marking on the current limit selector on the control panel have been changed to identify the higher AC limits and to indicate that the DC current limiting is no longer used and DC VOLTAGE FAULT indicator has been disabled. The TRU has only limited output. A "CONT. 350 AMP" labels has been applied to the control panel to indicate the reduced DC output. A "MAX. CONT. 133%" label has been applied to indicate the increased AC rating.

Model Number MEP 83-360E

NOTE

There are only minor changes with the exterior of the AGPU. The MEP 83-360D/E can be identified by a common identification plate located just below the nameplate and revised labeling the control panel. The TRU can be seen on the upper left of the DC storage area, just under a 7-inch flexible flap.

Model Number MEP 83-360A and MEP83-360D/E are affected by MWO 1-1730-229-50-4. MWO 1-1730-229-50-4 consists of numerous field upgrades and is intended to standardize all AGPUs currently used in the field. All maintenance technicians need to follow the maintenance procedures marked as MEP 83-360E, when performing maintenance or servicing the modified AGPUs. Listed below is a brief description of the items affected by MWO 1-1730-229-50-4:

1. Exhaust Installation procedures and new part numbers from TB 1-1730-229-30-1 have been incorporated into the technical manuals.
2. Exhaust outlet cover modification, installation and maintenance procedures have been incorporated into the technical manuals. New exhaust cover outlet cover deflects exhaust gases away from operator during AGPU startup.
3. Battery and battery compartment have been changed to accommodate two 12 volt Optima batteries. Battery installation procedures and part numbers have been changed in the technical manuals.
4. Electrical wiring and new 60 Hz 800 watt power inverter have been installed. Power inverter installation procedures, wiring diagrams and part numbers have been changed in the technical manuals.
5. Relocating Emergency Stop Switch. All related items such as maintenance procedures, wiring diagrams and part numbers have been changed in the technical manuals.
6. Fork Lift Beams. New wider beams have been added to accommodate more forklifts. All related items such as maintenance procedures, wiring diagrams and part numbers have been changed in the technical manuals.
7. Tongue Assembly. Stronger tongue assembly with more support has been added to reduce failure rate. All related items such as maintenance procedures, wiring diagrams and part numbers have been changed in the technical manuals.

EQUIPMENT DATA – CONTINUED

8. Electric Brake Assembly and all related items such as maintenance procedures, wiring diagrams and part numbers have been changed in the technical manuals.

Table 1. Equipment Data.

Aviation Ground Power Unit (AGPU)

Manufacturer (Serial No. 0001-0659)	BAE System Aircraft Controls, Inc. (Cage 63631)
Manufacturer (Serial No. 1001-1155)	Engineered Air Systems, Inc. (Cage 90598)
Operating Environment Capabilities	
Temperature:	-65 to 95 °F (-54 to 35 °C), up to 10,000 feet (3048m) elevation
	-65 to 107 °F (-54 to 42 °C), up to 5,000 feet (1524m) elevation
	-65 to 125 °F (-54 to 52 °C) at sea level
AC voltage output	400 Hertz, 3 phase, 0.8 power factor, 115/200v 4-wire output cable, 60 foot (18.3m)

EQUIPMENT DATA – CONTINUED

Table 1. Equipment Data. – Continued

MEP 83-360A:

NSN: 1730-01-144-1897

30 KW continuous (45 KW for 30 seconds) with no DC.

27.5 KW continuous with 50 amperes DC from battery charger

MEP 83-360D:

NSN: 1730-01-466-9371

38.4 KW (48.0 KVA) continuous.

30.0 KW (37.5 KVA) continuous with 250 amperes 28 VDC output from the TRU

66.0 KW (92.5 KVA) for 30 seconds

DC power output

2-wire output cable, 60 foot (18.3m)

MEP 83-360E:

38.4 KW (48.0 KVA) continuous

30.0 KW (37.5 KVA) continuous with 350 amperes 28 VDC output from the TRU

66.0 KW (92.5 KVA) for 30 seconds

DC power output:

2-wire output cable, 60-foot (18.3 m)

MEP 83-360A:

NSN: 1730-01-144-1897

28 VDC, 700 amperes (1,000) amperes for 30 seconds) with no AC

28 VDC, 50 amperes from battery charger with 27.5 KW AC

MEP 83-360D:

NSN: 1730-01-466-9371

DC power output:

350 amperes continuous at 26 volt minimum

350 amperes continuous at 25 volts minimum

500 amperes for 1 minute

1000 amperes for 5 seconds

MEP 83-360E

NSN: 1730-01-552-2313

DC power output:

350 amperes continuous at 26 volt minimum

350 amperes continuous at 25 volts minimum

500 amperes for 1 minute

EQUIPMENT DATA – CONTINUED

Table 1. Equipment Data. – Continued

	1000 amperes for 5 seconds
Pneumatic Output (MEP 83-360A, MEP 83-360D/E)	
	60 lb/minute at 40 psig (sea level) - Temperature 450 °F (232 °C)
	26.5 lb/minute at 24 psig, 10,000 feet (3048m) altitude - Temperature 420 °F (232 °C)
	3.5 inch (8.9 cm) diameter output hose, 30 ft. length (9.1 m)

EQUIPMENT DATA – CONTINUED

Table 1. Equipment Data. – Continued

Hydraulic Output (MEP83-360A, MEP 83-360D/E)

- 15.2 gpm at 500 to 3,300 psig
- Hydraulic fluid or MIL-PRF-83282 or MIL-PRF-5606
- 40 feet (42 feet CH-47 only) pressure and return hoses
- Aircraft Interface – single or dual connections

Operating Altitude: Up to 15 degrees horizontal from any azimuth

Noise Level

- Less than 85 dBA at 23 foot (7m) radius
- Less than 90/96 dBA at operator panel
- Less than 103/105 dBA at GTE air inlet

Capacities (Liquids)

- Fuel Tank: 65 gallons (246 liters)
- Engine Oil Sump: 2.3 quarts (2.2 liters)
- Hydraulic System: 9 gallons (34 liters)

Dimensions and Weights

- Overall length: 90 inches (229 centimeters)
- Overall width: 58 inches (147 centimeters)
- Overall height: 60 inches (152 centimeters)
- Weight empty: 3550 pounds (1610 kilograms)
- Weight filled-fluid: 4275 pounds (1939 kilograms)
- Shipping weight: 3620 pounds (1642 kilograms)
- Cubage 181 cubic feet (5.1 cubic meters)

Engine (MEP 83-360A, MEP 83-360D/E)

Manufacturer: Honeywell International Inc./Honeywell Div, Engine Systems & Services (CAGE 99193)

Model: GTCP36-50 (H)

Type: Gas Turbine Engine (GTE), Pneumatic and Shaft Power

Dry Weight: 130 pounds (59 kilograms)

Dimensions

- Height: 24.8 inches (63 centimeters)
- Length: 32.8 inches (83.3 centimeters)
- Width: 20.8 inches (52.8 centimeters)

Shaft Horse Power (shp) (sea level)

- With bleed air: 46 SHP minimum
- Without bleed air: 62 SHP minimum

EQUIPMENT DATA – CONTINUED

Table 1. Equipment Data. – Continued

Engine Speeds	
Nominal full-load governed speed: 58,737 rpm (100 percent)	
Full-load governed speed limits: 58,167 to 59,034 rpm (99 to 100.5 percent)	
Gearcase output drive pads	
Generator drive pad: 9,000 rpm	
Hydraulic pump drive pad: 8,000 rpm	
Electrical system voltage	
28 VDC nominal	
Lubrication system	
Oil: MIL-PRF-23699 or MIL-PRF-7808	
Capacity: 2.3 U.S. quarts (2.2 liters)	
Filter: Replaceable element	
Starter Motor	
Voltage: 28 VDC nominal	
Current: Approximately 850 amperes initial start to approximately 200 amperes at 60% GTE rotor speed	
Automatic Shutdown features:	
Overspeed: 110 ±1 percent (68,587 rpm)	
Overtemperature: 1300 °F (704 °C) above 60% rotor speed; 1255 °F (679°C) at 100% speed	
Overcurrent: 4.0 amperes maximum	
Low Oil Pressure (10 seconds above 95%):	31 psig minimum (normal 45 ±10 psig)
High Oil Temperature (1 second delay):	275 °F (135 °C) maximum
Loss of EGT sensing (1 second delay):	
Loss of rpm sensing (1 second delay):	
Fuel	
MIL-T-5624, Grade JP-4	-65 to 135 °F (54 to 57 °C)
MIL-T-5624, Grade JP-5, or MIL-T-83133, Grade JP-8	-40 to 135 °F (40 to 57 °C)
Commercial Jet A	-40 to 135 °F (40 to 57 °C)
*Sea level, 115 °F (46 °C) at 10,000 feet (3048m)	
Emergency Fuel (25 hrs maximum)	Diesel MIL-G-5572 or W-F-800
Fuel Consumption (approximate)	
With bleed air	125 lb/hr (19 gph)
Without bleed air	110 lb/hr (17gph)

EQUIPMENT DATA – CONTINUED

Table 1. Equipment Data. – Continued

Exhaust Gas Temperature Limits	
Allowable below 60% rotor	1600 °F (871 °C) for 30 seconds maximum speed during start cycle
	1600 to 1800 °F (871 to 982 °C) for 2 seconds maximum
Allowable above 60% rotor speed	1300 °F (704 °C) maximum
Allowable at 100% speed	1255 °F (679 °C) maximum
Battery (MEP 83-360A, MEP 83-360D/E)	
Standard: Optima gel type Model-34/78 (Red Top) (2 each)	12 VDC, 800 CCA, P/N 8002-250
Optional: Aircraft lead-acid (1 each)	24 VDC, 40 amp-hour, P/N CB24-382E
Optional: Aircraft NiCad (1 each)	24 VDC, 34 amp-hour, P/N M81757/9-2
Battery Charger (MEP 83-360A, MEP 83-360D/E)	
Manufacturer	
Leland Electrosystems, Smith Industries, Aerospace (CAGE 07639)	
Model	
DSH831-1A	
Voltage	
Output selectable at 28.5, 30.5, or 32 VDC	
Output	
50 amperes nominal battery	
20 amperes nominal control circuits	
Generator and Generator Control Unit (GCU)	
Manufacturer	
Leland Electrosystems, Smith Industries, Aerospace (CAGE 07639)	
MEP 83-360A (only)	
AGH815-1 (Generator)	
CSV 3370-2 GCU	
Rated-continuous duty, single mode	AC 30 KW, 3 phase, 400 Hertz, 115/200v, 0.8 power factor, DC 700 amperes, 28 VDC
MEP 83-360D and MEP 83-360E (only)	
AGH838-3 (Alternator)	
CSV 3370-3 GCU	
Rated-continuous duty, single mode	AC 38.4 KW, 3 phase, 400 Hertz, 115/200v, 0.8 power factor

EQUIPMENT DATA – CONTINUED

Table 1. Equipment Data. – Continued

Transformer Rectifier Unit (TRU), (MEP 83-360D and MEP 83-360E (only)

Manufacturer

Allied Signal Inc., Aerospace Equipment Systems (CAGE 83298)

Model

9B40-15D

Output

350 amperes continuous at 26 volts minimum

350 amperes continuous at 25 volts minimum

500 amperes for 1 minute

1,000 amperes for 5 seconds

TRU features

Silicon diode rectifiers

Fan cooled continuous duty

22 amp input at 350 amp output (85% efficiency)

1.5 volt maximum ripple

Auxiliary Fuel Pump (MEP 83-360A, MEP 83-360D/E)

Manufacturer

Weldon Tool Company (CAGE 64560)

Model

A8016-B

Type

Electric motor (28 VDC) driven, continuous duty, 3A max

Output

20 psi

Auxiliary Fuel Filter (MEP 83-360A, MEP 83-360D/E)

Manufacturer

Raycor Division, Parker Hannifin Corporation (CAGE 55752)

Model

660R-10

Filtering

10 micron

Element

Replaceable cartridge (R60T)

EQUIPMENT DATA – CONTINUED

Table 1. Equipment Data. – Continued

Air Cleaner (MEP 83-360A, MEP 83-360D/E)

Manufacturer

PALL Aeropower Corporation (CAGE 60047)

Model

AE-A212-4

Type

Inertial particle separator type, bleed air scavenged

Hydraulic Pump (MEP 83-360A, MEP 83-360D/E)

Manufacturer

Triumph Inc. (CAGE 57850)

Model

411612-3

Type

Axial Piston, variable displacement, pressure compensated

Output

500 to 3400 psig at 15.2 gpm at aircraft interface (SAE-AS5440, Type II)

Hydraulic Module (MEP 83-360A, MEP 83-360D/E)

Manufacturer

Pnuedraulics Incorporated (CAGE 06177)

Model

06177-83-14631

Reservoir

Vented through dryer. 9 gallon capacity

Suction Fill System

4 gpm from 55 gallon drum

Filtration

High pressure: 2 micron absolute at 20 gpm.

Return: 5 micron at 20 gpm

EQUIPMENT DATA – CONTINUED

Table 1. Equipment Data. – Continued

Running Gear
Wheel mounted, pneumatic tires (P195/75R15, or equivalent)
Tire Pressure 35 psig
Tow Bar, pintle heights between 6 and 28 inches (15 to 71.12 cm) above ground
Tow Speeds:
20 mph (32 kph) maximum on improved road surfaces
10 mph (16 kph) maximum on rough unimproved terrain
Turning radius approximately 11 feet (3.4 m)
Parking brake on rear wheels only
Ground clearance 7 inches (18 cm) under axles
Propulsion
28 VDC, 3 hp drive motor, 83-14520 (CAGE 63631) with electric brake, 304198-32 (CAGE 4V298)
Variable speed 0 to 3 mph on level terrain, 1/2 mph on 15 degree slope
Manual clutch
Twist-grip speed/direction control, spring loaded to off
Dead-man control

EQUIPMENT DATA – CONTINUED

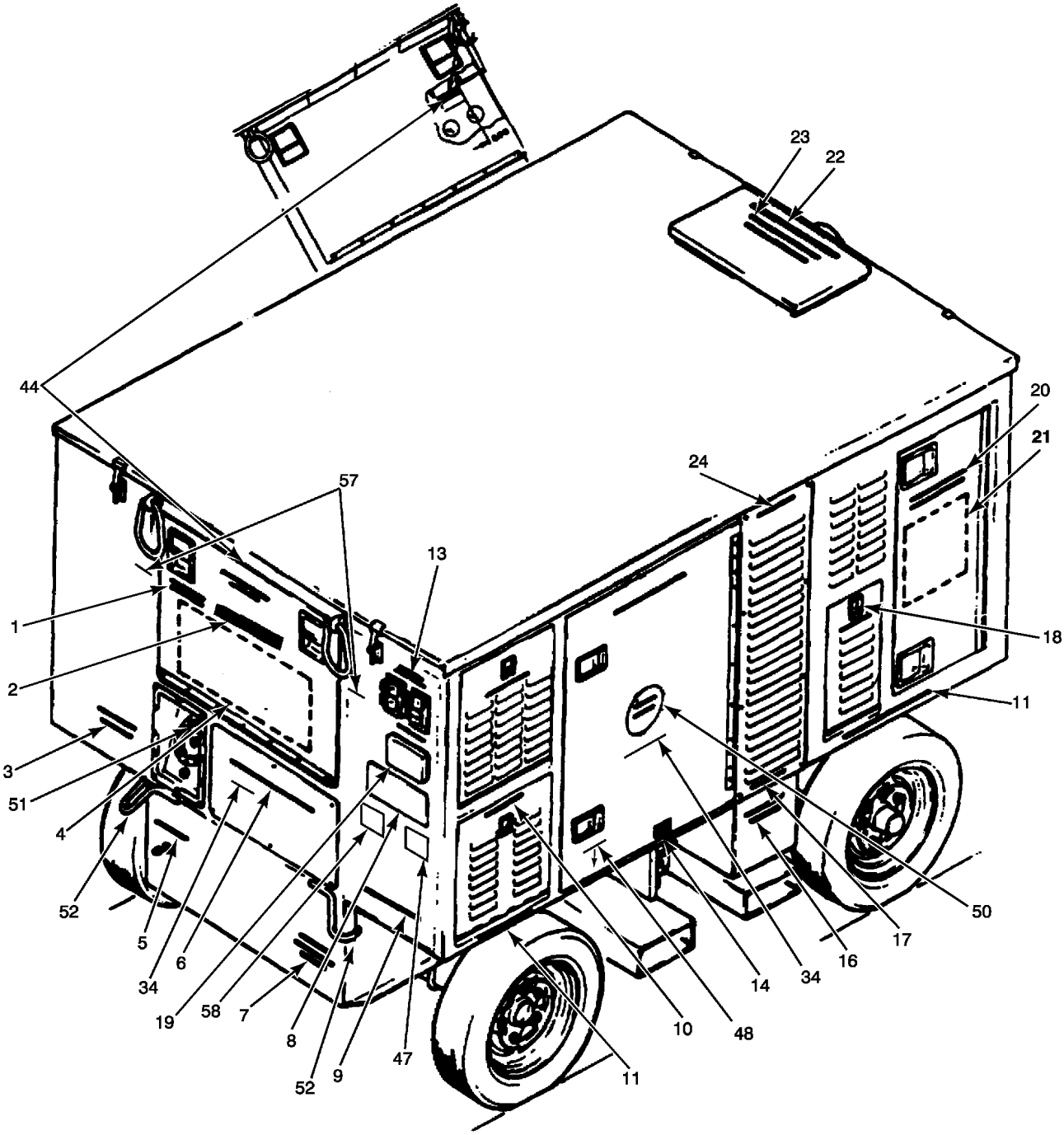
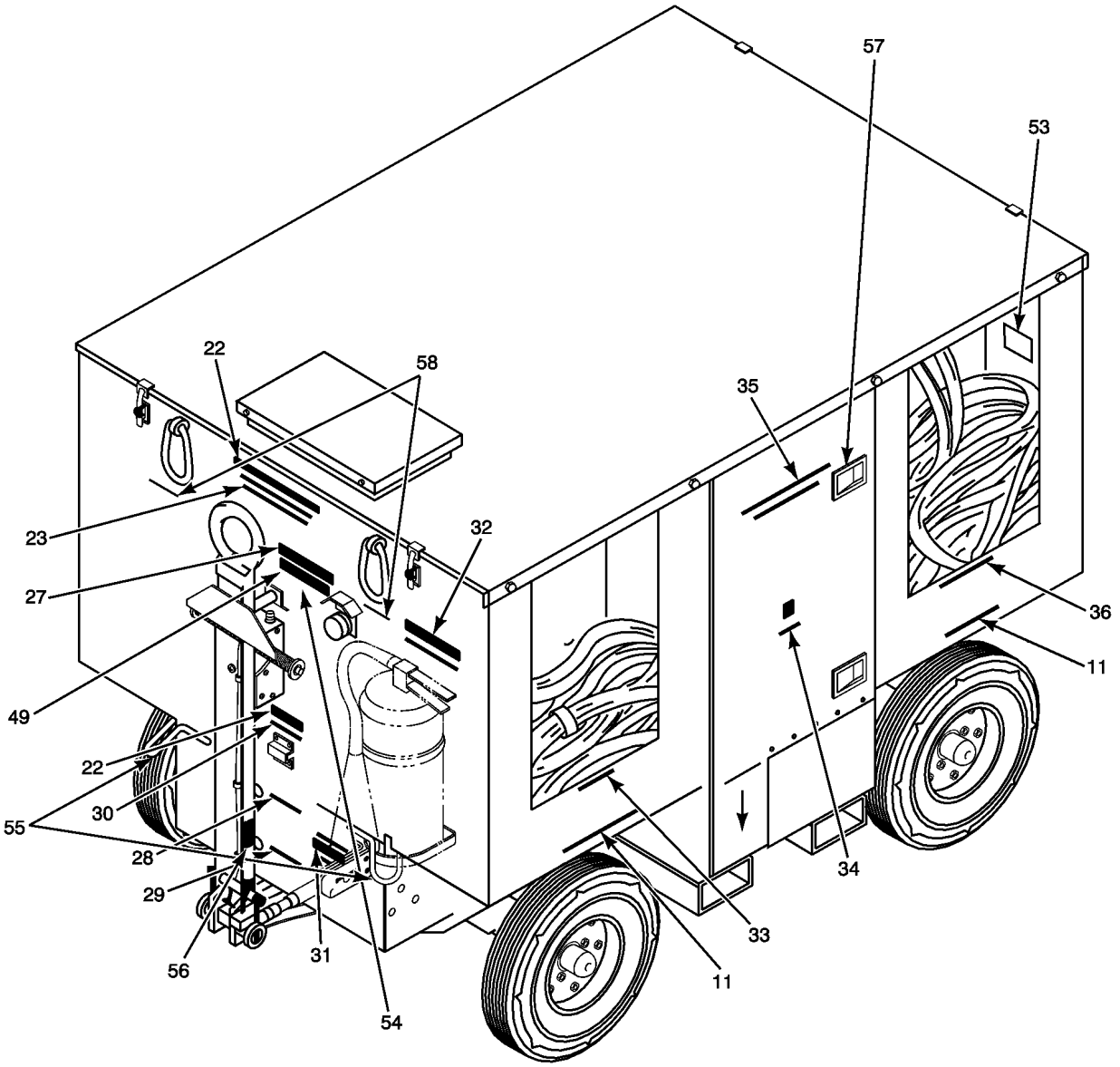


Figure 1. Location of Stenciling and Instruction Plates (Sheet 1 of 3).

EQUIPMENT DATA – CONTINUED



NOTE: SEE TABLE 1–2 FOR NOMENCLATURE

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Figure 1. Location of Stenciling and Instruction Plates (Sheet 2 of 3).

EQUIPMENT DATA – CONTINUED

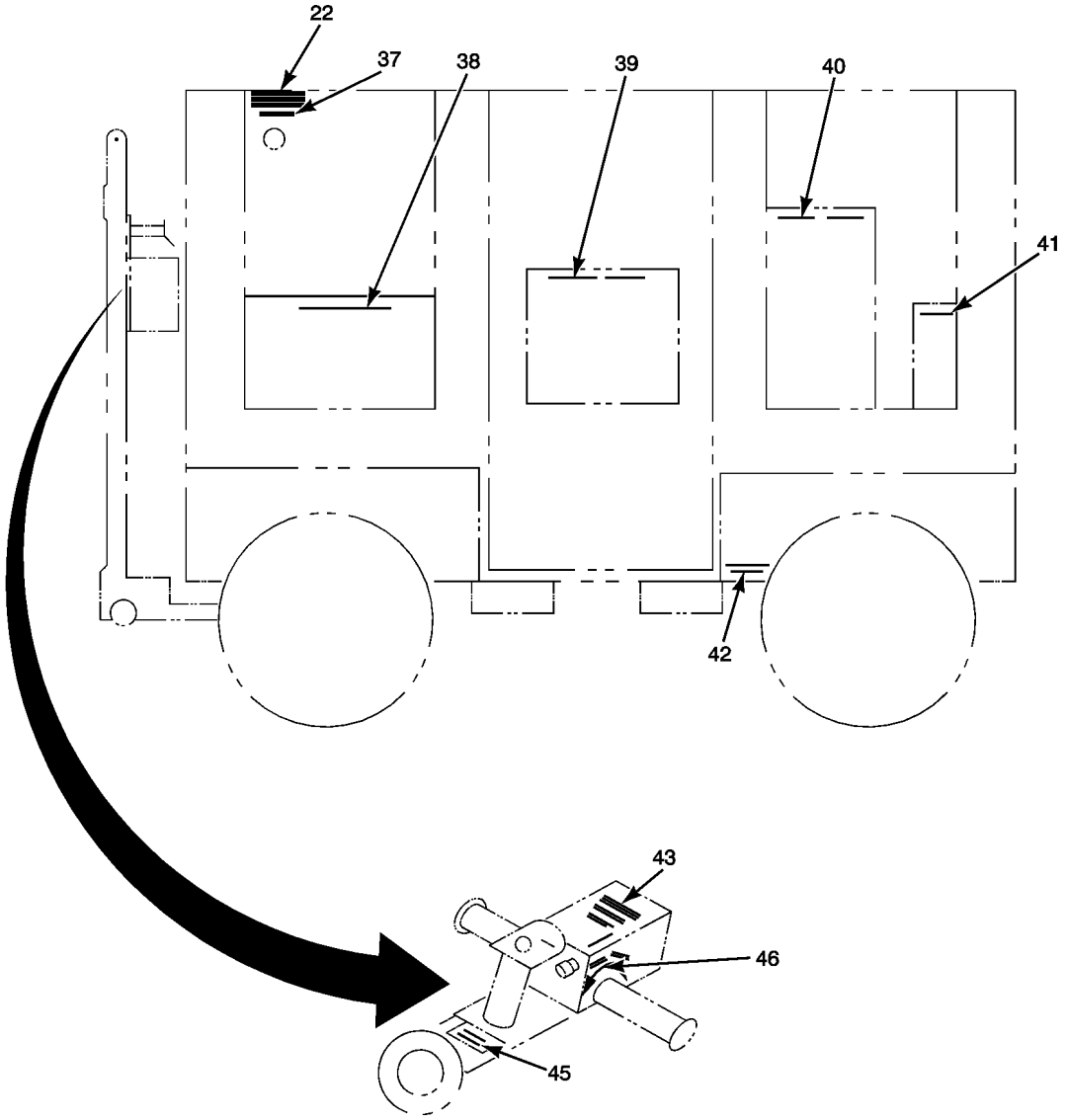


Figure 1. Location of Stenciling and Instruction Plates (Sheet 3 of 3).

Table 2. Stenciling Nomenclature and Instruction Plates.

Reference	Nomenclature	Character Size (inches) (Color - Black)
1	MANUAL COMPARTMENT	.5
2	CONTROL PANEL	.5
3	JP-4/JP-8 FUEL 65 GAL	.5
4	INSTRUCTION PLATE (INSIDE DOOR)	—

EQUIPMENT DATA – CONTINUED

Table 2. Stenciling Nomenclature and Instruction Plates. – Continued

Reference	Nomenclature	Character Size (inches) (Color - Black)
5	GROUND	.5
6	BATTERY CHARGER ACCESS	.5
7	CLUTCH LEVER	.5
	PULL TO DRIVE	
	PUSH TO TOW	
8	IDENTIFICATION PLATE	—
8A	MWO ID PLATE (MEP 83-360D and MEP 83-360E (only)	—
9	BATTERY VENT (MEP 83-360A only)	.5
10	BATTERY	.5
11	TP 35	.5
12	28 VDC	.5
13	115 VAC	.5
	1 PHASE 400 HZ	
14	FUEL VALVE	.5
	INT	
	OFF EXT	
15	ELECTRICAL TRAYS	.5
16	AIR CLEANER	.5
	EXHAUST ACCESS	
17	DO NOT BLOCK	.5
18	HYDRAULIC FILTERS	.5
19	SLAVE RECEPTACLE	.5
20	HYDRAULIC CONTROL	.5
	PANEL	
21	INSTRUCTION PLATE (HYD CONTROLS)	—
22	CAUTION	1.0
23	ENGINE	.5
	EXHAUST	
24	ENGINE AIR INTAKE	.5
25	ENGINE ACCESS	.5
26	PREHEAT	.5

EQUIPMENT DATA – CONTINUED

Table 2. Stenciling Nomenclature and Instruction Plates. – Continued

Reference	Nomenclature	Character Size (inches) (Color - Black)
	ACCESS	
27	EMERGENCY	1.0
	STOP	
28	FUEL-2/3	.5
29	FUEL-1/3	.5
30	HOT	.5
31	OFF	.5
	BRAKE	
	ON	
32	FIRE	1.0
	EXTINGUISHER	
33	AC. CABLE	.5
34	CG	.5
35	PNUEMATIC HOSE (DC/AC INVERTER)	.5
36	D.C. CABLE	.5
37	CAUTION	.5
	ENGINE BLEED AIR	
	40 PSIG, 400°F	
38	EXHAUST ACCESS	.5
39	ENGINE ACCESS	.5
40	HYDRAULIC PUMP ACCESS	.5
41	FUEL HOSE AND NECK ACCESS	.5
42	FUEL DRAIN	.5
	VALVE	
43	DO NOT	.5
	TOW WHEN	
	LIGHTED	
	CLUTCH	
	ENGAGED	
44	CAUTION	.5
	HIGH INTENSITY NOISE	.25
	HEARING PROTECTION	

EQUIPMENT DATA – CONTINUED

Table 2. Stenciling Nomenclature and Instruction Plates. – Continued

Reference	Nomenclature	Character Size (inches) (Color - Black)
	REQUIRED	
45	CAUTION	.5
	DISENGAGE	.25
	DRIVE CLUTCH	.25
	BEFORE	.25
	TOWING	.25
46	FORWARD ↔REVERSE	.25
47	MWO APPLIED IDENTIFICATION PLATE	.5
48	FORK LIFT POCKET	.5
49	ENGINE ACCESS DOOR	.5
50	ENGINE COMPARTMENT PREHEAT DOOR	.5
51	FUEL FILL	.5
52	TIE DOWN	.5
53	TRU	.5
54	DO NOT BACK WITH VEHICLE	.5
55	TIE DOWNS	.5
56	TOW BAR RELEASE	.5
57	LIFT POINT	.5
58	UNIVERSAL IDENTIFICATION	—

Table 3. Torque Specifications.

Item	Torque Required	Work Package
Igniter Plug	100 inch-pounds	WP 0090 00
Igniter Plug Lead	35 inch-pounds	WP 0091 00
Ignition Unit Mounting Bolts	50 inch-pounds	WP 0092 00
Starter Assembly Mounting Bolts	100 inch-pounds	WP 0093 00
Oil Filter Cover Mounting Bolts	50 inch-pounds	WP 0089 00
Combustor Assembly Bolts	50 inch-pounds	WP 0097 00

EQUIPMENT DATA – CONTINUED

Table 3. Torque Specifications. – Continued

Item	Torque Required	Work Package
Fuel Control Unit (FCU) Clamp Nut	20 inch-pounds	WP 0074 00
Fuel Nozzle Mounting Bolts	50 inch-pounds	WP 0097 00
Load Control Valve (LCV) clamp nut	20 inch-pounds	WP 0083 00
Hydraulic Pump Mounting Nuts	190 inch-pounds	WP 0014 00
Wheel Nuts	45 foot-pounds	WP 0143 00
Engine Mounts	50 foot-pounds	WP 0162 00
Hydraulic Hose (AN-6) Coupling Nuts	210-230 inch-pounds	WP 0118 00
Hydraulic Hose (AN-12) Coupling Nuts	900 to 1,000 inch-pounds	WP 0118 00
Hydraulic Hose (AN-20) Coupling Nuts	1,520 to 1,680 inch-pounds	WP 0118 00
Generator Mounting Nuts	280 to 300 inch-pounds	WP 0061 00
Starter Housing to End Bell Bolts	25 to 30 inch-pounds	WP 0053 00
Hydraulic Tube Fittings	135 to 150 inch-pounds	WP 0118 00
Hydraulic Reservoir Coupling Nut	900 to 1,000 inch-pounds	WP 0118 00
Hydraulic Tube Fittings	450 to 500 inch-pounds	WP 0118 00
Hydraulic Tube Fittings	1,200 to 1,400 inch-pounds	WP 0118 00
Hydraulic Tube Fittings	1,200 to 1,400 inch-pounds	WP 0127 00
Hydraulic Tube Fittings	900 to 1,000 inch-pounds	WP 0127 00
Swivel Nut	450–500 inch-pounds	WP 0127 00
Hydraulic Tube Fittings	1,200 to 1,400 inch-pounds	WP 0127 00
Manual Fill Reducer	650 to 700 inch-pounds	WP 0123 00
Hydraulic Tube Fittings	450 to 500 inch-pounds	WP 0123 00
Hydraulic Tube Fittings	135 to 150 inch-pounds	WP 0123 00
Engine Housing Scroll Bolts	50 to 55 inch-pounds	WP 0028 00
Engine Housing Bolts	55 to 60 inch-pounds	WP 0018 00
Engine Inlet Screen Nuts	20 to 25 inch-pounds	WP 0018 00
Engine Hourmeter Bracket Bolts	30 to 35 inch-pounds	WP 0095 00/WP 0018 00
Thermocouple Bolts	30 to 35 inch-pounds	WP 0018 00
Speed Sensor Bolts	30 to 35 inch-pounds	WP 0018 00
Fuel Solenoid Bolts	30 to 35 inch-pounds	WP 0018 00
Hourmeter Screws	30 to 35 inch-pounds	WP 0095 00/WP 0018 00
Ignition Unit Bolts	45 to 50 inch-pounds	WP 0018 00

EQUIPMENT DATA – CONTINUED

Table 3. Torque Specifications. – Continued

Item	Torque Required	Work Package
Igniter Plug	95 to 100 inch-pounds	WP 0097 00
Igniter Plug Leads	30 to 35 inch-pounds	WP 0097 00
Axle U-Bolts	55 to 60 foot-pounds	WP 0098 00
Chain Drive Bolts	35 to 40 foot-pounds	WP 0152 00
Drive Pinion Shaft Nut	45 to 50 foot-pounds	WP 0152 00
Drive Chain Adjustment Nut	20 to 25 inch-pounds	WP 0152 00
Chain Housing Bolts	35 to 40 foot-pounds	WP 0152 00
Fuel Filter FCU Bolts	10 to 15 foot-pounds	WP 0075 00

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU) WHEEL MOUNTED, SELF-PROPELLED, TOWABLE AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V DC - 28 VOLT PNEUMATIC - 60 LBS/MIN. AT 40 PSIG HYDRAULIC - 15.2 GPM AT 3300 PSIG LIN: P44627 PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A) EIC: UEG PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D) EIC: UDG PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E) EIC: UDH

DESCRIPTION OF CONTROLS AND INDICATORS

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

WP 0002 00

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

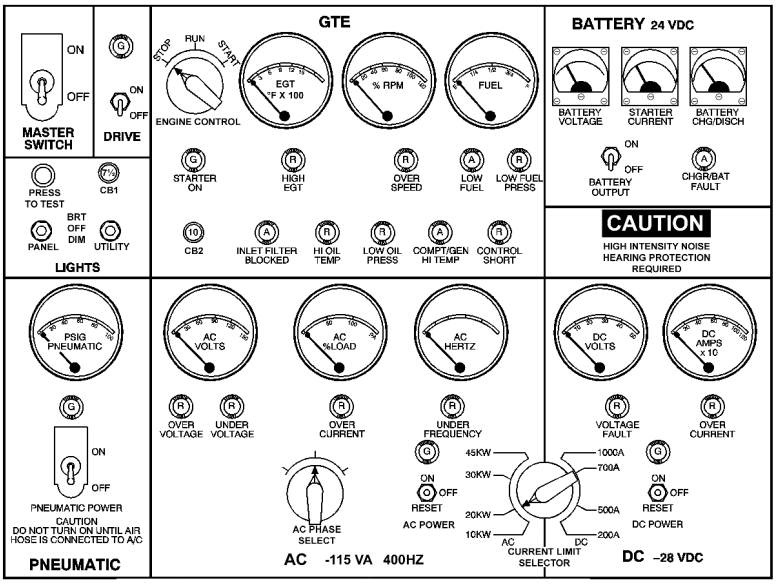
WP 0003 00

EQUIPMENT DATA

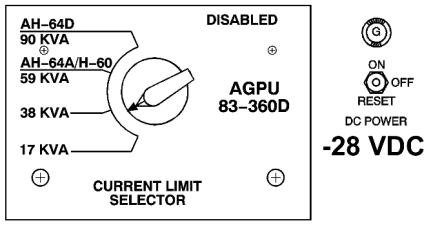
CONTROLS AND INDICATORS

TM 1-1730-229-13, Operator Instructions will describe the use and function of operating controls and indicators. Learn the locations and function of all controls and indicators before operating the AGPU.

MEP 83-360A (ONLY)



MEP 83-360D (ONLY)



MEP 83-360E (ONLY)

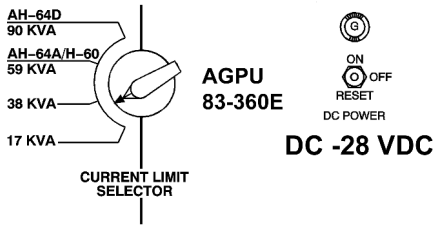


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Figure 1. Control Panel.

EQUIPMENT DATA – CONTINUED

Table 1. Control Panel, Controls and Indicators..

Control/Indicator	Function
MASTER switch (S2)	Two position (ON-OFF) toggle switch (guarded). Controls DC power (battery or charger) to all DC power control systems, except slave receptacle.
DRIVE switch (S3)	Two position (ON-OFF) toggle switch. Controls DC power to propulsion system motor speed controller. DC power is available when master switch is on, clutch is engaged, tow bar is lowered, speed/direction control grip actuated, DEADMAN switch pressed, and motor thermal switch closed.
DRIVE indicator (DS1)	Green indicator light. Illuminates when DRIVE switch, MASTER switch, BATTERY OUTPUT or DC POWER switch are on, and clutch is engaged.
Lights Section	
7.5 Circuit breaker (CB1)	7.5 AMP push-pull circuit breaker. Protects against overloads in lighting, fuel indication, and pneumatic control circuits.
PRESS TO TEST switch (S4)	Push-button switch. Tests all control panel indicator lights. DC voltage is available when MASTER SWITCH and 7.5 circuit breaker are on.
PANEL lights switch (S6)	Three position (BRT/OFF/DIM) toggle switch. Controls intensity of lights above control panel, and shuts lights off.
UTILITY lights switch (S7)	Three position (BRT/OFF/DIM) toggle switch. Controls intensity of lights in engine compartment, fuel receiver, and hydraulic control panel, and shuts lights off.
GTE Section	
10 amp Circuit breaker (CB2)	10 amp push-pull circuit breaker. Protects against overloads in engine DC circuits.
ENGINE CONTROL switch (S1)	Three position (STOP/RUN/START) rotary switch. Switch is spring loaded to return to RUN position when released from START position. START position (momentary) - Applies battery voltage to GTE start relay. Battery voltage is available when MASTER SWITCH and GTE 10 amp circuit breaker are on. RUN position - Holds start relay energized, which maintains voltage to ECU. STOP position - De-energizes GTE start relay.
STARTER ON indicator (DS2)	Green indicator light. Illuminates when GTE starter contact is energized.
EGT °F X100 meter (M1)	0 to 18 °F X100 (0 to 1800 °F) scale. Green band below 1275 °F, yellow band at 1275-1295 °F, and red band above 1295 °F. Indicates GTE exhaust gas temperature (EGT) in °F.
HIGH EGT indicator (DS3)	Red warning indicator light. Illuminates if GTE is shut down because of high GTE.

EQUIPMENT DATA – CONTINUED

Table 1. Control Panel, Controls and Indicators.. – Continued

GTE Section	
%RPM meter (M2)	0 to 120% linear scale. Green band at 95-105%, and red band above 108%. Indicates GTE speed as percentage of governed speed.
OVER SPEED indicator (DS4)	Red warning indicator light. Illuminates if GTE shuts down because of overspeed.
OVER SPEED indicator (DS4)	E (empty) to F (full) scale with 1/8-tank divisions. Indicates fuel level. F (full) = 65 gallons
LOW FUEL indicator (DS5)	Amber caution indicator light. Illuminates when 15 to 30 minutes of fuel remain.
LOW FUEL PRESS indicator (DS6)	Red warning indicator light. Illuminates if GTE shuts down because of low fuel pressure (no output from auxiliary fuel pump).
INLET FILTER (AIR CLEANER) BLOCKED indicator (DS8)	Amber caution indicator light. Illuminates if GTE inlet air flow is restricted, causing bypass door to open.
HI OIL TEMP indicator (DS9)	Red warning indicator light. Illuminates if GTE shuts down because of high oil temperature.
LOW OIL PRESS indicator (DS10)	Red warning indicator light. Illuminates if GTE shuts down because of low oil pressure (Oil pressure must below 12 psig for 10 seconds after GTE rpm reaches 95% before GTE is shut down).
COMPT/GEN HI TEMP indicator (DS11)	Amber caution indicator light. Illuminates if electrical bay temperature or generator AC winding temperature is high.
CONTROL SHORT indicator (DS12)	Red warning indicator light. Illuminates if GTE shuts down because of overcurrent condition in ECU circuits (overcurrent condition must exist for 3 seconds before ECU shuts down GTE).
BATTERY 24 VDC Section	
BATTERY VOLTAGE meter (M4)	0 to 40 volt, with 2 volt divisions. Green band at 24-32 volts. Indicates battery voltage when MASTER SWITCH is in ON position.
STARTER CURRENT meter (M5)	0 to 12 AMPS x 100 (0-1200 AMPS) scale. Indicates GTE starter current when starter is energized. (The starter can be run from the AGPU battery or from an external source connected to the AGPU slave receptacle.)
BATTERY CHG/DISCH meter (M6)	0 to 50 AMP discharge scale (yellow), and 0 to 50 AMP charge scale (green) 5 AMP divisions). Indicates battery charge/discharge current.
BATTERY OUTPUT switch (S5)	Two-position (ON/OFF) toggle switch. Used to connect battery/charger to external DC cable. (DC POWER switch must be set to OFF.) Provides power to drive system, 110 vac inverter and slave power to external equipment. Place in the off position when dc power is not needed to prevent battery discharge.

EQUIPMENT DATA – CONTINUED

Table 1. Control Panel, Controls and Indicators.. – Continued

BATTERY 24 VDC Section	
CHRGR/BATT FAULT indicator (DS7)	Amber caution indicator light. Illuminates when battery charger output is low (less than 50 milliamps), or if battery/charger transfer relay is not energized.
DC 28 VDC Section	
DC POWER switch (S12)	Three-position (ON/OFF/RESET) toggle switch. ON position - Energizes DC contactor to apply DC voltage to load. OFF position - de-energizes DC contactor. RESET position - Resets GCU as fault logic (extinguishes DC red warning indicator lights).
DC POWER indicator (DS21)	Green indicator light. Illuminated when DC contactor is closed.
DC VOLTS meter (M11)	0 to 50 volts scale. Green band at 22-32 volts. Red warning indicator light. Indicates TRU or generator DC output voltage.
VOLTAGE FAULT indicator (DS18)	Red warning indicator light. On the MEP 83-360A AGPU only, illuminates if GCU opens DC contactor, or removes generator field excitation due to low or high voltage, high ripple, or an overcurrent condition.
DC AMPS x 10 meter (M12)	0 to 120 AMP x 10 (0 to 1200 AMP) scale. Green band below 700 amps, yellow band at 700- 1000 amps, and red band above 1000 amps. On the MEP 83-360D AGPU, the green, yellow, and red bands are no longer correct. A label "MAX CONT, 350 AMP" has been applied below this gauge to indicate the green band. The yellow band should be from 350- 500 amps and the red bands should be above 500 amps.
OVER CURRENT Indicator (DS19)	Red warning indicator light. Illuminates when current exceeds 1000 amps. (Current may exceed 1000 amps for 30 seconds when voltage is in limits, or 4 to 7 seconds if voltage is low.) On the MEP 83-360D AGPU, the current is not limited by the GCU. This is now used to indicate an overheat condition in the TRU, which is an indication of DC over current or cooling fan failure.
CURRENT LIMIT SELECTOR switch (S11)	Rotary four-position switch (200A, 500A, 700A, and 1000A). Selects generator maximum DC current output. On the 83–360D/E, the DC side of this switch is not used. DC current is limited only by the capacity of the TRU. All DC settings have been removed. DC output is available at any of the newly marked A/C settings.
AC 115 VAC, 400 Hz Section	
AC POWER switch (S10)	Three-position (ON/OFF/RESET) switch. ON position - Energizes AC contactor to apply AC voltage to load OFF position - de-energizes AC contactor. RESET position - Resets GCU as fault logic circuit (extinguishes as red warning indicator lights).
AC PHASE SELECT switch (S9)	Green indicator light. Illuminated when AC contactor is closed.

EQUIPMENT DATA – CONTINUED

Table 1. Control Panel, Controls and Indicators.. – Continued

AC 115 VAC, 400 Hz Section	
CURRENT LIMIT SELECTOR switch	Rotary switch with four AC positions (10 KW, 20KW, 30 KW, and 45 KW). Selects generatormaximum AC output for all phases. (If the switch is set for 30 KW, the maximum output per phase is 10 KW, or 100% of the AC % LOAD meter.) On the MEP 83-360D, the AC current limit selections are: 17 KVA, 38 KVA, 59 KVA (AH-64A/UH-60), and 90 KVA (AH-64D). When the CURRENT LIMIT SELECTOR switch is set at 45 KWand 1000 AMP on the MEP 83-360A, or AH-64D/90 KVA on the MEP 83-360D/E this switch also opens a surge control valve to increase available shaft horsepower.
AC VOLTS meter (M8)	0 to 150 volts scale. Green band at 108-118 volts. Indicates voltage of selected phase.
OVER VOLTAGE indicator (DS14)	Red warning indicator light. Illuminates when GCU opens AC contactor because of over voltage.
UNDER VOLTAGE indicator (DS15)	Red warning indicator light. Illuminates when GCU opens AC contactor or removes generator field excitation due to low voltage or an overcurrent condition.
AC% LOAD meter (M9)	0 to 150% scale. Green band below 100% and yellow band above 100%. Indicates AC external load of selected phase. On the MEP 83-360D/E, the AC% LOAD readings are not correct. A label “MAX. CONT. 133%” has been applied below this gage to indicate the continuous AC output power rating of the upgraded units. The meter reads correctly for the MEP 83-360A.
OVER CURRENT indicator (DS16)	Red warning indicator light. Illuminates when load exceeds 45 KW (162 amp, 1 phase) on the MEP 83-360A. On the MEP 83-360D/E, this light illuminates when the load exceeds 53 KW(191 amp, 1 phase). (Load may exceed 45 KW for 30 seconds when voltage is in limits, or 4 to 7 seconds if voltage is low.)
AC HERTZ meter (M10)	350 to 450 Hz scale, green band at 393-407 yellow band at 375-393 and 407-425, and red band below 375 and above 425. Indicates frequency on all models.
UNDER FREQUENCY indicator (DS17)	Red warning indicator light. Illuminates when GCU opens AC contactor due to under frequency on all models.
PNEUMATIC Section	
PNEUMATIC POWER switch (S8)	Two-position (ON/OFF) toggle switch (guarded). Activates GTE load control valve (LCV). Also closes normally open (N. O.) dump solenoid valve.
PNEUMATIC POWER indicator (DS13)	Green indicator light. Illuminates when PNEUMATIC POWER switch is on.
PSIG PNEUMATIC gauge (M7)	0 to 100 PSIG scale. Green band at 24-60 psig. Indicates pressure in pneumatic output hose.

FUEL SUPPLY SYSTEM

EQUIPMENT DATA – CONTINUED

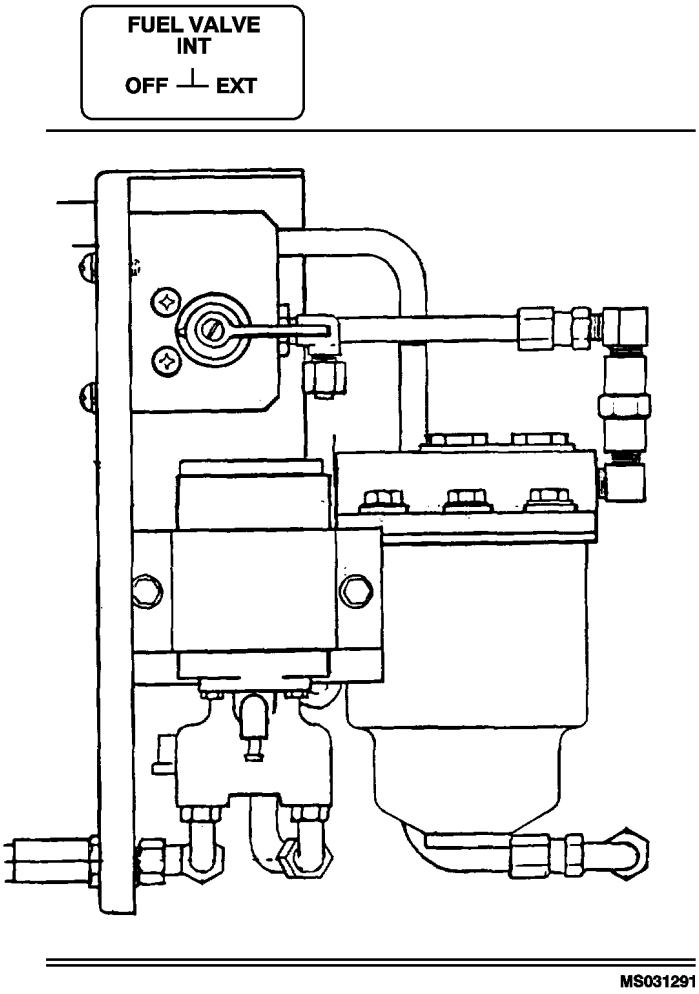

Figure 2. Fuel Supply System.

Table 2. Fuel System, Controls and Indicators..

Control/Indicator	Function
Fuel Valve	Four position rotary valve (three positions only used). Provides facility for operating engine on an external fuel supply

HYDRAULIC CONTROL PANEL (ALL MODELS)

EQUIPMENT DATA – CONTINUED

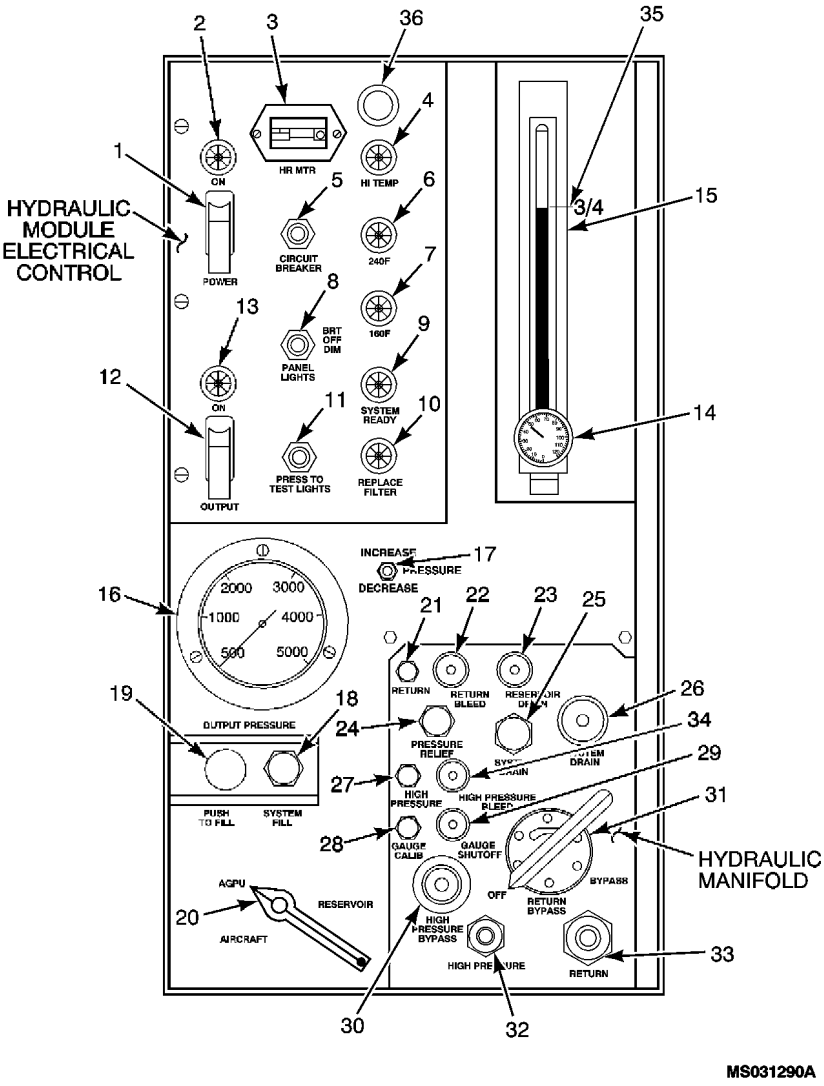

Figure 3. Hydraulic Control Panel (All Models).

Table 3. Hydraulic Control Panel, Controls and Indicators.

Key	Control/Indicator	Function
	Electrical Panel	
1	POWER switch (S1)	Two position (ON/OFF) toggle switch (guarded). Controls DC power to hydraulic module circuits.
2	POWER ON indicator (DS2)	Green indicator light. Illuminates when hydraulic module POWER switch is set to on.
3	HR MTR running time indicator	5-digit time indicator. Indicates the hours of hydraulic module operation. Starts when POWER switch is set to on.
4	HI TEMP indicator (DS1)	Red warning light. Illuminates when hydraulic fluid temperature exceeds 275 °F (135 °C).

EQUIPMENT DATA – CONTINUED

Table 3. Hydraulic Control Panel, Controls and Indicators. – Continued

Key	Control/Indicator	Function
5	CIRCUIT BREAKER (CB1)	7.5 amp, push-pull, circuit breaker. Protects against overloads in the panel light circuit and in circuits controlled by POWER switch (S1).
6	240 °F indicator (DS3)	Amber indicator light. Illuminates when hydraulic fluid temperature exceeds 240 °F (116 °C).
7	160 °F indicator (DS4)	Amber indicator light. Illuminates when hydraulic fluid temperature exceeds 160 °F (71 °C).
8	PANEL LIGHTS switch (S2)	Three position (BRT/OFF/DIM) toggle switch. Controls panel lights.
9	SYSTEM READY indicator (DS5)	Green indicator light. Illuminates when hydraulic fluid temperature exceeds 70 °F (21 °C).
10	REPLACE FILTER indicator (DS7)	Amber indicator light. Illuminates when hydraulic fluid filters are dirty.
11	PRESS TO TEST LIGHTS switch	Two position toggle switch. Spring loaded to off (up) position. Tests all indicator lamps on hydraulic control panel.
12	OUTPUT switch (S4)	Two-position (ON/OFF) toggle switch (guarded). Controls hydraulic power to load (aircraft) by actuating output solenoid valve.
13	OUTPUT ON indicator (DS6)	Green indicator light. Illuminates when power is applied to hydraulic fluid output solenoid valve.
	Reservoir/Temperature Gauge	
14	Hydraulic Fluid Temperature Gauge	Round thermometer with needle pointer. Indicates temperature of fluid in hydraulic reservoir.
15	Reservoir Fill Level Gauge	Glass tube containing hydraulic fluid from reservoir. Indicates level of fluid in hydraulic reservoir.
	Output Pressure Gauge	
16	OUTPUT PRESSURE gauge	0 to 5,000 psi Bourdon tube gauge. Indicates hydraulic fluid pressure.
	Pressure Switch	
17	PRESSURE switch	Three-position (INCREASE/CENTER/DE-CREASE) toggle switch. Spring loaded to center position. Increases or decreases pressure adjustment at the hydraulic pump. Release switch when desired pressure is obtained.
	Return Manifold	
18	SYSTEM FILL connector	Male fitting. Fitting used for filling reservoir.

EQUIPMENT DATA – CONTINUED

Table 3. Hydraulic Control Panel, Controls and Indicators. – Continued

Key	Control/Indicator	Function
19	PUSH TO FILL valve	Spring loaded, normally closed cartridge valve. Opens and closes reservoir fill valve.
20	RESERVOIR selection valve	Four-port rotary valve. Two position (AGPU and AIRCRAFT). Connects either the AGPU or aircraft hydraulic fluid reservoir to pump input line.
	Hydraulic Manifold	
21	RETURN fluid observation window/HP/LP	Site glass. Permits viewing fluid that passes through RETURN BLEED valve. Site glass. Permits viewing fluid that passes through HIGH PRESSURE BLEED valve.
22	RETURN BLEED valve	Cartridge shutoff valve (manual). Permits (when open) bleeding of air bubbles from fluid return circuit.
23	RESERVOIR DRAIN valve	Cartridge shutoff valve (manual). Permits (when open) draining the reservoir while retaining fluid in remainder of system.
24	PRESSURE RELIEF valve	Adjustable relief valve (manual). Permits setting of maximum system pressure allowable for the specific aircraft being powered. Pump (with pressure compensator) will maintain the fluid pressure to which the PRESSURE RELIEF valve has been set.
25	SYSTEM DRAIN connector	Threaded connector. Permits connection of drain hose during reservoir or system draining.
26	SYSTEM DRAIN valve	Cartridge shutoff valve (manual). Permits (when open) draining the system of fluid.
27	HIGH PRESSURE BLEED valve	Cartridge shutoff valve (manual). Permits (when open) bleeding of air bubbles from fluid in high pressure circuit.
28	GAUGE CALIB connector	Threaded connector. Permits connection of separate test gauge in parallel with OUTPUT PRESSURE gauge for calibration when gauge shutoff is closed.
29	GAUGE SHUTOFF valve	Cartridge shutoff valve (manual). Isolates (when closed) the OUTPUT PRESSURE gauge from the high pressure lines. Applies (when open) high pressure fluid to gauge to permit measurement. If valve is in the OFF position, gauge will not indicate any pressure at the start up of the GTE.

EQUIPMENT DATA – CONTINUED

Table 3. Hydraulic Control Panel, Controls and Indicators. – Continued

Key	Control/Indicator	Function
30	HIGH PRESSURE BYPASS valve	Cartridge shutoff valve (manual). Permits (when open) routing high pressure fluid into the return circuit without passing through the load select valve and aircraft. Permits fluid warm-up prior to applying hydraulic power to aircraft.
31	RETURN BYPASS valve	Two-position (OFF/BYPASS) rotary valve (manual). In OFF position a 65 psi relief valve is in the fluid return circuit. This back-pressure is required when servicing certain aircraft. In BYPASS position, the 65 psi relief valve is bypassed and no back-pressure is provided. Valve stays in the OFF position during normal operations.
32	HIGH PRESSURE connector	Male quick-disconnect fitting. Provides for connecting the high pressure output hose to the aircraft to be serviced, or to dual manifold.
33	RETURN connector	Male quick-disconnect fitting. Provides for connecting the low pressure return hose to the aircraft being serviced, or to dual manifold.
34	Vent Tube	Vents air for hydraulic reservoir.

ELECTRICAL TRAYS

EQUIPMENT DATA – CONTINUED

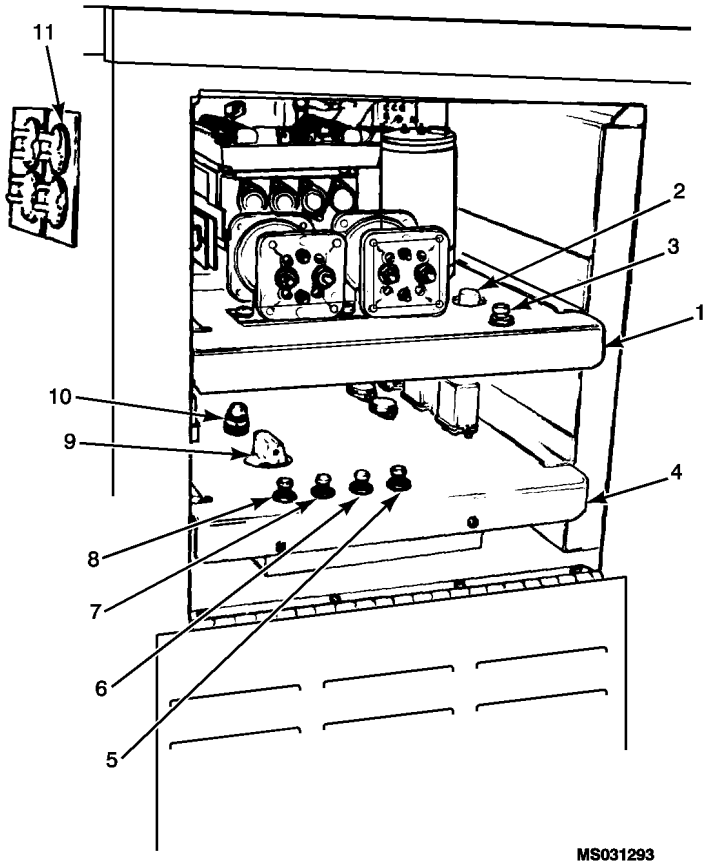

Figure 4. Electrical Trays.

Table 4. Electrical Trays, Controls and Indicators.

Key	Control/Indicator	Function
1	**Upper Tray**	
2	BATTERY CHARGER 70AMP	Circuit breaker. Protects against overloads in 50 amp section of battery charger.
3	BATTERY CHARGER 35AMP push-pull circuit breaker (CB2)	Circuit breaker. Protects against overloads in 20 amp (control power) section of battery charger.
4	**Lower Tray**	
5	Circuit breakers for OUTLETS, 115 VAC, 400 Hz (CB3)	15 AMP push-pull circuit breakers. Protect against overloads in AC convenience outlets as follows: CB3 (J1), CB4 (J2), CB5 (J3), CB6 (J4).
6	Circuit breakers for OUTLETS, 115 VAC, 400 Hz (CB 4)	15 AMP push-pull circuit breakers. Protect against overloads in AC convenience outlets as follows: CB3 (J1), CB4 (J2), CB5 (J3), CB6 (J4).
7	Circuit breakers for OUTLETS, 115 VAC, 400 Hz (CB 5)	15 AMP push-pull circuit breakers. Protect against overloads in AC convenience outlets as follows: CB3 (J1), CB4 (J2), CB5 (J3), CB6 (J4).

EQUIPMENT DATA – CONTINUED

Table 4. Electrical Trays, Controls and Indicators. – Continued

Key	Control/Indicator	Function
8	Circuit breakers for OUTLETS, 115 VAC, 400 Hz (CB 6)	15 AMP push-pull circuit breakers. Protect against overloads in AC convenience outlets as follows: CB3 (J1), CB4 (J2), CB5 (J3), CB6 (J4).
9	BATTERY CHARGER output selector switch (S1)	Three position (28.5 VDC, 30.5 VDC, and 32.0 VDC) rotary switch. Selects battery charger output voltage. This switch should be set for the type and condition of battery as indicated on tray and below: 28.5 VDC - for lead acid battery (hot or cold), or NI-CAD battery (hot). 30.5 VDC - for NI-CAD battery (normal). 32.0 VDC - for NI-CAD battery (cold). Note: Cold, normal and hot refer to ambient temperature ranges as follows: Cold: -65 to 35 °F (-54 to 2 °C) Normal: 35 to 80 °F (2 to 27 °C) Hot: 80 to 125 °F (27 to 52 °C)
10	Fuse (tow bar light) (F1)	2 AMP fuse. Protects against overload in propulsion control circuits.
11	115V/400 Hz	Convenience receptacles

PROPULSION CONTROLS AND DEADMAN SWITCH

EQUIPMENT DATA – CONTINUED

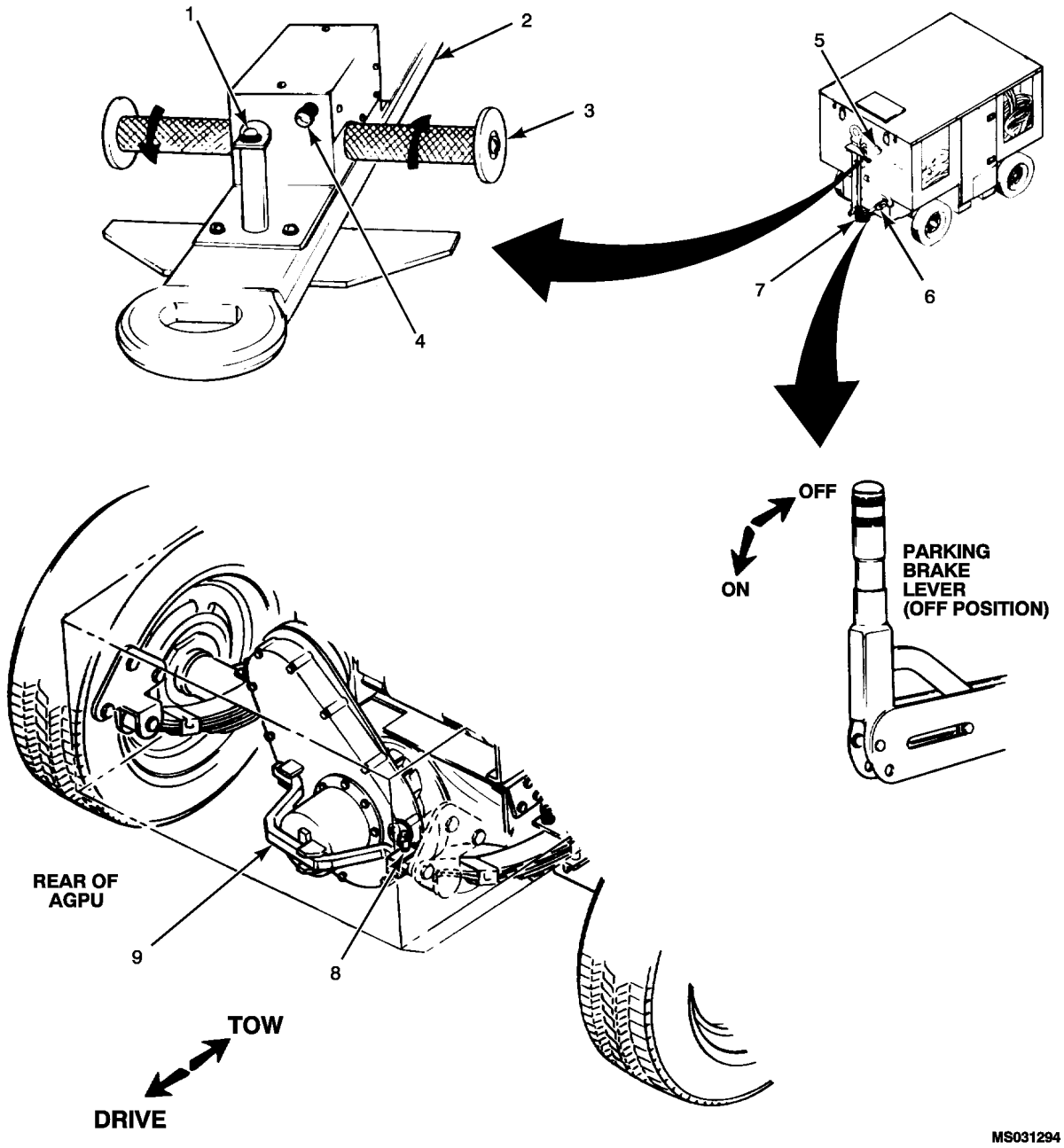

Figure 5. Propulsion Controls and DEADMAN Switch.

EQUIPMENT DATA – CONTINUED

Table 5. Propulsion Controls and DEADMAN Switch, Controls and Indicators.

Key	Control/Indicator	Function
1	DEADMAN switch (S2)	Push-button switch. Located on speed/direction control assembly. Press-and-hold switch that completes the connection of power to the propulsion system.
2	Tow Bar	Tow attachment to be used when towing AGPU by ground vehicle.
3	Speed and direction control	Twist grips. Located on speed/direction control assembly. Controls the speed and direction of the AGPU by twisting the control grips in the proper direction. To move the AGPU forward, twist either grip as shown by arrow in Figure 5. To move in reverse, twist either grip in opposite direction. To stop the AGPU, release the grip, allowing it to return to its spring-loaded centered (OFF) position, and AGPU will coast to a stop.
4	DO NOT TOW light	Indicator light. Located on speed/direction control assembly. Illuminates when the clutch mechanism is engaged.
5	Emergency Stop Switch (S2E)	Push-button switch (red). Located on front of AGPU. De-energizes ECU and results in engine shutdown. Also shuts down electrical, hydraulic, and/or pneumatic outputs (does not shut down battery output).
6	Parking brake lever	Pull-to-release lever. Located on lower right front of AGPU. Sets the rear wheel brakes. Brakes are applied when the lever is in the horizontal position and disengaged when the lever is raised to the vertical position.
7	Tow bar latch	Manual latch. Foot operated latch. Releases tow bar from vertical stowed position.
8	Quick Release Pin	Used to lock Drive Clutch Lever in position (DRIVE/TOW)
9	Clutch lever	Manual lever. Located on rear axle assembly. Connects drive (traction) motor power to rear axle. To engage clutch, Quick release pin must be removed and clutch lever pulled toward the rear. Pushing the lever forward and installing the quick release pin disengages the drive.

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU) WHEEL MOUNTED, SELF-PROPELLED, TOWABLE AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V DC - 28 VOLT PNEUMATIC - 60 LBS/MIN. AT 40 PSIG HYDRAULIC - 15.2 GPM AT 3300 PSIG LIN: P44627 PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A) EIC: UEG PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D) EIC: UDG PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E) EIC: UDH

THEORY OF OPERATION

AVIATION GROUND POWER UNIT

The Aviation Ground Power Unit (AGPU), MEP 83-360A, MEP 83-360D/E, is a gas turbine engine-driven, wheel mounted, self-propelled (up to 3 mph on flat surface), enclosed unit. The AGPU can be towed (20 mph maximum) and is air transportable. The AGPU provides AC/DC electrical, hydraulic, and pneumatic power. The power is available individually, or in any combination. The AGPU provides the ground power requirements for aircraft such as the following: AH-64, CH-47, OH- 58 (A, C and D), UH-1E and UH-60. Control and regulation of the AGPU electrical and pneumatic systems is semiautomatic. Electronic devices monitor and regulate electrical voltage, frequency, and current, as well as pneumatic outputs. Control of the hydraulic system is semiautomatic, in that the operator must set hydraulic pressure and select operating modes.

ENGINE

Engine/Gearcase

The Gas Turbine Engine (GTE) provides pneumatic power in the form of clean compressed air for operation of the aircraft main engine start system, environmental system, and other equipment or systems. The engine also provides mechanical power in the form of rotational shaft power for driving a generator and hydraulic pump. The engine delivers pneumatic and shaft power simultaneously or independently.

Compressor Section

The compressor section consists of an inlet housing, a compressor housing assembly, a single stage centrifugal compressor rotor, and a diffuser. The compressor provides compressed air to the turbine section, and for external use as bleed air. The inlet housing assembly houses a planetary gear set which drives the gear train in the gearcase assembly.

Combustor Assembly

The combustor assembly consists of a fuel nozzle mounted on the combustion chamber cap. Fuel delivered to the nozzle assembly is sprayed into the combustion chamber and mixes with compressor discharge air. The fuel-air mixture is ignited by the igniter plug and burns, creating hot combustion gases required to drive the turbine rotor.

Turbine Section

The turbine section consists of a turbine plenum, a torus scroll, a de-swirl assembly, a turbine nozzle, a turbine rotor, a labyrinth seal assembly, and a combustion chamber. Compressed air from the compressor section passes through the de-swirl deflector and enters the turbine plenum assembly where combustion takes place. The combustion gases flow through the torus scroll and the turbine nozzle to the turbine rotor causing rotation and driving the planetary gear system, which drives the gear train in the gearcase assembly. A containment ring is provided to protect personnel if the blades of the turbine were to disintegrate because of an overspeed or over temperature condition.

AVIATION GROUND POWER UNIT – CONTINUED

Gearcase Assembly

The gearcase assembly provides pads for mounting and driving a hydraulic pump and a generator. The gearcase assembly also provides mounting bosses for a low oil pressure switch, a speed sensor, and a high oil temperature switch. An oil pump housing is located on the lower front of the gearcase assembly. It encloses a rotary oil pump assembly and provides a mounting pad for the fuel control unit and mounting bosses for magnetic drain plugs.

Sealed Lead Acid Battery DC Electrical Power for the MEP 83-360A, MEP 83-360D and E Model AGPUs.

Operation:

The onboard storage battery or batteries provide 28-32 volts Direct Current (DC) @ 1600 Cold Cranking Amps (CCA) of DC power for the following operations.

1. Provides electrical DC power to the Electronic Control Unit (ECU) and ignition system for initial startup sequence of the GTE.
2. Provides electrical DC power to the onboard utility lighting system and DC master control circuits when GTE is not in operation.
3. Provides electrical DC power (28-32 volts @ 800-850 amps) to the engine starter for initial startup of the GTE.
4. Provides electrical DC power for the secondary propulsion operation.
5. Provides electrical DC power (28-32 volts) to the DC/AC inverter for utility AC power, with or without GTE in operation. (110-117 volts AC output @ 60Hz power, 16 amps maximum)
6. Provides power for slave start operations of other equipment.

The battery storage compartment is located on the right lower side if facing rear of the AGPU (control panel end). If facing tow bar (front) the battery compartment is located on the left hand side (rear) lower compartment.

The onboard storage battery or batteries are not used to provide power to the electrical system of the AGPU after the GTE is placed into operation. The onboard electrical battery charger provides the needed DC electrical power and amperage needed to continue normal operations. After the GTE reaches 100% engine RPM the GCU provides an excitation to the onboard AC Generator/Alternator that in turn produces 110-117 volts AC power to the battery charger (input). The battery charger provides two circuits of output power, 20 amp and 50 amps of power. The 20 amp side provides continuous power to the ECU and ignition system for continuous run operation. The 50 amp output circuit of the battery charger provides DC electrical power to replenish the onboard storage battery or batteries that have been depleted during initial startup of the GTE or the use of the propulsion system.

The AGPU ignition and starting system will fail to operate if the onboard storage battery or batteries voltage rating falls under 17 volts DC.

The MEP 83-360A initially had one onboard storage battery, these batteries types where the BT1 and the Aircraft NI-CAD battery. The current battery configuration consists of two 12 volt DC, maintenance free lead acid (gel type) batteries. These batteries are connected in parallel to provide 28-32 volts DC output power. Refer to TB 1-1730-229-30-2, Aviation Ground Power Unit Authorized Battery Modification, dated 2 Dec 2003. The current batteries nomenclature is called the Optima lead acid (gel type) storage battery, NSN 6140-01-457-4339, Part number CVC/BC124 800 U series, CAGE Code 13873 OUJ55.

The onboard storage batteries ONLY provide power to the AGPU, not to servicing aircraft. Aircraft power is provided through the AGPU main DC output circuit only, when AGPU is in full operation.

For additional information and maintenance instructions refer to the following technical manuals:

TM 1-1730-229-13

AVIATION GROUND POWER UNIT – CONTINUED

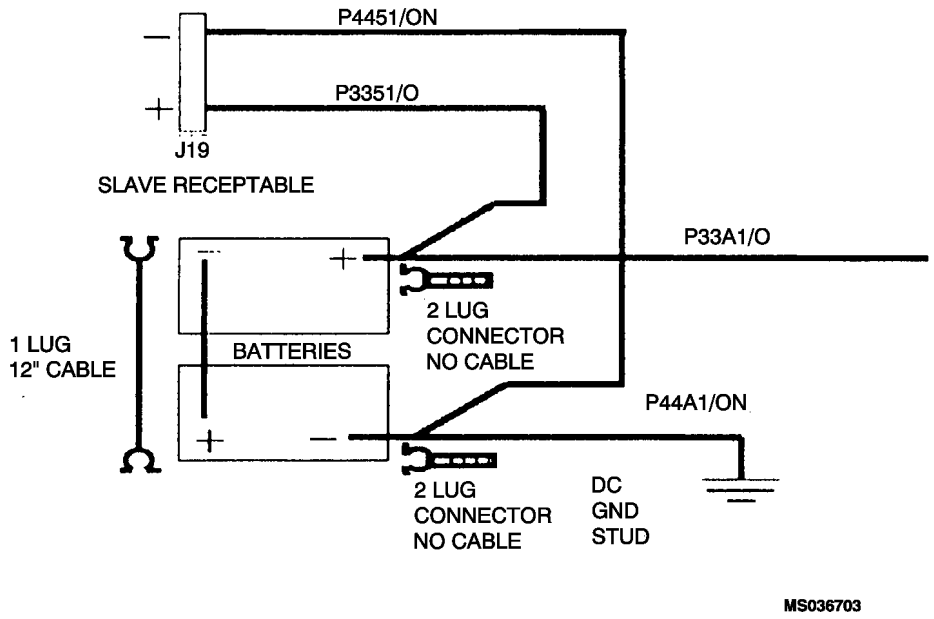

Figure 1. Current Polarity Configuration of Batteries and Wiring.

Ignition System

The ignition system consists of an ignition unit, an igniter plug, control circuits, switches, relays, and contactors. The ignition unit is energized by application of +28 VDC from the ECU control circuit. Power (+28 VDC) is applied to an ECU A1 driver and limiter when the ENGINE CONTROL switch is set to START/RUN positions. Note that an electronic switch in the ECU prevents power from being applied to the ignition unit until the engine reaches 10% speed during the start cycle. Another switch in the ECU removes power from the ignition unit when the engine reaches 95% speed. When energized, the ignition unit provides intermittent high voltage pulses to create a spark across the air gap of the igniter plug. The igniter plug ignites the air/fuel mixture in the engine combustion chamber during the start cycle.

Starter Assembly

The starter is energized by a starter contactor when the ENGINE CONTROL switch is set to the START position. The circuit path that energizes the starter contactor is from the battery, through a 10 AMP circuit breaker, through the EMERG STOP switch (normally closed), through the latched contacts of relay K2, to the ECU. The +28 VDC is applied to A2 driver and limiter circuit in the ECU through an electronic switch that opens when the engine reaches 60% speed during the start cycle. The circuit path to ground through the starter contactor coil is through auxiliary contacts on four control switches: DC POWER, AC POWER, PNEUMATIC POWER, and HYD MAIN POWER. All four of these switches must be set to the OFF position to provide a ground circuit.

Engine Controls

The primary engine control is the ECU located in the AGPU electrical bulkhead. The ECU receives and sends signals to the engine mounted controls through the engine wiring harness. Engine mounted controls and sensors consist of the fuel control unit, the load control valve, low oil pressure switch, high oil temperature switch, and the fuel shutdown solenoid.

Fuel Control Unit (FCU)

The fuel control unit is mounted on the front of the gearcase oil pump housing assembly. The fuel control unit consists of a fuel inlet filter, high pressure pump, strainer element, torque motor, metering valve, relief valve, differential pressure valve, and a filter bypass valve. Fuel from the AGPU auxiliary fuel pump entering the fuel control unit passes through the inlet filter and to the high pressure pump. Fuel leaving the pump branches to the metering valve, differential pressure valve, and relief valve. The differential pressure valve maintains a constant pressure drop across the

AVIATION GROUND POWER UNIT – CONTINUED

metering valve so the flow is proportional to the valve area. Valve area is modulated by torque motor electrical signal inputs from the Electronic Control Unit (ECU). Fuel flow passes from the metering valve and out the metered fuel outlet to the shutdown fuel solenoid.

Shutdown Fuel Solenoid

The shutdown fuel solenoid controls the flow (on/off) of fuel to the fuel nozzle. The solenoid is normally closed with no +28 VDC power applied, shutting off fuel to the fuel nozzle. The solenoid is controlled by the electronic control unit (ECU). During engine start/run operations, the ECU applies +28 VDC to open the solenoid when the engine reaches 10% speed, and maintains the voltage during normal engine operation. Removing +28 VDC from the fuel solenoid is the only way to immediately shut down engine, since the engine requires no ignition once it reaches governed (100%) speed.

Generator (MEP 83-360A Only)

The generator is a self-cooled, continuous duty, AC/DC, self-excited, brushless unit. It includes a permanent magnet stator and rotor, an exciter stator and rotor, and a main DC rotating field and AC stator. The main AC stator incorporates three sets of three phase windings. One set of main stator windings provides the 115/200 VAC 400 Hz output. The AC outputs of the other two windings are full-wave rectified to provide 28 VDC output. The permanent magnet provides a three phase output whenever the generator is driven by the engine. When the engine reaches 95 percent speed, a relay connects the permanent magnet output to the Generator Control Unit (GCU) (P/N CSV3370-2) located behind the control panel. The GCU (P/N CSV3370-2) rectifies this AC voltage to provide DC control voltage for the GCU (P/N CSV3370-2) and DC excitation voltage for the generator exciter field. The exciter provides a three phase output which varies in magnitude with the field excitation. GCU CSV3370-2 can **ONLY** be used on MEP 83-360A.

Alternator (MEP 83-360D/E Only)

The MEP 83-360D/E AC alternator is also a self-cooled, continuous duty, self-excited, brushless unit only without the two windings used to provide 28 VDC output. The rectangular box on the top of the alternator is eliminated. It contained the DC output terminals and the alternator control unit (GCU) (P/N CSV3370-3) connector, which is located on the primary housing of the AC alternator. Since AC power is still needed, even when only DC is being supplied by the TRU, the CURRENT LIMIT SELECTOR switch is rewired so that the GCU (P/N CSV3370-3) is always monitoring the AC output. GCU CSV3370-3 can **ONLY** be used on MEP 83-360D/E.

The exciter voltage is half-wave rectified and applied to the alternator main DC rotating field. The magnitude of the three phase voltage generated in the main stator windings is a function of the ampere turns of the field windings, which is, in turn, a function of the exciter field excitation. The GCU (P/N CSV3370-3) monitors the alternator AC output and controls the exciter field as required to keep the selected output within limits.

HYDRAULIC SYSTEM

The hydraulic system consists of a hydraulic pump (mounted on engine gearcase), a hydraulic module, a dual manifold, and hydraulic hoses and lines.

The hydraulic system provides adjustable high pressure hydraulic power up to 3,300 psig at 15.2 gpm to an aircraft. This hydraulic power can be used to drive aircraft hydraulic systems, fill aircraft reservoirs, or flush aircraft hydraulic systems. Output pressure to the aircraft is adjusted by the operator at the hydraulic module control panel. Hydraulic pressure, once set, remains constant regardless of the flow rate demanded by the aircraft (up to the maximum flow rate of 15.2 gpm). The hydraulic system uses fluid MIL-PRF-83282 or MIL-PRF-5606. For operations below -29 ºF (-34 ºC) MIL-PRF-5606 shall be used.

Hydraulic Pump

The hydraulic pump (with pressure compensation controls enclosed) bolts to the engine/gearcase pump mounting pad. The pump is driven by the engine/gearcase at approximately 8,000 rpm. For units not requiring hydraulic power, a spacer is provided to bolt between the engine/gearcase and pump. This spacer disconnects the pump from the drive gear. This eliminates unnecessary wear on the pump, and reduces load on the engine (since the pump must maintain a minimum 500 psig pressure for self-lubrication). The hydraulic system must never be operated without sufficient hydraulic fluid, or pump will be damaged. The pump receives a low pressure fluid from the hydraulic module reservoir

AVIATION GROUND POWER UNIT – CONTINUED

and supplies high pressure hydraulic power. The pump is designed to allow hydraulic fluid to leak through the bearings for cooling and lubrication. This fluid is routed from the pump case drain back to the reservoir. The pump receives electrical commands set by the operator from the hydraulic module control panel for an increase or decrease of output fluid pressure.

Hydraulic Module

The hydraulic module contains all controls (fluid and electrical) for the hydraulic system. The module contains a nine gallon reservoir with attachments for manual filling and draining, overflow, and removal of moisture from vent air that enters as fluid level changes. High pressure (2 micron) and return (5 micron) filters have throwaway elements. The filters have built-in electrical circuits that illuminate the CHANGE FILTER light on the control panel when the filter elements need changing. The accumulator (pressurized with nitrogen), heat exchanger, gauge, valves and plumbing complete the makeup of the hydraulic module.

Hoses and Lines

Plumbing between the pump and module consists of fixed tubing with sections of hose at the end near the pump. The hoses between the hydraulic module and dual manifold are 30 feet long. The output (high pressure) hose is 1/2-inch diameter and the return (low pressure) hose is 3/4-inch diameter. The four (two output and two return) adapter hoses are 10 feet long. Two 2 foot adaptor hoses are used for CH-47 servicing.

Hydraulic Oil Sampling/Purge Adapter

Purpose. The Hydraulic Oil Sampling/Purge Adapter allows the AGPU (all) hoses to be included in the self-filtration process. This self-filtration process is performed prior to connecting the AGPU to an aircraft to prevent and contamination contained in the connector and/or hoses from being introduced into the aircraft. In addition to self-filtration, this Hydraulic Oil Sampling/Purge Adapter will also allow the operator to draw an oil sample from the hydraulic system during operation for all aircraft adapters and hoses.

Hydraulic System Function

The most common hydraulic system operating mode is that of supplying hydraulic power to an aircraft. Hydraulic fluid from the AGPU reservoir is routed through a reservoir selector valve and passes four (4) temperature sensors to the hydraulic pump. The temperature sensors are set to close at various temperatures. The 70 °F sensor (TS1) causes SYSTEM READY light DS5 to illuminate. This indicates that the hydraulic fluid is at the minimum temperature for operation. Sensors TS2 and TS3 illuminate 160 °F and 240 °F indicator lights. If hydraulic fluid reaches 275 °F, TS4 activates to illuminate HI TEMP light. Activation of TS4 also interrupts the circuit to the load valve pilot solenoid, and shuts down hydraulic power to aircraft. The pump provides hydraulic pressure as commanded by the PRESSURE switch. The two pressure command lines to the pump carry 28 VDC which positions the pressure adjustment mechanism inside the pump. When output connector (P-16) pin G is at 28 VDC (pin H is the return) the pump mechanism operates to increase pressure. When the applied voltage is reversed on the pump input leads, the mechanism operates to decrease pressure. The PRESSURE switch is spring loaded to its unconnected center position. So the pump pressure mechanism remains in the last position it was set to by the operator unless power to the hydraulic module is turned off. When POWER switch S1 is set to OFF, output connector pin H is connected to 28 VDC and pin G becomes the return line. This causes the pump mechanism to move to the position of minimum pressure (450-500 psig).

Load Valve Operation

The accumulator stores hydraulic pressure and reduces pressure fluctuations at aircraft input ports. The OUTPUT PRESSURE gauge provides the operator with an indication of pressure being applied. The HIGH PRESSURE BYPASS valve provides a path for circulation of hydraulic fluid when either the load valve is closed or when hoses to the aircraft (or dual manifold) are not connected. Restrictions in the HIGH PRESSURE BYPASS valve line and in the dual manifold bypass line provide a back-pressure of 500 psi when the bypass valve is open. This back-pressure is required for proper pump operation.

Attachments to the hydraulic module reservoir permit filling and allowing the system to vent. When filling the system with hydraulic fluid (at either the SYSTEM FILL, dual manifold FILL, or extra fill ports) the air in the reservoir is allowed to escape through the overflow channel. This is also true of excess hydraulic fluid in the reservoir. Air coming into the

AVIATION GROUND POWER UNIT – CONTINUED

reservoir (when hydraulic fluid level drops) passes through the filter drier. This unit removes moisture and other contamination from the air before it enters the reservoir.

FUEL SUPPLY SYSTEM

The fuel supply system, consists of a fuel tank, a fuel filter (auxiliary), a fuel pump (auxiliary), and a four way fuel selector valve.

Fuel Tank

The fuel tank is fitted with a low fuel sensor and a fuel level sensor. The low fuel sensor is electrically connected to an amber LOW FUEL indicator light on the control panel. The LOW FUEL indicator illuminates when approximately 30 minutes of engine operating time remains. The fuel level sensor is electrically connected to a FUEL meter on the control panel.

Four Way Fuel Selector Valve

The four way fuel valve enables an external fuel source to be connected to the AGPU for operation of the engine. Three of the four valve positions are used, the fourth position is blanked. The four way valve also acts as a shut-off, isolating the engine from the fuel source.

Auxiliary Fuel Pump and Filter

The auxiliary fuel pump is activated by +28 VDC (battery voltage) when the GTE ENGINE CONTROL switch on the control panel is set to START (and RUN) position. The fuel pump draws fuel from the tank through an auxiliary filter and provides low pressure fuel to the FCU.

PROPULSION SYSTEM

The propulsion system provides suspension, steering, brakes and drive power for the AGPU. A speed/direction control assembly mounted on a tow bar allows the operator to control the forward/reverse directions and speed (up to 3 mph on flat surface) in self-propulsion mode. The tow bar is also used to steer the AGPU when using self-propulsion mode. Drive power is provided by a DC traction motor driving a conventional rear axle assembly. An electric brake assembly is provided. Application of DC drive power to the traction motor is controlled by a motor controller and relays located on the upper tray in the electrical compartment. The motor controller receives signals from the speed/direction control assembly. The drive train consists of a gear box, a chain drive, a manual clutch, and a rear axle assembly. A dead man switch) on the speed/direction control assembly must be held in while operating the propulsion system. If the switch is released (intentionally or accidentally) during operation, power is removed from the traction motor and the electric brake. Removing electrical power applies the electric brake. Additionally, the speed/direction control assembly contains a mercury switch which deactivates the propulsion system when the tow bar is raised. Conventional drum brakes are provided on the rear wheels. The brakes are set by a lever on the front of the AGPU which is connected to the brake assemblies by a cable assembly.

PNEUMATIC SYSTEM

Bleed air is taken from the engine compressor section and routed through a Load Control Valve (LCV) to the aircraft through a pneumatic hose. The LCV controls application of pneumatic power to the aircraft by opening and closing a shutter with the pneumatic actuator. Bleed air is only applied to the aircraft when the PNEUMATIC POWER switch (S11) on the control panel is set to ON.

Scavenge Bleed Air

A small amount of bleed air is continually used by the air cleaner when the engine is running. Bleed air is routed to six nozzles on the bottom of the air cleaner. Air flowing through these nozzles creates a partial vacuum inside the air cleaner housing. This pulls dirt separated by the centrifugal air cleaner tubes out of the housing and expels the dirt out scavenge tubes on the bottom air cleaner.

Load Control Valve (LCV)

The LCV is controlled by the ECU. The ECU receives a signal to open the LCV when the PNEUMATIC POWER switch on the control panel is set to ON position. The LCV consists of a housing containing a filter, a control pressure regulator, a restrictor, a rate control orifice, a torque motor, and a pneumatic actuator. Compressor bleed air enters through a

AVIATION GROUND POWER UNIT – CONTINUED

passage in the valve housing and through the filter to the spring and ambient pressure regulated control pressure regulator. Regulated air pressure is routed through a restrictor and a rate control orifice, and across a torque motor controlled valve. The torque motor control valve applies the regulated air to a pneumatic actuator, which opens or closes the attached valve plate.

Over Temperature Protection

During full-load operations using electrical and/or hydraulic power plus pneumatic power, the LCV functions to prevent excessive engine exhaust gas temperatures. When the PNEUMATIC POWER switch is set to ON, the LCV will maintain a full open position until EGT approaches the control point 1230 °F (666 °C). At this time the ECU applies a signal to the LCV torque motor to adjust the valve plate to maintain the control point EGT. The sequence will provide a nearly constant bleed air pressure at a reduced value in the event of over temperature conditions. Without this capability, the EGT would be exceeded and the ECU would shutdown engine.

Hose Air Dump Solenoid Valve

This solenoid valve is open when the PNEUMATIC POWER switch is set to OFF. Setting switch to ON applies a voltage to the solenoid, closing the valve. The purpose of this solenoid valve is to relieve pneumatic hose pressure prior to disconnecting hose from aircraft.

Pressure Transducer

A pressure transducer monitors pneumatic pressure to aircraft. Pressure is converted to an electrical signal, which is sent to a meter on the control panel.

Surge Control Valve (SCV)

This solenoid valve opens when the CURRENT LIMIT SELECTOR switch S11 is set to 45KW or 1,000A on the 83-360A and when set to AH-64D on the 83-360D and 83-360E. On the 83-360A, the 28VDC signal to open the valve is routed through both the PNEUMATIC POWER switch S8 and the CURRENT LIMIT SELECTOR switch S11 so that the surge control valve will not open whenever pneumatic power is ON. On the 83-360D and 83-360E the 28 VDC signal is routed directly to the CURRENT LIMIT SELECTOR switch, which then operates the surge control valve, whether the pneumatic power is ON of OFF. This valve is needed to off load the GTE compressor to eliminate stall. This is necessary when large shaft horsepower is required.

CHAPTER 2

SUSTAINMENT LEVEL MAINTENANCE

TROUBLESHOOTING PROCEDURES

FOR

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)

WHEEL MOUNTED, SELF-PROPELLED, TOWABLE

AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V

DC - 28 VOLT

PNEUMATIC - 60 LBS/MIN. AT 40 PSIG

HYDRAULIC - 15.2 GPM AT 3300 PSIG

LIN: P44627

(PART NO. 83-360A) (NSN: 1730-01-144-1897)

(MEP 83-360A)

(PART NO. 83-360D) (NSN: 1730-01-466-9371)

(MEP 83-360D)

(PART NO. 1024250) (NSN: 1730-01-552-2313)

(MEP 83-360E)

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

SCOPE AND INTRODUCTORY INFORMATION

SCOPE

This chapter contains instructions for direct support maintenance of Multi-Output Aviation Power Unit MEP 83-360A, MEP 83-360D, and MEP 83-360E, referred to as Aviation Ground Power Unit (AGPU), as allocated by the maintenance allocation chart. The contents of this chapter will be followed in the event of conflict with any other document referenced herein.

INTRODUCTORY INFORMATION

The Troubleshooting Index is found in WP 0008 00 and is used for locating and correcting operating troubles which may develop in the AGPU hydraulic system and propulsion system. Each malfunction for an individual component, unit, or system is followed by a list of tests or inspections which will help you to determine probable causes and corrective actions to take. You should perform the tests/inspections and corrective actions in the order listed.

This manual cannot list all malfunctions that may occur, nor all tests or inspections and corrective actions. If a malfunction is not listed or cannot be corrected by listed corrective actions, notify maintenance supervisor.

NOTE

- Before you use these work packages, be sure you have performed the Pre-start Procedure in TM 1-1730-229-13, Operator Instructions, and the Before (B) steps in WP 0016 00, PMCS.
- Before you use these work packages, be sure you have performed all applicable operating checks.
- All wire harness and pin connector numbers references in the following steps apply to the MEP 83-360A prior to application of MWO 1-1730-229-50-4. For the MEP 83-360D, subsequent to application of MWO 1-1730-229-50-4, refer to the wire lists in WP 0042 00 wire harness and pin connector numbers for J/P5, J/P6, J/P7, J/P8 and J/P9.
- FO numbers referenced in Direct Support Troubleshooting are located at the end of this manual.

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

TROUBLESHOOTING INDEX

Malfunction/Symptom — Troubleshooting Procedure

ENGINE

Malfunction/Symptom — Troubleshooting Procedure

HYDRAULIC/PNEUMATIC

PROPULSION

ELECTRICAL

Malfunction/Symptom | Troubleshooting Procedure

ELECTRICAL – CONTINUED

Malfunction/Symptom | Troubleshooting Procedure

ELECTRICAL – CONTINUED

Malfunction/Symptom | Troubleshooting Procedure

ELECTRICAL – CONTINUED

PNEUMATIC ELECTRICAL

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
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EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

TROUBLESHOOTING PROCEDURES: ENGINE

INITIAL SETUP:

References

WP 0002 00
WP 0014 00
WP 0015 00
WP 0032 00
WP 0035 00
WP 0045 00
WP 0047 00
WP 0048 00
WP 0049 00
WP 0053 00
WP 0058 00

References (cont.)

WP 0062 00
WP 0072 00
WP 0074 00
WP 0075 00
WP 0077 00
WP 0083 00
WP 0092 00
WP 0089 00
WP 0081 00
WP 0097 00
WP 0137 00

TROUBLESHOOTING PROCEDURE

1. ENGINE FAILS TO MOTOR (CRANK) WHEN ENGINE CONTROL SWITCH IS SET TO START/RUN

SYMPTOM

MALFUNCTION
ENGINE FAILS TO MOTOR (CRANK) WHEN ENGINE CONTROL SWITCH IS SET TO START/RUN

CORRECTIVE ACTION

1. Check if green STARTER ON light is illuminated. Refer to Step 2.

   If light is illuminated, check starter for secure electrical connections. If light is not illuminated, check battery and cables (WP 0035 00).

2. Check GTE indicators.

   If CONTROL SHORT, HIGH EGT, or HI OIL TEMP are red indicating malfunction in control circuits, notify maintenance supervisor.

2. ENGINE MOTORS (CRANKS) TO APPROXIMATELY 10% THEN SHUTS DOWN

SYMPTOM

MALFUNCTION
ENGINE MOTORS (CRANKS) TO APPROXIMATELY 10% THEN SHUTS DOWN

2. ENGINE MOTORS (CRANKS) TO APPROXIMATELY 10% THEN SHUTS DOWN – Continued

CORRECTIVE ACTION

Check GTE CONTROL SHORT indicator.

If red, notify your supervisor. If not red, attempt restart. If not successful, notify maintenance supervisor.

3. ENGINE MOTORS ABOVE 10%, BUT NO LIGHT OFF (START)

SYMPTOM

MALFUNCTION
ENGINE MOTORS ABOVE 10%, BUT NO LIGHT OFF (START)

CORRECTIVE ACTION

1. Check position of four-way valve control handle. Ensure set to INTL or EXT as required.
2. Attempt restart. If not successful, notify maintenance supervisor.

4. ENGINE HANGS DURING START - LOWER THAN NORMAL EGT

SYMPTOM

MALFUNCTION
ENGINE HANGS DURING START - LOWER THAN NORMAL EGT

CORRECTIVE ACTION

Check for amber LOW FUEL or red LOW FUEL PRESS indicator.

a. If LOW FUEL PRESS indicator is red (longer than 10 seconds) indicates low fuel supply, or dirty filter/lines. Check fuel supply.

b. Add fuel if required, and attempt restart. If not successful, notify maintenance supervisor.

5. ENGINE ACCELERATES TO 95%, THEN SHUTS DOWN IN 10 SECONDS

SYMPTOM

MALFUNCTION
ENGINE ACCELERATES TO 95%, THEN SHUTS DOWN IN 10 SECONDS

CORRECTIVE ACTION

1. Check for red LOW OIL PRESS indicator.
2. Check engine/gearcase oil level. Add oil if required (refer to WP 0015 00, Lubrication) and attempt restart, If not successful, notify maintenance supervisor.

6. LOW OIL PRESS LIGHT BLINKING DURING NORMAL OPERATION

SYMPTOM

MALFUNCTION
LOW OIL PRESS LIGHT BLINKING DURING NORMAL OPERATION

CORRECTIVE ACTION

Check engine/gearcase oil level and add oil if required (refer to WP 0015 00, Lubrication). If symptom continues, shutdown engine, notify maintenance supervisor.

7. AUTOMATIC ENGINE SHUTDOWN DURING NORMAL OPERATION

7. AUTOMATIC ENGINE SHUTDOWN DURING NORMAL OPERATION – Continued

SYMPTOM

MALFUNCTION
AUTOMATIC ENGINE SHUTDOWN DURING NORMAL OPERATION

CORRECTIVE ACTION

Check and record all illuminated indicators on control panel before setting MASTER SWITCH to OFF and notify maintenance supervisor.

8. INLET FILTER BLOCKED INDICATOR ILLUMINATED

SYMPTOM

MALFUNCTION
INLET FILTER BLOCKED INDICATOR ILLUMINATED

CORRECTIVE ACTION

1. Check for obstruction or blockage on air intake louvered panel, and/or air cleaner.
2. Remove obstruction or blockage.

9. ENGINE MOTORS ABOVE 10% RPM BUT NO LIGHT OFF

SYMPTOM

MALFUNCTION
ENGINE MOTORS ABOVE 10% RPM BUT NO LIGHT OFF

CORRECTIVE ACTION

1. Check that four-way valve control handle is set to correspond to fuel delivery source. If correctly set, continue with the next step.
2. Check for draining from combustor drain line. If fuel is present, continue with Step 4.
3. Inspect auxiliary fuel filter (WP 0072 00) and FCU fuel filter (WP 0075 00).
    a. Service or replace filters as required, and perform MOC.
    b. If filters are okay, continue with next step.
4. Disconnect connector from ignition unit fuel control unit and shutdown solenoid. Inspect connector pins for corrosion, clean as required, reconnect connectors. If still no light off, proceed to Step 5.
5. Test ignition unit (refer to troubleshooting procedure 119. IGNITION UNIT MALFUNCTION).
    a. Replace ignition unit if defective (WP 0092 00), and perform MOC.
    b. If ignition unit is okay, continue with next step.
6. Test fuel control unit (refer to troubleshooting procedure 120. FUEL CONTROL UNIT MAL FUNCTION).
    a. Replace fuel control unit if defective (WP 0074 00), and perform MOC.
    b. If fuel control unit is okay, continue with next step.
7. Remove, inspect, and clean fuel nozzle (WP 0097 00, Fuel Nozzle).
    a. Replace nozzle if defective, and perform MOC.
    b. If nozzle tests okay, continue with next step.
8. Test N shutdown solenoid (refer to troubleshooting procedure 121. FUEL SHUTDOWN SOLENOID MALFUNCTION).
    a. Replace shutdown solenoid if defective (WP 0077 00), and perform MOC.

9. ENGINE MOTORS ABOVE 10% RPM BUT NO LIGHT OFF – Continued

b. If solenoid tests okay, continue with next step.

9. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector, and lower control panel (WP 0032 00, Lower Control Panel for Maintenance). Disconnect engine harness connectors P2 from ECU, P4 from fuel shutoff solenoid, P7 from ignition unit, and P9 from fuel control unit torque motor. Refer to FO 3 (Sheet 2 of 2). Check for continuity between the following points:

NOTE

Refer to FO 20 and FO 21 for MEP 83-360E.

Check Continuity		If no continuity,
From	To	replace wire no.
P2-J	P4-A	G78A20
P2-U	P4-B	G8A20N
P2-N	P7-B	46A20N
P2-f	P7-A	19A20
P2-E	P9-1	Q19A20
P2-W	P9-3	Q20A20N

a. If no continuity, replace indicated wire.

b. If all continuity checks good, replace ECU (WP 0049 00).

c. Perform MOC.

10. ENGINE HANGS DURING START - EGT LESS THAN NORMAL

SYMPTOM

MALFUNCTION
ENGINE HANGS DURING START - EGT LESS THAN NORMAL

CORRECTIVE ACTION

1. Check GTE LOW FUEL PRESS indicator.
   a. If indicator is OFF while engine is operating, return to troubleshooting procedure 9. ENGINE MOTORS ABOVE 10% RPM BUT NO LIGHT OFF, Step 4.
   b. If indicator is on (red), proceed to Step 2.
2. Check auxiliary fuel pump.
   a. If voltage is present between fuel pump leads when ENGINE CONTROL switch is set to START and pump does not run, replace fuel pump, and perform MOC.
   b. If voltage was not present between fuel pump leads, proceed to Step 3.
3. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector, lower control panel (WP 0032 00, Lower Control Panel for Maintenance), and remove battery charger access cover. Disconnect main harness connector P8 from lower tray connector J8. Check for continuity between P8-N and TB4-13, and between TB4-14 and DC ground stud (refer to FO 3 or FO 20 and FO 21 for MEP 83-360E).
   a. If no continuity, replace wire (E31C20 or E41A20N), or notify maintenance supervisor.

10. ENGINE HANGS DURING START - EGT LESS THAN NORMAL – Continued

b. If continuity checks good, replace lower tray harness wire E31A20 or notify maintenance supervisor.

11. ENGINE HANGS DURING START - EGT HIGHER THAN NORMAL

SYMPTOM

MALFUNCTION
ENGINE HANGS DURING START - EGT HIGHER THAN NORMAL

CORRECTIVE ACTION

1. Check position of LCV (WP 0083 00) with engine operating.
   a. If valve is not fully closed, refer to troubleshooting procedure 153. PSIG PNEUMATIC METER INDICATES PRESSURE (PNEUMATIC POWER SWITCH OFF).
   b. If valve is closed, continue with next step.
2. Remove, inspect and clean fuel nozzle (WP 0097 00, Fuel Nozzle).
   a. Replace nozzle if defective.
   b. If nozzle tests okay, notify maintenance supervisor. Other possible causes of malfunction are a hot section or slipping starter clutch.

12. FLAMING OR BOOMING ENGINE STARTS

SYMPTOM

MALFUNCTION
FLAMING OR BOOMING ENGINE STARTS

CORRECTIVE ACTION

Remove, inspect and clean fuel nozzle (WP 0097 00, Fuel Nozzle). Test ignition unit (refer to troubleshooting procedure 119. IGNITION UNIT MALFUNCTION).

1. Replace any defective component.

a. If no defective components are found, check for water in fuel.

b. Perform MOC.

13. ENGINE ACCELERATES TO 95% RPM AND THEN SHUTS DOWN

SYMPTOM

MALFUNCTION
ENGINE ACCELERATES TO 95% RPM AND THEN SHUTS DOWN

CORRECTIVE ACTION

Check GTE indicator lights.

a. If CONTROL SHORT, HIGH EGT, HI OIL TEMP, or OVERSPEED indicator light is illuminated, refer to troubleshooting procedure 21. GTE CONTROL SHORT INDIC ATOR LIT - ENGINE SHUT DOWN through 23. GTE OVER SPEED INDICATOR LIT - ENGINE SHUT DOWN.

b. If CONTROL SHORT, HIGH EGT, HI OIL TEMP OR OVERSPEED indicator lights are all extinguished, attempt restart. If all indication are the same, refer to troubleshooting procedure 17. ENGINE SHUTS DOWN DURING NORMAL OPERATION.

14. ENGINE SHUTS DOWN AT APPROXIMATELY 10 SECONDS AFTER REACHING 95% RPM

14. ENGINE SHUTS DOWN AT APPROXIMATELY 10 SECONDS AFTER REACHING 95% RPM – Continued

SYMPTOM

MALFUNCTION
ENGINE SHUTS DOWN AT APPROXIMATELY 10 SECONDS AFTER REACHING 95% RPM

CORRECTIVE ACTION

Check GTE indicator lights.

a. If any GTE warning (red) indicator light is on, refer to troubleshooting procedure 21. GTE CONTROL SHORT INDICATOR LIT - ENGINE SHUT DOWN through 23. GTE OVER SPEED INDICATOR LIT - ENGINE SHUT DOWN.

b. If all GTE warning lamps are extinguished, refer to troubleshooting procedure 17. ENGINE SHUTS DOWN DURING NORMAL OPERATION.

15. ENGINE ACCELERATES TO 100% RPM BUT RPM AND EGT FLUCTUATE (PNEUMATIC POWER OFF)

SYMPTOM

MALFUNCTION
ENGINE ACCELERATES TO 100% RPM BUT RPM AND EGT FLUCTUATE (PNEUMATIC POWER OFF)

CORRECTIVE ACTION

1. Check GTE LOW FUEL PRESS indicator.
   a. If indicator is extinguished while engine is operating, proceed to Step 4.
   b. If indicator is illuminated, continue with next step.
2. Check auxiliary fuel pump.
   a. If voltage is present between fuel pump leads when ENGINE CONTROL switch is set to START and pump does not run, replace pump, and perform MOC.
   b. If voltage was not present between fuel pump leads, proceed to Step 3.
3. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector, lower control panel (WP 0032 00, Lower Control Panel for Maintenance), and remove battery charger access cover. Disconnect main harness connector P8 from lower tray connector J8. Remove relay 3K2 from socket (WP 0047 00). Check for continuity between P8-N and TB-13, between TB4-14 and do ground stud and between J8N and relay 3K2 socket B2 (refer to FO-3 (Sheet 1 of 2) or FO 20 and FO 21 for MEP 83-360E).

   If no continuity, replace wire (E31C20 or E41A20N or E31A20), and perform MOC.
4. Remove, inspect and clean fuel nozzle (WP 0097 00, Fuel Nozzle). Test ignition unit (refer to troubleshooting procedure 119. IGNITION UNIT MALFUNCTION), GTE Speed sensor (refer to troubleshooting procedure 114. SPEED SENSOR MALFUNCTION), and fuel control unit (refer to troubleshooting procedure 120. FUEL CONTROL UNIT MALFUNCTION).
   a. Replace any defective components.
   b. If all components and wiring test good, replace ECU (WP 0049 00).
   c. Perform MOC.

16. ENGINE OIL CONSUMPTION OR SMOKE EXCESSIVE

SYMPTOM

MALFUNCTION
ENGINE OIL CONSUMPTION OR SMOKE EXCESSIVE

16. ENGINE OIL CONSUMPTION OR SMOKE EXCESSIVE – Continued

CORRECTIVE ACTION

Notify maintenance supervisor if oil consumption is 1 quart (or more) per 5-hour period, or if low oil pressure light is on in 5 hours.

17. ENGINE SHUTS DOWN DURING NORMAL OPERATION

SYMPTOM

MALFUNCTION
ENGINE SHUTS DOWN DURING NORMAL OPERATION

CORRECTIVE ACTION

1. Check GTE warning (red) indicator lights.
    a. If any GTE red indicator is illuminated, refer to troubleshooting procedure 21. GTE CONTROL SHORT INDICATOR LIT - ENGINE SHUT DOWN through 23. GTE OVER SPEED INDICATOR LIT - ENGINE SHUT DOWN.
    b. If all GTE warning indicators are extinguished, continue with next step.
2. Test power diodes 3CR7 through 3CR9 (refer to troubleshooting procedure 111. BATTERY/CHARGER TRANSFER RELAY AND POWER DIODE MALFUNCTIONS, Step 2.).
    a. Replace defective diodes (WP 0057 00), and perform MOC.
    b. If diodes are good, continue with Step 3.
3. Check diodes TB3-CR3 through TB3-CR7 (refer to troubleshooting procedure 108. TERMINAL BOARD DIODE MALFUNCTIONS).
    a. Replace any defective diodes (WP 0058 00), and perform MOC.
    b. If all diodes are good, continue with next step.
4. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector, and lower control panel (WP 0032 00, Lower Control Panel for Maintenance). Refer to FO 3 (Sheet 2 of 2) or FO 20 and FO 21 for MEP 83-360E. Check wiring between diodes (TB3-CR3 through CR7) and indicator lamps, and between diodes and P4 as follows:

NOTE

Refer to FO 20 and FO 21 for MEP 83-360E.

Check Continuity		
From	**To**	**If no continuity, replace wire no.**
TB3-3 ANODE	P5-8L	E13C20
TB3-2 ANODE	P5-7R	E12C20
TB3-6 ANODE	TB3-2 ANODE	E12E20
TB3-1 ANODE	P5-6R	E11C20
TB3-4 ANODE	P5-9L	E14C20
TB3-5 ANODE	P5-9R	E15C20
TB3-3 CATHODE	P4-H	E13A20
TB3-2 CATHODE	P4-D	E12A20
TB3-6 CATHODE	P4-L	E12D20

17. ENGINE SHUTS DOWN DURING NORMAL OPERATION – Continued

– Continued

Check Continuity		
From	**To**	**If no continuity, replace wire no.**
TB3-1 CATHODE	P4-G	E11A20
TB3-4 CATHODE	P4-F	E14A20
TB3-5 CATHODE	P4-E	E15A20
1DS9 (-)	J5-8R	E13B20
1DS10 (-)	J5-7L	E12B20
1DS12 (-)	J5-6L	E11B20
1DS4 (-)	J5-9R	E14B20
1DS3 (-)	J5-9L	E15B20

a. Replace any open wires, and perform MOC.

b. If all wiring is good, continue with next step.

5.

6. Test fuel shutdown solenoid (refer to troubleshooting procedure 121. FUEL SHUTDOWN SOLENOID MALFUNCTION).

   a. Replace fuel shutdown solenoid if defective (WP 0077 00).

   b. If fuel shutdown solenoid is good, replace ECU (WP 0049 00).

   c. Perform MOC.

18. ENGINE DOES NOT SHUT DOWN WHEN EMERG STOP SWITCH IS PRESSED

SYMPTOM

MALFUNCTION
ENGINE DOES NOT SHUT DOWN WHEN EMERG STOP SWITCH IS PRESSED

CORRECTIVE ACTION

1. Set ENGINE CONTROL switch to STOP.

   a. If engine now stops, replace EMERG STOP switch S2 (WP 0053 00), and perform MOC.

   b. If engine continues to run, proceed to Step 2.

2. Set MASTER SWITCH to OFF.

   a. If engine now stops, proceed to Step 3.

   b. If engine keeps running, pull GTE 10 AMP circuit breaker. If engine now stops, multiple faults exist. Test ENGINE CONTROL switch and MASTER switch (refer to troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS), and EMERG STOP switch (refer to troubleshooting procedure 91. EMERGENCY STOP SWITCH MALFUNCTION).

   c. If engine continues to run, pull fuel pump circuit breaker. Fuel shutdown solenoid is defective. Wait until engine stops and replace fuel shutdown solenoid (WP 0077 00). If engine is shutdown this way, purge fuel system prior to next start, or engine will not start on next attempt.

18. ENGINE DOES NOT SHUT DOWN WHEN EMERG STOP SWITCH IS PRESSED – Continued

3. Check starter latch relay 3K2 (refer to troubleshooting procedure 110. STARTER LATCH RELAY 3K2 MALFUNCTION).
    a. Replace relay 3K2 if defective (WP 0048 00).
    b. If relay tests good, replace ECU (WP 0049 00).
    c. Perform MOC.

19. ENGINE IS NOISY ON SHUTDOWN

SYMPTOM

MALFUNCTION
ENGINE IS NOISY ON SHUTDOWN

CORRECTIVE ACTION

Probable faults are fuel control unit, binding generator or engine, gearcase, or hydraulic pump. Notify maintenance supervisor.

20. GTE HIGH EGT INDICATOR LIT - ENGINE SHUT DOWN

SYMPTOM

MALFUNCTION
GTE HIGH EGT INDICATOR LIT - ENGINE SHUT DOWN

CORRECTIVE ACTION

1. Place MASTER SWITCH in OFF position and check visual position on side of LCV (WP 0083 00, Figure 1, Item 5).
    a. If valve is fully closed, proceed to Step 1.b.
    b. If valve is not fully open, replace LCV (WP 0083 00) and perform MOC.
2. Test thermocouple (refer to troubleshooting procedure 117. THERMOCOUPLE MALFUNC TION).
    a. Replace thermocouple if defective (WP 0046 00) and perform MOC.
    b. If thermocouple tests good, continue with next step.
3. Set MASTER SWITCH OFF and disconnect engine wiring harness connector P5 from LCV (WP 0083 00). Check resistance between pins A and C of LVC. Resistance should be between 30 and 38 ohms.
    a. If resistance is okay, check engine harness wires M1A20 (P2-T to P5-C) and M2820N (P2-X to P5-A) for continuity. Replace wiring if defective. If wiring is good, replace ECU (WP 0049 00).
    b. If resistance is not okay, replace LCV (WP 0083 00).
    c. Perform MOC.

21. GTE CONTROL SHORT INDICATOR LIT - ENGINE SHUT DOWN

SYMPTOM

MALFUNCTION
GTE CONTROL SHORT INDICATOR LIT - ENGINE SHUT DOWN

CORRECTIVE ACTION

1. If engine will not motor, Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and lower control panel. Disconnect main harness connector P4 from ECU

21. GTE CONTROL SHORT INDICATOR LIT - ENGINE SHUT DOWN – Continued

and measure resistance from pin J of harness connector P4 to ground (Refer to FO-3 (Sheet 1 of 2) or FO 20 and FO 21 for MEP 83-360E).

a. If resistance is less than 10 ohms, starter contactor K4 or wire E16A20 is shorted. Replace as necessary.

b. If resistance is 10 ohms or more, replace ECU (WP 0049 00).

c. Perform MOC.

2. If no light off above 10% and no increase in EGT, turn ENGINE CONTROL switch to STOP. Set MASTER SWITCH OFF and disconnect engine harness connector P7 from ignition unit (WP 0092 00). Restart engine.

a. If engine now motors beyond 10%, test ignition unit (refer to troubleshooting procedure 119. IGNITION UNIT MALFUNCTION).

b. If CONTROL SHORT indicator still illuminates at 10% rpm, proceed to Step 3.

3. Set MASTER SWITCH OFF and disconnect engine harness connector P4 from fuel shutoff solenoid (WP 0077 00). Restart engine.

a. If engine now motors beyond 10% rpm, test fuel shutdown solenoid (refer to troubleshooting procedure 121. FUEL SHUTDOWN SOLENOID MALFUNCTION). If not, proceed to Step 3.

b. Disconnect leads from hour meter (WP 0081 00, Figure 1, Item 8). Restart engine. If engine now motors normally, replace hour meter. If not, perform Step 3.c.

c. If CONTROL SHORT indicator still illuminates at 10% rpm, Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and check engine harness wiring to ignition unit, hour meter, and fuel shutdown solenoid. If wiring is not shorted to ground, replace ECU (WP 0049 00).

d. Perform MOC.

4. If engine shuts down at 95% rpm, Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and lower control panel. Disconnect main harness connector P4 from ECU and measure resistance from pin S of harness connector P4 and ground (Refer to FO 3 (Sheet 2 of 2) or FO 20 and FO 21 for MEP 83-360E).

a. If resistance is leas than 200 ohms, 95% enable relay 3K1, or wire E17A20 (P4-S to P8-A) or E17B20 (3K1-X2 to J8-A) is shorted to ground. Replace as necessary.

b. If resistance is 200 ohms or more, replace ECU (WP 0049 00).

c. Perform MOC.

5. If engine shuts down when PNEUMATIC POWER switch is turned on, Set MASTER SWITCH OFF and disconnect engine harness connector P5 from load control valve (WP 0083 00). Measure resistance between pins A and C of load control valve.

a. If resistance is less than 30 ohms, replace load control valve (WP 0083 00).

b. If resistance is 38 ohms or more, Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and check engine harness wires M1A20 (P2-T to P5-C) and M2820N (P2-X to P5-A). If wiring is not shorted to ground, replace ECU (WP 0049 00).

c. Perform MOC.

6. If engine shuts down during normal operation, set MASTER SWITCH OFF and disconnect engine harness connector P4 from fuel shutdown solenoid (WP 0077 00). Measure resistance between pins A and B of fuel shutdown solenoid.

a. If resistance is less than 20 ohms, replace fuel shutdown solenoid (WP 0077 00).

21. GTE CONTROL SHORT INDICATOR LIT - ENGINE SHUT DOWN – Continued

b. If resistance is present check engine harness wires G7A20 (P2-J to P4-A) and G8A20N (P2-U to P4-B). If wiring is good, replace ECU (WP 0049 00).

c. Perform MOC.

22. GTE HI OIL TEMP INDICATOR LIT - ENGINE SHUT DOWN

SYMPTOM

MALFUNCTION
GTE HI OIL TEMP INDICATOR LIT - ENGINE SHUT DOWN

CORRECTIVE ACTION

1. Check oil level.

   Add oil if required.

2. Test high oil temperature (HOT) switch (refer to troubleshooting procedure 116. HIGH OIL TEMPERATURE SWITCH MALFUNCTION).

   a. Replace switch if defective (WP 0045 00), and perform MOC.

   b. If switch is good, fault may be due to overloaded engine. Notify maintenance supervisor.

23. GTE OVER SPEED INDICATOR LIT - ENGINE SHUT DOWN

SYMPTOM

MALFUNCTION
GTE OVER SPEED INDICATOR LIT - ENGINE SHUT DOWN

CORRECTIVE ACTION

Test fuel control unit (refer to troubleshooting procedure 120. FUEL CONTROL UNIT MALFUNC TION).

a. Replace fuel control unit if defective (WP 0074 00).

b. If fuel control unit tests good, replace ECU (WP 0049 00).

c. Perform MOC.

24. GTE LOW OIL PRESS INDICATOR LIT - ENGINE SHUT DOWN

SYMPTOM

MALFUNCTION
GTE LOW OIL PRESS INDICATOR LIT - ENGINE SHUT DOWN

CORRECTIVE ACTION

1. Check oil level.

   Add oil if required.

2. Check oil filter element (WP 0089 00, Figure 1, Item 7).

3. Check low oil pressure switch (refer to troubleshooting procedure 115. LOW OIL PRESSURE SWITCH MALFUNCTION). Replace oil filter element and seals if required.

   a. Replace switch if defective (WP 0044 00) and perform MOC.

   b. If switch is good, fault may be due to defective engine oil pump or pressure regulator. Notify maintenance supervisor.

25. GTE WARNING INDICATOR (CONTROL SHORT, HIGH EGT, OVER SPEED, HI OIL TEMP OR LOW OIL PRESS) - ENGINE CONTINUES TO RUN

SYMPTOM

MALFUNCTION
GTE WARNING INDICATOR (CONTROL SHORT, HIGH EGT, OVER SPEED, HI OIL TEMP OR LOW OIL PRESS) - ENGINE CONTINUES TO RUN

CORRECTIVE ACTION

Shut engine down and restart.

If fault indicator remains on, shut system down. Replace ECU (WP 0049 00) or notify maintenance supervisor.

26. GTE EGT METER READS IN RED BAND AND ENGINE CONTINUES TO RUN ABOVE 95% RPM

SYMPTOM

MALFUNCTION
GTE EGT METER READS IN RED BAND AND ENGINE CONTINUES TO RUN ABOVE 95% RPM

CORRECTIVE ACTION

Check GTE EGT indicator light.

a. If EGT light is lit, refer to troubleshooting procedure 25. GTE WARNING INDICATOR (CONTROL SHORT, HIGH EGT, OVER SPEED, HI OIL TEMP OR LOW OIL PRESS) - ENGINE CONTINUES TO RUN.

b. If EGT light is OFF replace ECU (WP 0049 00) or EGT meter 1M1 (WP 0137 00).

c. Perform MOC.

27. GTE % RPM METER READS IN RED BAND

SYMPTOM

MALFUNCTION
GTE % RPM METER READS IN RED BAND

CORRECTIVE ACTION

Check GTE OVER SPEED indicator light.

a. If OVER SPEED light is lit, refer to troubleshooting procedure 25. GTE WARNING INDICATOR (CONTROL SHORT, HIGH EGT, OVER SPEED, HI OIL TEMP OR LOW OIL PRESS) - ENGINE CONTINUES TO RUN.

b. If OVER SPEED light is OFF, replace ECU (WP 0049 00) or %RPM meter 1M2 (WP 0137 00).

c. Perform MOC.

28. GTE INLET FILTER BLOCKED INDICATOR LIT

SYMPTOM

MALFUNCTION
GTE INLET FILTER BLOCKED INDICATOR LIT

CORRECTIVE ACTION

Check switch (refer to troubleshooting procedure 118. INLET FILTER BLOCKED SWITCH MAL FUNCTION).

a. Replace switch if defective (WP 0054 00), and perform MOC.

28. GTE INLET FILTER BLOCKED INDICATOR LIT – Continued

b. If switch tests good, inspect engine air cleaner (WP 0023 00).

29. GTE COMPT/GEN HI TEMP INDICATOR LIT (AC POWER SWITCH OFF)

SYMPTOM

MALFUNCTION
GTE COMPT/GEN HI TEMP INDICATOR LIT (AC POWER SWITCH OFF)

CORRECTIVE ACTION

CAUTION

If temperature in electrical bay near ECU exceeds 160 °F, the COMPT/GEN HI TEMP indicator should be lit. Continued operation could damage ECU.

1. Shut down engine, Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector, and lower control panel (WP 0032 00, Lower Control Panel for Maintenance). Place thermometer on electrical bay subfloor (WP 0003 00, Figure 1, Item 11) near ECU.
   a. Leave thermometer in place, replace control panel, and start engine. Operate system under same conditions that originally caused malfunction.
   b. If COMPT/GEN HI TEMP indicator light comes on, proceed immediately to Step 2.
   c. If light does not come on, continue operation as required. When operation is complete, Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and remove thermometer.

NOTE

Perform Steps 2. through 4. as quickly as possible before system cools down.

2. Shut down engine. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and lower control panel. Check thermometer.
   a. If thermometer indicates less than 155 °F, proceed immediately to Step 3.
   b. If thermometer indicates 155 °F or higher, allow system to cool before operating. Continued operation could damage ECU.
3. Disconnect main harness connector P12 (WP 0062 00, Figure 1, Item 36) from generator control unit. Check resistance between pins G and H of harness connector P12 (refer to FO-6 (Sheet 1 of 2) or FO 20 and FO 21 for MEP 83-360E).
   a. If continuity between pins G and H of P12, the thermal switch in generator is closed, indicating an overtemp condition. If unit has been recently run with heavy AC load, allow unit to cool before operating. If unit has not been run with AC load, generator is defective. Notify maintenance supervisor.
   b. If resistance between pins G and H of P12 is greater than 10K, reconnect P12 to GCU, and proceed to Step 4.
4. Remove battery charger access cover. Disconnect main harness connector P5 from control panel connector J5 (refer to FO 3 (Sheet 2 of 2) or FO 20 and FO 21 for MEP 83-360E) for J-5 and P-5 Pin out. Check for open circuit between pins 10L and 6L of P5.
   a. If continuity between pins 10L and 6L of P5, replace compartment temperature switch S1 (WP 0014 00, Hydraulic Pump Spacer).
   b. If open circuit between pins 10L and 6L of P5, replace GCU (WP 0062 00).

29. GTE COMPT/GEN HI TEMP INDICATOR LIT (AC POWER SWITCH OFF) – Continued

c. Perform MOC.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. MEP 83-360A NSN 1730-01-144-1897 EIC: UEG
PART NO. MEP 83-360D NSN 1730-01-466-9371 EIC: UDG
PART NO. MEP 83-360E NSN 1730-01-552-2313 EIC: UDH

TROUBLESHOOTING PROCEDURES: HYDRAULIC/PNEUMATIC

INITIAL SETUP:

References
TM 1-1730-229-13
WP 0122 00
WP 0125 00
WP 0119 00

References (cont.)
WP 0129 00
WP 0130 00
WP 0132 00

TROUBLESHOOTING PROCEDURE

30. ENGINE AT 100% WITH PNEUMATIC LOAD, LOW PNEUMATIC FLOW, HIGH EGT

SYMPTOM

MALFUNCTION
ENGINE AT 100% WITH PNEUMATIC LOAD, LOW PNEUMATIC FLOW, HIGH EGT

CORRECTIVE ACTION

Check pneumatic hoses for secure installation, cuts, or tears; and, if hose is loose or damaged, notify maintenance supervisor.

31. PNEUMATIC PRESSURE LOW

SYMPTOM

MALFUNCTION
PNEUMATIC PRESSURE LOW

CORRECTIVE ACTION

1. Check pneumatic hose for cuts, tears, or obstructions, and check hose end coupler for proper operation of shutter.
2. Check aircraft pneumatic system for obstructions.

32. 500 PSIG HYDRAULIC PRESSURE NOT DEVELOPED AFTER ENGINE START

SYMPTOM

MALFUNCTION
500 PSIG HYDRAULIC PRESSURE NOT DEVELOPED AFTER ENGINE START

CORRECTIVE ACTION

32. 500 PSIG HYDRAULIC PRESSURE NOT DEVELOPED AFTER ENGINE START – Continued

NOTE

Not applicable if hydraulic pump spacer is installed.

1. Shut down engine.
2. Check to see if gauge shut off valve is open 1/4 turn.
3. Check that hydraulic reservoir is 3/4 full of fluid.
4. If RESERVOIR selector not set to AGPU, reposition selector valve to AGPU.
5. Check that High Pressure and Return Bleed Valves are completely closed.

33. OUTPUT PRESSURE GAUGE INDICATION ALWAYS ZERO

SYMPTOM

MALFUNCTION
OUTPUT PRESSURE GAUGE INDICATION ALWAYS ZERO

CORRECTIVE ACTION

NOTE

Not applicable if hydraulic pump spacer is installed.

If GAUGE SHUTOFF valve is closed, open valve 1/4 turn.

34. HYDRAULIC ELECTRICAL POWER ON LAMP DOESN'T COME ON

SYMPTOM

MALFUNCTION
HYDRAULIC ELECTRICAL POWER ON LAMP DOESN'T COME ON

CORRECTIVE ACTION

NOTE

Not applicable if hydraulic pump spacer is installed.

If CIRCUIT BREAKER on hydraulic electrical panel tripped, reset CIRCUIT BREAKER.

35. TEMPERATURE AND SYSTEM READY INDICATOR LIGHTS STAY OFF

SYMPTOM

MALFUNCTION
TEMPERATURE AND SYSTEM READY INDICATOR LIGHTS STAY OFF

CORRECTIVE ACTION

NOTE

Not applicable if hydraulic pump spacer is installed.

1. Cold hydraulic fluid.

   Perform procedure in WP TM 1-1730-229-13, Operator Instructions, Hydraulic System.
2. Temperature sensor defective.

35. TEMPERATURE AND SYSTEM READY INDICATOR LIGHTS STAY OFF – Continued

Notify supervisor.

36. OUTPUT PRESSURE INDICATION WILL NOT INCREASE

SYMPTOM

MALFUNCTION
OUTPUT PRESSURE INDICATION WILL NOT INCREASE

CORRECTIVE ACTION

NOTE

Not applicable if hydraulic pump spacer is installed.

1. PRESSURE RELIEF valve set too low.

   Re-adjust PRESSURE RELIEF valve.
2. Pump or pump controls not working properly.
3. Notify maintenance supervisor.

37. PRESSURE RELIEF VALVE DOESN'T TURN

SYMPTOM

MALFUNCTION
PRESSURE RELIEF VALVE DOESN'T TURN

CORRECTIVE ACTION

NOTE

Not applicable if hydraulic pump spacer is installed.

If valve lock is set, release lock.

38. PRESSURE DOES NOT RESPOND TO PRESSURE (INCREASE/DECREASE) SWITCH

SYMPTOM

MALFUNCTION
PRESSURE DOES NOT RESPOND TO PRESSURE (INCREASE/DECREASE) SWITCH

CORRECTIVE ACTION

NOTE

Not applicable if hydraulic pump spacer is installed.

1. Check for defective control circuit or defective pump by checking electrical connections.
2. Ensure MASTER SWITCH is in the ON position on the hydraulic control panel.
3. If defective, notify maintenance supervisor.

39. REPLACE FILTER INDICATOR ILLUMINATED DUE TO DIRTY FILTER

SYMPTOM

MALFUNCTION

39. REPLACE FILTER INDICATOR ILLUMINATED DUE TO DIRTY FILTER – Continued

REPLACE FILTER INDICATOR ILLUMINATED DUE TO DIRTY FILTER

CORRECTIVE ACTION

NOTE

Not applicable if hydraulic pump spacer is installed.

Notify maintenance supervisor and replace both Low Pressure and High Pressure hydraulic filters.

40. HOSE CONNECTIONS LOOSE

SYMPTOM

MALFUNCTION
HOSE CONNECTIONS LOOSE

CORRECTIVE ACTION

Replace hose if hose connector is worn. Notify supervisor if problem is AGPU control panel bulkhead connector.

41. HYDRAULIC FLUID FROM AIRCRAFT DRAINS INTO AGPU

SYMPTOM

MALFUNCTION
HYDRAULIC FLUID FROM AIRCRAFT DRAINS INTO AGPU

CORRECTIVE ACTION

NOTE

Not applicable if hydraulic pump spacer is installed.

1. Proper procedural sequence not being followed or check valve defective in AGPU system.
2. Notify maintenance supervisor.

42. UNABLE TO DRAIN OR FILL AGPU FROM DUAL MANIFOLD

SYMPTOM

MALFUNCTION
UNABLE TO DRAIN OR FILL AGPU FROM DUAL MANIFOLD

CORRECTIVE ACTION

Check dual manifold FILL/DRAIN valve:

a. Shut down AGPU and reduce hydraulic pressure.
b. Remove and clean FILL/DRAIN valve (WP 0119 00) and clean dual manifold hole where valve fits.
c. Inspect valve cartridge for signs of blockage (i.e., lodged bits of packing).
d. Replace valve packing.
e. Re-install FILL/DRAIN valve (WP 0119 00) and verify operation.

43. PUMP EMITS HIGH PITCH WHINE AT HIGH PRESSURE SETTINGS, NO HYDRAULIC PRESSURE TO AIRCRAFT

SYMPTOM

MALFUNCTION
PUMP EMITS HIGH PITCH WHINE AT HIGH PRESSURE SETTINGS, NO HYDRAULIC PRESSURE TO AIRCRAFT

CORRECTIVE ACTION

Shut down complete unit and check HIGH PRESSURE BYPASS valve and OUTPUT selector valve for AGPU position:

a. Remove (WP 0122 00, Remove Valves and Fittings) and clean valve and clean the manifold where HIGH PRESSURE BYPASS valve fits.

b. Inspect valve cartridge for nicks, scratches, or broken packing. Replace valve cartridge if necessary.

c. Replace valve packing.

d. Re-install HIGH PRESSURE BYPASS valve (WP 0122 00, Install Valves and Fittings) and verify operation.

44. PUMP EMITS HIGH PITCH WHINE BEFORE HYDRAULIC MODULE OUTPUT TURNED ON

SYMPTOM

MALFUNCTION
PUMP EMITS HIGH PITCH WHINE BEFORE HYDRAULIC MODULE OUTPUT TURNED ON

CORRECTIVE ACTION

1. Shut down complete unit. Remove pump output check valve (WP 0129 00, Figure 2, Item 53) according to procedures of WP 0125 00.
2. Replace pump suction QD (WP 0129 00, Figure 2, Item 34) check valve:
   a. Disassemble module to gain access to pump suction QD. Use procedure of WP 0129 00, Steps 1. through 32.
   b. Remove QD and copper seal.
   c. Install new QD with new copper seal.
   d. Reassemble module using procedure of WP 0130 00 starting with Step 2.

45. PUMP EMITS HIGH PITCH WHINE AFTER HYDRAULIC MODULE OUTPUT TURNED ON

SYMPTOM

MALFUNCTION
PUMP EMITS HIGH PITCH WHINE AFTER HYDRAULIC MODULE OUTPUT TURNED ON

CORRECTIVE ACTION

1. Shut down complete unit and replace module HIGH PRESSURE QD check valve (WP 0132 00, Figure 1, Item 6):
   a. Remove HIGH PRESSURE QD fitting.
   b. Clean manifold hole where QD fits.
   c. Install a new QD fitting with new packing.
2. Replace module RETURN QD check valve (WP 0132 00, Figure 1, Item 5) or return line check valve (behind hydraulic control panel (WP 0132 00, Figure 1, Item 5)):
   a. Remove RETURN QD fitting and return line check valve.

45. PUMP EMITS HIGH PITCH WHINE AFTER HYDRAULIC MODULE OUTPUT TURNED ON – Continued

b. Clean manifold hole where check valve fits.

c. Install a new QD fitting and return line check valve with new packing.

3. Repair dual manifold according to the procedures of WP 0119 00.

46. UNABLE TO PERFORM HOSE FLUID WARMUP AND HOSE AIR BLEED PROCEDURES

SYMPTOM

MALFUNCTION
UNABLE TO PERFORM HOSE FLUID WARMUP AND HOSE AIR BLEED PROCEDURES

CORRECTIVE ACTION

Repair dual manifold according to the procedures of WP 0119 00.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

TROUBLESHOOTING PROCEDURES: PROPULSION

INITIAL SETUP:

References
WP 0146 00
WP 0147 00
WP 0130 00

References (cont.)
WP 0148 00
WP 0155 00

TROUBLESHOOTING PROCEDURE

47. AGPU DOES NOT DRIVE IN PRIMARY OR ALTERNATE PROPULSION MODE

SYMPTOM

MALFUNCTION
AGPU DOES NOT DRIVE IN PRIMARY OR ALTERNATE PROPULSION MODE

CORRECTIVE ACTION

1. Check clutch is engaged and quick release pin installed.
2. Check that the MASTER switch is ON; DRIVE switch is ON; BATT output switch is ON; and check level of battery charge.
3. Check brake lever is in the vertical position and brakes are released.
4. Check Dead-Man switch is depressed.
5. Check operation of electric brake.
6. Notify maintenance supervisor.

48. AGPU DRIVES IN FORWARD DIRECTION ONLY

SYMPTOM

MALFUNCTION
AGPU DRIVES IN FORWARD DIRECTION ONLY

CORRECTIVE ACTION

1. For MEP 83-360A and MEP 83-360D models, set DRIVE switch OFF, disconnect cable from motor terminal A1 (FO 8) For 83-360E model, set DRIVE switch OFF, disconnect cable from motor terminal A2 (FO 8 and FO 27). Set DRIVE SWITCH on. Press deadman switch and

48. AGPU DRIVES IN FORWARD DIRECTION ONLY – Continued

rotate speed/direction control assembly handgrip for reverse motion. Check for +24 VDC at TB4-7.

a. If voltage is present, replace reverse switch S2 in the speed/direction control assembly.

b. If voltage is not present, the reverse switch S2 in the speed/direction control assembly, or the wire between switch and TB4-7 is defective. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Check wiring and repair if defective. If wiring is good, check reverse switch S2, and replace if defective. If voltage is still not present, replace speed/direction control assembly (WP 0147 00).

2. Set power switches OFF and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Check wires between TB4-7 and relay 2K2, and cable G12A2 on relay 2K2.

a. Replace any defective wires or cables.

b. If all cables and wires are good, replace relay 2K2 (WP 0147 00).

49. AGPU DRIVES IN REVERSE DIRECTION ONLY

SYMPTOM

MALFUNCTION
AGPU DRIVES IN REVERSE DIRECTION ONLY

CORRECTIVE ACTION

1. Set DRIVE switch OFF, disconnect cable from motor terminal A2 (FO 8). For 83-360E model refer to FO 8 and FO 27. Set DRIVE SWITCH on. Press deadman switch and rotate speed/direction control assembly handgrip for reverse motion. Check for +24 VDC at TB4-6.

a. If voltage is present, perform Step 2.

b. If voltage is not present, the reverse switch S1 in the speed/direction control assembly, or the wire between switch and TB4-6 is defective. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Check wiring and repair if defective. If wiring is good, check reverse switch S1, and replace if defective. If voltage is still not present, replace speed/direction control assembly (WP 0147 00).

2. Set power switches OFF and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Check wires between TB4-6 and relay 2K1, and cable G18A20N on relay 2K1.

a. Replace any defective wires or cables.

b. If all cables and wires are good, replace relay 2K1 (WP 0147 00).

50. AGPU DRIVES IN BOTH DIRECTIONS BUT MOTION IS JERKY

SYMPTOM

MALFUNCTION
AGPU DRIVES IN BOTH DIRECTIONS BUT MOTION IS JERKY

CORRECTIVE ACTION

Set power switches OFF and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Test diodes TB2-CR1 and CR2 or refer to troubleshooting procedure 108. TERMINAL BOARD DIODE MALFUNCTIONS.

50. AGPU DRIVES IN BOTH DIRECTIONS BUT MOTION IS JERKY – Continued

a. Replace defective diodes.

b. If diodes are good, check wire between diodes and ground (FO 8 for MEP 83-360A and D models and FO 27 for MEP 83-360E model).

c. If all wires and diodes are good, replace motor controller.

d. Notify maintenance supervisor.

51. AGPU DOES NOT DRIVE WHEN SPEED/DIRECTION CONTROL ASSEMBLY HANDGRIPS ROTATED IN EITHER DIRECTION (CONDITIONS PROPER FOR OPERATION)

SYMPTOM

MALFUNCTION
AGPU DOES NOT DRIVE WHEN SPEED/DIRECTION CONTROL ASSEMBLY HANDGRIPS ROTATED IN EITHER DIRECTION (CONDITIONS PROPER FOR OPERATION)

CORRECTIVE ACTION

1. Check if control panel DRIVE light is on when handgrips are rotated.
   a. If DRIVE light is lit, continue with Step 3.
   b. If DRIVE light is not lit, refer to troubleshooting procedure 97. DRIVE POWER ON INDICATOR DOES NOT LIGHT WHEN PROPULSION MODE OPERATION ATTEMPTED.

NOTE

Make sure battery voltage is up before performing drive motor test. Observe DC AMPS meter while performing test. If meter indication exceeds 300 amps after initial surge, set DRIVE switch OFF.

2. Operate AGPU in alternate (battery) propulsion mode (refer to TM 1-1730-229-13, Operator Instructions). Listen for audible click from electric brake. If there is no audible click:
   a. Check diode CR16 for correct operation and installation. Replace as required.
   b. Disconnect strain relief connection at electric brake. Check for continuity between motor speed controller 28 VDC input and electric brake positive. Check for continuity between electric brake negative and TB4-9. Refer to FO 8 and FO 27 for the MEP 83-360E model.
      (1) If open circuit, check wiring connections for broken wiring. Repair as required.
      (2) If continuity, replace electric brake.

WARNING

Rear of AGPU is to be supported on jack stands with wheels clear of ground for all tests listed for this malfunction.

3. Position AGPU on level surface and chock front wheels. Raise rear of AGPU body with a jack until rear wheels are approximately 2-1/2 inches above the surface. Support the AGPU with jack stands.

51. AGPU DOES NOT DRIVE WHEN SPEED/DIRECTION CONTROL ASSEMBLY HANDGRIPS ROTATED IN EITHER DIRECTION (CONDITIONS PROPER FOR OPERATION) – Continued

WARNING

Stand clear of rear wheels.

4. Operate AGPU in alternate (battery) propulsion mode (refer to TM 1-1730-229-13, Operator Instructions). While an assistant operates the speed/direction control assembly, measure the dc voltage at terminals A1, A2, S1, and S2 of the traction motor (WP 0148 00, Figure 4, Item 5). Voltage should be +24 VDC between A1 and dc ground when the speed/direction control handgrips are rotated for forward motion (FO 8 for MEP 83-360A and D models and FO 27 for MEP 83-360E model). Voltage should be +24 VDC between A2 and ground when the handgrips are rotated for reverse motion. The voltage between S1 and ground and S2 and ground should vary from 0 to 24 VDC as the handgrips are rotated from zero to fully forward or reverse position.
    a. If voltages at motor terminals (A1 and A2) and field terminals (S1 and S2) were all normal, and DC AMPS meter reading is low (less than 50 amps when speed/direction control assembly handgrips are rotated fully forward or reverse), perform Step 4.
    b. If voltages at motor terminals and field terminals were all normal (or near normal) and DC AMPS reading was high (more than 300 amps after initial surge), proceed to Step 5.
    c. If the voltages at motor terminals (A1 and A2) and field terminals (S1 and S2) are all normal and DC AMPS meter shows no indication when speed/direction control assembly handgrips are rotated fully forward or reverse, perform Step 6.
    d. If voltages at motor terminals (A1 and A2) were normal but field voltage was low, proceed to Step 10.
    e. If voltages at field terminals (S1 and S2) were normal but no voltage was present at motor terminals, proceed to Step 17.
    f. If all voltages were missing set power switches OFF and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Check cable G11C2 between shunt R1 and relay K1, and cable G21A2N between motor speed control and ground stud (FO 8 and FO 27).
5. Set power switches OFF and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Inspect motor brushes.

    Replace brushes (WP 0155 00) if required. Perform bench test. If new brushes do not correct problem, replace motor (WP 0155 00), and perform MOC.
6. Bench test traction motor.
    a. Remove traction motor (refer to WP 0155 00).
    b. Clamp traction motor to a bench or install in an appropriate clamping device.
    c. Obtain a battery or other 24-28 VDC power supply.
    d. Connect a jumper wire from S1 to A2. Connect the negative lead from the power supply to S2. Connect the positive lead from the power supply to A1. Apply 24-28 VDC. Motor should run clockwise. Remove cables.
    e. Connect a jumper wire from S1 to A1. Connect the negative lead from the power supply to S2. Connect the positive lead from the power supply to A2. Apply 24-28 VDC. Motor should run counterclockwise. Remove cables.

51. AGPU DOES NOT DRIVE WHEN SPEED/DIRECTION CONTROL ASSEMBLY HANDGRIPS ROTATED IN EITHER DIRECTION (CONDITIONS PROPER FOR OPERATION) – Continued

f. If motor does not operate properly, replace the motor.

g. If the motor operates properly, install motor (refer to WP 0155 00). Proceed to Step 7.

7. Check voltage adjustment on the motor controller.

NOTE

Removal of the roof will allow easy access to the motor controller.

NOTE

Two people are required for the motor controller voltage adjustment check. One person to operate the speed/direction handgrip assembly and one to make the adjustment at the motor controller.

a. Insure the AGPU switches and traction motor are set to the alternate propulsion mode (TM 1-1730-229-13, Operator Instructions).

b. Set the drive switch on and check that the drive lamp is illuminated.

c. Release the tow bar and lower it to operating position. Press and hold the deadman switch.

d. Rotate the speed/direction handgrip assembly in the forward direction only enough to engage the forward relay (K1) on the upper tray. Hold the speed/direction handgrip assembly at this position to keep the relay engaged until the check is completed.

e. Adjust the volts adjust trim pot on the motor controller in the direction of the arrow until you hear the traction motor start to whine. The motor should whine and attempt to crawl the AGPU forward. DO NOT ADJUST FURTHER.

f. If the traction motor does not react to the adjustment replace the motor controller assembly (refer to WP 0146 00).

8. Set power switches OFF and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Inspect motor cables for possible shorts.

a. Replace or repair any shorted cables.

b. If no shorted cables are found, perform Step 9.

9. Attempt to manually rotate rear wheels.

a. If rear wheels can be easily rotated, replace motor (WP 0155 00).

b. If rear wheels cannot be easily rotated, check brakes and chain drive systems.

10. Check for +24 VDC at B+ terminal on motor speed controller on upper electrical tray (FO 8 for MEP 83-360A and D models and FO 8 and FO 27 for MEP 83-360E model).

a. If voltage is present, perform Step 11.

b. If voltage is not present, Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and check cable G11A2.

11. With speed/direction control assembly handgrip rotated and deadman switch pressed check for +24 VDC at 28 VDC in terminal on motor speed controller.

If voltage is present, proceed to Step 15. If not, continue with Step 12.

12. With speed/direction control assembly handgrip rotated and deadman switch pressed check for +24 VDC at terminal 9 on speed/direction control assembly.

51. AGPU DOES NOT DRIVE WHEN SPEED/DIRECTION CONTROL ASSEMBLY HANDGRIPS ROTATED IN EITHER DIRECTION (CONDITIONS PROPER FOR OPERATION) – Continued

a. If voltage is present, perform Step 11.

b. If voltage is not present, the spring return switch S3 in speed/direction control assembly is defective. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and replace speed/direction control assembly (WP 0147 00).

13. With speed/direction control assembly handgrip rotated and deadman switch pressed, check for +24 VDC at terminal 2 on TB4.

    a. If voltage is present, perform Step 14.

    b. If voltage is not present, deadman switch or associated wiring is defective. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and replace speed/direction control assembly (WP 0147 00).

14. Set power switches OFF and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Test DRIVE switch 1S3.

    a. Replace switch if defective.

    b. If switch tests good, check thermal switch in motor, wiring between DRIVE switch terminal 6 and terminal 2 on TB4, and wiring between DRIVE switch terminal 5 and 28 VDC in terminal on motor speed controller. Replace any defective wiring. If no defective wiring is found, the motor thermal switch is open. If motor is hot, wait for motor to cool. If switch does not close when motor cools down, replace motor (WP 0155 00).

15. Set power switches OFF and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Tag and disconnect wires G7B20, G8B20 and G9B20 from terminals 3, 4, and 5 on TB4. Measure resistance between TB4-3 and TB4-4 while rotating, speed/direction control assembly handgrip. Measure resistance between TB4-4 and TB4-5 while rotating handgrip in opposite direction. In both cases, normal resistance is 0 to 10K. Reconnect wires (G7B20, G8B20 and G9B20) to TB4 terminals 3, 4, and 5. Always refer to the wiring foldouts (FO 8 and FO 27) for proper wiring.

    a. If resistance checks are normal, perform Step 16.

    b. If resistance checks are not normal, the potentiometer in the speed/direction control assembly or associated wiring is defective. Repair wiring, or replace speed/direction control assembly (WP 0147 00).

16. Check wires between TB4 and terminals 1, 2, and 3 on motor speed controller.

    a. Replace any open wires.

    b. If wiring is good, replace motor speed controller (WP 0146 00).

17. Press deadman switch and rotate speed/direction control assembly handgrip for forward motion. Measure voltages at TB4-6 (+24 VDC normal) and TB4-7 (0 VDC normal).

    a. If both voltages are normal, perform Step 17.

    b. If either voltage is not normal, speed/direction control assembly components (reverse switch S2, forward switch S1, or diode) or wires between switches and TB4 are defective. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Check wiring and repair if defective. If wiring is good, check switches S1 and S2, and replace if defective. If voltage is still not normal, replace speed/direction control assembly (WP 0147 00).

18. Press deadman switch and rotate speed/direction control assembly handgrip for reverse motion. Measure voltages at TB4-6 (0 VDC normal) and TB4-7 (+24 VDC normal).

    a. If both voltages are normal, perform Step 19.

51. AGPU DOES NOT DRIVE WHEN SPEED/DIRECTION CONTROL ASSEMBLY HANDGRIPS ROTATED IN EITHER DIRECTION (CONDITIONS PROPER FOR OPERATION) – Continued

b. If either voltage is not normal, speed/direction control assembly components (reverse switch S2, forward switch S1, or diode) or wires between switches and TB4 are defective. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Check wiring and repair if defective. If wiring is good, check switches S1 and S2, and replace if defective. If voltage is still not normal, replace speed/direction control assembly (WP 0147 00).

19. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Check cable G10A2 (between upper tray relay 2K2 and motor speed controller), and wires G18B20N and G18C20N (between relay 2K2 and ground TB).

    Replace or repair open cables or wires if found bad.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

TROUBLESHOOTING PROCEDURES: ELECTRICAL

INITIAL SETUP:

References

WP 0002 00
WP 0014 00
WP 0021 00
WP 0022 00
WP 0032 00
WP 0036 00
WP 0037 00
WP 0038 00
WP 0039 00
WP 0041 00
WP 0043 00
WP 0044 00
WP 0045 00
WP 0046 00
WP 0047 00
WP 0048 00
WP 0049 00
WP 0050 00
WP 0052 00
WP 0053 00
WP 0054 00
WP 0058 00
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WP 0060 00
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WP 0063 00
WP 0064 00
WP 0066 00
WP 0068 00
WP 0071 00
WP 0074 00

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WP 0075 00
WP 0077 00
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WP 0080 00
WP 0083 00
WP 0090 00
WP 0093 00
WP 0111 00
WP 0112 00
WP 0114 00
WP 0107 00
WP 0108 00
WP 0134 00
WP 0135 00
WP 0137 00
WP 0138 00
WP 0139 00
WP 0140 00
WP 0141 00
WP 0147 00
WP 0117 00
WP 0122 00
WP 0125 00
WP 0126 00
WP 0127 00
WP 0119 00
WP 0129 00
WP 0130 00
WP 0131 00
WP 0132 00
WP 0152 00
WP 0156 00

TROUBLESHOOTING PROCEDURE

52. AC OR DC OVER CURRENT, AC UNDER VOLTAGE, OR DC VOLTAGE FAULT INDICATOR ILLUMINATED

SYMPTOM

MALFUNCTION
AC OR DC OVER CURRENT, AC UNDER VOLTAGE, OR DC VOLTAGE FAULT INDICATOR ILLUMINATED

CORRECTIVE ACTION

1. Check for proper range setting on CURRENT LIMIT SELECTOR switch.
2. Set switch to proper range, if this does not correct problem, notify maintenance supervisor.

53. BATTERY VOLTAGE METER READS LOW (MASTER SWITCH ON, ENGINE NOT RUNNING)

SYMPTOM

MALFUNCTION
BATTERY VOLTAGE METER READS LOW (MASTER SWITCH ON, ENGINE NOT RUNNING)

CORRECTIVE ACTION

1. Set MASTER SWITCH to OFF, and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Measure voltage across battery terminal posts.
   a. If battery voltage is good (22 to 26 volts), proceed to Step 2.
   b. If battery voltage is low (less than 22 volts), test battery (WP 0036 00). Charge or replace battery as required. Make sure that resistance between battery cable terminal adapter receptacles is greater than 40k (with MASTER SWITCH OFF) before connecting battery.
2. Lower control panel (WP 0032 00).

WARNING

Battery power may be present at terminals on back of control panel when battery is connected. Do not touch any bare terminals.

3. Connect battery. Set MASTER SWITCH to ON, and measure DC voltage between positive (+) and negative (-) terminals of BATTERY VOLTAGE meter 1M4 (refer to FO 1 for MEP 83-360A and D models and FO-19 (Sheet 1 of 2) for MEP 83-360E model).
   a. If not voltage, proceed to Step 4.
   b. If voltage is good (22 to 26 VDC), Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector, replace BATTERY VOLTAGE meter 1M4 (WP 0138 00) and perform MOC.
4. With battery connected and MASTER SWITCH ON, measure DC voltage between positive (+) terminal of BATTERY VOLTAGE meter 1M4 and ground.
   a. If voltage is good (22 to 26 VDC), proceed to Step 9.
   b. If no voltage, continue with Step 5.
5. Measure DC voltage at slave receptacle. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
   a. If no voltage, replace battery terminal adapter (WP 0037 00), and perform MOC.

53. BATTERY VOLTAGE METER READS LOW (MASTER SWITCH ON, ENGINE NOT RUNNING) – Continued

b. If voltage was good (22 to 26 VDC), continue with next step.

6. Check battery cables P33A1/0 (positive receptacle of battery terminal adapter to starter shunt R2) and P44A1/ON (negative receptacle of battery terminal adapter to DC ground stud) for continuity.
   a. If no continuity, replace cables (WP 0037 00) and perform MOC.
   b. If continuity checks are good, continue with next step.
7. Check for continuity between the two large screws on shunt R2 (WP 0041 00, Figure 1, Item 28 and 29).
   a. If no continuity, replace shunt (WP 0041 00) and perform MOC.
   b. If continuity, continue with next step.
8. Remove battery charger access cover (WP 0002 00, Figure 1, Item 5) and disconnect main harness connector P7 from control panel connector J7. Check for continuity between P7-1R and shunt R2, and between J7-1L and positive terminal of BATTERY VOLTAGE meter 1M4.

   Replace open wire (P41D20 or P41E20), and perform MOC.
9. Set MASTER SWITCH to OFF and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Test MASTER SWITCH 1S2 (105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS).
   a. Replace switch if defective (WP 0135 00), and perform MOC.
   b. If switch tests good, proceed to Step 10.
10. Check for continuity between the following points (refer to FO 1 and FO 5 for MEP 83-360A and D models and FO-19 (Sheet 1 of 2) and FO 23 for MEP 83-360E model).

Check continuity		If no continuity,
From	To	replace wire no.:
1M4(-)	1S2-9	P45B20
1S2-8	1DS21(-)	P53A20N
1DS21(-)	1DS19(-)	P53B20N
1DS19(-)	1DS18(-)	P53C20N
1DS18(-)	1M11(-)	P53D20N
GND TB	DC GND STUD	P50A12N

Refer to WP 0058 00, Figure 1for GND TB location.

   a. If no continuity, replace indicated wire, and perform MOC.
   b. If all continuity checks good, proceed to Step 11.
11. Remove battery charger access cover (WP 0002 00, Figure 1, Item 5) and disconnect main harness connector P5 from control panel connector J5. Check for continuity between J5-23R and 1M11(-), and between P5-23L and GND TB (WP 0058 00, Figure 1, Item 2). Refer to FO 2 for MEP 83-360A and D model and FO 20 for MEP 83-360E model.

    Replace open wire (P53G20N or P53H20N), and perform MOC.

54. CHRG/BAT FAULT INDICATOR NOT LIT (MASTER SWITCH ON, ENGINE NOT RUNNING)

54. CHRG/BAT FAULT INDICATOR NOT LIT (MASTER SWITCH ON, ENGINE NOT RUNNING) – Continued

SYMPTOM

MALFUNCTION
CHRG/BAT FAULT INDICATOR NOT LIT (MASTER SWITCH ON, ENGINE NOT RUNNING)

CORRECTIVE ACTION

1. Push PRESS TO TEST switch.
    a. If BATTERY CHG/DISCH indicator does not illuminate, refer to troubleshooting procedure 58. CONTROL PANEL INDICATOR LIGHT TEST FAILS - ONE INDICATOR DOES NOT LIGHT.
    b. If indicator illuminates, proceed to Step 2.
2. Set MASTER SWITCH to OFF and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Test diode TB3-CR5 (refer to FO 1 for MEP 83-360A and D models and FO-19 (Sheet 1 of 2) for MEP 83-360E model) (108. TERMINAL BOARD DIODE MALFUNCTIONS).
    a. If diode tests good, proceed to Step 2.
    b. Replace diode if defective (WP 0058 00), and perform MOC.
3. Disconnect wire from TB3-10 (Anode). Measure resistance between TB3-10 (Anode) and TB3-10 (Cathode).
    a. If resistance is between 80 and 120 ohms, reconnect wire and proceed to Step 4.
    b. If resistance is not between 80 and 120 ohms, replace resistor TB3-R1 (WP 0058 00), and perform MOC.
4. Disconnect main harness connector P5 from control panel connector J5. Check for continuity of wire P29B20 (J5-20L to 1DS7+), and wire P29C20 (P5-20R to TB3-10 Anode).
    a. If either wire is open, replace wire and perform MOC.
    b. If both wires are good, reconnect P5 to J5 and continue with next step.
5. Disconnect main harness connector P18 from lower tray connector J18. Check for continuity of wire P33K20 (P18-E and TB3-9 Anode).
    a. If no continuity, replace wire P33K20 and perform MOC.
    b. If continuity, proceed to Step 6.
6. Open electrical tray access door, and remove battery/charger transfer relay 3K3 from socket (WP 0048 00). Refer to FO 1 for MEP 83-360A and D models and FO-19 (Sheet 1 of 2) for MEP 83-360E model and check continuity of wire P33H20 (between relay socket pins A3 and D3) and wire P33J20 (from J18-E to relay socket pin D2 for MEP 83-360A or from P8-F to relay socket pin D2 for MEP 83-360D/E).
    a. If no continuity, replace wire or notify maintenance supervisor. Re-install relay 3K3 (WP 0048 00).
    b. If continuity, replace relay 3K3 with new relay (WP 0048 00).
    c. After replacing wire or relay, reconnect all connectors and wires, and perform MOC.

55. CHRG/BAT FAULT INDICATOR LIT (ENGINE RUNNING AT 100% RPM)

SYMPTOM

MALFUNCTION
CHRG/BATT FAULT INDICATOR LIT (ENGINE RUNNING AT 100% RPM)

CORRECTIVE ACTION

55. CHRG/BAT FAULT INDICATOR LIT (ENGINE RUNNING AT 100% RPM) – Continued

1. Set DC POWER switch to ON, check DC POWER ON indicator, and set DC POWER switch to OFF.
    a. If DC POWER ON indicator lit, proceed to Step 1.b.
    b. If indicator did not light, refer to troubleshooting procedure 73. DC POWER ON INDICATOR OFF (ENGINE UP TO SPEED AND DC POWER SWITCH ON).
2. Open electrical trays access door and check that circuit breakers 2CB1 and 2CB2 on upper tray are closed (pushed in).
    a. If circuit breakers are closed, proceed to Step 3. 35 Amp and 70 Amp Breakers.
    b. If either circuit breaker is open, reset by pushing in. If circuit breaker remains in, proceed to Step 3. If circuit breaker opens again, shut down engine, Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector, and perform 107. CHARGER CIRCUIT MALFUNCTION, Step 5.c. (2CB1) or Step 6.c. (2CB2).
3. Shut down engine and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Check for continuity between terminals of 2CB1, and between terminals of 2CB2.
    a. If continuity checks good, proceed to Step 4.
    b. If no continuity, replace circuit breaker 2CB1 or 2CB2 (WP 0050 00), and perform MOC.
4. Check battery/charger transfer relay (refer to troubleshooting procedure 111. BA TTERY/CHARGER TRANSFER RELAY AND POWER DIODE MALFUNCTIONS).
    a. If relay tests good, proceed to Step 5.
    b. If relay test is not good, check wiring as instructed in 111. BATTERY/CHARGER TRANSFER RELAY AND POWER DIODE MALFUNCTIONS, Step 1.k.
5. Remove battery charger access cover. Disconnect main harness connectors P1 (WP 0039 00, Figure 2, Item 4) and P2 (WP 0039 00, Figure 2, Item 6) from battery charger connectors J1 (WP 0039 00, Figure 2, Item 5) and J2 (WP 0039 00, Figure 2, Item 7). Disconnect harness connector P9 from lower tray J9. Check for continuity between the following points (FO 1 for MEP 83-360A and D models and FO-19 (Sheet 1 of 2) for MEP 83-360E model):

Check continuity		If no continuity,
From	To	replace wire no:
P1-H	2CB2	P24A12
P1-I	2CB2	P23A12
P2-A	P9-S	P30A18
P2-B	GND TB	P31A18N
P9-L	GND TB	P49C20N
CHARGER J4 (+)	2CB1	P22A2
CHARGER J4 (-)	CHARGER J3 (-)	P21A6N
CHARGER J4 (-)	DC ground stud	P21B2N
CHARGER J3 (+)	Shunt R3 (-)	P32A6
2CB1	K2-A1	P2B2

55. CHRG/BAT FAULT INDICATOR LIT (ENGINE RUNNING AT 100% RPM) – Continued

– Continued

Check continuity		If no continuity,
From	To	replace wire no:
2CB2	K2-A1	P2C8

a. If no continuity, replace indicated wire.

b. If all continuity checks good, replace battery charger (WP 0039 00).

c. Reconnect all connectors and wires, and perform MOC.

56. BATTERY VOLTAGE METER READS LOW (ENGINE RUNNING)

SYMPTOM

MALFUNCTION
BATTERY VOLTAGE METER READS LOW (ENGINE RUNNING)

CORRECTIVE ACTION

1. Check BATTERY CHG/DISCH meter.
   a. If CHG/DISCH meter reads in green band, shut down engine and test battery (WP 0032 00, Lower Control Panel for Maintenance). Charge or replace battery as required, and perform MOC.
   b. If CHG/DISCH meter reads in yellow band, proceed to Step 2.
2. Shut down engine and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Lower control panel (WP 0032 00, Lower Control Panel for Maintenance) and remove battery charger access cover. Check for continuity between the following points (FO 1 for MEP 83-360A and D models and FO-19 (Sheet 1 of 2) for MEP 83-360E model):

From	To	Replace Wire no.
R3-	Bat Chrg J3+	P32A6
Bat Chrg J4-	Bat Chrg J3-	P21A6N
Bat Chrg J4-	DC GND	P21B2N

   a. If no continuity, replace indicated wire and perform MOC.
   b. If all continuity checks good, check battery charger (refer to troubleshooting procedure 107. CHARGER CIRCUIT MALFUNCTION).

57. BATTERY VOLTAGE METER READS HIGH (ENGINE RUNNING)

SYMPTOM

MALFUNCTION
BATTERY VOLTAGE METER READS HIGH (ENGINE RUNNING)

CORRECTIVE ACTION

57. BATTERY VOLTAGE METER READS HIGH (ENGINE RUNNING) – Continued

NOTE

The BATTERY VOLTAGE meter may read slightly high when the battery charger output switch on lower electrical tray is in the 30.5 VDC or 32.0 VDC position. Maximum meter readings for the charger output switch settings are:

Charger Output Control Setting	Maximum BATTERY VOLTAGE Meter Reading
28.5 VDC	31 VDC
30.5 VDC	33 VDC
32.0 VDC	34.5 VDC

If BATTERY VOLTAGE meter reading exceeds maximum limits, check battery charger circuits (refer to troubleshooting procedure 107. CHARGER CIRCUIT MALFUNCTION).

Replace battery charger or charger output select switch as required. Reconnect all connectors and wires and perform MOC.

58. CONTROL PANEL INDICATOR LIGHT TEST FAILS - ONE INDICATOR DOES NOT LIGHT

SYMPTOM

MALFUNCTION
CONTROL PANEL INDICATOR LIGHT TEST FAILS - ONE INDICATOR DOES NOT LIGHT

CORRECTIVE ACTION

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Remove indicator lens and check bulb.
    a. Replace bulb if defective and perform MOC.
    b. If bulb is good, proceed to Step 3.
3. Refer to FO 2 or FO 20 for MEP 83-360E model and locate diode associated with indicator light. Test diode (refer to troubleshooting procedure 108. TERMINAL BOARD DIODE MAL FUNCTIONS).
    a. If diode tests good, proceed to Step 4.
    b. Replace diode if defective, and perform MOC.
4. Refer to FO 2 or FO 20 for MEP 83-360E model and check indicator light wiring.
    a. Replace or repair any defective wiring.
    b. If all wiring is good, replace lamp socket (WP 0139 00).
    c. Perform MOC.

59. CONTROL PANEL INDICATOR LIGHT TEST FAILS - NO INDICATORS LIGHT

SYMPTOM

MALFUNCTION
CONTROL PANEL INDICATOR LIGHT TEST FAILS - NO INDICATORS LIGHT

CORRECTIVE ACTION

1. Check that indicator lenses are not closed.
    a. Open lenses by turning counterclockwise.
2. Check BATTERY VOLTAGE meter.

59. CONTROL PANEL INDICATOR LIGHT TEST FAILS - NO INDICATORS LIGHT – Continued

a. If meter does not read in green zone, refer to troubleshooting procedure 53. BA TTERY VOLTAGE METER READS LOW (MASTER SWITCH ON, ENGINE NOT RUNNING) or 56. BATTERY VOLTAGE METER READS LOW (ENGINE RUN NING).

b. If meter reads in green zone, proceed to Step 3.

3. Check LIGHTS 7.5 circuit breaker on control panel (WP 0107 00).
   a. If circuit breaker is closed (pushed in), proceed to Step 4.
   b. If circuit breaker is open (out), reset by pushing in. If circuit breaker continues to open, Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and check all circuits fed by circuit breaker 1CB1 (FO 1 or FO-19 (Sheet 1 of 2) for MEP 83-360E model) for shorts.
4. Set LIGHTS PANEL switch to BRT.
   a. If panel lights above control panel light, set switch to OFF and proceed to Step 5.
   b. If panel lights above control panel do not light, set switch of OFF and proceed to Step 6.
5. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and test PRESS TO TEST switch 1S4 (refer to troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS).
   a. Replace switch if defective (WP 0136 00), and perform MOC.
   b. If switch tests good, check switch wiring (refer to FO 2 or FO 20 for MEP 83–360E model). Replace any defective wiring, and perform MOC.
6. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and lower control panel (WP 0032 00, Lower Control Panel for Maintenance). Check for continuity between positive receptacle of battery terminal adapter and terminal 2 on MASTER SWITCH 1S2 (refer to FO 1 and FO-19 (Sheet 1 of 2)).
   a. If continuity, continue with Step 7.
   b. If no continuity, proceed to Step 9.
7. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector, set MASTER SWITCH to ON and check for continuity between switch terminals 2 and 3. Set switch to OFF.
   a. If no continuity, replace switch (WP 0135 00), and perform MOC.
   b. If continuity, proceed to Step 8.
8. Check for continuity between terminals of LIGHTS 7.5 circuit breaker 1CH1.
   a. If no continuity, replace circuit breaker (WP 0140 00), and perform MOC.
   b. If continuity, check wire P36A20 between circuit breaker and MASTER SWITCH.
9. Check for continuity between shunt R2+ terminal (large top screw) and shunt R3+ terminal (large left screw).
   a. If no continuity, replace P33C6, and perform MOC.
   b. If continuity, proceed to Step 10.
10. Check for continuity between large terminals of shunt R3.
    a. If no continuity, replace shunt R3 (WP 0041 00), and perform MOC.
    b. If no continuity, proceed to Step 11.

59. CONTROL PANEL INDICATOR LIGHT TEST FAILS - NO INDICATORS LIGHT – Continued

11. Open electrical trays access door and pull tray out. Disconnect main harness connector P9 from lower tray connector J9. Check for continuity between P9-R and shunt R3- (large right screw).
    a. If no continuity, replace wire P33D18. Reconnect P9 to J9, and perform MOC.
    b. If continuity, proceed to Step 12.
12. Remove battery charger access cover. Disconnect main harness connector P5 from control panel connector J5. Check for continuity between P9-P and P5-21R.
    a. If no continuity, replace wire P34C20. Reconnect all connectors and perform MOC.
    b. If no continuity, proceed to Step 13.
13. Check for continuity between J5-21L and terminal 2 of MASTER SWITCH 1S2.
    a. If no continuity, replace wire P34D20. Reconnect all connectors and perform MOC.
    b. If continuity, test battery/charger transfer relay 3K3 and wiring (refer to troubleshooting procedure 111. BATTERY/CHARGER TRANSFER RELAY AND POWER DIODE MALFUNCTIONS, Step 1.k.).

60. FUEL METER READING INACCURATE

SYMPTOM

MALFUNCTION
FUEL METER READING INACCURATE

CORRECTIVE ACTION

WARNING

Battery power may be present at terminals on back of control panel when battery is connected. Do not touch any bare terminals.

1. Push control panel PRESS TO TEST switch and check that LOW FUEL indicator lights.
   a. If LOW FUEL indicator lights, proceed to Step 2.
   b. If LOW FUEL indicator does not light, refer to troubleshooting procedure 58. CON TROL PANEL INDICATOR LIGHT TEST FAILS - ONE INDICATOR DOES NOT LIGHT or 59. CONTROL PANEL INDICATOR LIGHT TEST FAILS - NO INDIC ATORS LIGHT.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and lower control panel (WP 0032 00, Lower Control Panel for Maintenance). Disconnect wire from negative (-) terminal of FUEL meter 1M3 (refer to FO 4 or FO 22 for MEP 83-360E model). Tape wire terminal lug to prevent shorting.

60. FUEL METER READING INACCURATE – Continued

WARNING

Battery power may be present at terminals on back of control panel when battery is connected. Do not touch any bare terminals.

3. Connect battery. Set MASTER switch to ON. Measure DC voltage between positive (+) terminal of FUEL meter 1M3 and ground. Set MASTER SWITCH to OFF, and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
    a. If voltage is between 4.6 VDC and 5.6 VDC (normal), got to Step 7.
    b. If voltage is 0 VDC, reconnect wire to negative (-) terminal of meter 1M3 and proceed to Step 5.
    c. If voltage is between 22 and 26 VDC, reconnect wire to negative (-) terminal of meter 1M3 and continue with Step 4.
4. Check for continuity between TB1-14 (Anode) and ground. Refer to WP 0058 00, Figure 1 and WP 0058 00, Figure 2 for TB location.
    a. If continuity, replace zener diode TB3-CR1 (WP 0058 00), and perform MOC.
    b. If no continuity, replace wire between TB1-14 (Anode) and ground TB, or notify maintenance supervisor.
5. Disconnect wire from TB1-15 (Anode). Measure resistance between TB1-15 (Anode) and TB1-15 (Cathode). Refer to WP 0058 00, Figure 1 and WP 0058 00, Figure 2 for TB location. Reconnect wire to TB1-15 (Anode).
    a. If resistance is between 170 and 270 ohms (normal), proceed to Step 6.
    b. If resistance is not between 170 and 270 ohms, replace resistor TB1-R1 (WP 0058 00) and perform MOC.
6. Remove battery charger access cover. Disconnect main harness connector P5 from control panel connector J5. Check for continuity between the points listed below (refer to FO 4 or FO 22 for MEP 83-360E model):

Check Continuity		If no continuity,
From	To	replace wire no.
J5-12L	1M3(+)	Q2B20
J5-12R	1DS5(+)	Q1C20
P5-12L	TB1-15 (Anode)	Q1D20
P5-12R	TB1-15 (Cathode)	Q2A20

    a. If no continuity, replace indicated wire.
    b. If all continuity checks good, check for short between TB1-15 (Cathode) and ground.
    c. Reconnect P5 to J5, and perform MOC.
7. Check resistance between wire Q6A20 (disconnected from FUEL meter 1M3) and ground. Resistance should be between 33 ohms (fuel tank full) and 240 ohms (fuel tank empty). Reconnect wire to negative (-) terminal of meter 1M3.
    a. If resistance was normal (33 to 240 ohms), suspect FUEL meter 1M3 to be malfunctioning, inoperable, or inaccurate. Contact appropriate instrument repair shop.

60. FUEL METER READING INACCURATE – Continued

b. If circuit was open, proceed to Step 8.

8. Remove battery charger access cover. Disconnect main harness connector P5 from control panel connector J5. Check for continuity between the points listed below (refer to FO 4 or FO-19 (Sheet 1 of 2) for MEP 83-360E model):

Check Continuity		If no continuity,
From	To	replace wire no.
J5-14R	1M3(-)	Q6A20
P5-14L	MT1(+)	Q6B20
Ground	MT1(-)	Q7C20N

Fuel level transmitter (or sensor) MT1 is WP 0079 00, Figure 1, Item 4.

a. If no continuity, replace indicated wire.

b. If all continuity checks good, replace fuel level transmitter MT1 (WP 0079 00).

c. Reconnect P5 to J5, and perform MOC.

61. HYDRAULIC CONTROL PANEL INDICATOR LIGHT TEST FAILS - ONE INDICATOR DOES NOT LIGHT

SYMPTOM

MALFUNCTION
HYDRAULIC CONTROL PANEL INDICATOR LIGHT TEST FAILS - ONE INDICATOR DOES NOT LIGHT

CORRECTIVE ACTION

NOTE

Refer to FO 9 for MEP 83-360A and D models and FO 28 for MEP 83-360E model.

1. Remove indicator lens and check bulb.

a. Replace bulb if defective, and perform MOC.

b. If bulb is good, proceed to Step 2.

NOTE

Diodes and wiring associated with each indicator light are as follows (refer to troubleshooting procedure FO 9):

Indicator	Diode	Wiring
4DS1	4D4	C116B16
4DS2	4D8	C104116
4DS3	4D5	C114B16
4DS4	4D6	C113B16
4DS5	4D7	C112B16
4DS6	4D1	C103F16 and C120A16
4DS7	4D3	C118C16

61. HYDRAULIC CONTROL PANEL INDICATOR LIGHT TEST FAILS - ONE INDICATOR DOES NOT LIGHT – Continued

2. Refer to FO 9 and locate diode associated with indicator light. Test diode as follows:
    a. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
    b. Remove hydraulic module front panel assembly (WP 0002 00, Figure 15, Item 2).
    c. Remove hydraulic electrical panel (WP 0111 00). Disconnect lead containing diode from positive terminal on indicator socket.
    d. Using an analog multimeter (AN/PSM4 or equivalent), X1 scale, measure resistance from diode anode (multimeter positive lead) to diode cathode (meter negative lead). (Diode cathode is marked with black band.) If resistance is greater than 1 ohm, replace diode, and perform MOC.
    e. Set meter to X10,000 scale and measure resistance from diode cathode (multimeter positive lead) to diode anode (meter negative lead). If resistance is less than 10K ohm, replace diode, and perform MOC.
    f. If diode tests good, proceed to Step 3.
3. Refer to FO 9 and check indicator wiring.
    a. Replace or repair any defective wiring.
    b. Connect lead containing diode to positive terminal on indicator socket. If all wiring is good, replace lamp socket (WP 0112 00).
    c. Perform MOC.

62. HYDRAULIC CONTROL PANEL INDICATOR LIGHT TEST FAILS - NO INDICATORS LIGHT

SYMPTOM

MALFUNCTION
HYDRAULIC CONTROL PANEL INDICATOR LIGHT TEST FAILS - NO INDICATORS LIGHT

CORRECTIVE ACTION

1. Check that indicator lenses are not closed, and that MASTER SWITCH is on.

    Open lenses by turning counterclockwise.
2. Check hydraulic panel CIRCUIT BREAKER.
    a. If circuit breaker is closed (pushed in), proceed to Step 3.
    b. If circuit breaker is open (out), reset by pushing in. If circuit breaker continues to open, check all circuit breaker loads (refer to FO 9 or FO 28 for MEP 83-360E model) for shorts.
3. Connect battery and set MASTER SWITCH to ON. On hydraulic panel, set PANEL LIGHTS switch to BRT position and check hydraulic module panel lights. Set PANEL LIGHTS and MASTER SWITCH to OFF.
    a. If panel lights lit, proceed to Step 4.
    b. If panel lights did not come on, proceed to Step 5.
4. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and test hydraulic panel PRESS TO TEST LIGHTS switch 4S3 (refer to troubleshooting procedure 106. HYDRAULIC CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS).
    a. Replace switch if defective (WP 0111 00).
    b. If switch tests good, remove hydraulic module front panel assembly (WP 0002 00, Figure 15, Item 2). Check wiring between switch 4S3 and diodes 4D1 through 4D8

62. HYDRAULIC CONTROL PANEL INDICATOR LIGHT TEST FAILS - NO INDICATORS LIGHT – Continued

for continuity (refer to FO 9 or FO 28 for MEP 83-360E model). Replace any defective wiring.

c. Perform MOC.

5. Check MASTER SWITCH 1S2 (refer to troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS).
   a. Replace switch if defective (WP 0135 00), and perform MOC.
   b. If switch is good, proceed to Step 6.
6. Check battery/charger transfer relay 3K3 (refer to troubleshooting procedure 111. BA TTERY/CHARGER TRANSFER RELAY AND POWER DIODE MALFUNCTIONS, Step 1.).
   a. If relay is good, proceed to Step 7.
   b. If relay test is not good, check wiring as directed in troubleshooting procedure 111. BATTERY/CHARGER TRANSFER RELAY AND POWER DIODE MALFUNCTIONS, Step 1.k.
7. Remove roof (WP 0022 00). Check for continuity between the following points (refer to FO 1 and FO 9 or FO-19 (Sheet 1 of 2) and FO 28 for MEP 83-360E model):

Check Continuity		If no continuity,
From	To	replace wire no.
P9-M	P7-4L	C1018
J7-4R	1S2-11	C1E18
J7-5L	1S2-12	C1F18
P7-5R	P14-J	C1C20
P14-I	GND TB (WP 0058 00, Figure 1, Item 2)	C2A20N

   a. If no continuity, replace indicated wire and perform MOC.
   b. If all continuity checks good, proceed to Step 8.
8. On hydraulic module, check wires between 4TB1-2 and 4S3, and between 4TB1-12 and the indicator light negative terminals (refer to FO 9 and FO 28) for continuity.
   a. Replace any defective wires and perform MOC.
   b. If all continuity checks are good, wires inside the hydraulic module (between J1-J and 4TB1-2, or between J1-I and 4TB1-12) are open. These wires are not accessible at organizational level. Notify maintenance supervisor.

63. PANEL LIGHT OPERATION DEFECTIVE

SYMPTOM

MALFUNCTION
PANEL LIGHT OPERATION DEFECTIVE

CORRECTIVE ACTION

1. Connect battery and set MASTER SWITCH to ON. Set PANEL LIGHT switch to BRT and check panel lights. Set PANEL LIGHT switch to DIM and check panel lights. Set switch to OFF (refer to troubleshooting procedure FO 2 or FO 20 for MEP 83-360E model).
   a. If neither light is on in BRT or DIM position, perform Steps 2. through 7.

63. PANEL LIGHT OPERATION DEFECTIVE – Continued

b. If lights are on in BRT position only, perform Step 8. and Step 9.

c. If lights are on in DIM position only, perform Step 10. and Step 11.

d. If one light only was on, perform Step 12. and Step 13.

2. Push PRESS TO TEST switch (momentarily).
   a. If control panel indicators lit, proceed to Step 3.
   b. If control panel indicators did not light, refer to 58. CONTROL PANEL INDICATOR LIGHT TEST FAILS - ONE INDICATOR DOES NOT LIGHT.
3. Set UTILITY LIGHTS switch to BRT and check fuel utility light at fuel filler (WP 0002 00, Figure 1, Item 5). Set UTILITY LIGHTS switch to OFF.
   a. If fuel utility light was lit, proceed to Step 4.
   b. If fuel utility light did not light, set MASTER SWITCH to OFF and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Lower control panel (WP 0032 00, Lower Control Panel for Maintenance). Check wire L1A20 between 1CB1 (FO 1 or FO-19 (Sheet 1 of 2) for MEP 83-360E model) and 1S6-2 (FO 2 or FO 20 for MEP 83-360E model). Replace defective wire and perform MOC.
4. Set MASTER SWITCH to OFF and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Check panel light bulbs.
   a. Replace defective bulbs with good bulbs and perform MOC.
   b. If bulbs are good, proceed to Step 5.
5. Test PANEL LIGHTS switch 1S6 (refer to troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS).
   a. Replace switch if defective (WP 0135 00), and perform MOC.
   b. If switch test is good, proceed to Step 6.
6. Check wire L6B20N between right panel lamp socket negative terminal, and GND TB (WP 0058 00, Figure 1, Item 2).
   a. Replace wire if defective and perform MOC.
   b. If wire is good, proceed to Step 7.
7. Disconnect main harness connector P8 from lower tray connector J8. Check wire L3C20 between P8-T and right panel lamp socket positive terminal.

   Replace defective wire. Reconnect connector and perform MOC.
8. Set MASTER SWITCH to OFF and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Test PANEL LIGHTS switch 1S6 (refer to troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS).
   a. Replace switch if defective (WP 0135 00), and perform MOC.
   b. If switch is good, proceed to Step 9.
9. Check voltage regulator 3VR1 and wiring as follows:
   a. Open electrical trays access door and extend lower electrical tray (WP 0032 00, Extending Lower Electrical Tray For Maintenance). Using an analog multimeter (AN/PSM4 or equivalent) on X1 scale, measure resistance between voltage regulator 3VR1 mounting screw (WP 0060 00, Figure 1, Item 6) and either of two pins (WP 0060 00, Figure 1, Item 10). If resistance is greater than 25 ohms, replace regulator 3VR1 (WP 0060 00, Figure 1, Item 7), and perform MOC. If resistance is less than 25 ohms (regulator good), check wiring per Step 9.b.

63. PANEL LIGHT OPERATION DEFECTIVE – Continued

b. Remove battery charger access cover. Disconnect main harness connector P6 from control panel connector J6, and disconnect harness connector P8 from lower tray connector J8. Check for continuity between the following points (refer to FO 18 for MEP 83-360A and D models and FO-19 (Sheet 1 of 2) for MEP 83-360E model):

Check Continuity		If no continuity,
From	To	replace wire no.
1S6-1	J6-N	L2A20
P6-N	P8-S	L2B20
Js8-S	3VR1-pin	G5G20
J8-T	3VR1-screw	G19A20

Replace open wire. After replacement, reconnect all connectors and perform MOC

10. Test PANEL LIGHTS switch 1S6 (refer to troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS).
    a. Replace switch is defective (WP 0135 00), and perform MOC.
    b. If switch is good, proceed to Step 11.
11. Check wiring between switch 1S6-3 and right panel lamp socket positive terminal.
    Replace defective wiring and perform MOC.
12. Set MASTER SWITCH to OFF and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Check panel light bulb.
    a. Replace defective bulb with good bulb and perform MOC.
    b. If bulb is good, proceed to Step 13.
13. Check wires (L3D20 and L6A20N) between left and right panel light sockets.
    a. Replace defective wiring.
    b. If wiring is good, replace socket for failed light.
    c. Perform MOC.

64. UTILITY LIGHT OPERATION DEFECTIVE

SYMPTOM

MALFUNCTION
UTILITY LIGHT OPERATION DEFECTIVE

CORRECTIVE ACTION

1. Connect battery and set MASTER SWITCH to ON. Set UTILITY LIGHTS switch to BRT and check utility lights (WP 0003 00, Figure 2, Item 41, 47 and 50). Set UTILITY LIGHTS switch to DIM and check utility lights. Set switch to OFF. (Refer to FO 2 or FO 20 for MEP 83-360E model).
   a. If no utility light was on in BRT or DIM position, perform Steps 2. through 5.
   b. If lights are on in BRT position only, perform Step 6. and Step 7.
   c. If lights are on in DIM position only, perform Step 8. and Step 9.
   d. If one or two utility lights only are on, perform Step 10. and Step 11.
2. Set PANEL LIGHTS switch to BRT and check panel lights. Set PANEL LIGHTS switch to OFF.

64. UTILITY LIGHT OPERATION DEFECTIVE – Continued

a. If panel lights lit, proceed to Step 3.

b. If panel lights did not light, refer to troubleshooting procedure 63. PANEL LIGHT OPERATION DEFECTIVE.

3. Set MASTER SWITCH to OFF and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Test UTILITY LIGHTS switch 1S7 (refer to troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS).

   a. Replace switch if defective (WP 0135 00), and perform MOC.

   b. If switch test is good, proceed to Step 4.

4. Check wire L1B20 between switches 1S7-2 and 1S6-2.

   a. Replace wire if defective and perform MOC.

   b. If wire is good, proceed to Step 5.

5. Disconnect main harness connector P9 from lower tray connector J9. Check wire L5C20 between P9-B and engine oil utility lamp socket (WP 0003 00, Figure 2, Item 47) positive (+) terminal.

   Replace defective wiring and perform MOC.

6. Set MASTER SWITCH to OFF and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Test UTILITY LIGHTS switch 1S7 (refer to troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS).

   a. Replace switch if defective (WP 0135 00) and perform MOC.

   b. If switch test is good, proceed to Step 7.

7. Check voltage regulator 3VR2 and wiring as follows:

   a. Open electrical trays access door and extend lower electrical tray (WP 0032 00, Extending Lower Electrical Tray For Maintenance). Using an analog multimeter (AN/PSM4 or equivalent) on X1 scale, measure resistance between voltage regulator 3VR2 mounting screw (WP 0060 00, Figure 1, Item 6) and either of two pins (10). If resistance is greater than 25 ohms, replace regulator 3VR2 (WP 0060 00), and perform MOC. If resistance is less than 25 ohms (regulator good), check wiring per Step 7.b.

   b. Remove battery charger access cover. Disconnect main harness connector P6 from control panel connector J6, and disconnect harness connector P9 from lower tray connector J9. Check for continuity between the following points (refer to FO 1 for MEP 83-360A and D models and FO-19 (Sheet 1 of 2) for MEP 83-360E model):

Check Continuity		If no continuity,
From	To	replace wire no.
1S7-1	J6-R	L4A20
P6-R	P9-A	L4B20
J9-A	3VR2-pin	G6G20
J9-B	3VR2-screw	G20A20

Replace open wire. After replacement, reconnect all connectors and perform MOC.

8. Test UTILITY LIGHTS switch 1S7 (refer to troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS).

   a. Replace switch if defective (WP 0135 00) and perform MOC.

64. UTILITY LIGHT OPERATION DEFECTIVE – Continued

b. If switch test is good, proceed to Step 9.

9. Check wiring between switch 1S7-3 and engine oil utility lamp socket positive (+) terminal.

   Replace defective wiring and perform MOC.

10. Set MASTER SWITCH to OFF and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Check utility light bulb.

    a. Replace defective bulb with good bulb and perform MOC.

    b. If bulb is good, proceed to Step 11.

11. Check wiring between utility light socket positive terminals, and between socket negative terminals and ground.

    a. Replace defective wiring.

    b. If wiring is good, replace socket for failed light.

    c. Perform MOC.

65. GTE LOW OIL PRESS INDICATOR NOT LIT - MASTER SWITCH ON AND ENGINE NOT RUNNING

SYMPTOM

MALFUNCTION
GTE LOW OIL PRESS INDICATOR NOT LIT-MASTER SWITCH ON AND ENGINE NOT RUNNING

CORRECTIVE ACTION

1. Test low oil pressure switch (115. LOW OIL PRESSURE SWITCH MALFUNCTION).

   a. Replace switch if defective (WP 0044 00) and perform MOC.

   b. If switch tests good, proceed to Step 2.

2. Test diode TB3-CR8 (refer to troubleshooting procedure 108. TERMINAL BOARD DIODE MALFUNCTIONS).

   a. Replace diode if defective (WP 0058 00) and perform MOC.

   b. If diode is good, continue with next step.

3. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Lower control panel (WP 0032 00, Lower Control Panel for Maintenance) and remove battery charger access cover. Disconnect main harness connector P5 from control panel connector J5, and disconnect harness connector P4 from ECU connector J1 (refer to FO 3 (Sheet 2 of 2) or FO-19 (Sheet 1 of 2) and FO 21 for MEP 83-360E model). Check for continuity between the points listed below:

Check Continuity		If no continuity,
From	To	replace wire no.
J5-7L	DS10 (-)	E12B20
P5-7R	TB3-2 (ANODE)	E12C20
TB3-2 (ANODE)	TB3-2 (ANODE)	E12E20
P4-L	TB3-6 (CATHODE)	E12D20

   a. If no continuity, replace indicated wire. Reconnect all connectors and perform MOC.

   b. If all continuity checks good, proceed to Step 4.

65. GTE LOW OIL PRESS INDICATOR NOT LIT - MASTER SWITCH ON AND ENGINE NOT RUNNING – Continued

4. Disconnect engine harness connector P2 from ECU connector J2, and disconnect engine harness P8 from low oil pressure switch. Check wires K0A20 (P2-F to P8-A) and K9A20N (P2-B to P8-B) for continuity.
    a. If either wire is open, replace wire.
    b. If wiring is good, replace ECU (WP 0049 00).
    c. Reconnect all connectors, and perform MOC.

66. GTE LOW FUEL PRESS INDICATOR NOT LIT - MASTER SWITCH ON AND ENGINE NOT RUNNING

SYMPTOM

MALFUNCTION

GTE LOW FUEL PRESS INDICATOR NOT LIT - MASTER SWITCH ON AND ENGINE NOT RUNNING

CORRECTIVE ACTION

Set MASTER SWITCH to OFF and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Lower control panel (WP 0032 00, Lower Control Panel for Maintenance) and remove battery charger access cover. Disconnect main harness connector P5 from control panel connector J5. Check for continuity between the following points (refer to FO 4 or FO 20 for MEP 83-360E model).

Check Continuity		If no continuity,
From	To	replace wire no.
J5-13L	1DS6	Q5A20
P5-13R	S5	Q5B20
S5	GND TB	Q7B20N

Check Continuity		If no continuity,
From	To	replace wire no.
P9-M	P7-4L	C1018
J7-4R	1S2-11	C1E18
J7-5L	1S2-12	C1F18
P7-5R	P14-J	C1C20
P14-I		C2A20N

a. Refer to WP 0050 00, Figure 1, Item 10 for pressure sensor S5 location and WP 0058 00, Figure 1, Item 2, for GND TB location.
b. If no continuity, replace indicated wire.
c. If all continuity checks good, replace fuel pressure sensor S5 (WP 0080 00).
d. Reconnect connectors, .

67. ENGINE DOES NOT MOTOR WITH ENGINE CONTROL SWITCH HELD IN START POSITION (MASTER SWITCH ON AND ALL OTHER SWITCHES OFF)

SYMPTOM

MALFUNCTION

67. ENGINE DOES NOT MOTOR WITH ENGINE CONTROL SWITCH HELD IN START POSITION (MASTER SWITCH ON AND ALL OTHER SWITCHES OFF) – Continued

ENGINE DOES NOT MOTOR WITH ENGINE CONTROL SWITCH HELD IN START POSITION (MASTER SWITCH ON AND ALL OTHER SWITCHES OFF)

CORRECTIVE ACTION

1. Check GTE 10 AMP circuit breaker.
    a. If circuit breaker is closed (pushed in), proceed to Step 1.b.
    b. If circuit breaker is opened (popped out), reset (push in). If circuit breaker continues to open, Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and check all GTE circuit breaker loads (refer to FO 1 and FO-3 (Sheet 1 of 2) or FO 21 for MEP 83-360E model) for shorts.
2. Check GTE indicator lights.
    a. If CONTROL SWITCH, HIGH EGT, HIGH OIL TEMP, or OVER SPEED indicator light is illuminated, refer to troubleshooting procedure 21. GTE CONTROL SHORT INDI CATOR LIT - ENGINE SHUT DOWN through 23. GTE OVER SPEED INDICATOR LIT - ENGINE SHUT DOWN.
    b. If CONTROL SHORT, HIGH EGT, HIGH OIL TEMP, and OVER SPEED indicators are all extinguished, continue with Step 3.
3. Test starter circuits as follows:
    a. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and remove roof.
    b. Connect multimeter between positive terminal on starter (WP 0090 00, Figure 1, Item 9) and DC ground stud. Positive terminal is on side of starter. Set meter to read 24 VDC.
    c. Connect battery and set MASTER SWITCH to ON.
    d. Set ENGINE control switch to START and check multimeter reading, STARTER ON indicator, and STARTER CURRENT meter. Set ENGINE CONTROL to STOP, MASTER SWITCH to OFF, and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
    e. If STARTER CURRENT meter exceeded 800 amps after initial surge, refer to troubleshooting procedure 69. STARTER CURRENT METER EXCEEDS 800 AMPS.
    f. If starter voltage is okay (greater than 16 VDC) and starter did not operate, replace starter .
    g. If starter voltage was low (less than 16 VDC) but STARTER ON indicator was lit, check cables P33A1/0 (FO 1 or FO-19 (Sheet 1 of 2) for MEP 83-360E model), P41C1/0 (FO-3 (Sheet 1 of 2)), P19A1/0, and P20A1/ON for clean and tight connections. Clean or tighten connections as required and perform MOC.
    h. If STARTER ON indicator did not light, proceed to Step 4.
4. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and lower control panel (WP 0032 00, Lower Control Panel for Maintenance). Check for continuity between shunt R3 (large right screw) and terminal 5 of MASTER SWITCH 1S2 (refer to FO 1 or FO-19 (Sheet 1 of 2) for MEP 83-360E model).
    a. If continuity, proceed to Step 6.
    b. If no continuity, continue with next step.
5. Remove battery charger access cover. Disconnect main harness connector P5 from control panel connector J5, and disconnect harness connector P9 from lower tray connector J9.

67. ENGINE DOES NOT MOTOR WITH ENGINE CONTROL SWITCH HELD IN START POSITION (MASTER SWITCH ON AND ALL OTHER SWITCHES OFF) – Continued

Check wires P35F18 and P35E18 between lower tray and MASTER SWITCH (refer to FO 1) for continuity.

a. If either wire is open, replace wire and perform MOC.

b. If wiring is good, test battery/charger transfer relay 3K3 and wiring as instructed in troubleshooting procedure 111. BATTERY/CHARGER TRANSFER RELAY AND POWER DIODE MALFUNCTIONS.

6. Check for continuity between terminal 6 of MASTER SWITCH 1S2 and GTE circuit breaker 1CB2.
   a. If no continuity, replace wire P37A18, and perform MOC.
   b. If continuity, proceed to Step 7.
7. Check for continuity between terminals of circuit breaker 1CB2.
   a. If no continuity, replace circuit breaker, and perform MOC.
   b. If continuity, continue with next step.
8. Test control panel MASTER SWITCH 1S2 (FO 1 or FO-19 (Sheet 1 of 2) for MEP 83-360E model), ENGINE CONTROL switch 1S1 (FO-3 (Sheet 1 of 2) or FO 21 for MEP 83-360E model), PNEUMATIC POWER switch 1S8, AC POWER switch 1S10, and DC POWER switch 1S12 (refer to troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS).
   a. Replace any defective switch (WP 0108 00), and perform MOC.
   b. If all switches test good, proceed to next step.
9. Test hydraulic control panel power switch 4S1 (refer to troubleshooting procedure 106. H YDRAULIC CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS).
   a. Replace switch if defective (WP 0111 00), and perform MOC.
   b. If switch tests good, continue with next step.
10. Test diode TB1-CR1 (refer to troubleshooting procedure 108. TERMINAL BOARD DIODE MALFUNCTIONS).
    a. Replace diode if defective (WP 0058 00), and perform MOC.
    b. If diode is good, proceed to Step 11.
11. Test starter latch relay 3K2 (refer to troubleshooting procedure 110. STARTER LATCH RELAY 3K2 MALFUNCTION).
    a. Replace relay if defective (WP 0047 00), and perform MOC.
    b. If relay tests good, continue with next step.
12. Test starter contactor K4 (refer to troubleshooting procedure 112. GTE STARTER RELAY K4 MALFUNCTION).
    a. Replace contactor if defective (WP 0066 00), and perform MOC.
    b. If contactor tests good, proceed to Step 13.
13. Remove roof (WP 0022 00). Disconnect P14 from hydraulic module connector J1. Check for continuity between J1-F and J1-E (refer to FO-3 (Sheet 1 of 2) or FO 21 for MEP 83-360E model).
    a. If continuity, proceed to Step 14.
    b. If no continuity, proceed to Step 15.

67. ENGINE DOES NOT MOTOR WITH ENGINE CONTROL SWITCH HELD IN START POSITION (MASTER SWITCH ON AND ALL OTHER SWITCHES OFF) – Continued

14. Disconnect cables as required and check for continuity between wires listed below (refer to FO 1 and FO-3 (Sheet 1 of 2) or FO-19 (Sheet 1 of 2) and FO 21 for MEP 83-360E model):

Check Continuity		If no continuity,
From	To	replace wire no.
1CB2 load	1S1-1	E2A18
1S1-1	1S1-7	E2D18
1S1-6	J5-1L	E3B20
P5-1R	TB1-1 (ANODE)	E3C20
TB1-1 (CATHODE)	P8-P	E3D20
1CB2 load	J5-2L	E4G18
P5-2R	P18-B	L4H18
P8-B	Ground	E36C20N
P8-M	P4-A	E4H18
P4-J	K4-X1	E16A20
K4-X2	P14-E	E26A20
P5-11L	P14-F	E28A20
J5-11R	1S8-4	E28B20
1S8-5	1S10-8	E27A20
1S10-7	1S12-7	E32A20
1S12-8	J5-10L	E39A20N
P5-10R	Ground	E39B20N

a. If no continuity, replace indicated wire.

b. If all continuity checks are good, replace ECU (WP 0049 00).

c. Perform MOC.

15. Remove hydraulic module front panel (Figure 15, Item 2) for access to terminal boards 4TB1 through 4TB3. Remove hydraulic electrical panel (WP 0111 00) for access to switch 4S1. Check for continuity between 4TB1-7 and 4S1-5, and between 4TB1-6 and 4S1-4 (refer to FO-3 (Sheet 1 of 2) or FO 21 for MEP 83-360E model).

a. If no continuity, replace wire C110C16 or C106A16.

b. If continuity wire (C106C16, C106B16, C110A16, or C110B16) are open. These wires are not accessible at organizational level, notify maintenance supervisor.

68. ENGINE MOTORS WHEN ENGINE CONTROL SWITCH IS HELD IN START POSITION BUT STOPS WHEN SWITCH IS RELEASED TO RUN POSITION

SYMPTOM

MALFUNCTION

ENGINE MOTORS WHEN ENGINE CONTROL SWITCH IS HELD IN START POSITION BUT STOPS WHEN SWITCH IS RELEASED TO RUN POSITION

68. ENGINE MOTORS WHEN ENGINE CONTROL SWITCH IS HELD IN START POSITION BUT STOPS WHEN SWITCH IS RELEASED TO RUN POSITION – Continued

CORRECTIVE ACTION

1. Test ENGINE CONTROL switch 1S1 (refer to troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS).
    a. Replace switch if defective (WP 0108 00), and perform MOC.
    b. If switch tests good, proceed to Step 2.
2. Test starter latching relay 3K2 (refer to troubleshooting procedure 110. STARTER LATCH RELAY 3K2 MALFUNCTION).
    a. Replace relay if defective (WP 0047 00), and perform MOC.
    b. If relay tests good, proceed to Step 3.
3. Test EMERG STOP switch (refer to troubleshooting procedure 91. EMERGENCY STOP SWITCH MALFUNCTION).
    a. Replace switch if defective (WP 0053 00), and perform MOC.
    b. If switch tests good, proceed to Step 4.
4. Check wires E2E18 (1S1-11 to 1S1-12) and E2B18 (1S1-11 to J5-1R) between ENGINE CONTROL switch 1S1 and J5-1R (refer to FO-3 (Sheet 1 of 2) or FO 21 for MEP 83-360E model).
    a. Replace or repair open wire.
    b. If wiring is good, replace starter latching relay 3K2 (WP 0048 00).
    c. Perform MOC after replacing wire or relay.

69. STARTER CURRENT METER EXCEEDS 800 AMPS

SYMPTOM

MALFUNCTION
STARTER CURRENT METER EXCEEDS 800 AMPS

CORRECTIVE ACTION

Check cable P9A1/0 (refer to FO-3 (Sheet 1 of 2) or FO 21 for MEP 83-360E model) for shorted condition.
    a. Replace cable if shorted.
    b. If cable is not shorted, replace starter (WP 0093 00).
    c. Perform MOC.

NOTE

If STARTER CURRENT meter still reads greater than 800 amps during engine start, engine may be overloading starter. Notify maintenance supervisor.

70. GTE % RPM METER INDICATION DEFECTIVE

SYMPTOM

MALFUNCTION
GTE % RPM METER INDICATION DEFECTIVE

CORRECTIVE ACTION

70. GTE % RPM METER INDICATION DEFECTIVE – Continued

1. Test GTE speed sensor (refer to troubleshooting procedure 114. SPEED SENSOR MAL FUNCTION).
   a. Replace speed sensor if defective (WP 0043 00), and perform MOC.
   b. If speed sensor tests OK, proceed to Step 2.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and lower control panel (WP 0032 00). Remove battery charger access cover. Disconnect harness connector P4 from ECU and disconnect P5 from control panel. Check for continuity between the following points (refer to FO 3 (Sheet 2 of 2) or FO 21 for MEP 83-360E model):

Check Continuity		If no continuity,
From	To	replace wire no.
P4-M	P5-L	E9A20
P4-c	P5-R	E10A20
J5-5R	1M2(+)	E9B20
J5-5L	1M2(-)	B10B20

   a. If no continuity, replace indicated wire and perform MOC.
   b. If continuity, ECU or meter 1M2 is defective. Replace ECU (WP 0049 00) or contact appropriate instrument repair shop.
   c. Perform MOC after replacement of ECU or meter.

71. GTE EGT METER INDICATION DEFECTIVE

SYMPTOM

MALFUNCTION
GTE EGT METER INDICATION DEFECTIVE

CORRECTIVE ACTION

Test thermocouple (refer to troubleshooting procedure 117. THERMOCOUPLE MALFUNCTION).

72. ENGINE MOTORS BUT NO LIGHT OFF - SHUT ENGINE CONTROL SWITCH OFF

SYMPTOM

MALFUNCTION
ENGINE MOTORS BUT NO LIGHT OFF - SHUT ENGINE CONTROL SWITCH OFF

CORRECTIVE ACTION

Check GTE indicator lights.

   a. If CONTROL SHORT, HIGH EGT, HI OIL TEMP, or OVERSPEED indicator light is illuminated, refer to troubleshooting procedure 21. GTE CONTROL SHORT INDIC ATOR LIT - ENGINE SHUT DOWN through 23. GTE OVER SPEED INDICATOR LIT - ENGINE SHUT DOWN.
   b. If CONTROL SHORT, HIGH EGT, HI OIL TEMP, or OVERSPEED indicator lights are all extinguished, attempt restart. If all indications are the same, refer to troubleshooting procedure 17. ENGINE SHUTS DOWN DURING NORMAL OPERATION.

73. DC POWER ON INDICATOR OFF (ENGINE UP TO SPEED AND DC POWER SWITCH ON)

73. DC POWER ON INDICATOR OFF (ENGINE UP TO SPEED AND DC POWER SWITCH ON) – Continued

SYMPTOM

MALFUNCTION

DC POWER ON INDICATOR OFF (ENGINE UP TO SPEED AND DC POWER SWITCH ON

CORRECTIVE ACTION

1. Check DC VOLTS meter.
    a. If DC VOLTS meter reads 0, proceed to Step 3.
    b. If DC VOLTS meter reads in green band, continue with next step.
2. Disconnect battery WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Lower control panel (WP 0032 00) and remove battery charger access cover. Disconnect main harness connector P5 from control panel connector J5 (refer to FO 5 or FO 23 and FO 24 for MEP 83-360E model). Check for continuity between P5-21L and DC contactor K2-B2, and between J5-21R and DC POWER ON indicator 1DS21 (+).
    a. If no continuity, replace open wire (P46A20 or P46B20).
    b. If continuity checks good, replace DC contactor K2 (WP 0066 00).
    c. Reconnect P5 to J5 and perform MOC.
3. Check DC VOLTAGE FAULT indicator.
    a. If indicator is lit, refer to troubleshooting procedure 74. DC VOLTAGE FAULT INDI CATOR LIT.
    b. If indicator is not lit, proceed to Step 4.
4. Test DC contactor K2 (refer to troubleshooting procedure 92. DC CONTRACTOR K2 MAL FUNCTION).
    a. Replace contactor if defective (WP 0066 00), and perform MOC.
    b. If contactor tests good, continue with Step 5.
5. Check for continuity between X2 of contactor K2 (FO 5 or FO 23 and FO 24 for MEP 83-360E model) and ground.
    a. If continuity (less than 1 ohm), proceed to Step 7.
    b. If no continuity, proceed to Step 6.
6. Test DC POWER switch 1S12 (refer to troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS).
    a. Replace switch if defective (WP 0135 00).
    b. If switch tests good, remove battery charger access cover and disconnect main harness connector P7 from control panel connector J7. Check for continuity between the following points (refer to FO 5 or FO 23 and FO 24 for MEP 83-360E model):

Check Continuity		If no continuity,
From	To	replace wire no.
P7-5L	1S12-6	P38B20
K2-X2	1S12-5	P38A20
J7-5R	1S2-9	P45A20

Replace any defective wire.

c. Perform MOC.

73. DC POWER ON INDICATOR OFF (ENGINE UP TO SPEED AND DC POWER SWITCH ON) – Continued

7. Test 95% enable relay 3K1 (refer to troubleshooting procedure 109. 95% ENABLE RELAY 3K1 MALFUNCTION).
    a. Replace relay if defective (WP 0048 00), and perform MOC.
    b. If relay tests good, proceed to Step 8.
8. Remove 95% enable relay from socket (WP 0048 00). Install control panel and start engine. After engine reaches 95% rpm, measure voltage (+28 VDC nominal) between X1 (positive) of relay socket and ground.
    a. If +28 VDC is present, proceed to Step 10.
    b. If +28 VDC is not present, proceed to Step 9.
9. Shut down engine and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Lower control panel. Disconnect main harness connector P8 from lower tray connector J8, and disconnect harness connector P4 from ECU connector J1 (WP 0049 00, Figure 1, Item 5). Check for continuity between the following points (refer to FO 3 (Sheet 2 of 2)):

Check Continuity		If no continuity,
From	To	replace wire no.
J8-A	3K1 socket X1	E17B20
J8-B	3K1 socket X2	E38B20N
P8-A	P4-S	E17A20
P8-B	DC ground stud	E35C20N

    a. If not continuity, replace indicated wire.
    b. If all continuity checks good, replace ECU (WP 0049 00).
    c. Perform MOC.
10. Measure voltage (26 VAC nominal) between 3K1 relay socket pins A1 and B1, between B1 and C1 (FO 5). Shut engine down, Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector, and install relay.
    a. If voltages were normal, proceed to Step 12.
    b. If voltages were not present, proceed to Step 11.
11. Disconnect main harness connector P8 from lower tray connector J8. Open engine access door and disconnect harness connector P13 from generator connector J1 (WP 0064 00, Figure 1, Item 5). Check for continuity between the following points (refer to FO 5 or FO 23 and FO 24 for MEP 83-360E model):

Check Continuity		If no continuity,
From	To	replace wire no.
P8-G	P13-E	P4A20
P8-E	P13-H	P5A20
P8-C	P13-J	P6A20

    a. If no continuity, replace indicated wire and perform MOC.
    b. If all continuity check good, the generator is defective. Notify maintenance supervisor.

73. DC POWER ON INDICATOR OFF (ENGINE UP TO SPEED AND DC POWER SWITCH ON) – Continued

12. Disconnect main harness connector P8 from lower tray connector, and disconnect harness connector P12 from GCU connector J1 (WP 0062 00, Figure 1, Item 37). Check for continuity between the following points (refer to FO 5 or FO 23 and FO 24 for MEP 83-360E model):

Check Continuity		If no continuity,
From	To	replace wire no.
P8-H	P12-W	P13A20
P8-F	P12-X	P12A20
P8-D	P12-Z	P11A20
K2-X1	P12-H	P14A20

a. If no continuity, replace indicated wire.

b. If all continuity checks good, replace ECU (WP 0049 00).

c. Perform MOC.

74. DC VOLTAGE FAULT INDICATOR LIT

SYMPTOM

MALFUNCTION

DC VOLTAGE FAULT INDICATOR LIT

CORRECTIVE ACTION

1. While observing DC meters and indicator, momentarily set DC POWER switch to RESET, then return to ON.
   a. If DC VOLTAGE FAULT indicator turns OFF (momentarily), proceed to Step 4.
   b. If indicator does not turn OFF, proceed to Step 2.
2. Test DC POWER switch 1S12 (refer to troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS).
   a. Replace switch if defective (WP 0135 00), and perform MOC.
   b. If switch tests good, proceed to Step 3.
3. Shut down engine and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Remove battery charger access cover. Disconnect main harness connector P7 from control panel connector J7. Lower control panel (WP 0032 00, Lower Control Panel for Maintenance), and disconnect harness connector P12 (Figure 1, Item 36) from GCU. Check for continuity between the following points (refer to FO 6 (Sheet 2 of 2) or FO 25 for MEP 83-360E model):

Check Continuity		If no continuity,
From	To	replace wire no.
1S12-2	1S10-2	X20C20
1S10-2	J7-13R	X20B20
P7-13L	P12-S	X20A20

a. If no continuity, replace indicated wire.

b. If all continuity checks good, replace GCU (WP 0062 00).

c. Perform MOC.

74. DC VOLTAGE FAULT INDICATOR LIT – Continued

4. Check DC VOLTAGE FAULT indicator.
    a. If indicator is now OFF, continue operation if no abnormal indications are observed.
    b. If DC VOLTAGE FAULT lights again, perform applicable steps based on indications following:
        (1) If DC VOLTS meter registered no voltage and DC POWER ON indicator did not light before voltage fault, proceed to Step 5.
        (2) If DC OVER CURRENT indicator lit before voltage fault, proceed to Step 9.
        (3) If DC VOLTS meter read in or above green band before voltage fault, proceed to Step 10.
        (4) If DC VOLTS meter read low (less than 20 VDC) before voltage fault, proceed to Step 13.
5. Test DC contactor K2 (WP 0066 00).
    a. Replace contactor if defective (WP 0066 00), and perform MOC.
    b. If contactor tests good, continue with Step 6.
6. Check for continuity between X2 of contactor K2 (refer to FO 5 or FO 23 and FO 24 for MEP 83-360E model) and ground.
    a. If continuity (less than 1 ohm), proceed to Step 8.
    b. If no continuity, proceed to Step 7.
7. Test DC POWER switch 1S12 (refer to troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS).
    a. Replace switch if defective (WP 0135 00), and perform MOC.
    b. If switch tests good, remove battery charger access cover and disconnect main harness connector P7 from control panel connector J7. Check for continuity between the following points (refer to FO 5 or FO 23 and FO 24 for MEP 83-360E model):

Check Continuity		If no continuity,
From	To	replace wire no.
P7-5L	K2-X2	P38B20
J7-5R	1S12-6	P38A20
1S12-5	1S2-9	P45A20

Replace defective wiring and perform MOC.

8. Disconnect main harness connector P12 from GCU connector J1 (37, FWP 0062 00, Figure 1). Open engine access panel and disconnect harness connector P13 from generator connector J1 (WP 0061 00, Figure 1. Sheet 1 of 2, Item 5). Check for continuity between the following points (refer to FO 5, and FO 6 (Sheet 2 of 2) or FO 24 and FO 25 for MEP 83-360E model):

Check Continuity		If no continuity,
From	To	replace wire no.
P13-A	P12-T	P7A20
P13-B	P12-V	P8A20
P13-C	P12-Y	P9A20
P13-D	P12-D	X5A20

74. DC VOLTAGE FAULT INDICATOR LIT – Continued

– Continued

Check Continuity		If no continuity,
From	To	replace wire no.
P13-F	P12-F	X6A20
K2-X1	P12-H	P14A20
K2-A1	K2-B1	P2D20
K2-B1	P12-M	P2E20
K2-A1	Generator DC (+) terminal	P2A4/0
DC Ground Stud	Generator DC (-) terminal	P1A4/ON

a. If no continuity, replace indicated wire, and perform MOC.

b. If all continuity checks good, most probable cause of fault is the GCU. The generator is also a possible cause of fault. Replace the GCU (WP 0062 00) or notify maintenance supervisor.

9. Shut down unit and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Check load and DC output power cables for possible shorts.

   a. Correct load or replace cables as required.

   b. If DC AMPS meter reading did not exceed 1070 during over current fault, and load and output cables are not shorted, replace GCU (WP 0062 00).

   c. Perform MOC.

10. Check CHRG/BAT FAULT indicator.

    a. If indicator is lit (with engine running), refer to troubleshooting procedure 55. CHRG/BAT FAULT INDICATOR LIT (ENGINE RUNNING AT 100% RPM).

    b. If indicator is not lit, proceed to Step 11.

11. Shut down engine and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Open electrical trays access door. Remove one wire from generator DC load resistor R4 (WP 0059 00, Figure 1, Item 11). Check resistance across load resistor terminals (refer to FO 1).

    a. If resistance is between 4 and 6 ohms, reconnect wire to resistor and proceed to Step 12.

    b. If resistance is not between 4 and 6 ohms, replace resistor R4 (WP 0059 00), and perform MOC.

12. Check wires P23B8 (between DC load resistor R4 and 2CB2) and P21D8N (between DC load resistor R4 and DC ground stud) for continuity.

    a. If no continuity, replace wire (P23B8 or P21D8N).

    b. If continuity checks good, probable cause of fault is the GCU. The generator is also a possible cause of fault. Replace the GCU (WP 0062 00) or notify maintenance supervisor.

    c. Perform MOC.

13. Test CURRENT LIMIT SELECTOR switch 1S11 (refer to troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS).

    a. Replace switch if defective (WP 0108 00), and perform MOC.

74. DC VOLTAGE FAULT INDICATOR LIT – Continued

b. If switch tests good, proceed to Step 14.

14. Remove battery charger access cover and disconnect main harness connector P7 from control panel connector J7. Lower control panel (WP 0032 00) and disconnect harness connector P12 (WP 0062 00, Figure 1, Item 36) from GCU. Check for continuity between the following points (refer to FO 6 (Sheet 2 of 2)):

Check Continuity		If no continuity,
From	To	replace wire no.
1S11B-6	J7-24R	XS1B20
1S11B-7	J7-24L	X50B20
1S11B-8	J7-23R	X49B20
1S11B-C	J7-A	X53B20
P7-24L	P12-t	X51A20
P7-24R	P12-u	X50A20
P7-23L	P12-v	X49A20
P7-A	P12-w	X53A20

a. If no continuity, replace indicated wire.

b. If all continuity checks good, reconnect harness connector P7 to control panel J7. Replace the GCU and connect harness connector P12 to GCU and perform MOC.

75. DC VOLTS METER READS 0 (DC POWER ON INDICATOR LIT)

SYMPTOM

MALFUNCTION
DC VOLTS METER READS 0 (DC POWER ON INDICATOR LIT)

CORRECTIVE ACTION

1. Check for voltage (+28 VDC) between (+) and (-) pins of DC output cable connector. Shut down engine and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.

   a. If voltage at output cable, proceed to Step 3.

   b. If no voltage at output cable, proceed to Step 2.

2. Test DC contactor K2 (refer to troubleshooting procedure 92. DC CONTRACTOR K2 MAL FUNCTION).

   a. Replace contactor if defective (WP 0066 00).

   b. If contactor test good, check cable P3A4/0 between contactor K2 and shunt R1 (refer to FO 5 or FO 23 and FO 24 for MEP 83-360E model) for continuity. Replace cable if defective.

   c. Perform MOC.

3. Lower control panel (WP 0032 00) and remove battery charger access cover. Disconnect main harness connector P5 from control panel connector J5. Check for continuity between the following points (refer to FO 5 or FO 23 and FO 24 for MEP 83-360E model):

75. DC VOLTS METER READS 0 (DC POWER ON INDICATOR LIT) – Continued

– Continued

Check Continuity		If no continuity,
From	To	replace wire no.
J5-23R	1M11 (-)	P53G20N
J5 (-)	1M11 (+)	P3D20
P5 (-)	R1 (+)	P3C20

a. If no continuity, replace indicated wire.

b. If all continuity checks good, replace DC VOLTS meter 1M11 (WP 0137 00).

c. Perform MOC.

76. DC AMPS METER READS 0 (DC POWER ON INDICATOR LIT AND DC POWER CABLE CONNECTED TO LOAD)

SYMPTOM

MALFUNCTION
DC AMPS METER READS 0 (DC POWER ON INDICATOR LIT AND DC POWER CABLE CONNECTED TO LOAD)

CORRECTIVE ACTION

1. Check load.
   a. If load is drawing current, proceed to Step 1.b.
   b. If load is not drawing current, shut down engine and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Check load and AGPU DC output cable.
   c. Check for continuity between the two large screws on shunt R1 (WP 0041 00, Figure 1, Item 23). If no continuity, replace shunt.
2. Shut down engine and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Lower control panel (WP 0032 00) and remove battery charger access cover. Disconnect main harness connector P5 from control panel connector J5. Check for continuity between the following points (refer to FO 5 or FO 23 and FO 24 for MEP 83-360E model):

Check Continuity		If no continuity,
From	To	replace wire no.
J5-C	1M12(-)	P17C20
J5 (+)	1M12 (+)	P18C20
P5-C	R1 (-)	P17B20
P5 (+)	R1 (+)	P18B20

:

a. If no continuity, replace indicated wire or notify maintenance supervisor.

b. If all continuity checks good, replace DC AMPS meter 1M12 (WP 0137 00).

c. Perform MOC.

77. DC OVER CURRENT INDICATOR DOES NOT LIGHT WHEN DC AMPS METER READS MORE THAN 1070 AMPS

SYMPTOM

MALFUNCTION
DC OVER CURRENT INDICATOR DOES NOT LIGHT WHEN DC AMPS METER READS MORE THAN 1070 AMPS

CORRECTIVE ACTION

1. Set DC POWER switch to OFF. Shut down engine and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Check diode 1CR10 (refer to troubleshooting procedure 122. CONTROL PANEL WIRING HARNESS DIODE MALFUNCTION).
    a. Replace diode if defective (WP 0014 00, Repair) and perform MOC.
    b. If diode is good, proceed to Step 2.
2. Remove battery charger access cover and disconnect main harness connector P5 from control panel connector J5. Disconnect harness connector P12 from GCU connector. Check for continuity between the following points (refer to FO 5 or FO 23 and FO 24 for MEP 83-360E model):

Check Continuity		If no continuity,
From	To	replace wire no.
P5-19R	P12-E	P15A20
P12-j	R1(+)	P18A20
P12-y	R1 (-)	P17A20

    a. If no continuity, replace indicated wire.
    b. If all continuity checks good, the GCU is defective or the DC AMPS meter is reading high. Replace GCU (WP 0062 00) or DC AMPS meter (WP 0137 00) or notify maintenance supervisor.
    c. Perform MOC.

78. DC VOLTAGE FAULT INDICATOR DOES NOT LIGHT FOLLOWING A DC OVER CURRENT FAULT

SYMPTOM

MALFUNCTION
DC VOLTAGE FAULT INDICATOR DOES NOT LIGHT FOLLOWING A DC OVER CURRENT FAULT

CORRECTIVE ACTION

1. Note DC POWER ON indicator. If OFF, set DC POWER switch OFF.
    a. Push PRESS TO TEST switch. Replace bulb if bad. If bulb is good, proceed to Step 2.
    b. If DC POWER ON indicator is on, set DC POWER switch OFF and proceed to Step 4.
2. Shut down engine and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Check diode 1CR11 (refer to troubleshooting procedure 122. CONTROL PANEL WIRING HARNESS DIODE MALFUNCTION).
    a. Replace diode if defective WP 0141 00, Repair, and perform MOC.
    b. If diode is good, proceed to Step 3.
3. Check for continuity between P5-19R and P12-E (refer to FO 5).

78. DC VOLTAGE FAULT INDICATOR DOES NOT LIGHT FOLLOWING A DC OVER CURRENT FAULT – Continued

a. If no continuity, replace wire P15A20.

b. If continuity, replace GCU (WP 0062 00).

c. Perform MOC.

4. Test DC contactor K2 (92. DC CONTRACTOR K2 MALFUNCTION).

a. Replace contactor if defective (WP 0066 00).

b. If contactor tests good, replace GCU (WP 0062 00).

c. Perform MOC.

79. DC VOLTAGE FAULT INDICATOR DOES NOT LIGHT WHEN DC AMPS METER READING EXCEEDS MAXIMUM ALLOWABLE FOR THE CURRENT SELECTOR SWITCH SETTING

SYMPTOM

MALFUNCTION
DC VOLTAGE FAULT INDICATOR DOES NOT LIGHT WHEN DC AMPS METER READING EXCEEDS MAXIMUM ALLOWABLE FOR THE CURRENT SELECTOR SWITCH SETTING

CORRECTIVE ACTION

1. Note DC POWER ON indicator and set DC POWER switch OFF.

If DC POWER ON indicator was OFF (before DC POWER switch was set to OFF), proceed to Step 2. of troubleshooting procedure 78. DC VOLTAGE FAULT INDICATOR DOES NOT LIGHT FOLLOWING A DC OVER CURRENT FAULT. If not, continue with Step 2. below.

2. Test DC contactor K2 (refer to troubleshooting procedure 92. DC CONTRACTOR K2 MAL FUNCTION).

a. Replace contactor if defective (WP 0066 00), and perform MOC.

b. If contactor tests good, continue with Step 3.

NOTE

Maximum allowable current is:

MAXIMUM CURRENT	CURRENT LIMIT SELECTOR SWITCH SETTING
280	200A
700	500A
1000	700A

3. Test CURRENT LIMIT SELECTOR switch 1S11 (refer to troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS).

a. Replace switch if defective (WP 0108 00), and perform MOC.

b. If switch tests good, proceed to Step 4.

4. Remove battery charger access cover. Lower control panel (WP 0032 00). Disconnect main harness connector P7 from control panel connector J7, and disconnect harness connector P12 (WP 0062 00, Figure 1, Item 36) from GCU. Check for continuity between the following points (refer to FO 6 (Sheet 2 of 2) or FO 25 for MEP 83-360E model):

79. DC VOLTAGE FAULT INDICATOR DOES NOT LIGHT WHEN DC AMPS METER READING EXCEEDS MAXIMUM ALLOWABLE FOR THE CURRENT SELECTOR SWITCH SETTING – Continued

– Continued

Check Continuity		If no continuity,
From	To	replace wire no.
1S11B-6	J7-24R	X51B20
1S11B-7	J7-24L	X50B20
1S11B-8	J7-23R	X49B20
1S11B-C	J7-A	X53B20
P7-24L	P12-t	X51A20
P7-24R	P12-u	X50A20
P7-23L	P12-v	X49A20
P7-A	P12-w	X53A20

a. If no continuity, replace indicated wire.

b. If all continuity checks good, replace GCU (WP 0062 00).

c. Perform MOC.

80. DC VOLTAGE FAULT INDICATOR DOES NOT LIGHT WHEN DC VOLTS METER READS LESS THAN +20 VOLTS OR MORE THAN +32 VOLTS

SYMPTOM

MALFUNCTION
DC VOLTAGE FAULT INDICATOR DOES NOT LIGHT WHEN DC VOLTS METER READS LESS THAN +20 VOLTS OR MORE THAN +32 VOLTS

CORRECTIVE ACTION

Perform Steps 1. through 4. of troubleshooting procedure 78. DC VOLTAGE FAULT INDICATOR DOES NOT LIGHT FOLLOWING A DC OVER CURRENT FAULT.

81. AC POWER ON INDICATOR OFF (ENGINE UP TO SPEED AND AC POWER SWITCH ON)

SYMPTOM

MALFUNCTION
AC POWER ON INDICATOR OFF (ENGINE UP TO SPEED AND AC POWER SWITCH ON)

CORRECTIVE ACTION

1. Check AC VOLTS meter.
   a. If AC VOLTS meter reads 0, proceed to Step 3.
   b. If AC VOLTS meter reads in green band, continue with Step 2.
2. Shut down engine and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Lower control panel (WP 0032 00) and remove battery charger access cover. Disconnect main harness connector P7 from control panel connector J7, disconnect harness connector P12 (WP 0062 00, Figure 1, Item 36) from GCU, and disconnect harness

81. AC POWER ON INDICATOR OFF (ENGINE UP TO SPEED AND AC POWER SWITCH ON) – Continued

connector P11 (WP 0062 00, Figure 1, Item 32) from AC contactor K1. Check for continuity between the following points (refer to FO 6 (Sheet 2 of 2) or FO 25 for MEP 83-360E model):

Check Continuity		If no continuity,
From	To	replace wire no.
J7-8L	1DS20 (-)	X38B20
P7-8R	P11-C	X38A20
P11-D	GND TB	X35A20N

a. If no continuity, replace indicated wire.

b. If all continuity checks good, replace AC contactor K1 (WP 0066 00).

c. Perform MOC.

3. Check control panel AC warning (red) indicators.

   a. If any red indicator is lit, refer to troubleshooting procedure 82. AC OVER VOLTAGE, OR AC UNDER FREQUENCY INDICATOR LIT or 83. AC UNDER VOLTAGE INDICATOR LIT.

   b. If all red indicators are OFF, proceed to Step 4.

4. Test AC POWER switch 1S10 and CURRENT LIMIT SELECTOR switch 1S11 (refer to troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MAL FUNCTIONS).

   a. Replace AC POWER or CURRENT LIMIT SELECTOR switch if defective (WP 0108 00), and perform MOC.

   b. If both switches test good, proceed to Step 5.

5. Test AC contactor K1 (refer to troubleshooting procedure 93. AC CONTACTOR K1 MAL FUNCTION).

   a. Replace contactor if defective (WP 0066 00), and perform MOC.

   b. If contactor test good, proceed to Step 6.

6. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Lower control panel (WP 0032 00). Remove battery charger access cover. Disconnect main harness connector P7 from control panel connector J7, disconnect harness connector P12 (WP 0062 00, Figure 1, Item 36) from GCU connector J1, and disconnect harness connector P11 (WP 0062 00, Figure 1, Item 32) from AC contactor K1 connector J1. Check for continuity between the following points (refer to FO 6 (Sheet 2 of 2) or FO 25 for MEP 83-360E model):

Check Continuity		If no continuity,
From	To	replace wire no.
J7-13L	1S10-5	X36B20
J7-22R	1S11-AC	X47B20
J7-23L	1S11-A4	X48B20
1S11-A4	1S11-A3	X48C20
1S11-A3	1S11-A2	X48D20
1S11-A2	1S11-A1	X48E20
P7-13R	P11-B	X36A20

81. AC POWER ON INDICATOR OFF (ENGINE UP TO SPEED AND AC POWER SWITCH ON) – Continued

– Continued

Check Continuity		If no continuity,
From	To	replace wire no.
P7-22L	P12-P	X47A20
P7-23R	P12-E	X48A20
P11-A	P12-Q	X18A20

a. If no continuity, replace indicated wire, and perform MOC.

b. If all continuity checks good, proceed to Step 7.

7. Check DC mode operation.

a. If DC mode operation is normal, replace GCU (WP 0062 00), and perform MOC.

b. If DC mode operation is not normal, proceed to Step 7. of troubleshooting procedure 73. DC POWER ON INDICATOR OFF (ENGINE UP TO SPEED AND DC POWER SWITCH ON).

82. AC OVER VOLTAGE, OR AC UNDER FREQUENCY INDICATOR LIT

SYMPTOM

MALFUNCTION
AC OVER VOLTAGE, OR AC UNDER FREQUENCY INDICATOR LIT

CORRECTIVE ACTION

1. Set AC POWER switch to RESET, then return to ON.

a. If all AC warning (red) indicators did not turn OFF (momentarily), proceed to Step 2.

b. If all AC warning indicators are now OFF, continue operation if no other abnormal indications are observed.

c. If same warning indicator (AC OVER VOLTAGE or UNDER FREQUENCY) lights again, the most probable cause of fault is GCU. The generator is also a possible cause of fault, especially if COMPT/GEN HI TEMP indicator is illuminated. Replace GCU (WP 0062 00), or notify maintenance supervisor. Perform MOC.

2. Test AC POWER switch 1S10 (refer to troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS).

a. Replace switch if defective (WP 0135 00), and perform MOC.

b. If switch tests good, proceed to Step 3.

3. Shut down engine and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Lower control panel (WP 0032 00) and remove battery charger access cover. Disconnect main harness connector P7 from control panel connector J7, and disconnect harness connector P12 (36, WP 0062 00, Figure 1from GCU. Check for continuity between P7-13L and P12-S, and between J7-13R and 1S10-2 (refer to FO 6 (Sheet 2 of 2) or FO 25 for MEP 83-360E model).

a. If no continuity replace defective wire (X20A20 or X20B20).

b. If all continuity checks good, replace GCU (WP 0062 00).

c. Perform MOC.

83. AC UNDER VOLTAGE INDICATOR LIT

SYMPTOM

MALFUNCTION
AC UNDER VOLTAGE INDICATOR LIT

CORRECTIVE ACTION

1. While observing AC indicators, set AC POWER switch to RESET, then return to on.
    a. If UNDER VOLTAGE indicator did not turn OFF (momentarily), proceed to Step 2. of troubleshooting procedure 82. AC OVER VOLTAGE, OR AC UNDER FREQUENCY INDICATOR LIT.
    b. If UNDER VOLTAGE indicator turns OFF and remains OFF, continue operation if no other abnormal indications are observed.
    c. If OVER CURRENT indicator lit before UNDER VOLTAGE indication, refer to Step 2. If not, proceed to Step 3.
2. Shut down unit and set MASTER SWITCH OFF. Check load and AC output power cables for possible shorts.
    a. Correct load or replace cables as required.
    b. If load and output cables are not shorted, refer to Step 3.
3. If UNDER VOLTAGE fault recurs, the GCU is most probable cause of fault. The generator is also a possible cause of fault, especially if COMPT/GEN HI TEMP indicator is illuminated (refer to troubleshooting procedure 29. GTE COMPT/GEN HI TEMP INDICATOR LIT (AC POWER SWITCH OFF)).
    a. Replace GCU (WP 0062 00) or notify maintenance supervisor of problem.
    b. Perform MOC.

84. AC VOLTS METER READS 0 (AC POWER ON INDICATOR LIT)

SYMPTOM

MALFUNCTION
AC VOLTS METER READS 0 (AC POWER ON INDICATOR LIT)

CORRECTIVE ACTION

1. Check AC VOLTS meter indication for each setting of AC PHASE SELECT switch.
    a. If AC VOLTS meter reads normal for one or more positions of AC PHASE SELECT switch, proceed to Step 2.
    b. If AC VOLTS meter reads 0 for all positions of AC PHASE SELECT switch, proceed to Step 5.
2. Measure 115 VAC at convenience receptacles J1 through J4.
    a. If voltage is not present at all receptacles, replace AC contactor K1 (WP 0066 00), and perform MOC.
    b. If voltage is present at AC convenience receptacles, proceed to Step 3.
3. Test AC PHASE SELECT switch 1S9 (refer to troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS).
    a. Replace switch if defective (WP 0108 00), and perform MOC.
    b. If switch tests good, proceed to Step 4.
4. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Remove battery charger access cover. Disconnect main harness connector P7 from control

84. AC VOLTS METER READS 0 (AC POWER ON INDICATOR LIT) – Continued

panel connector J7. Check for continuity between the following points (refer to FO 6 (Sheet 2 of 2) or FO 25 for MEP 83-360E model):

Check Continuity		If no continuity,
From	To	replace wire no.
J7-22R	1S9-1	X31C20A
J7-21L	1S9-2	X32C20B
J7-20R	1S9-3	X33C20C
P7-21L	K1-A2	X31B20A
P7-21R	K1-B2	X32B20B
P7-20L	K1-C2	X33B20C

If no continuity, replace indicated wire, and perform MOC.

5. Shut down engine. Disconnect battery and lower control panel (WP 0032 00). Check for continuity between S9-B1-C and 1M8 (+) (refer to FO 6 (Sheet 2 of 2) or FO 25 for MEP 83-360E model).
    a. If no continuity, replace wire X41A20, and perform MOC.
    b. If continuity, proceed to Step 6.
6. Test AC PHASE SELECT switch 1S9 (refer to troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS).
    a. Replace switch if defective (WP 0108 00), and perform MOC.
    b. If switch tests good, proceed to Step 7.
7. Test AC contactor K1 (93. AC CONTACTOR K1 MALFUNCTION).
    a. Replace contactor if defective (WP 0066 00).
    b. If contactor tests good, replace AC VOLTS meter 1M80.
    c. Perform MOC.

85. AC HERTZ METER READS 0 (AC VOLTS METER READS NORMAL)

SYMPTOM

MALFUNCTION
AC HERTZ METER READS 0 (AC VOLTS METER READS NORMAL)

CORRECTIVE ACTION

Shut down engine. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and lower control panel (WP 0032 00). Remove battery charger access cover. Disconnect main harness connector P7 from control panel connector J7, and disconnect harness connectors P9 and P18 from lower tray connectors J9 and J18. Check for continuity between the following points (refer to FO 6 (Sheet 2 of 2) or FO 25 for MEP 83-360E model):

85. AC HERTZ METER READS 0 (AC VOLTS METER READS NORMAL) – Continued

– Continued

Check Continuity		If no continuity,
From	**To**	**replace wire no.**
P7-16R	P18-A	X9N20N
P7-7R	P9-J	X41C20
P7-14L	P9-H	X9J20N
P7-15R	P9-G	X59B20
J9-J	Frequency transducer (WP 0067 00, Figure 1, Item 22) 115 VAC (+)	X41D20
J9-H	Frequency transducer MTR (-)	X9K20N
J9-G	Frequency transducer MTR (+)	X59A20
J18-A	Frequency transducer 115 VAC (-)	X9T20
J7-16L	1M8 (-)	X9P20N
J7-7L	1M8 (+)	X41B20
J7-14R	1M10 (-)	X9H20N
J7-15L	1M10 (+)	X59C20

a. If no continuity, replace indicated wire.

b. If all continuity checks good, replace frequency transducer (WP 0068 00) and AC HERTZ meter 1M10 (WP 0137 00).

c. Perform MOC.

86. AC % LOAD METER READS 0 (AC POWER ON INDICATOR LIT AND AC POWER CABLE CONNECTED TO LOAD)

SYMPTOM

MALFUNCTION

AC %LOAD METER READS 0 (AC POWER ON INDICATOR LIT AND AC POWER CABLE CONNECTED TO LOAD)

CORRECTIVE ACTION

1. Check load.
   a. If load is drawing current, proceed to Step 2.
   b. If load is not drawing current shut down engine and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Check load and AGPU AC output cable.
2. Check % LOAD meter for each setting of AC PHASE SELECT switch. Shut down engine and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
   a. If % LOAD meter reads normal for one or more positions of AC PHASE SELECT switch, proceed to Step 4.
   b. If % LOAD meter reads 0 for all positions of AC PHASE SELECT switch, continue with Step 3.

86. AC % LOAD METER READS 0 (AC POWER ON INDICATOR LIT AND AC POWER CABLE CONNECTED TO LOAD) – Continued

3. Test AC PHASE SELECT switch 1S9 (refer to troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS).
    a. Replace switch (WP 0108 00) if defective , and perform MOC.
    b. If switch tests good, proceed to Step 4.
4. Remove battery charger access cover. Lower control panel (WP 0032 00). Disconnect main harness connector P7 from control panel connector J7, and disconnect harness connector P11 (WP 0062 00, Figure 1, Item 32) from AC contactor K1. Check for continuity between the following points (refer to FO 6 (Sheet 2 of 2) or FO 25 for MEP 83-360E model):

Check Continuity		If no continuity,
From	To	replace wire no.
J7-17L	1S9-A1-C	X37B20
J7-15R	1M9 (-)	X34B20
P7-17R	P11-E	X37A20
P7-15L	P11-F	X34A20
1S9-A2-C	1M9 (+)	X40A20

    a. If no continuity, replace indicated wire and perform MOC.
    b. If all continuity checks good, proceed to Step 5.
5. Test AC contactor K1 (refer to troubleshooting procedure 93. AC CONTACTOR K1 MAL FUNCTION).
    a. Replace contactor if defective (WP 0066 00).
    b. If contactor tests good, replace AC % LOAD meter 1M9 (WP 0137 00).
    c. Perform MOC.
6. Test AC PHASE SELECT switch 1S9 (refer to troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS).
    a. Replace switch if defective (WP 0134 00), and perform MOC.
    b. If switch tests good, proceed to Step 7.
7. Test current transformers T2 through T4 as follows:
    a. Remove battery charger access cover. Disconnect main harness connector P7 from control panel connector J7.
    b. Check resistance between P7-17L and P7-19R (refer to FO 6 (Sheet 2 of 2) or FO 25 for MEP 83-360E model). If resistance is more than 1 ohm, replace current transformer T4 (WP 0064 00).
    c. Check resistance between P7-18R and P7-19L. If resistance is more than 1 ohm, replace current transformer T3.
    d. Check resistance between P7-20R and P7-18L. If resistance is more than 1 ohm, replace current transformer T2.
    e. After replacing any transformer, perform MOC.
    f. If all resistance checks were less than 1 ohm, proceed to Step 8.

86. AC % LOAD METER READS 0 (AC POWER ON INDICATOR LIT AND AC POWER CABLE CONNECTED TO LOAD) – Continued

8. Check for continuity between the following points (refer to FO 25 for MEP 83-360E model):

Check Continuity		If no continuity,
From	To	replace wire no.
J7-17R	1S9-A1-3	X30B20
J7-18L	1S9-A1-2	X28B20
J7-18R	1S9-A1-1	X26B20
J7-19L	1S9-A2-6	X29B20
J7-19R	1S9-A2-5	X27B20
J7-20L	1S9-A2-4	X25B20

If no continuity, replace indicated wire and perform MOC.

87. AC UNDER VOLTAGE INDICATOR DOES NOT LIGHT FOLLOWING AN AC OVER CURRENT FAULT

SYMPTOM

MALFUNCTION
AC UNDER VOLTAGE INDICATOR DOES NOT LIGHT FOLLOWING AN AC OVER CURRENT FAULT

CORRECTIVE ACTION

1. Note AC POWER ON indicator. If OFF, set AC POWER switch OFF.
    a. Push PRESS TO TEST switch. Replace bulb if bad. If bulb is good, proceed to Step 2.
    b. If AC POWER ON indicator is on, set AC POWER switch OFF and proceed to Step 4.
2. Shut down engine and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Check diode 1CR2 (refer to troubleshooting procedure 122. CONTROL PANEL WIRING HARNESS DIODE MALFUNCTION).
    a. Replace diode if defective (WP 0014 00, Repair), and perform MOC.
    b. If diode is good, proceed to Step 3.
3. Check for continuity between P7-11R and P12-d (refer to FO 6 (Sheet 2 of 2) or FO 25 for MEP 83-360E model).
    a. If no continuity, replace wire X23A20.
    b. If continuity, replace GCU (WP 0062 00).
    c. Perform MOC.
4. Test AC contactor K1 (93. AC CONTACTOR K1 MALFUNCTION).
    a. Replace contactor if defective (WP 0066 00).
    b. If contactor tests good, replace GCU (WP 0062 00).
    c. Perform MOC.

88. AC UNDER VOLTAGE INDICATOR DOES NOT LIGHT WHEN % LOAD METER EXCEEDS MAXIMUM ALLOWABLE FOR THE CURRENT SELECTOR SWITCH SETTING

SYMPTOM

MALFUNCTION

88. AC UNDER VOLTAGE INDICATOR DOES NOT LIGHT WHEN % LOAD METER EXCEEDS MAXIMUM ALLOWABLE FOR THE CURRENT SELECTOR SWITCH SETTING – Continued

AC UNDER VOLTAGE INDICATOR DOES NOT LIGHT WHEN % LOAD METER EXCEEDS MAXIMUM ALLOWABLE FOR THE CURRENT SELECTOR SWITCH SETTING

CORRECTIVE ACTION

1. Note AC POWER ON indicator and set AC POWER switch OFF.

   If AC POWER ON indicator was OFF (before AC POWER switch was set to OFF), proceed to Step 2. of troubleshooting procedure 87. AC UNDER VOLTAGE INDICATOR DOES NOT LIGHT FOLLOWING AN AC OVER CURRENT FAULT. If not, continue with Step 2. below.

2. Test AC contactor K1 (93. AC CONTACTOR K1 MALFUNCTION).
   a. Replace contactor if defective (WP 0066 00), and perform MOC.
   b. If contactor tests good, continue with Step 3.

NOTE

Maximum allowable % LOAD is:

MAXIMUM % LOAD	CURRENT LIMIT SELECTOR SWITCH SETTING
46%	10KW
94%	20KW
140%	30KW

3. Test CURRENT LIMIT SELECTOR switch 1S11 (refer to troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS).
   a. Replace switch if defective (WP 0134 00), and perform MOC.
   b. If switch tests good, proceed to Step 4.
4. Remove battery charger access cover. Disconnect main harness connector P7 from control panel J7, and disconnect harness connector P12 (WP 0062 00, Figure 1, Item 36) from GCU. Check for continuity between the following points (refer to FO 6 (Sheet 2 of 2) or FO 25 for MEP 83-360E model):

Check Continuity		If no continuity,
From	To	replace wire no.
1S11B-1	J7- (-)	X58B20
1S11B-2	J7- (+)	X57B20
1S11B-3	J7-C	X56B20
P7- (-)	P12-s	X58A20
P7- (+)	P12-r	X57A20
P7-C	P12-q	X56A20

   a. If no continuity, replace indicated wire and perform MOC.
   b. If all continuity checks good, proceed to Step 5.
5. Test current transformer T1 as follows:

88. AC UNDER VOLTAGE INDICATOR DOES NOT LIGHT WHEN % LOAD METER EXCEEDS MAXIMUM ALLOWABLE FOR THE CURRENT SELECTOR SWITCH SETTING – Continued

a. Refer to WP 0062 00, Figure 1. Tag and disconnect wires from terminals T1 (WP 0062 00, Figure 1, Item 45), T2 (WP 0062 00, Figure 1, Item 46), and T3 (WP 0062 00, Figure 1, Item 47).

b. Check resistance between terminal N (WP 0062 00, Figure 1, Item 44) and each of the other terminals (T1, T2, and T3). If resistance between N and any other terminal is greater than 1 ohm, replace transformer (refer to WP 0063 00 and WP 0064 00).

c. Check for continuity between terminals T1 and T2, T2 and T3, and T1 and T3. If no continuity, replace transformer.

d. If transformer is replaced, perform MOC.

e. If checks in Step 5.b. and Step 5.c. were good, proceed to Step 6.

6. Disconnect main harness connector P12 from GCU. Check for continuity between the following points (refer to FO-6 (Sheet 1 of 2) or FO 25 for MEP 83-360E model):

Check Continuity		If no continuity,
From	To	replace wire no.
P12-G	T1-N	X13A20
P12-L	T1-T3	X12A20
P12-K	T1-T2	X11A20
P12-J	T1-T1	X10A20

a. If no continuity, replace indicated wire.

b. If all continuity checks good, replace GCU (WP 0062 00).

c. Perform MOC.

89. AC OVER VOLTAGE INDICATOR DOES NOT LIGHT WHEN AC VOLTS METER READS MORE THAN 118 VOLTS

SYMPTOM

MALFUNCTION

AC OVER VOLTAGE INDICATOR DOES NOT LIGHT WHEN AC VOLTS METER READS MORE THAN 118 VOLTS

CORRECTIVE ACTION

1. Note AC POWER ON indicator and set AC POWER switch OFF.

   If AC POWER ON indicator was OFF (before AC POWER switch was set to OFF) proceed to Step 2. If not, proceed to Step 4.

2. Shut down engine and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Check diode 1CR1 (refer to troubleshooting procedure 122. CONTROL PANEL WIRING HARNESS DIODE MALFUNCTION).

   a. Replace diode if defective (WP 0141 00, Repair), and perform MOC.

   b. If diode is good, proceed to Step 3.

3. Remove battery charger access cover, and lower control panel (WP 0032 00). Disconnect P7 from J7, and disconnect P12 (Figure 1, Item 36) from GCU. Check for continuity between P7-12R and P12-c (refer to FO 6 (Sheet 2 of 2) or FO 25 for MEP 83-360E model).

   a. If no continuity, replace wire X24A20.

89. AC OVER VOLTAGE INDICATOR DOES NOT LIGHT WHEN AC VOLTS METER READS MORE THAN 118 VOLTS – Continued

b. If continuity, replace GCU (WP 0062 00).

c. Perform MOC.

4. Test AC contactor K1 (refer to troubleshooting procedure 93. AC CONTACTOR K1 MAL FUNCTION).

a. Replace contactor if defective (WP 0066 00).

b. If contactor tests good, replace GCU (WP 0062 00).

c. Perform MOC.

90. AC UNDER FREQUENCY INDICATOR DOES NOT LIGHT WHEN AC HERTZ METER READS LESS THAN 375 HZ

SYMPTOM

MALFUNCTION
AC UNDER FREQUENCY INDICATOR DOES NOT LIGHT WHEN AC HERTZ METER READS LESS THAN 375 HZ

CORRECTIVE ACTION

1. Note AC POWER ON indicator and set AC POWER switch OFF.

If AC POWER ON indicator was OFF (before AC POWER switch was set to OFF) proceed to Step 2. If not, proceed to Step 4.

2. Shut down engine and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Check diode 1CR4 (refer to 122. CONTROL PANEL WIRING HARNESS DIODE MALFUNCTION).

a. Replace diode if defective (WP 0014 00, Repair), and perform MOC.

b. If diode is good, proceed to Step 3.

3. Remove battery charger access cover, and lower control panel (WP 0032 00). Disconnect P7 from J7, and disconnect P12 (WP 0062 00, Figure 1, Item 36) from GCU. Check for continuity between P7-9R and P12-B (refer to FO 6 (Sheet 2 of 2) or FO 25 for MEP 83-360E model).

a. If no continuity, replace wire X21A20.

b. If continuity, replace GCU (WP 0062 00).

c. Perform MOC.

4. Test AC contactor K1 (refer to troubleshooting procedure 93. AC CONTACTOR K1 MAL FUNCTION).

a. Replace contactor if defective (WP 0066 00).

b. If contactor is good, replace GCU (WP 0062 00).

c. Perform MOC.

91. EMERGENCY STOP SWITCH MALFUNCTION

SYMPTOM

MALFUNCTION
EMERGENCY STOP SWITCH MALFUNCTION

CORRECTIVE ACTION

If an emergency switch malfunction is suspected, test the switch and wiring as follows:

91. EMERGENCY STOP SWITCH MALFUNCTION – Continued

a. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector, lower control panel (WP 0032 00) and remove battery charger access cover.

b. Disconnect main harness connectors P4, P5, and P8 from ECU, control panel harness, and lower electrical tray harness. Check for continuity between main harness connector pins as follows (refer to FO-3 (Sheet 1 of 2) and FO 7 or FO 21 and FO 26 for MEP 83-360E model):

Measure From	Measure To	With EMERG STOP Switch	Normal Indication
P5-1L	P8-L	Not pressed	Continuity
P5-1L	P8-L	Pressed	Open
P5-11R	P4-T	Not pressed	Continuity
P5-11R	P4-T	Pressed	Open

If all measurements are normal, the emergency stop switch and main wiring harness are good. If any measurement is not normal, continue with next step.

c. Remove emergency stop switch (WP 0053 00), and check for continuity between switch terminals as follows:

Measure From	Measure To	With EMERG Switch Condition	Normal Indication
NC1	NC2	Not pressed	Continuity
NC1	NC2	Pressed	Open
NC5	NC6	Not pressed	Continuity
NC5	NC6	Pressed	Open

If any measurement was not normal, install new switch (WP 0053 00). If all measurements are normal then the switch is good, proceed to next step.

d. Check for continuity between the points listed below (refer to FO-3 (Sheet 1 of 2) and FO 7 or FO 21 and FO 26 for MEP 83-360E model). If no continuity, replace indicated wire.

Check Continuity		**If no continuity,**
From	**To**	**replace**
P5-1L	S2-2	E2C18
P8-L	S2-1	E25D18
P5-11R	S2-6	E29B20
P4-T	S2-5	E6A20

92. DC CONTRACTOR K2 MALFUNCTION

SYMPTOM

MALFUNCTION
DC CONTRACTOR K2 MALFUNCTION

CORRECTIVE ACTION

WARNING

Battery power may be present at terminals on back of control panel and electrical bay when battery is connected. Do not touch any bare terminals.

Perform the following test if a DC contactor malfunction is suspected:

a. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and lower control panel (WP 0032 00).

b. Remove terminal shield (WP 0062 00, Figure 1, Item 21) from AC output contactor K1 (WP 0062 00, Figure 1, Item 35). Tag and disconnect cables from terminals A2 (WP 0062 00, Figure 1, Item 25), B2 (WP 0062 00, Figure 1, Item 26), and C2 (WP 0062 00, Figure 1, Item 27). This is necessary to gain access to DC contactor K2 (WP 0062 00, Figure 1, Item 18).

c. Tag and disconnect all cables and wires from terminals A2 (WP 0062 00, Figure 1, Item 15), B2 (WP 0062 00, Figure 1, Item 6), and X1 (WP 0062 00, Figure 1, Item 4) of DC output contactor K2 (WP 0062 00, Figure 1, Item 18).

d. Check for open circuit between contactor K2 terminals A1 and A2, and between terminals B1 and B2. If both sets of terminals are open, proceed to Step e. If not replace contactor (WP 0066 00).

e. Position all disconnected cables and wires (or wrap cable and wire terminals with tape) to prevent possible shorting.

f. Connect jumpers (20 gauge or larger) between K2-X1 and the positive terminal screw on back of slave receptacle, and between K2-X2 and negative terminal screw on slave receptacle.

g. Connect battery.

h. Check for continuity between K2 contactor terminals A1 and A2, and between terminals B1 and B2.

i. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector, and remove jumpers.

j. If either set of contactor terminals were open (Step h.), replace contactor. If both sets of contactor terminals were closed (contactor good), reconnect all cables and wires, and replace terminal shield on AC contactor K1.

93. AC CONTACTOR K1 MALFUNCTION

SYMPTOM

MALFUNCTION
AC CONTACTOR K1 MALFUNCTION

CORRECTIVE ACTION

Perform the following test if an AC contactor malfunction is suspected.

93. AC CONTACTOR K1 MALFUNCTION – Continued

a. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and lower control panel (WP 0032 00).

b. Remove terminal shields (WP 0062 00, Figure 1, Item 21) from AC output contactor K1 (WP 0062 00, Figure 1, Item 35). Tag and disconnect cables from terminals A2 (WP 0062 00, Figure 1, Item 25), B2 (WP 0062 00, Figure 1, Item 26), C2 (WP 0062 00, Figure 1, Item 27), A1 (WP 0062 00, Figure 1, Item 28), B1 (WP 0062 00, Figure 1, Item 29), and C1 (WP 0062 00, Figure 1, Item 30). Disconnect P11 (WP 0062 00, Figure 1, Item 32) from contactor connector J1 (WP 0062 00, Figure 1, Item 33). Refer to FO 6 (Sheet 2 of 2).

c. Perform tests indicated in (Table 1, AC Output Contactor K1 Test), for contactor in deactivated state. Refer to FO 6 for MEP 83-360A and D models and FO 25 for MEP 83-360E model.

Table 1. AC Output Contactor K1 Test.

Contactor State	Measure		Normal Indication
	From	To	
Deactivated	J1-A	J1-B	Less than 2 ohms
	J1-C	J1-D	Open
	J1-E	J1-F	Open
	Terminal A1	Terminal A2	Open
	Terminal B1	Terminal B2	Open
	Terminal C1	Terminal C2	Open
Activated	J1-C	J1-D	Continuity
	J1-E	J1-F	Continuity
	Terminal A1	Terminal A2	Continuity
	Terminal B1	Terminal B2	Continuity
	Terminal C1	Terminal C2	Continuity

NOTE

Two test leads made from 20 gauge wire are required to perform Step d. Each lead should be terminated on one end with a female connector pin, and with a clip on other end.

d. Connect one test lead between pin A on the contactor electrical connector J1 and the positive terminal screw on back of slave receptacle. Connect other lead between pin B on contactor connector and negative terminal on slave receptacle.

e. Connect battery.

f. Perform tests indicated in Table 1, AC Output Contactor K1 Test for contactor in activated state.

g. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.

h. Disconnect test leads.

93. AC CONTACTOR K1 MALFUNCTION – Continued

i. If all indications in Table 1, AC Output Contactor K1 Test are normal, reconnect wires and connector to contactor and install terminal shields. If any condition was not normal, install new relay.

94. HYDRAULIC MODULE REPLACE FILTER INDICATOR LIT

SYMPTOM

MALFUNCTION
HYDRAULIC MODULE REPLACE FILTER INDICATOR LIT

CORRECTIVE ACTION

Replace elements in both low and high pressure filter bowls (WP 0114 00).

95. HYDRAULIC MODULE HI TEMP LIGHT ILLUMINATES DURING OPERATION

SYMPTOM

MALFUNCTION
HYDRAULIC MODULE HI TEMP LIGHT ILLUMINATES DURING OPERATION

CORRECTIVE ACTION

Possible faults are fluid level, leaks, short to ground, heat exchanger and tubing, bypass valve open, reservoir temperature gauge. Repair or notify maintenance supervisor. Refer to FO 9 for MEP 83-360A and FO 28 for MEP 83-360E model

96. HYDRAULIC FLUID LEAKAGE (GREATER THAN EXPECTED)

SYMPTOM

MALFUNCTION
HYDRAULIC FLUID LEAKAGE (GREATER THAN EXPECTED)

CORRECTIVE ACTION

1. Inspect quick-disconnect fittings and flexible lines.
    a. Tighten any fittings where possible.
    b. Notify maintenance supervisor of any leaks that cannot be corrected.
2. Visually inspect rigid tubing, connectors, valves, and other hydraulic components.
    a. Wipe away leakage to see if leakage persists.
    b. Notify maintenance supervisor of leakage that cannot be corrected.

97. DRIVE POWER ON INDICATOR DOES NOT LIGHT WHEN PROPULSION MODE OPERATION ATTEMPTED

SYMPTOM

MALFUNCTION
DRIVE POWER ON INDICATOR DOES NOT LIGHT WHEN PROPULSION MODE OPERATION ATTEMPTED

CORRECTIVE ACTION

1. Check operating procedure (TM 1-1730-229-13, Operator Instructions).
    a. If DRIVE power on indicator lights during primary propulsion mode operation (TM 1-1730-229-13, Operator Instructions) but not during alternate mode (TM 1-1730-229-13, Operator Instructions), proceed to Step 6.

97. DRIVE POWER ON INDICATOR DOES NOT LIGHT WHEN PROPULSION MODE OPERATION ATTEMPTED – Continued

b. If DRIVE indicator lights during alternate mode but not during primary mode, proceed to Step 4.

c. If DRIVE indicator does not light during primary or alternate mode, continue with Step 2.

2. Test DRIVE switch (refer to troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS).

a. Replace switch if defective (TM 1-1730-229-13, Operator Instructions), and perform MOC.

b. If switch tests good, proceed to Step 3.

3. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Remove battery charger access cover. Disconnect main harness connector P6 from control panel connector J6. Check for continuity between the following points (refer to FO 5 and FO 8 for MEP 83-360A and D models or FO 23 and FO 24 and FO 27 for MEP 83-360E model):

Check Continuity		If no continuity,
From	To	replace wire no.
K2-A2	R1(+)	P3A4/0
R1(-)	TB4-11	G2F20
P6-H	TB4-10	G2C20
J6-H	1S3-3	G2B20
1DS1(+)	1S3-2	G2A20
1DS1(-)	J6-J	G4A20N
P6-J	TB3-11	G4B20

a. If no continuity, replace indicated wire, and perform MOC.

b. If all continuity checks good clutch, switch S4 or wiring is defective. Notify maintenance supervisor.

4. Operate system in DC mode (TM 1-1730-229-13, Operator Instructions).

a. If DC VOLTS meter 1M11 reads in green band, proceed to Step 5.

b. If DC VOLTS meter reads 0, refer to troubleshooting procedure 73. DC POWER ON INDICATOR OFF (ENGINE UP TO SPEED AND DC POWER SWITCH ON).

5. Set DC POWER switch to OFF and shut down engine. Test diode TB3-CR3 (refer to troubleshooting procedure 108. TERMINAL BOARD DIODE MALFUNCTIONS).

a. Replace diode if defective (WP 0058 00).

b. If diode tests good, replace wire G25A20 between diode (TB3-11 CATHODE) and K2-X2 (WP 0062 00, Figure 1, Item 18) (refer to FO 8 or FO 27 for MEP 83-360E model).

c. Perform MOC.

6. Connect battery, set MASTER SWITCH to ON, set DC POWER switch to OFF, and set BATTERY OUTPUT switch to ON.

a. If DC VOLTS meter 1M11 reads in green band, proceed to Step 7.

97. DRIVE POWER ON INDICATOR DOES NOT LIGHT WHEN PROPULSION MODE OPERATION ATTEMPTED – Continued

b. If DC VOLTS meter reads 0, test battery output contactor K3 and wiring (refer to troubleshooting procedure 113. BATTERY OUTPUT/TRACTION MOTOR CONTACTOR K3 MALFUNCTION).

7. Set DC POWER and MASTER switch OFF, and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Test diode TB3-CR4 (refer to troubleshooting procedure 108. TERMINAL BOARD DIODE MALFUNCTIONS).
   a. Replace diode if defective (WP 0058 00).
   b. If diode tests good, replace wire G26A20 between diode (TB3-12 CATHODE) and K3-X2 (WP 0066 00, Figure 2, Item 6) (refer to FO 8 or FO 27 for MEP 83-360E model).
   c. Perform MOC.

98. DO NOT TOW INDICATOR DOES NOT LIGHT WHEN TOW BAR IS LOWERED AND CLUTCH LEVER IS ENGAGED

SYMPTOM

MALFUNCTION
DO NOT TOW INDICATOR DOES NOT LIGHT WHEN TOW BAR IS LOWERED AND CLUTCH LEVER IS ENGAGED (refer to WP 0152 00, Step 7.).

CORRECTIVE ACTION

1. Press to test the tow bar indicator.
   a. If indicator does not light, replace bulb.
   b. If indicator lights, continue with Step 2.
   c. If indicator does not light, proceed to Step 3.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. On speed/direction control assembly (WP 0147 00, Figure 1, Item 5), check for continuity between terminals 6 and 10, and between terminals 5 and 9 (refer to FO 8 or FO 27 for MEP 83-360E model).
   a. If no continuity, replace wire (G28A20 or G29A20), and perform MOC.
   b. If continuity checks good, mercury switch or light switch in speed/direction control assembly is defective. Notify maintenance supervisor.
3. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Check fuse F1 on lower electrical tray.
   a. Replace fuse if defective, and perform MOC.
   b. If fuse is good, proceed to Step 4.
4. Check wiring between terminal 6 on speed/direction control assembly (refer to FO 8 or FO 27 for MEP 83–360E model) and shunt R3 (refer to FO 1 or FO-19 (Sheet 1 of 2) for MEP 83-360E model).
   a. Replace any defective wiring, and perform MOC.
   b. If all wiring is good, clutch switch is defective. Notify maintenance supervisor.

99. DO NOT TOW INDICATOR LIT WHEN CLUTCH LEVER IS RELEASED

SYMPTOM

MALFUNCTION

99. DO NOT TOW INDICATOR LIT WHEN CLUTCH LEVER IS RELEASED – Continued

DO NOT TOW INDICATOR LIT WHEN CLUTCH LEVER IS RELEASED

CORRECTIVE ACTION

WP 0152 00, Step 7.

100. AGPU DOES NOT DRIVE WHEN REMOTE SPEED CONTROLLER HAND GRIPS ROTATED IN EITHER DIRECTION

SYMPTOM

MALFUNCTION

AGPU DOES NOT DRIVE WHEN REMOTE SPEED CONTROLLER HAND GRIPS ROTATED IN EITHER DIRECTION (CONDITIONS PROPER FOR OPERATION - TM 1-1730-229-13, Operator Instructions).

CORRECTIVE ACTION

1. Listen for audible click from electric brake when dead-man switch is pressed.
2. If electric brake is not functioning correctly, refer to WP 0156 00.

101. DC POWER NOT AVAILABLE AT SLAVE RECEPTACLE

SYMPTOM

MALFUNCTION

DC POWER NOT AVAILABLE AT SLAVE RECEPTACLE

CORRECTIVE ACTION

1. Set MASTER and all SWITCH to ON and check BATTERY VOLTAGE meter.
    a. If BATTERY VOLTAGE meter does not read in green band (refer to troubleshooting procedure 53. BATTERY VOLTAGE METER READS LOW (MASTER SWITCH ON, ENGINE NOT RUNNING).
    b. If BATTERY VOLTAGE meter reads in green band, proceed to Step 2.
2. Set MASTER AND ALL SWITCHES TO OFF POSITION and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Check cable between (+) battery terminal adapter (Figure 1, Item 3) and (+) slave receptacle terminal screw (Figure 1, Item 18) for continuity. Check cable between (-) battery terminal adapter (WP 0037 00, Figure 1, Item 4) and (-) slave receptacle (WP 0036 00, Figure 1, Item 20) for continuity (refer to FO 1 or FO-19 (Sheet 1 of 2) for MEP 83-360E model).
    a. Replace cables if defective (WP 0037 00).
    b. If cables are good, replace slave receptacle (WP 0038 00).
    c. Perform MOC.

102. DC VOLTS METER READS 0 IN BATTERY OUTPUT MODES

SYMPTOM

MALFUNCTION

DC VOLTS METER READS 0 IN BATTERY OUTPUT MODES

CORRECTIVE ACTION

1. Check that MASTER SWITCH and BATTERY OUTPUT switch are ON, and DC POWER switch is OFF.
2. Check BATTERY VOLTAGE meter.

102. DC VOLTS METER READS 0 IN BATTERY OUTPUT MODES – Continued

a. If battery voltage meter reads 0, refer to 53. BATTERY VOLTAGE METER READS LOW (MASTER SWITCH ON, ENGINE NOT RUNNING).

b. If battery voltage meter in green band, test battery output contactor and wiring (refer to 113. BATTERY OUTPUT/TRACTION MOTOR CONTACTOR K3 MALFUNCTION).

103. AC POWER NOT AVAILABLE AT CONVENIENCE RECEPTACLES (ENGINE RUNNING AND AC POWER SWITCH ON)

SYMPTOM

MALFUNCTION
AC POWER NOT AVAILABLE AT CONVENIENCE RECEPTACLES (ENGINE RUNNING AND AC POWER SWITCH ON)

CORRECTIVE ACTION

1. Check circuit breakers 3CB3 through 3CB6 on lower tray.
   a. If circuit breakers are open (out), reset by pushing in. If breakers continue to open, check loads for shorts.
   b. If circuit breakers are closed (pushed in), proceed to Step 2.
2. Check AC POWER ON indicator.
   a. If indicator is not lit, refer to troubleshooting procedure 81. AC POWER ON INDIC ATOR OFF (ENGINE UP TO SPEED AND AC POWER SWITCH ON).
   b. If indicator is lit, proceed to Step 3.
3. Check AC VOLTS meter for each position of the AC PHASE SELECT switch.
   a. If meter does not read in green band for all switch positions, shut down engine and replace AC contactor K1 (WP 0066 00). Perform MOC.
   b. If meter reads in green band for all switch positions, proceed to Step 4.
4. Shut down engine and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Check wiring between the AC convenience receptacle and AC contactor K1 (refer to FO-6 (Sheet 1 of 2) or FO 25 for MEP 83-360E model).

   Replace defective wiring and perform MOC.

104. AC POWER NOT AVAILABLE AT DC-TO-AC INVERTER RECEPTACLES (ENGINE RUNNING AND DC POWER SWITCH ON)

SYMPTOM

MALFUNCTION
AC POWER NOT AVAILABLE AT DC-TO-AC INVERTER RECEPTACLES (ENGINE RUNNING AND DC POWER SWITCH ON)

CORRECTIVE ACTION

1. Check DC VOLTS meter.
   a. If meter reads 0, refer to troubleshooting procedure 73. DC POWER ON INDICATOR OFF (ENGINE UP TO SPEED AND DC POWER SWITCH ON).
   b. If meter reads in green band, proceed to Step 2.
2. Shut down engine and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Remove inverter output fuse (WP 0071 00). Check fuse.
   a. If fuse is blown, install new fuse, and perform MOC.

104. AC POWER NOT AVAILABLE AT DC-TO-AC INVERTER RECEPTACLES (ENGINE RUNNING AND DC POWER SWITCH ON) – Continued

b. If fuse is good, install same fuse and proceed to Step 3.

3. Check for continuity between inverter positive terminal and shunt R1 (WP 0066 00, Figure 2, Item 23), and between inverter negative terminal and DC ground stud (refer to FO 5 or FO 23 and FO 24 for MEP 83-360E model).
   a. If no continuity, replace wire P54A10 or P55A10N, and perform MOC.
   b. If continuity checks good, proceed to Step 4.
4. Remove inverter (WP 0071 00), and remove internal fuse (WP 0071 00, Remove Inverter Internal Fuse). Check fuse.
   a. If fuse is blown, install new fuse.
   b. If fuse is good, install new inverter (WP 0071 00).
   c. Perform MOC.

105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS

SYMPTOM

MALFUNCTION
CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS

CORRECTIVE ACTION

If any control panel switch or circuit breaker is suspected of malfunction, test the switch or circuit breaker as follows:

a. Shut down engine and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
b. Lower control panel (WP 0032 00, Lower Control Panel for Maintenance).
c. Remove battery charger access cover if necessary.
d. Locate switch or circuit breaker to be tested in Table 2, Control Panel Switch and Circuit Breaker Continuity Checks.

Table 2. Control Panel Switch and Circuit Breaker Continuity Checks.

(A)	(B)		(D)		(E)	(F)
			Check Continuity			
Switch	Disconnect	Switch Position	From	To	Normal Indication	Fig Ref.
			(Refer to Note 3)			
ENGINE CONTROL (1S1)	P5 from control panel 1J5	STOP	1S1-1	1S1-6	Open	FO-3
			1S1-7	1S1-12	Open	
			1S1-7	1S1-11	Open	
		RUN	1S1-1	1S1-6	Open	
			1S1-7	1S1-11	Continuity	
		START	1S1-1	1S1-6	Continuity	
			1S1-7	1S1-12	Continuity	

105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS – Continued

Table 2. Control Panel Switch and Circuit Breaker Continuity Checks. – Continued

(A)	(B)		(D)		(E)	(F)
			Check Continuity			
Switch	Disconnect	Switch Position	From	To	Normal Indication	Fig Ref.
			(Refer to Note 3)			
MASTER SWITCH (1S2)	Wires from switch terminals 1S2-2, -5, -8, and -11	OFF	1S2-2	1S2-3	Open	FO-1
			1S2-5	1S2-6	Open	FO-1
			1S2-8	1S2-9	Open	FO-5
			1S2-11	1S2-12	Open	FO-1
		ON	1S2-2	1S2-3	Continuity	FO-1
			1S2-5	1S2-6	Continuity	FO-1
			1S2-8	1S2-9	Continuity	FO-5
			1S2-11	1S2-12	Continuity	FO-1
DRIVE (1S3)	Wires from switch terminals 1S3-2 and 1S3-5	OFF	1S3-2	1S3-3	Open	FO-8
			1S3-5	1S3-6	Open	
		ON	1S3-2	1S3-3	Continuity	
			1S3-5	1S3-6	Continuity	
PRESS TO TEST (1S4)	P6 from control panel 1J6	Released	1S4-C1 (wire L30A20N)	1S4-NO1 (wire L27A20)	Open	FO-2
			1S4-C2 (wire L1C20)	1S4-NO2 (wire L28A20)	Open	
		Pressed	1S4-C1	1S4-NO1	Continuity	
			1S4-C2	1S4-NO2	Continuity	
BATTERY OUTPUT (1S5)	Wire from switch terminal 1S5-2	OFF	1S5-2	1S5-3	Open	FO-1
		ON	1S5-2	1S5-3	Continuity	
PANEL (1S6)	Wires from switch terminal 1S6-2	OFF	1S6-2	1S6-1	Open	FO-2
			1S6-2	1S6-3	Open	
		DIM	1S6-2	1S6-3	Open	
			1S6-2	1S6-1	Continuity	
		BRT	1S6-2	1S6-3	Continuity	
			1S6-2	1S6-1	Open	

105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS – Continued

Table 2. Control Panel Switch and Circuit Breaker Continuity Checks. – Continued

(A)	(B)		(D)		(E)	(F)
			Check Continuity			
Switch	Disconnect	Switch Position	From	To	Normal Indication	Fig Ref.
			(Refer to Note 3)			
UTILITY (1S7)	Wire from switch terminal 1S7-2	OFF	1S7-2	1S7-1	Open	FO-2
			1S7-2	1S7-3	Open	
		DIM	1S7-2	1S7-3	Open	
			1S7-2	1S7-1	Continuity	
		BRT	1S7-2	1S7-3	Continuity	
			1S7-2	1S7-1	Open	

105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS – Continued

Table 2. Control Panel Switch and Circuit Breaker Continuity Checks. – Continued

(A)	(B)		(D)		(E)	(F)
			Check Continuity			
Switch	Disconnect	Switch Position	From	To	Normal Indication	Fig Ref.
			(Refer to Note 3)			
PNEUMATIC POWER (1S8)	Wires from switch terminals 1S8-3, -5 -8, and -12	OFF	1S8-2	1S8-3	Open	FO-7
			1S8-4	1S8-5	Continuity	FO-3
			1S8-8	1S8-9	Open	FO-7
			1S8-11	1S8-12	Open	FO-7
		ON	1S8-2	1S8-3	Continuity	
			1S8-4	1S8-5	Open	
			1S8-8	1S8-9	Continuity	
			1S8-11	1S8-12	Continuity	

105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS – Continued

Table 2. Control Panel Switch and Circuit Breaker Continuity Checks. – Continued

(A)	(B)		(D)		(E)	(F)
			Check Continuity			
Switch	Disconnect	Switch Position	From	To	Normal Indication	Fig Ref.
			(Refer to Note 3)			
AC PHASE SELECT (1S9) (Refer to troubleshooting procedure Note 1Item 1.)	P7 from control panel 1J7	A	1S9A1-C (wire X37B20)	1S9A-1 (wire X26B20)	Continuity	FO-6, sheet 2
			1S9A1-C	1S9A-2	Open	
			1S9A1-C	1S9A-3	Open	
			1S9A2-C (wire X40A20)	1S9A-4 (wire X25B20)	Continuity	
			1S9A2-C	1S9A-5	Open	
			1S9A2-C	1S9A-6	Open	
			1S9B1-C (wire X41A20)	1S9B-1 (wire X31C20A)	Continuity	
			1S9B1-C	1S9B-2	Open	
			1S9B1-C	1S9B-3	Open	
		B	1S9A1-C	1S9A-1	Open	
			1S9A1-C	1S9A-2	Continuity	
			1S9A1-C	1S9A-3	Open	
			1S9A2-C	1S9A-4	Open	
			1S9A2-C	1S9A-5	Continuity	
			1S9A2-C	1S9A-6	Open	
			1S9B1-C	1S9B-1	Open	
			1S9B1-C	1S9B-2	Continuity	
			1S9B1-C	1S9B-3	Open	
		C	1S9A1-C	1S9A-1	Open	
			1S9A1-C	1S9A-2	Open	
			1S9A1-C	1S9A-3	Continuity	
			1S9A2-C	1S9A-4	Open	
			1S9A2-C	1S9A-5	Open	
			1S9A2-C	1S9A-6	Continuity	
			1S9B1-C	1S9B-1	Open	

105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS – Continued

Table 2. Control Panel Switch and Circuit Breaker Continuity Checks. – Continued

(A) Switch	(B) Disconnect	Switch Position	(D) Check Continuity From (Refer to Note 3)	(D) Check Continuity To (Refer to Note 3)	(E) Normal Indication	(F) Fig Ref.
			1S9B1-C	1S9B-2	Open	
			1S9B1-C	1S9B-3	Continuity	
AC POWER (1S10)	Wires from switch terminals 1S10-2, -5, and -8	OFF	1S10-2	1S10-1	Open	FO-6, sheet 2
			1S10-5	1S10-6	Open	FO-6, sheet 2
			1S10-8	1S10-7	Continuity	FO-3, sheet 1
		ON	1S10-2	1S10-1	Open	
			1S10-5	1S10-6	Continuity	
			1S10-8	1S10-7	Open	
		RESET	1S10-2	1S10-1	Continuity	
			1S10-5	1S10-6	Open	

105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS – Continued

Table 2. Control Panel Switch and Circuit Breaker Continuity Checks. – Continued

(A)	(B)		(D)		(E)	(F)
			Check Continuity			
Switch	Disconnect	Switch Position	From	To	Normal Indication	Fig Ref.
			(Refer to Note 3)			
CURRENT SELEC-TOR (1S11) (Refer to trou-bleshooting procedure note 2Item)	P7 from control panel 1J7	10KW	1S11A-C (wire X47B20)	1S11A-1 (wire X48E20)	Continuity	FO-6, sheet 2
			1S11B-C (wire X53B20)	1S11B-1 (wire X58B20)	Continuity	
			1S11B-C	1S11B-2/ 3/6/7/8	Open	
		20KW	1S11A-C	1S11A-2	Continuity	
			1S11B-C	1S11B-2	Continuity	
			1S11B-C	1S11B-1/ 3/6/7/8	Open	
		30KW	1S11A-C	1S11A-3	Continuity	
			1S11B-C	1S11B-3	Continuity	
			1S11B-C	1S11B-1/ 2/6/7/8	Open	
		45KW	1S11A-C	1S11A-4	Continuity	
			1S11B-C	1S11B-1/ 2/3/6/7/8	Open	
		200A	1S11A-C	1S11A-4	Open	
			1S11B-C	1S11B-8	Continuity	
			1S11B-C	1S11B-1/ 2/3/6/7	Open	
		500A	1S11A-C	1S11A-4	Open	
			1S11B-C	1S11B-7	Continuity	
			1S11B-C	1S11B-1/ 2/3/6/8	Open	
		700A	1S11A-C	1S11A-4	Open	
			1S11B-C	1S11B-6	Continuity	
			1S11B-C	1S11B-1/ 2/3/7/8	Open	

105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS – Continued

Table 2. Control Panel Switch and Circuit Breaker Continuity Checks. – Continued

(A)	(B)		(D)		(E)	(F)
			Check Continuity			
Switch	Disconnect	Switch Position	From	To	Normal Indication	Fig Ref.
			(Refer to Note 3)			
		1000A	1S11A-C	1S11A-4	Open	
			1S11B-C	1S11B-1/ 2/3/6/7/8	Open	
DC POWER (1S12)	Wires from switch terminals 1S12-2, -5, -8	OFF	1S12-2	1S12-1	Open	FO-6, sheet 2
			1S12-5	1S12-4	Continuity	FO-5
			1S12-5	1S12-6	Open	FO-5
			1S12-8	1S12-7	Continuity	FO-3, sheet 1
		ON	1S12-2	1S12-1	Open	
			1S12-5	1S12-4	Open	
			1S12-5	1S12-6	Continuity	
			1S12-8	1S12-7	Open	
		RESET	1S12-2	1S12-1	Continuity	
			1S12-5	1S12-4	Continuity	
			1S12-5	1S12-6	Open	
			1S12-8	1S12-7	Continuity	
LIGHTS 7.5 (1CB1)	Wire P36A20 from 1CB1	Open (out)	1CB1-LINE	1CB1-load	Open	FO-1
		Closed (in)	1CB1-LINE	1CB1-load	Continuity	
GTE 10 (1CB2)	Wire P37A18 from 1CB2	Open (out)	1CB2-LINE	1CB2-load	Open	FO-1
		Closed (in)	1CB2-LINE	1CB2-load	Continuity	

NOTES:

1. 1S9 is a two-section switch. Section A is section nearest panel. Each section has two poles. The pole 1 C (common) terminal is adjacent to terminal 1. The pole 2 C terminal is adjacent to terminal 4.
2. 1S11 is a three-section switch. Section A is nearest panel.
3. The terminals of some switches are not identified on the switch. In such cases, wire numbers are listed in column (D) to assist in locating the switch terminals.

e. Disconnect connectors or wires as indicated in column (B).

105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS – Continued

f. Set switch or breaker to each position listed in column (C) and check continuity between terminals listed in column (D) for normal indication of column (E).

g. If any continuity check is not normal, replace switch or circuit breaker (WP 0108 00 or WP 0140 00).

h. If all continuity checks are normal, switch or circuit breaker is good. Reconnect any wires or connectors that were disconnected for test.

106. HYDRAULIC CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS

SYMPTOM

MALFUNCTION
HYDRAULIC CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS

CORRECTIVE ACTION

NOTE

All references to FO-9 will be for the MEP 83-360A and D models and all references to FO-28 will be for the MEP 83-360E model.

If any hydraulic control panel switch or circuit breaker is suspected of malfunction, test the switch or circuit breakers as follows:

a. Shut down engine.

b. Refer to WP 0111 00, and perform Steps 1. through 4.

c. Locate switch or circuit breaker to be tested in Table 3, Hydraulic Control Panel Switch and Circuit Breaker Continuity Checks, column (A). Remove hydraulic electrical panel (WP 0111 00).

Table 3. Hydraulic Control Panel Switch and Circuit Breaker Continuity Checks.

(A)	(B)		(D)		(E)	(F)
			Check Continuity			
Switch	Disconnect	Switch Position	From	To	Normal Indication	Fig Ref.
POWER SWITCH (4S1)	Wires from switch OFF terminals 4S1-2, -5, -8, and -11	OFF	4S1-2	4S1-1	Continuity	FO-9/FO-28
			4S1-2	4S1-3	Open	FO-9/FO-28
			4S1-5	4S1-4	Continuity	FO-3, sheet 1
			4S1-8	4S1-7	Continuity	FO-9/FO-28
			4S1-8	4S1-9	Open	FO-9/FO-28
			4S1-11	4S1-12	Open	
		ON	4S1-2	4S1-1	Open	
			4S1-2	4S1-3	Continuity	
			4S1-5	4S1-4	Open	
			4S1-8	4S1-7	Open	

106. HYDRAULIC CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS – Continued

Table 3. Hydraulic Control Panel Switch and Circuit Breaker Continuity Checks. – Continued

(A)	(B)		(D) Check Continuity		(E)	(F)
Switch	Disconnect	Switch Position	From	To	Normal Indication	Fig Ref.
			4S1-8	4S1-9	Continuity	
			4S1-11	4S1-12	Continuity	
PANEL LIGHTS (4S2)	Wire from switch terminal 4S2-2	OFF	4S1-2	4S1-1	Open	FO-9/FO-28
			4S1-2	4S1-3	Open	
		DIM	4S1-2	4S1-1	Continuity	
			4S1-2	4S1-3	Open	
		BRT	4S1-2	4S1-1	Open	
			4S1-2	4S1-3	Continuity	
PRESS TO TEST (4S3)	Wire from switch terminal 4S3-NO	Released	4S3-1	4S3-2	Open	FO-9/FO-28
		Pressed	4S3-1	4S3-2	Continuity	
OUTPUT SWITCH (4S4)	Wire from switch terminal 4S4-C	OFF	4S4-1	4S4-2	Open	FO-9/FO-28
		ON	4S4-1	4S4-2	Continuity	
PRESSURE SWITCH (4S5) (Refer to troubleshooting procedure note Item 1.)	Wire from switch terminals 4S5-2 and -5	OFF	4S5-2	4S5-1	Open	FO-9/FO-28
			4S5-2	4S5-3	Open	
			4S5-5	4S5-4	Open	
			4S5-5	4S5-6	Open	
		INCREASE	4S5-2	4S5-1	Open	
			4S5-2	4S5-3	Continuity	
			4S5-5	4S5-4	Open	
			4S5-5	4S5-6	Continuity	
		DECREASE	4S5-2	4S5-1	Continuity	
			4S5-2	4S5-3	Open	
			4S5-5	4S5-4	Continuity	
			4S5-5	4S5-6	Open	

106. HYDRAULIC CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS – Continued

Table 3. Hydraulic Control Panel Switch and Circuit Breaker Continuity Checks. – Continued

(A)	(B)		(D)		(E)	(F)
			Check Continuity			
Switch	Disconnect	Switch Position	From	To	Normal Indication	Fig Ref.
CIRCUIT BREAKER (4CB1)	Wire from circuit breaker terminal 4CB1-LINE	Open (out)	4CB1-LINE	4CB1-load	Open	FO-9/FO-28
		Closed (in)	4CB1-LINE	4CB1-load	Continuity	
NOTES:	1. The pressure switch must be removed to reach the switch terminals. Switch removal requires that the vent dryer and hydraulic pressure gage be removed. These components are not removed at organizational level. If the switch requires checking, notify maintenance supervisor.					

d. Disconnect wires as indicated in column (B).

e. Set switch or breaker to each position listed in Column (C), and check continuity between terminals listed in column (D) for normal indications of column (E).

f. If any continuity check is not normal, replace switch or circuit breaker (WP 0111 00) and perform MOC.

g. If all continuity checks are normal, switch or circuit breaker is good. Reconnect any wires that were disconnected for test.

107. CHARGER CIRCUIT MALFUNCTION

SYMPTOM

MALFUNCTION
CHARGER CIRCUIT MALFUNCTION

CORRECTIVE ACTION

1. If a battery charger malfunction is suspected, test the battery charger and related circuits as follows (refer to FO 1 or FO-19 (Sheet 1 of 2) for MEP 83-360E model):

   a. Start engine (TM 1-1730-229-13, Operator Instructions). After engine reaches 95% rpm, set DC POWER switch to ON, check DC POWER ON indicator, set DC POWER switch to OFF, and shut down engine. If DC POWER ON indicator lit, continue with Step 1.b. If DC POWER ON indicator did not light, refer to troubleshooting procedure 73. DC POWER ON INDICATOR OFF (ENGINE UP TO SPEED AND DC POWER SWITCH ON).

   b. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector, lower control panel (WP 0032 00). Remove battery charger access cover, and open electrical trays access door.

   c. Check that battery charger circuit breakers 2CB1 and 2CB2 on upper tray are closed (pushed in).

   d. Disconnect cable P32A6 (WP 0039 00, Figure 2, Item 20) from 50 amp output terminal J3+ (WP 0039 00, Figure 2, Item 21). Tape the terminal lug on the wire to prevent shorting.

   e. Disconnect harness connector P2 (WP 0039 00, Figure 2, Item 6) from battery charger 20 amp output connector J2 (WP 0039 00, Figure 2, Item 7).

107. CHARGER CIRCUIT MALFUNCTION – Continued

NOTE

A test wire made from 18 gauge wire is required for the following step. Terminate one end of wire with a female connector pin, and the other end with a clip.

f. Connect an 18 gauge wire between pin B of charger connector J2 and DC ground.

CAUTION

During this procedure, the engine will be running while the battery charger is disconnected. The procedure should be performed in the shortest possible time to prevent unnecessary drain on battery.

g. Connect battery and start engine (TM 1-1730-229-13, Operator Instructions).

h. Note if CHRG/BAT FAULT light is lit. (Light should be lit to indicate no charger load.) Continue with Step 1.i.

i. Set charger output control 3S1 (on lower electrical tray) to each position, and measure the voltage between the terminals (WP 0039 00, Figure 2, Item 21 and 23) of the charger 50 amp output connector J31. Record measured voltages below:

Charger Output Control 3S1	Charger 50 Amp Output Voltage (J3)	
Setting	Measured	Limits
28.5	—	26 to 31 VDC
30.5	—	28 to 33 VDC
32.0	—	29.5 to 34.5 VDC

CAUTION

Do not short pins of J2 against each other or against connector shell.

j. Measure voltage between pins A (positive meter lead) and B of charger 20 amp output connector J2 (WP 0039 00, Figure 2, Item 7). Record measured voltage below:

Charger 20 Amp Output Voltage (J2)	
Measured	Limits
—	22 to 32 VDC

k. Shut down engine and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.

l. Disconnect test wire from charger connector J2.

m. Compare the indications observed or measured in Steps 1.h. through 1.j. above with indications listed in the following chart, and perform the indicated test or inspection procedure.

Battery Charger Indications			Test or Inspection Step
CHGR/BAT FAULT lamp (Step 1.h.)	Charger 50 Amp Output (Step 1.i.)	Charger 20 Amp Output (Step 1.j.)	

107. CHARGER CIRCUIT MALFUNCTION – Continued

– Continued

ON	Voltage in limits for all settings of charger output control	Voltage in limits	Step 2.
OFF	Voltage in limits for all settings of charger output control	N/A	Step 3.
N/A	No output, or voltage out of limits for one or more settings of charger output control	No output, or voltage out of limits	Step 4.
N/A	No output	Voltage present	Step 5.
N/A	Voltage present	No output	Step 6.
N/A	Voltage present	Voltage present but not in limits	Replace battery charger (WP 0039 00)
N/A	Voltage present but out of limits for one or more settings of charger output control	Voltage present	Step 7.

2. If the CHRG/BAT FAULT lamp was on (Step 1.h.) and all voltage measurements (Step 1.i. and Step 1.j.) were in limits, the battery charger is functioning properly. Reconnect connector P2 and cable P32A6 to battery charger.
3. This step is applicable if CHRG/BAT fault lamp was OFF (Step 1.h.) and all 50 amp output voltages (Step 1.i.) were in limits.
    a. Connect battery and set MASTER SWITCH to ON. If CHRG/BAT FAULT light does not light, refer to troubleshooting procedure 54. CHRG/BAT FAULT INDICATOR NOT LIT (MASTER SWITCH ON, ENGINE NOT RUNNING). If light comes on, proceed to Step 3.b.
    b. Set MASTER SWITCH to OFF and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Check diode TB3-CR4 (refer to troubleshooting procedure 108. TERMINAL BOARD DIODE MALFUNCTIONS). Replace diode if defective. If diode tests good, proceed to Step 3.c.
    c. Disconnect harness connector P1 from battery charger. Check for continuity between P1-G and TB3-8 ANODE (refer to FO 1 or FO-19 (Sheet 1 of 2) for MEP 83-360E model). If no continuity, replace wire P29A20. If continuity, replace battery charger (WP 0039 00).
4. This step is applicable if one or more of the 50 amp output voltages (Step 1.i.) and the 20 amp output voltage (Step 1.j.) were out of limits.
    a. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
    b. Check for continuity between battery charger J4- terminal and DC ground stud. If no continuity, replace cable P21B2N. If continuity, replace battery charger (WP 0039 00).
5. This step is applicable if all 50 amp output voltages (Step 1.i.) were 0, and the 20 amp output voltage (Step 1.j.) was present.
    a. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
    b. Check circuit breaker 2CB1 on upper electrical tray. If breaker is open, proceed to Step 5.c. If breaker is closed, proceed to Step 5.d.
    c. Check cable P22A2 (between circuit breaker and battery charger) for shorted condition. Replace cable if shorted. If cable is good, replace battery charger (WP 0039 00).

107. CHARGER CIRCUIT MALFUNCTION – Continued

d. Check for continuity between the following points (refer to FO 1 and FO 5 or FO-19 (Sheet 1 of 2) and FO 23 for MEP 83-360E model):

Check Continuity		If no continuity,
From	To	replace
K2-A1	2CB1	Cable P2B2
2CB1 LINE	2CB1 load	2CB1
2CB1	Bat Chrg J4+	Cable P22A2
DC GND	Bat Chrg J4-	Cable P21B2N

If no continuity, replace indicated cable or component. If all continuity checks good, replace battery charger (WP 0039 00).

6. This step is applicable if the 20 amp output voltage (Step 1.j.) was 0, and the 50 amp output voltages are present.

a. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.

b. Check circuit breaker 2CB2 on upper electrical tray. If breaker is open, perform Step 6.c. If breaker is closed, proceed to Step 6.d.

c. Check wires P24A12, P23A12, and P23B8 (connected to circuit breaker) for shorted condition. Replace any shorted cable. If cables are good, replace battery charger (WP 0039 00).

d. Check for continuity between the following points (refer to FO 1 and FO 5 or FO-19 (Sheet 1 of 2) and FO 23 for MEP 83-360E model):

Check Continuity		If no continuity,
From	To	replace
2CB2	K2-A1	wire P2C8
2CB2 LINE	2CB2 load	2CB2
2CB2	P1-H	wire P24A12
2CB2	P1-I	wire P3A12

If no continuity, replace indicated wire or component. If all continuity checks good, replace battery charger (WP 0039 00).

7. This step is applicable if the 50 amp output voltages (Step 1.i.) are present but out of limits, and the 20 amp output voltage (Step 1.j.) is present.

a. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.

b. Lower control panel (WP 0032 00).

c. Disconnect main harness connector P9 from lower tray connector J9.

d. Check battery charger output control switch 3S1 as indicated in Table 4, Battery Charger Output Control Switch 3S1 Continuity Checks.

107. CHARGER CIRCUIT MALFUNCTION – Continued

Table 4. Battery Charger Output Control Switch 3S1 Continuity Checks.

Switch Position	Check Resistance From	Check Resistance To	Normal Indication
28.5 VDC	3S1-C	3S1-1	Continuity
		3S1-2	Open
		3S1-3	Open
30.5 VDC	3S1-C	3S1-1	Open
		3S1-2	Continuity
		3S1-3	Open
32.0 VDC	3S1-C	3S1-1	Open
		3S1-2	Open
		3S1-3	Continuity

e. If any continuity check is not normal, replace switch 3S1 (WP 0052 00).

f. If all switch continuity checks good, disconnect main harness connector P1 from battery charger. Check for continuity between the following points:

Check Continuity From	Check Continuity To	If no continuity, replace
P9-F	P1-A	P25A20
P9-C	P1-B	P26A20
P9-D	P1-C	P27A20
P9-E	P1-D	P28A20
J9-F	3S1-C	P25B20
J9-C	3S1-1	P26B20
J9-D	3S1-2	P27B20
J9-E	3S1-3	P28B20

If no continuity, replace indicated wire. If all continuity checks good, replace battery charger (WP 0039 00).

108. TERMINAL BOARD DIODE MALFUNCTIONS

SYMPTOM

MALFUNCTION
TERMINAL BOARD DIODE MALFUNCTIONS

CORRECTIVE ACTION

If the diodes mounted on terminal boards TB1 through TB3 are suspected of malfunction, test the diodes. This test is applicable to the following diodes:

108. TERMINAL BOARD DIODE MALFUNCTIONS – Continued

– Continued

No.	Location	Type1	Fig Ref.
CR1	TBI-1	MR756	WP 0058 00, Figure 2
CR2	TB2-15	1N5061	WP 0058 00, Figure 3
CR3	TB3-1	1N5061	WP 0058 00, Figure 4
CR4	TB3-2	1N5061	WP 0058 00, Figure 4
CR5	TB3-3	1N5061	WP 0058 00, Figure 4
CR6	TB3-4	1N5061	WP 0058 00, Figure 4
CR7	TB3-5	1N5061	WP 0058 00, Figure 4
CR8	TB3-6	1N5061	WP 0058 00, Figure 4
CR1	TB2-1	MR756	WP 0058 00, Figure 3
CR2	TB2-2	MR756	WP 0058 00, Figure 3
CR3	TB3-11	1N5061	WP 0058 00, Figure 4
CR4	TB3-12	1N5061	WP 0058 00, Figure 4
CR3	TB2-14	1N5061	WP 0058 00, Figure 3
CR4	TB2-4	1N5061	WP 0058 00, Figure 3
CR5	TB2-5	1N5061	WP 0058 00, Figure 3
CR6	TB2-6	1N5061	WP 0058 00, Figure 3
CR7	TB2-7	1N5061	WP 0058 00, Figure 3
CR8	TB2-8	1N5061	WP 0058 00, Figure 3
CR9	TB2-9	1N5061	WP 0058 00, Figure 3
CR10	TB2-10	1N5061	WP 0058 00, Figure 3
CR11	TB2-11	1N5061	WP 0058 00, Figure 3
CR12	TB2-12	1N5061	WP 0058 00, Figure 3
CR13	TB2-13	1N5061	WP 0058 00, Figure 3
CR14	TB2-3	1N5061	WP 0058 00, Figure 3
CR18	TB1-11	1N5061	WP 0058 00, Figure 2
CR19	TB1-10	1N5061	WP 0058 00, Figure 2
CR20	TB1-9	1N5061	WP 0058 00, Figure 2
CR21	TB1-8	1N5061	WP 0058 00, Figure 2
CR22	TB1-7	1N5061	WP 0058 00, Figure 2
CR24	TB1-4	1N5061	WP 0058 00, Figure 2
CR25	TB1-3	1N5061	WP 0058 00, Figure 2
CR26	TB1-2	1N5061	WP 0058 00, Figure 2
CR27	TB1-6	1N5061	WP 0058 00, Figure 2

108. TERMINAL BOARD DIODE MALFUNCTIONS – Continued

– Continued

CR4	TB3-8	1N5061	WP 0058 00, Figure 4
CR5	TB3-9	1N5061	WP 0058 00, Figure 4

a. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.

b. If diode to be tested is on TB1 (WP 0058 00, Figure 1, Item 8 and Item 9), lower control panel (WP 0032 00). Disconnect control panel support cable and lower control panel onto access door.

c. If diode to be tested is on TB2 (WP 0058 00, Figure 1, Item 10 and Item 11) or TB3 (4, 5), remove battery charger access panel.

NOTE

The test procedure is the same for any diode type 1N5061 or MR756. Diode TB3-CR1 (WP 0058 00, Figure 2, Item 3) is illustrated.

d. Remove terminal screw (WP 0058 00, Figure 2, Item 1) and one lead of diode (WP 0058 00, Figure 2, Item 3).

e. Using an analog multimeter (AN/PSM 4 or equivalent) on X1 scale, measure resistance from diode anode lead (WP 0058 00, Figure 2, Item 9) (meter positive lead) to diode cathode lead (WP 0058 00, Figure 2, Item 11). If resistance is greater than 25 ohms, replace diode.

f. Set meter to X10,000 scale and measure resistance from diode cathode lead (WP 0058 00, Figure 2, Item 11) (meter positive lead) to diode anode lead (WP 0058 00, Figure 2, Item 9). If resistance is less than 10K ohms, replace diode.

g. If diode is good, reconnect diode lead to terminal board.

109. 95% ENABLE RELAY 3K1 MALFUNCTION

SYMPTOM

MALFUNCTION
95% ENABLE RELAY 3K1 MALFUNCTION

CORRECTIVE ACTION

If the 95% enable relay 3K1 is suspected of malfunction, test relay and associated wiring as follows:

a. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and lower control panel (WP 0032 00).

b. Open electrical trays access door.

c. Disconnect main harness connector P8 from electrical tray connector J8.

d. Perform tests indicated in Table 5, 95% Enable Relay 3K1 Test, for relay in deactivated state (refer to FO 3 (Sheet 2 of 2), FO 5, and FO 9 or FO 21, FO 23, FO 24 and FO 28 for MEP 83-360E model).

109. 95% ENABLE RELAY 3K1 MALFUNCTION – Continued

Table 5. 95% Enable Relay 3K1 Test.

Relay State	Measure		Normal Indication
	From	To	
Deactivated	J8-K	J8-F	Open
	J8-H	J8-G	Open
	J8-F	J8-E	Open
	J8-D	J8-C	Open
	J8-A	J8-B	200 to 300 ohms
Activated	J8-K	J8-F	Continuity
	J8-H	J8-G	Continuity
	J8-F	J8-E	Continuity
	J8-D	J8-C	Continuity

NOTE

Two test wires made from 20 gauge wire are required for Step e. Each lead should be terminated on one end with a female connector pin, and with a clip on other end.

e. Connect one test wire between pin A of connector J8 and positive terminal screw on back of slave receptacle. Connect other test wire between pin B of J8 and negative terminal screw of slave receptacle.

f. Connect battery.

g. Do tests indicated in Table 5, 95% Enable Relay 3K1 Test for relay in activated state.

h. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.

i. Disconnect test wires.

j. If all indications in Table 5, 95% Enable Relay 3K1 Test were normal, relay is good. Reconnect harness connector P8 to tray connector J8.

k. If any indication in Table 5, 95% Enable Relay 3K1 Test was not normal, remove relay from socket (WP 0047 00). Check for continuity between the following points (refer to FO 3 (Sheet 2 of 2), FO 5, and FO 9 or FO 21, FO 23, FO 24 and FO 28 for MEP 83-360E model):

Check Continuity		If no continuity,
From	To	replace
J8-A	3K1 socket X1	EI7B20
J8-B	3K1 socket X2	E35B20N
J8-G	3K1 socket C1	P4B20
J8-E	3K1 socket B1	P5B20
J8-C	3K1 socket A1	P6B20

109. 95% ENABLE RELAY 3K1 MALFUNCTION – Continued

– Continued

Check Continuity		If no continuity,
From	To	replace
J8-H	3K1 socket C2	P13B20
J8-F	3K1 socket B2	P12B20
J8-D	3K1 socket A2	P11B20
J8-J	3K1 socket D1	P33B20
J8-K	3K1 socket D2	P34B20

If no continuity, replace indicated wire. If all continuity checks good, replace relay 3K1 with new relay WP 0048 00.

110. STARTER LATCH RELAY 3K2 MALFUNCTION

SYMPTOM

MALFUNCTION
STARTER LATCH RELAY 3K2 MALFUNCTION

CORRECTIVE ACTION

If the starter latch relay 3K2 is suspected of malfunction, test relay and associated wiring as follows:

a. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and lower control panel WP 0032 00.

b. Open electrical trays access door.

c. Disconnect main harness connectors P8 and P18 from electrical tray connectors J8 and J18.

d. Perform tests indicated in Table 5, 95% Enable Relay 3K1 Test, for relay in deactivated state (refer to FO-3 (Sheet 1 of 2) or FO 21 for MEP 83-360E model).

Table 6. Starter Latching Relay 3K2 Test.

Relay State	Measure		Normal Indication
	From	To	
Deactivated	J8-M	J18-B	Open
	J8-P	J18-L	Open
	J8-P	J8-B	125 to 200 ohms
Activated	J8-M	J18-B	Continuity
	J8-N	J18-B	Continuity
	J8-L	Ground	+24 VDC

110. STARTER LATCH RELAY 3K2 MALFUNCTION – Continued

NOTE

Two test wires made from 20 gauge wire are required for Step e. Each lead should be terminated on one end with a female connector pin, and with a clip on the other end.

e. Connect one test wire between pin P of J8 and positive terminal screw on back of slave receptacle. Connect other test wire between pin B of J8 and negative terminal screw on slave receptacle.

f. Connect battery and perform tests indicated in Table 6, Starter Latching Relay 3K2 Test for relay in activated state.

g. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.

h. Disconnect test wires.

i. If all indications in Table 6, Starter Latching Relay 3K2 Test were normal, relay is good. Reconnect harness connectors P8 and P18 to tray connectors J8 and J18.

j. If any indication in Table 6, Starter Latching Relay 3K2 Test was not normal, remove relay from socket (WP 0047 00). Check for continuity between the following points (refer to FO-3 (Sheet 1 of 2) or FO 21 for MEP 83-360E model):

Check Continuity		If no continuity,
From	To	replace
J8-P	3K2 socket X1	E3E20
J8-B	3K2 socket X2	E36B20N
J8-L	3K2 socket A1	E25C18
J8-M	3K2 socket B2	E4B18
J8-N	3K2 socket B2	E31A20
J18-B	3K2 socket B1	L4J18
3K2 socket X1	3K2 socket A2	E3F20

If no continuity, replace indicated wire or notify maintenance supervisor. If all continuity checks good, replace relay 3K2 with new relay (WP 0048 00).

111. BATTERY/CHARGER TRANSFER RELAY AND POWER DIODE MALFUNCTIONS

SYMPTOM

MALFUNCTION
BATTERY/CHARGER TRANSFER RELAY AND POWER DIODE MALFUNCTIONS

CORRECTIVE ACTION

1. Perform this step if the battery/charger transfer relay is suspected of malfunction.

   a. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and lower control panel (WP 0032 00).

   b. Open electrical tray access door.

   c. Disconnect main harness connectors P9 and P18 from electrical tray connectors J9 and J18.

111. BATTERY/CHARGER TRANSFER RELAY AND POWER DIODE MALFUNCTIONS – Continued

d. Perform tests indicated in Table 7, Battery/Charger Transfer Relay 3K3 Test, for relay in deactivated state. Check for continuity between the following points (refer to FO-3 (Sheet 1 of 2) or FO 21 for MEP 83-360E model):

Table 7. Battery/Charger Transfer Relay 3K3 Test.

Relay State	Measure		Normal Indication
	From	To	
Deactivated	J9-M	J9-R	Continuity
	J9-M	J9-S	Open
	J9-N	J9-R	Continuity
	J9-N	J9-S	Open
	J9-P	J9-R	Continuity
	J9-P	J9-S	Open
	J18-E	J9-R	Continuity
	J9-S	J9-L	90 TO 130 ohms
Activated	J9-M	Ground	+24 VDC
	J9-N	Ground	+24 VDC
	J9-P	Ground	+24 VDC
	J9-E	Ground	0 VDC

NOTE

Two test wires made from 20 gauge wire are required for Step 1.e. Each wire should be terminated on one end with a male connector pin, and a clip on the other end.

e. Connect one test wire between pin S of J9 and positive terminal of slave receptacle. Connect other test wire between pin L of J9 and negative terminal of slave receptacle.

f. Connect one test wire between pin S of J9 and positive terminal of slave receptacle. Connect other test wire between pin L of J9 and negative terminal of slave receptacle.

g. Connect battery and perform tests indicated in Table 7, Battery/Charger Transfer Relay 3K3 Test for relay in activated state.

h. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.

i. Disconnect test wires.

j. If all indications in Table 7, Battery/Charger Transfer Relay 3K3 Test were normal, relay is good. Unless power diodes are to be checked (Step 2.), reconnect harness connectors P9 and P18 to tray connectors J9 and J18.

k. If voltage was not present at pin J9-N (relay activated), perform Step 2. If any other indication in Table 7, Battery/Charger Transfer Relay 3K3 Test was not normal, continue with Step 1.k. below.

l. Remove relay 3K3 from socket (WP 0047 00). Check for continuity between the points listed below (refer to FO 1 or FO 20 and FO 21 for MEP 83-360E model). If no

111. BATTERY/CHARGER TRANSFER RELAY AND POWER DIODE MALFUNCTIONS – Continued

continuity, replace indicated wire. If all continuity checks good, replace relay 3K3 with new relay.

Check Continuity		If no continuity,
From	To	replace
J9-R	3K3 socket C3	P33E18
J9-S	3K3 socket C1	P30B18
J9-L	3K3 socket X2	P49B20N
J9-N	3K3 socket B2	P35B18
J9-P	3K3 socket A2	P34B20
J9-M	3K3 socket C2	P33J20
J18-E	3K3 socket D2	P33J20 - (A Model Only)
3K3 socket X1	3K3 socket A1	P30E20
3CR7 terminal lug (top)	3K3 socket A1	P30D20
3CR7 terminal lug (top)	3K3 socket C1	P30C20
3K3 socket D3	3K3 socket A3	P33H20
3K3 socket B3	3K3 socket A3	P33G20
3K3 socket B3	3K3 socket C3	P33F20

2. Perform this step if power diodes (3CR7 through 3CR9) are suspected of malfunction.

   a. If not already done, perform Steps 1.a. through 1.c., and Step 1.k.

NOTE

Use an analog multimeter (AN/PSM 4 or equivalent) on X100 scale to check diodes.

   b. Measure resistance between relay socket pins C1 (positive meter lead) and B1. If resistance is not between 400 and 1500 ohms, replace diode 3CR7 or wires (P3OC20 or P30N18) between diode and relay socket.

   c. Measure resistance between the mounting stud of diode 3CR8 (positive meter lead) and relay socket pin B2. If resistance is not between 400 and 1500 ohms, replace diode 3CR9 or wires (P33N18 or P33M18) between diodes and relay socket.

   d. Measure resistance between mounting stud of 3CR8 (positive meter lead) and relay socket pin D3. If resistance is not between 500 and 2000 ohms, replace diode 3CR8.

   e. If resistance measurements of Steps 2.b. through 2.d.above were good, power diodes are good. Install relay, and reconnect harness connectors.

112. GTE STARTER RELAY K4 MALFUNCTION

SYMPTOM

MALFUNCTION
GTE STARTER RELAY K4 MALFUNCTION

CORRECTIVE ACTION

112. GTE STARTER RELAY K4 MALFUNCTION – Continued

WARNING

Battery power may be present at terminals on back of control panel and electrical bay when battery is connected. Do not touch any bare terminals.

If the GTE starter relay is suspected of malfunction, test the relay as follows:

a. Set all control panel switches to OFF.
b. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and lower control panel (WP 0032 00, Lower Control Panel for Maintenance).
c. Refer to WP 0066 00, Figure 2. Remove terminal shield (WP 0066 00, Figure 2, Item 2) from contactor K4 (WP 0066 00, Figure 2, Item 17).
d. Tag and disconnect cables from terminals A1 (WP 0066 00, Figure 2, Item 15) and X1 (WP 0066 00, Figure 2, Item 13). Tape lugs on end of cables to prevent shorting.
e. Connect battery.
f. Measure for 0 VDC from terminal A1 of contactor to ground (refer to FO 3 (Sheet 2 of 2) or FO 21 for MEP 83-360E model). If +24 VDC is present, replace contactor (WP 0066 00).
g. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
h. Connect jumper wire (gauge 20 or larger) between terminals A2 and X1. Connect jumper wire (gauge 20 or larger) between terminal X2 and ground.
i. Connect battery.
j. Measure for +24 VDC between terminal A1 of contactor and ground. If voltage is not present, replace contactor (WP 0066 00).
k. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
l. Remove jumper wires.
m. If measurements in Step f. and Step j. were good, contactor is good. Reconnect cables and replace terminal shield.

113. BATTERY OUTPUT/TRACTION MOTOR CONTACTOR K3 MALFUNCTION

SYMPTOM

MALFUNCTION
BATTERY OUTPUT/TRACTION MOTOR CONTACTOR K3 MALFUNCTION

CORRECTIVE ACTION

WARNING

Battery power may be present at terminals on back of control panel and electrical bay when battery is connected. Do not touch any bare terminals.

If the battery output/traction motor contactor is suspected of malfunction, test the relay as follows:

113. BATTERY OUTPUT/TRACTION MOTOR CONTACTOR K3 MALFUNCTION – Continued

a. Set all control panel switches to OFF.

b. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and lower control panel (WP 0032 00).

c. Connect battery.

d. Refer to WP 0066 00, Figure 2 and FO 1 or FO-19 (Sheet 1 of 2) for MEP 83-360E model. Measure for +24 VDC between terminals A2 of contactor K3 (WP 0066 00, Figure 2) and ground. If voltage is present, proceed to Step e.If not, Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and check cable P41B1/0 (between contactor K3 and shunt R2) for continuity. Replace cable if defective.

e. Measure for +24 VDC between terminal X1 of contactor K3 and ground. If voltage is present, proceed to Step f. If not, Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and check wire (P41A20) between terminals A2 and X1 for continuity. Replace wire if defective.

f. Measure for +24 VDC between terminal X2 of contactor K3 and ground. If voltage is present, proceed to Step h. If not, proceed to Step g.

g. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and test BATTERY OUTPUT switch 1S5 (refer to troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS and FO 2 or FO 20 for MEP 83-360E model). If switch checks good, replace contactor K3 (WP 0066 00).

h. Measure for 0 VDC between terminal A1 of contactor K3 and ground. If 0 VDC is measured, proceed to Step i. If +24 VDC is present, Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and replace contactor K3.

i. Set MASTER SWITCH and BATTERY OUTPUT switches to ON. Measure for +24 VDC between terminal A1 of contactor and ground. If voltage is present, contactor is good (set switches OFF and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector). If not, continue with Step j.

j. Measure 0 VDC between terminal X2 of contactor K3 and ground. If 0 VDC is present, Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and replace contactor (WP 0066 00). If +24 VDC is present, proceed to Step k.

k. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and check control panel switches 1S5 (BATTERY OUTPUT), 1S12 (DC POWER), and 1S2 (MASTER SWITCH) (refer to troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS). Replace any defective switch. If all switches test good, proceed to Step l.

l. Test diode 1CR6 (122. CONTROL PANEL WIRING HARNESS DIODE MALFUNC TION). Replace diode if defective. If diode tests good, proceed to Step m.

m. Remove battery charger access cover. Disconnect main harness connector P7 from control panel connector J7. Check for continuity between the following points (refer to FO 1 and FO 5 or FO-19 (Sheet 1 of 2), FO 23 and FO 24 for MEP 83-360E model):

114. SPEED SENSOR MALFUNCTION

SYMPTOM

MALFUNCTION
SPEED SENSOR MALFUNCTION

114. SPEED SENSOR MALFUNCTION – Continued

CORRECTIVE ACTION

If the speed sensor is suspected of malfunctioning, test the sensor and engine harness as follows:

a. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.

b. Remove engine access cover (WP 0032 00).

c. Cut and remove lockwire from speed sensor electrical connector (WP 0043 00, Figure 1, Item 1).

d. Check resistance between pins A and C of speed sensor. Resistance should be less than 20 ohms. If resistance is greater than 20 ohms, replace speed sensor (WP 0043 00).

e. Check resistance between pin B of speed sensor and housing. If resistance is greater than 1 ohm, replace speed sensor.

f. Lower control panel and disconnect engine harness connector P2 from ECU. Check engine harness for continuity from P2-C to P6-C, and from P2-D to P6-a (refer to FO 3 (Sheet 2 of 2) or FO 20 and FO 21 for MEP 83-360E model). Replace defective wiring or notify maintenance supervisor.

g. If wiring is good, reconnect engine harness connectors P2 and P6. Lockwire connector P6.

115. LOW OIL PRESSURE SWITCH MALFUNCTION

SYMPTOM

MALFUNCTION
LOW OIL PRESSURE SWITCH MALFUNCTION

CORRECTIVE ACTION

NOTE

The low oil pressure switch should remain closed until engine oil pressure exceeds 31 psig. Above 31 psig, the switch should open.

If the low oil pressure is suspected of malfunctioning, test the switch as follows:

a. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.

b. Remove engine and hydraulic access covers (WP 0021 00).

c. Cut and remove lockwire from low oil pressure switch electrical connector (WP 0043 00, Figure 1, Item 6).

d. Check resistance between pins A and B of low oil pressure switch. Reading should be 0 ohms. If resistance is greater than 1 ohm, replace switch (WP 0044 00).

116. HIGH OIL TEMPERATURE SWITCH MALFUNCTION

SYMPTOM

MALFUNCTION
HIGH OIL TEMPERATURE SWITCH MALFUNCTION

CORRECTIVE ACTION

116. HIGH OIL TEMPERATURE SWITCH MALFUNCTION – Continued

If a high oil temperature (HOT) switch malfunction is suspected, test the switch and engine harness as follows (refer to FO 3 (Sheet 2 of 2) or FO 21 for MEP 83-360E model):

a. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and lower control panel (WP 0032 00).

b. Disconnect engine harness connector P2 from ECU.

c. Check resistance between P2-J and P2-Y. If resistance is greater than 1 ohm, wait for engine oil to cool.

d. After engine oil cools, recheck resistance between P2-J and P2-Y. If resistance is now less than 1 ohm, switch and harness are good. If resistance is still greater than 1 ohm, proceed to Step e.

e. Open engine access door. Cut and remove lockwire from high oil temperature switch connector P10 (WP 0043 00, Figure 1, Item 9). Disconnect electrical connector from high oil temperature switch (WP 0043 00, Figure 1, Item 10). Check engine harness wires A14A20 (P2-J to P10-B) and A14A20N (P2-Y to P10-A) for continuity (refer to FO 3 (Sheet 2 of 2) or FO 21 for MEP 83-360E model). Replace any defective wiring or notify maintenance supervisor. If wiring is good, replace high oil temperature switch (WP 0045 00).

117. THERMOCOUPLE MALFUNCTION

SYMPTOM

MALFUNCTION
THERMOCOUPLE MALFUNCTION

CORRECTIVE ACTION

If a thermocouple malfunction is suspected, test the thermocouple as follows:

a. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.

b. Tag and disconnect wires from posts of thermocouple (WP 0043 00, Figure 1, Item 14).

c. Measure resistance across thermocouple posts. Resistance should be leas than 10 ohms. Reading should remain steady when posts are wiggled. If resistance is greater than 10 ohms or does not remain steady when posts are wiggled, replace thermocouple (WP 0046 00).

d. Measure resistance from each thermocouple post to the case. Insulation resistance reading should be greater than 10K ohms. If not, replace thermocouple.

e. Lower control panel and disconnect engine harness connector P2 from ECU. Check (refer to FO 3 (Sheet 2 of 2) or FO 21 for MEP 83-360E model) engine harness wiring between P2-G and thermocouple no. 8 (CR), and between P2-H and thermocouple no. 10 (AL). Replace any defective wiring. If wiring is good, reconnect P2 to ECU.

f. Reconnect wires to thermocouple.

118. INLET FILTER BLOCKED SWITCH MALFUNCTION

SYMPTOM

MALFUNCTION
INLET FILTER BLOCKED SWITCH MALFUNCTION

CORRECTIVE ACTION

118. INLET FILTER BLOCKED SWITCH MALFUNCTION – Continued

If an inlet filter blocked switch malfunction is suspected, test the switch and wiring as follows:

a. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector, and remove roof (WP 0022 00).

b. Open bypass door (WP 0054 00, Figure 1, Item 9) and check that switch actuates (indicated by click) when door is open (at bottom) between 1/4 and 1/2 inch. If switch actuates normally, proceed to Step d. If switch does not actuate normally, adjust per Step c.

c. If necessary adjust switch. To adjust, loosen nuts (WP 0054 00, Figure 1, Item 1), slide switch (WP 0054 00, Figure 1, Item 6) up or down on bracket (WP 0054 00, Figure 1, Item 7), and tighten nuts. Move switch down if actuation occurs when bypass door opening is less than 1/4 inch. Move switch up if actuation occurs when bypass door opening is greater than 1/2 inch.

d. Connect battery and turn MASTER SWITCH on.

e. Verify that INLET FILTER BLOCKED indicator light on control panel is OFF when bypass door is closed. If light is OFF, proceed on to Step g. If light is lit, perform Step f.

f. Set MASTER SWITCH OFF and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Disconnect one wire from switch (WP 0054 00, Figure 1, Item 6), and check for open circuit between switch outer terminals. If continuity exists between switch outer terminals, replace switch (WP 0054 00) and perform MOC.

g. Open bypass door (WP 0054 00, Figure 1, Item 9) to actuate switch and have assistant check that INLET FILTER BLOCKED indicator light is lit. If light is lit, switch and wiring is good (turn MASTER SWITCH to OFF and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector). If light is not lit, continue with next step.

h. Actuate PRESS TO TEST switch on control panel (MASTER SWITCH on). If INLET FILTER BLOCKED indicator does not light, refer to troubleshooting procedure 58. CONTROL PANEL INDICATOR LIGHT TEST FAILS - ONE INDICATOR DOES NOT LIGHT or 59. CONTROL PANEL INDICATOR LIGHT TEST FAILS - NO INDIC ATORS LIGHT. If light does light during lamp test, proceed to Step i.

i. Set MASTER SWITCH OFF, and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Disconnect one wire from switch (WP 0054 00, Figure 1, Item 6), and check for continuity between switch outer terminals with switch actuated (bypass door open). If continuity exists between switch outer terminals, check switch wires E22A20 P5-8R to 1S3-C or E40A20N (1S3-NC to ground) (refer to FO 3 (Sheet 2 of 2) or FO 21 for MEP 83-360E model) for open condition. If no continuity between switch terminals, replace switch (WP 0054 00). After replacing switch or wires, and perform MOC.

119. IGNITION UNIT MALFUNCTION

SYMPTOM

MALFUNCTION
IGNITION UNIT MALFUNCTION

CORRECTIVE ACTION

If the ignition unit is suspected of malfunction, test the unit as follows (refer to FO 3 (Sheet 2 of 2) or FO 21 for MEP 83-360E model):

119. IGNITION UNIT MALFUNCTION – Continued

a. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector, Disconnect electrical connector from ignition unit and connect voltmeter to pin A (negative) and pin B (positive) of electrical connector.

WARNING

Do not exceed starter duty cycle.

b. Connect battery and set MASTER SWITCH to ON. Set ENGINE CONTROL switch to START and hold while observing GTE %RPM meters.

c. At approximately 10% reading on meter, voltmeter should indicate a reading between 16 and 28 VDC.

d. Set ENGINE CONTROL switch to STOP when GTE % RPM meter indicates approximately 20% speed. Set MASTER SWITCH to OFF and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.

e. If reading obtained in Step c. indicated no voltage present at 10% speed, check engine harness wires 19A20 (P2-F to P7-A) and 46A20N (P2-N to P7-B) (refer to FO 3 (Sheet 2 of 2) or FO 21 for MEP 83-360E model). Replace wires if open. If wiring is good, replace ECU (WP 0049 00).

f. If reading obtained in Step c. is correct, remove ignition unit, igniter plug lead, and igniter plug and bench test as follows:

WARNING

The output of the ignition unit is approximately 5000 volts. Do not touch igniter plug during test.

g. Apply battery voltage (28 VDC) to ignition unit. Connect positive voltage to P7-B, and negative (ground) P7-A.

h. Igniter plug spark rate should be approximately 360 sparks per minute.

i. If igniter plug spark rate is not correct, replace ignition unit.

120. FUEL CONTROL UNIT MALFUNCTION

SYMPTOM

MALFUNCTION
FUEL CONTROL UNIT MALFUNCTION

CORRECTIVE ACTION

If the fuel control unit is suspected malfunction, test unit as follows:

a. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Disconnect electrical connector (WP 0074 00, Figure 1, Item 4) from FCU.

b. Check resistance between pin 5 on FCU torque motor receptacle and case of torque motor using a multimeter set to lowest range. Multimeter should indicate zero ohms. If not, replace FCU (WP 0074 00).

120. FUEL CONTROL UNIT MALFUNCTION – Continued

c. Check resistance between pins 1 and 3 on FCU torque motor receptacle (refer to FO 3 (Sheet 2 of 2) or FO 21 for MEP 83-360E model. Resistance should be 30 to 37.5 ohms. If not, replace FCU (WP 0074 00).

d. Disconnect fuel line (WP 0075 00, Figure 1, Item 9) from fuel shutdown solenoid (WP 0075 00, Figure 1, Item 8). Install tee part number 969176-1 in shutdown solenoid and connect fuel line (WP 0075 00, Figure 1, Item 9) to tee. Connect a 0 to 600 psig pressure gauge to other fitting on tee.

e. Disconnect electrical connector P7 from ignition unit (WP 0090 00, Figure 1, Item 6), and connect multimeter (set to read +28 VDC) between pins A (-) and B (+) on ignition unit connector.

f. Disconnect fuel solenoid electrical connector P9 (WP 0075 00, Figure 1, Item 5).

CAUTION

Observe starter duty cycle.

g. Perform engine start procedure while observing multimeter and pressure gauge. At 10% rpm, multimeter should indicate 28 VDC and pressure gauge should indicate 10 psig minimum. At 20% rpm pressure gauge should indicate 22 psig minimum. Record readings obtained at 10% rpm and 20% rpm. When readings are obtained set ENGINE CONTROL switch to STOP and MASTER SWITCH OFF. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.

h. Replace FCU if requirements of Step g. were not met.

i. Reconnect electrical connector of FCU.

j. Perform engine start procedure and record reading on pressure gauge at 20% rpm. When reading is obtained set ENGINE CONTROL switch to STOP, and MASTER SWITCH OFF. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.

k. Reading obtained in Step j. at 20% rpm should be at least 10 psig higher than reading obtained in Step g. at 20% rpm. Replace FCU if reading obtained is less than 10 psig higher.

l. Reconnect electrical connectors to ignition unit and fuel solenoid. Lockwire connectors.

m. Start engine and note readings on pressure gauge. At no-load condition reading should be between 230 and 250 psig. At full load reading should be between 250 and 280 psig.

n. After engine shutdown, disconnect pressure gauge, remove tee, and reconnect fuel line removed in Step d.

121. FUEL SHUTDOWN SOLENOID MALFUNCTION

SYMPTOM

MALFUNCTION
FUEL SHUTDOWN SOLENOID MALFUNCTION

CORRECTIVE ACTION

If the fuel shutdown solenoid is suspected of malfunction, test the solenoid as follows:

a. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Disconnect electrical connector from fuel solenoid (FO 3 (Sheet 2 of 2)).

121. FUEL SHUTDOWN SOLENOID MALFUNCTION – Continued

b. Check resistance between pins A and B of fuel solenoid. Resistance should be 25 to 35 ohms. If not, replace solenoid (WP 0077 00).

c. If solenoid is good check wire G78A20 from P4-8 to P2-U. If wiring is good, replace ECU (WP 0049 00).

122. CONTROL PANEL WIRING HARNESS DIODE MALFUNCTION

SYMPTOM

MALFUNCTION
CONTROL PANEL WIRING HARNESS DIODE MALFUNCTIONS

CORRECTIVE ACTION

Diodes are installed in some wires in the control panel harness. If these diodes are suspected of malfunctioning, test the diodes as follows:

a. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and lower control panel.

b. Use an analog multimeter to check resistance between the points listed below. The meter should read less than 25 ohms when the meter is connected with positive lead on connector pin, and should read greater than 10K ohms when meter is connected with negative lead on connector pin. If not the diode or wire is defective.

Measure From	To	If reading not as specified, replace	Figure Reference
J5-6R	1DS11(+)	1CR9 or wire E21A20	FO 3 (Sheet 2 of 2)
J5-19L	1DS18(+)	1CR11 or wire P15B20	FO 5
J5-20R	1DS19(+)	1CR10 or wire P16B20	FO 5
J7-9L	1DS17(+)	1CR4 or wire X21B20	FO 6 (Sheet 2 of 2)
J7-10L	1DS16(+)	1CR3 or wire X22B20	FO 6 (Sheet 2 of 2)
J7-1R	1S5-2	1CR6 or wire P40A20	FO 1
J7-22L	1DS11(+)	1CR5 or wire X46B20	FO 6 (Sheet 2 of 2)
J7-12L	1DS14(+)	1CR1 or wire X24B20	FO 6 (Sheet 2 of 2)
J7-11L	1DS15(+)	1CR2 or wire X23B20	FO 6 (Sheet 2 of 2)

123. PRESSURE TRANSDUCER MALFUNCTION

SYMPTOM

MALFUNCTION
PRESSURE TRANSDUCER MALFUNCTION

CORRECTIVE ACTION

If the pressure transducer is suspected of malfunctioning, test the transducer as follows:

a. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.

b. Disconnect one wire from the transducer (WP 0083 00, Figure 2, Item 19).

123. PRESSURE TRANSDUCER MALFUNCTION – Continued

c. Check resistance between transducer terminals. Resistance should be approximately 73 ohms with no pneumatic output. If resistance is not approximately 73 ohms, replace transducer.

d. Connect battery and operate system with pneumatic output (TM 1-1730-229-13, Operator Instructions). Measure resistance between transducer terminals, then shut down system.

e. If resistance was not approximately 10 ohms with pneumatic output, replace transducer.

124. FILTER LIGHT STAYS ON AFTER FILTER ELEMENTS REPLACED

SYMPTOM

MALFUNCTION
FILTER LIGHT STAYS ON AFTER FILTER ELEMENTS REPLACED

CORRECTIVE ACTION

1. Set power switches OFF, shut down engine, and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Remove hydraulic module front panel assembly. Disconnect both leads from TB2-4 (refer to FO 9) and check continuity between TB3-1 and the loose ends of wire C117B16.
   a. If continuity, disassemble module and replace the high pressure filter (WP 0129 00, Figure 1, Item 27). Perform WP 0129 00, Steps 1. through 31. Reconnect wires to TB2-4.
   b. If no continuity, perform Step 2.
2. Check continuity between TB3-1 and the loose end of wire C117A16.
   a. If continuity, disassemble module and replace the low pressure filter (WP 0129 00, Figure 1, Item 22). Perform WP 0129 00, Steps 1. through 30. Reconnect wires to TB2-4.
   b. If no continuity, check for short between REPLACE FILTER light and ground. The wires and connecting points are:

C123N16N	C123J16N	TB1-4	J1-I
C123M16N	C123G16N	C123B16N	P14-I
C123L16N	TB1-2	TB4-2	C2A20N
C123K16N	C123C16N	C123A16N	GND

125. CANNOT APPLY HYDRAULIC PRESSURE TO AIRCRAFT

SYMPTOM

MALFUNCTION
CANNOT APPLY HYDRAULIC PRESSURE TO AIRCRAFT

CORRECTIVE ACTION

1. Check dual manifold BYPASS/FLUSH valve position. If valve is open, close valve. If problem is not corrected, continue with Step 2.
2. Remove hydraulic module front panel assembly. With system operating in hydraulic mode, check for +24 VDC between TB2-3 and TB2-10 (ground) (refer to FO 9). Shut unit down and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.

125. CANNOT APPLY HYDRAULIC PRESSURE TO AIRCRAFT – Continued

a. If +24 VDC was present, proceed to Step 3.

b. If no voltage was present, check OUTPUT switch (WP 0111 00) and wiring for open condition. The wires and connecting points are:

C119A16	S4
C127C16	TB1-10
C127B16	TB4-9
C127A16	J1-B
P14-B	E33C20
P8-J	J8-J
E33B20	

Replace switch or wiring as necessary and verify operation.

3. Disconnect wire C119B20 from TB2-3. Check for continuity between TB2-10 and the loose end of wire C119B20.

a. If continuity, perform Step 4. Reconnect wire.

b. If no continuity, disassemble module and replace solenoid valve (WP 0129 00, Figure 1, Item 66). Perform WP 0129 00, Steps 1. through 24.

4. Remove and clean dual manifold BYPASS/FLUSH valve (WP 0119 00). Clean the dual manifold hole where valve fits. Inspect valve for nicks, scratches, or broken packing.

a. If valve is defective, replace valve and packing, and verify operation.

b. If valve appears good, re-install valve using new packing, and verify operation. If malfunction still exists, shut down unit and perform Step 5.

5. Remove and disassemble module by performing WP 0129 00, Steps 1. through 24. Remove solenoid valve per WP 0126 00, Step 4.. Clean clogged orifice and screen (WP 0126 00, Figure 1, Item 15 and 22) between pilot valve and load valve. Replace pilot valve block (WP 0129 00, Figure 1, Item 66) per WP 0126 00, Step 4. .Pressure test manifold (WP 0132 00). Reassemble module and verify operation per WP 0130 00, starting with Step 11..

126. PUMP EMITS HIGH PITCH WHINE WITH LOSS OF PRESSURE AT HIGH PRESSURES

SYMPTOM

MALFUNCTION
PUMP EMITS HIGH PITCH WHINE WITH LOSS OF PRESSURE AT HIGH PRESSURES

CORRECTIVE ACTION

1. Shut down complete unit and check RETURN BLEED valve:

a. Remove RETURN BLEED valve (WP 0122 00, Remove Valves and Fittings) and clean, and also clean the manifold where RETURN BLEED valve fits.

b. Inspect valve cartridge for nicks, scratches, or broken packing. Replace valve if necessary.

c. Replace valve packing.

d. Re-install RETURN BLEED valve (WP 0122 00, Install Valves and Fittings). Verify operation.

2. Check HIGH PRESSURE BLEED valve:

126. PUMP EMITS HIGH PITCH WHINE WITH LOSS OF PRESSURE AT HIGH PRESSURES – Continued

a. Remove (WP 0122 00, Remove Valves and Fittings) and clean valve, and clean the manifold where HIGH PRESSURE BLEED valve fits.

b. Inspect valve cartridge for nicks, scratches or broken packing. Replace valve if necessary.

c. Replace valve packing.

d. Re-install HIGH PRESSURE BLEED valve (WP 0122 00, Install Valves and Fittings). Verify operation.

127. PRESSURE GAUGE INDICATION DOES NOT DROP WHILE BLEEDING AIR

SYMPTOM

MALFUNCTION
PRESSURE GAUGE INDICATION DOES NOT DROP WHILE BLEEDING AIR

CORRECTIVE ACTION

1. Shut down complete unit and check RETURN BLEED valve for clogged condition:
   a. Remove (WP 0122 00, Remove Valves and Fittings) and clean valve and clean the manifold where RETURN BLEED valve fits.
   b. Inspect valve cartridge for signs of blockage (i.e., lodged bits of packing). Replace valve cartridge if necessary.
   c. Replace valve packing.
   d. Re-install RETURN BLEED valve (WP 0122 00, Install Valves and Fittings) and verify operation.
2. Check HIGH PRESSURE BLEED valve for clogged condition:
   a. Remove (WP 0122 00, Remove Valves and Fittings) and clean valve and clean the manifold where HIGH PRESSURE BLEED valve fits.
   b. Inspect valve cartridge for signs of blockage (i.e., lodged bits of packing). Replace valve cartridge if necessary.
   c. Replace valve packing.
   d. Re-install HIGH PRESSURE BLEED valve (WP 0122 00, Install Valves and Fittings and verify operation.

128. HYDRAULIC FLUID RUNS OUT WHEN DRAIN CONNECTOR CAPS REMOVED

SYMPTOM

MALFUNCTION
HYDRAULIC FLUID RUNS OUT WHEN DRAIN CONNECTOR CAPS REMOVED

CORRECTIVE ACTION

1. If leakage occurs when RESERVOIR DRAIN connector is uncapped, check RESERVOIR DRAIN valve:
   a. Remove (WP 0122 00, Remove Valves and Fittings) and clean valve and clean the manifold where RESERVOIR DRAIN valve fits.
   b. Inspect valve cartridge for nicks, scratches or broken packing. Replace valve cartridge if necessary.
   c. Replace valve packing.

128. HYDRAULIC FLUID RUNS OUT WHEN DRAIN CONNECTOR CAPS REMOVED – Continued

d. Re-install RESERVOIR DRAIN valve (WP 0122 00, Install Valves and Fittings) and verify operation.

2. If leakage occurs when SYSTEM DRAIN connector is uncapped, check SYSTEM DRAIN valve:

a. Remove (WP 0122 00, Remove Valves and Fittings) and clean valve and clean the manifold where SYSTEM DRAIN valve fits.

b. Inspect valve cartridge for nicks, scratches or broken packing. Replace valve cartridge if necessary.

c. Replace valve packing.

d. Re-install SYSTEM DRAIN valve (WP 0122 00, Install Valves and Fittings) and verify operation.

129. RESERVOIR WON'T DRAIN

SYMPTOM

MALFUNCTION
RESERVOIR WON'T DRAIN

CORRECTIVE ACTION

Check RESERVOIR DRAIN valve for clogging:

a. Remove (WP 0122 00, Remove Valves and Fittings) and clean valve and clean the manifold where RESERVOIR DRAIN valve fits.

b. Inspect valve cartridge for signs of blockage (i.e., lodged bits of packing). Replace valve cartridge if necessary.

c. Replace valve packing.

d. Re-install RESERVOIR DRAIN valve (WP 0122 00, Install Valves and Fittings) and verify operation.

130. SYSTEM WON'T DRAIN

SYMPTOM

MALFUNCTION
SYSTEM WON'T DRAIN

CORRECTIVE ACTION

Check SYSTEM DRAIN valve for clogging:

a. Remove (WP 0122 00, Remove Valves and Fittings) and clean valve and clean the manifold where SYSTEM DRAIN valve fits.

b. Inspect valve cartridge for signs of blockage (i.e., lodged bits of packing). Replace valve cartridge if necessary.

c. Replace valve packing.

d. Re-install SYSTEM DRAIN valve (WP 0122 00, Install Valves and Fittings) and verify operation.

131. LOSS OF PRESSURE BEFORE AND AFTER OUTPUT SWITCH SET TO ON. PRESSURE (INCREASE/DECREASE) SWITCH NOT EFFECTIVE

SYMPTOM

MALFUNCTION

131. LOSS OF PRESSURE BEFORE AND AFTER OUTPUT SWITCH SET TO ON. PRESSURE (INCREASE/DECREASE) SWITCH NOT EFFECTIVE – Continued

LOSS OF PRESSURE BEFORE AND AFTER OUTPUT SWITCH SET TO ON. PRESSURE (INCREASE/DECREASE) SWITCH NOT EFFECTIVE

CORRECTIVE ACTION

1. Shut down complete unit and check PRESSURE RELIEF valve adjustment:
    a. Check jam nut and cartridge. If jam nut is loose, cartridge can back out leaving PRESSURE RELIEF valve completely open.
    b. Adjust valve and tighten jam nut as necessary.
2. Check PRESSURE RELIEF valve condition:
    a. Remove (WP 0122 00, Remove Valves and Fittings) and clean valve and clean the manifold where PRESSURE RELIEF valve fits.
    b. Inspect valve cartridge for nicks, scratches, or broken packing. Replace valve cartridge if necessary.
    c. Replace valve packing.
    d. Re-install PRESSURE RELIEF valve (WP 0122 00, Install Valves and Fittings) and verify operation.

132. LOSS OF PRESSURE BEFORE AND AFTER OUTPUT SWITCH SET TO ON. PRESSURE SWITCH MAY BE PARTIALLY EFFECTIVE OR INEFFECTIVE

SYMPTOM

MALFUNCTION
LOSS OF PRESSURE BEFORE AND AFTER OUTPUT SWITCH SET TO ON. PRESSURE SWITCH MAY BE PARTIALLY EFFECTIVE OR INEFFECTIVE

CORRECTIVE ACTION

Problem could be in piston mechanism or swash plate of pump. Swash plate problems affect response to commands from PRESSURE (INCREASE/DECREASE) switch.

Replace hydraulic pump (WP 0117 00).

133. MAXIMUM PRESSURE AT HYDRAULIC MODULE OUTPUT AT ALL TIMES

SYMPTOM

MALFUNCTION
MAXIMUM PRESSURE AT HYDRAULIC MODULE OUTPUT AT ALL TIMES

CORRECTIVE ACTION

Shut down complete unit and check PRESSURE RELIEF valve for contamination, blockage or valve malfunction:

a. Remove (WP 0122 00, Remove Valves and Fittings) and clean valve and clean the manifold hole where the PRESSURE RELIEF valve fits.
b. Inspect valve cartridge for signs of blockage (i.e., lodged bits of packing). Replace valve cartridge if necessary.
c. Replace valve packing.
d. Re-install PRESSURE RELIEF valve (WP 0122 00, Install Valves and Fittings) and verify operation.

134. OUTPUT PRESSURE GAUGE ALWAYS INDICATES ZERO

SYMPTOM

MALFUNCTION
OUTPUT PRESSURE GAUGE ALWAYS INDICATES ZERO

CORRECTIVE ACTION

Shut down complete unit and check GAUGE SHUTOFF valve:

a. Remove (WP 0122 00, Remove Valves and Fittings) and clean valve and clean manifold hole where GAUGE SHUTOFF valve fits.

b. Inspect valve cartridge for signs of blockage (i.e., lodged bits of packing). Replace valve cartridge if necessary.

c. Replace valve packing.

d. Re-install GAUGE SHUTOFF valve (WP 0122 00, Install Valves and Fittings) and verify operation.

135. HYDRAULIC SYSTEM PRESSURE CANNOT BE RELEASED AT END OF HYDRAULIC SERVICING OPERATION

SYMPTOM

MALFUNCTION
HYDRAULIC SYSTEM PRESSURE CANNOT BE RELEASED
AT END OF HYDRAULIC SERVICING OPERATION

CORRECTIVE ACTION

Check HIGH PRESSURE BYPASS valve for blockage:

a. Remove (WP 0122 00, Remove Valves and Fittings) and clean valve and hole where HIGH PRESSURE BYPASS valve fits.

b. Inspect valve cartridge for signs of blockage (i.e., lodged bits of packing). Replace valve cartridge if necessary.

c. Replace valve packing.

d. Re-install HIGH PRESSURE BYPASS valve (WP 0122 00, Install Valves and Fittings) and verify operation.

136. AIRCRAFT INDICATOR SHOWS THAT NO BACK PRESSURE IS APPLIED WHEN RETURN BYPASS SELECTOR SET TO OFF

SYMPTOM

MALFUNCTION
AIRCRAFT INDICATOR SHOWS THAT NO BACK PRESSURE IS
APPLIED WHEN RETURN BYPASS SELECTOR SET TO OFF

CORRECTIVE ACTION

1. Shut down complete unit and check RETURN BYPASS selector:

   a. Remove (WP 0122 00, Remove Valves and Fittings) and clean selector and clean manifold hole where RETURN BYPASS selector fits.

   b. Inspect selector cartridge for signs of nicks, scratches or broken packing. Replace selector cartridge if necessary.

   c. Replace selector packing.

136. AIRCRAFT INDICATOR SHOWS THAT NO BACK PRESSURE IS APPLIED WHEN RETURN BYPASS SELECTOR SET TO OFF – Continued

d. Re-install RETURN BYPASS selector (WP 0122 00, Install Valves and Fittings) and verify operation.

2. Check RETURN BYPASS relief valve:

a. Disassemble module according to the procedure of WP 0129 00, Steps 1. through 24.

b. Remove RETURN BYPASS relief valve (WP 0126 00, Figure 1, Item 1) from top of main control manifold (WP 0129 00, Figure 1, Item 15).

c. Clean manifold hole.

d. Install new RETURN BYPASS relief valve (with new packing) in manifold.

e. Pressure test manifold (WP 0132 00).

f. Reassemble module according to WP 0130 00 starting with Step 11.

137. AIRCRAFT RESERVOIRS OVERFLOW (ON AIRCRAFT SERVICED WITH RETURN BYPASS VALVE SET TO BYPASS)

SYMPTOM

MALFUNCTION
AIRCRAFT RESERVOIRS OVERFLOW (ON AIRCRAFT SERVICED WITH RETURN BYPASS VALVE SET TO BYPASS)

CORRECTIVE ACTION

Shut down unit and check RETURN BYPASS selector for clogged condition:

a. Remove (WP 0122 00, Remove Valves and Fittings) and clean selector and clean manifold hole where RETURN BYPASS selector fits.

b. Inspect selector cartridge for signs of blockage (i.e., lodged bits of packing). Replace selector cartridge if necessary.

c. Replace selector packing.

d. Re-install RETURN BYPASS selector (WP 0122 00, Install Valves and Fittings) and verify operation.

138. PUMP EMITS HIGH PITCH WHINE ONLY WHEN SERVICING AIRCRAFT REQUIRING BACK PRESSURE AND WHEN THE RETURN BYPASS SELECTOR IS SET TO OFF

SYMPTOM

MALFUNCTION
PUMP EMITS HIGH PITCH WHINE ONLY WHEN SERVICING AIRCRAFT REQUIRING BACK PRESSURE AND WHEN THE RETURN BYPASS SELECTOR IS SET TO OFF

CORRECTIVE ACTION

Shut down complete unit and check RETURN BYPASS relief valve for stuck condition:

a. Disassemble module according to the procedure of WP 0129 00, Steps 1. through 24. to gain access to main control manifold (WP 0129 00, Figure 1, Item 15) attachments.

b. Remove RETURN BYPASS relief valve (WP 0126 00, Figure 1, Item 1) from top of main control manifold.

c. Clean manifold hole.

d. Install new RETURN BYPASS relief valve (with new packing) in manifold.

138. PUMP EMITS HIGH PITCH WHINE ONLY WHEN SERVICING AIRCRAFT REQUIRING BACK PRESSURE AND WHEN THE RETURN BYPASS SELECTOR IS SET TO OFF – Continued

e. Pressure test manifold (WP 0132 00).

f. Reassemble module according to WP 0130 00 starting with Step 11.

139. HYDRAULIC FLUID PRESENT IN VENT DRYER (RED FLUID IN DESICCANT AND BELOW VENT DRYER)

SYMPTOM

MALFUNCTION
HYDRAULIC FLUID PRESENT IN VENT DRYER (RED FLUID IN DESICCANT AND BELOW VENT DRYER)

CORRECTIVE ACTION

Shut down complete unit. Remove and replace 0.5 psi check valve (WP 0125 00).

140. WATER ACCUMULATION AT BOTTOM OF RESERVOIR (SHOWS AT BOTTOM OF RESERVOIR LEVEL GAUGE)

SYMPTOM

MALFUNCTION
WATER ACCUMULATION AT BOTTOM OF RESERVOIR (SHOWS AT BOTTOM OF RESERVOIR LEVEL GAUGE)

CORRECTIVE ACTION

1. Check whether 0.5 psi check valve is stuck closed by removing and replacing valve (WP 0125 00).
2. Check whether 2 psi relief valve is stuck open by removing and replacing valve (WP 0125 00).

141. AGPU RESERVOIR CANNOT OVERFLOW WHEN IT SHOULD

SYMPTOM

MALFUNCTION
AGPU RESERVOIR CANNOT OVERFLOW WHEN IT SHOULD

CORRECTIVE ACTION

Shut down complete unit. Remove and replace 2 psi relief valve according to the procedures of WP 0125 00.

142. AGPU RESERVOIR OVERFLOWS WHEN OPERATING IN THE AIRCRAFT MODE (RESERVOIR SELECTOR SET TO AIRCRAFT)

SYMPTOM

MALFUNCTION
AGPU RESERVOIR OVERFLOWS WHEN OPERATING IN THE AIRCRAFT MODE (RESERVOIR SELECTOR SET TO AIRCRAFT)

CORRECTIVE ACTION

Shut down complete unit and replace 100 psi check valve (WP 0129 00, Figure 2, Item 53):

a. Disassemble module according to procedure of WP 0129 00, Steps 1. through 35..

b. Remove 100 psi check valve, copper seal, and packing.

c. Install new 100 psi check valve, copper seal and packing.

d. Re-assemble module according to the procedures of WP 0130 00 starting with Step 26..

143. SYSTEM READY LIGHT STAYS OFF, FLUID TEMPERATURE OVER 70 °F

SYMPTOM

MALFUNCTION
SYSTEM READY LIGHT STAYS OFF, FLUID TEMPERATURE OVER 70 °F

CORRECTIVE ACTION

1. Ensure that SYSTEM READY lamp is good as shown by lamp test.
2. Shut down complete unit and replace temperature sensor TS1:
    a. Disassemble module to gain access to the temperature sensor part (WP 0129 00, Figure 1, Item 78) of the return manifold. Use procedure of WP 0129 00, Steps 1. through 35..
    b. Remove temperature sensor TS1 (WP 0127 00, Figure 2, Item 12) along with its associated packing.
    c. Ensure that TS1 hole in manifold is clean.
    d. Install new temperature sensor TS1 with new packing.
    e. Pressure test manifold (WP 0131 00).
    f. Reassemble module according to the procedure of WP 0130 00 starting with Step 2..

144. SYSTEM READY LIGHT ON, FLUID TEMPERATURE BELOW 70 °F

SYMPTOM

MALFUNCTION
SYSTEM READY LIGHT ON, FLUID TEMPERATURE BELOW 70 °F

CORRECTIVE ACTION

Shut down complete unit and replace temperature sensor TS1:

a. Disassemble module to gain access to the temperature sensor part (WP 0129 00, Figure 1, Item 78) of the return manifold. Use procedure of WP 0129 00, Steps 1. through 35..
b. Remove temperature sensor TS1 (WP 0127 00, Figure 2, Item 12) along with its associated packing.
c. Ensure that TS1 hole in manifold is clean.
d. Install new temperature sensor TS1 with new packing.
e. Pressure test manifold (WP 0131 00).
f. Reassemble module according to the procedures of WP 0130 00 starting with Step 2..

145. 160 °F LIGHT STAYS OFF, FLUID TEMPERATURE OVER 160 °F

SYMPTOM

MALFUNCTION
160 °F LIGHT STAYS OFF, FLUID TEMPERATURE OVER 160 °F

CORRECTIVE ACTION

1. Ensure that 160 °F lamp is good as shown by lamp test.
2. Shut down complete unit and replace temperature sensor TS2:

145. 160 °F LIGHT STAYS OFF, FLUID TEMPERATURE OVER 160 °F – Continued

a. Disassemble module to gain access to the temperature sensor part (WP 0129 00, Figure 1, Item 78) of the return manifold. Use procedure of WP 0129 00, Steps 1. through 35..

b. Remove temperature sensor TS2 (WP 0127 00, Figure 2, Item 11) along with its associated packing.

c. Ensure that TS2 hole in manifold is clean.

d. Install new temperature sensor TS2 with new packing.

e. Pressure test manifold (WP 0131 00).

f. Reassemble module according to the procedure of WP 0130 00 starting with Step 2..

146. 160 °F LIGHT ON, FLUID TEMPERATURE BELOW 160 °F

SYMPTOM

MALFUNCTION
160 °F LIGHT ON, FLUID TEMPERATURE BELOW 160 °F

CORRECTIVE ACTION

Shut down complete unit and replace temperature sensor TS2:

a. Disassemble module to gain access to the temperature sensor part (WP 0129 00, Figure 1, Item 78) of the return manifold. Use procedure of WP 0129 00, Steps 1. through 35..

b. Remove temperature sensor TS2 (WP 0127 00, Figure 2, Item 11) along with its associated packing.

c. Ensure that TS2 hole in manifold is clean.

d. Install new temperature sensor TS2 with new packing.

e. Pressure test manifold (WP 0131 00).

f. Reassemble module according to the procedure of WP 0130 00 starting with Step 2..

147. 240 °F LIGHT STAYS OFF, FLUID TEMPERATURE OVER 240 °F

SYMPTOM

MALFUNCTION
240 °F LIGHT STAYS OFF, FLUID TEMPERATURE OVER 240 °F

CORRECTIVE ACTION

1. Ensure that 240 °F lamp is good as shown by lamp test.
2. Shut down complete unit and replace temperature sensor TS3:
   a. Disassemble module to gain access to the temperature sensor part (WP 0129 00, Figure 1, Item 78) of the return manifold. Use procedure of WP 0129 00, Steps 1. through 35..
   b. Remove temperature sensor TS3 (WP 0127 00, Figure 2, Item 10) along with its associated packing.
   c. Ensure that TS3 hole in manifold is clean.
   d. Install new temperature sensor TS3 with new packing.
   e. Pressure test manifold (WP 0131 00).
   f. Reassemble module according to the procedure of WP 0130 00 starting with Step 2..

148. 240 °F LIGHT ON, FLUID TEMPERATURE BELOW 240 °F

SYMPTOM

MALFUNCTION
240 °F LIGHT ON, FLUID TEMPERATURE BELOW 240 °F

CORRECTIVE ACTION

Shut down complete unit and replace temperature sensor TS3:

a. Disassemble module to gain access to temperature sensor part (WP 0129 00, Figure 1, Item 78) of the return manifold. Use procedure of WP 0129 00, Steps 1. through 35..
b. Remove temperature sensor TS3 (WP 0127 00, Figure 2, Item 10) along with its associated packing.
c. Ensure that TS3 hole in manifold is clean.
d. Install new temperature sensor TS3 with new packing.
e. Pressure test module (WP 0131 00).
f. Reassemble module according to the procedure of WP 0130 00 starting with Step 2..

149. HI TEMP LIGHT STAYS OFF, FLUID TEMPERATURE OVER 275 °F

SYMPTOM

MALFUNCTION
HI TEMP LIGHT STAYS OFF, FLUID TEMPERATURE OVER 275 °F

CORRECTIVE ACTION

1. Ensure that HI TEMP lamp is good as shown by lamp test.
2. Shut down complete unit and replace temperature sensor TS4:
   a. Disassemble module to gain access to the temperature sensor part (WP 0129 00, Figure 1, Item 78) of the return manifold. Use procedure of WP 0129 00, Steps 1. through 35..
   b. Remove temperature sensor TS4 (WP 0127 00, Figure 2, Item 9) along with its associated packing.
   c. Ensure that TS4 hole in manifold is clean.
   d. Install new temperature sensor TS4 with new packing.
   e. Pressure test manifold (WP 0131 00).
   f. Reassemble module according to WP 0130 00 starting with Step 2..

150. HI TEMP LIGHT ON, FLUID TEMPERATURE BELOW 275 °F, HYDRAULIC MODULE OUTPUT CANNOT BE TURNED ON

SYMPTOM

MALFUNCTION
HI TEMP LIGHT ON, FLUID TEMPERATURE BELOW 275 °F, HYDRAULIC MODULE OUTPUT CANNOT BE TURNED ON

CORRECTIVE ACTION

Shut down complete unit and replace temperature sensor TS4:

a. Disassemble module to gain access to temperature sensor part (WP 0129 00, Figure 1, Item 78) of return manifold. Use procedure of WP 0129 00, Steps 1. through 35..

150. HI TEMP LIGHT ON, FLUID TEMPERATURE BELOW 275 °F, HYDRAULIC MODULE OUTPUT CANNOT BE TURNED ON – Continued

b. Remove temperature sensor TS4 (WP 0127 00, Figure 2, Item 9) along with its associated packing.

c. Ensure that TS4 hole in manifold is clean.

d. Install new temperature sensor TS4 with new packing.

e. Pressure test manifold (WP 0131 00).

f. Reassemble module according to procedure of WP 0130 00 starting with Step 2..

151. FLUID TEMPERATURE HIGH

SYMPTOM

MALFUNCTION
FLUID TEMPERATURE HIGH

CORRECTIVE ACTION

1. Shut down complete unit. Ensure that exterior of cooler (heat exchanger) is free of contamination:

   a. Disassemble module to gain access to exterior of cooler (WP 0129 00, Figure 2, Item 7). Use procedure of WP 0129 00, Step 1.; WP 0129 00, Step 2.; WP 0129 00, Step 3.; and WP 0129 00, Step 7.

   b. Inspect cooler exterior. If contamination exists proceed to Step 1.c. If contamination is not present, proceed to Step 2.

CAUTION

Fins of cooler are fragile and easily bent. Use care when cleaning to prevent damage.

   c. Clean contamination from cooler.

   d. Reassemble module according to the procedure of WP 0130 00, Steps 47. through 50..

2. Eliminate problem (which is caused by either internal contamination in cooler or having coolers internal check valve stuck in open position) by replacing cooler (WP 0129 00, Figure 2, Item 7):

   a. Disassemble module to gain access to cooler. Use procedures of WP 0129 00, Steps 1. through 8..

   b. Remove cooler and copper seals (WP 0129 00, Step 14.).

   c. Install new cooler with new copper seals (WP 0130 00, Step 24.).

   d. Reassemble module using the procedure of WP 0130 00 starting with Step 25..

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

TROUBLESHOOTING PROCEDURES: PNEUMATIC ELECTRICAL

INITIAL SETUP:

References
WP 0023 00
WP 0032 00
WP 0049 00
WP 0054 00
WP 0058 00
WP 0074 00

References (cont.)
WP 0083 00
WP 0088 00
WP 0111 00
WP 0135 00
WP 0137 00

TROUBLESHOOTING PROCEDURE

152. PNEUMATIC POWER ON INDICATOR NOT LIT (MASTER SWITCH AND PNEUMATIC POWER SWITCH ON)

SYMPTOM

MALFUNCTION
PNEUMATIC POWER ON INDICATOR NOT LIT (MASTER SWITCH AND PNEUMATIC POWER SWITCH ON)

CORRECTIVE ACTION

1. Test PNEUMATIC POWER switch 1S8 (refer to troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS and FO 7 or FO 26 for MEP 83-360E model).

Check switch (refer to troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS).

a. Replace switch if defective (WP 0054 00), and perform MOC.

b. If switch tests good, inspect engine air cleaner (WP 0023 00).

Check Continuity		If no continuity,
From	To	replace wire no.
J6-D	1DS13 (-)	H4B20N
P6-D	GND TB	H4A20N
1S8-3	1DS13 (+)	H7A20

153. PSIG PNEUMATIC METER INDICATES PRESSURE (PNEUMATIC POWER SWITCH OFF)

SYMPTOM

MALFUNCTION
PSIG PNEUMATIC METER INDICATES PRESSURE (PNEUMATIC POWER SWITCH OFF)

CORRECTIVE ACTION

1. Remove engine access cover. Check visual position indicator on side of load control valve (WP 0083 00, Figure 1, Item 5).
    a. If valve is fully closed, proceed to Step 5.
    b. If valve is not fully closed, continue with Step 2.
2. Shut down engine and set MASTER SWITCH OFF.
    a. If load control valve is now not fully closed, replace valve (WP 0083 00), and perform MOC.
3. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and lower control panel (WP 0032 00). Disconnect main harness connector P4 from ECU. Check for open circuit from P4-T to P4-Z (FO 7 or FO 26 for MEP 83-360E model).
    a. If circuit is open, reconnect harness connector P4 to ECU and install control panel. If load control valve is still full open when engine is started, replace ECU (WP 0049 00), and perform MOC.
    b. If circuit is not open, continue with next step.
4. Test PNEUMATIC POWER switch 1S8 in OFF position (refer to troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS).
    a. Replace switch if defective (WP 0135 00).
    b. If switch tests good, check all wires and switches between pins T and Z of harness connector P4 for shorted condition (refer to FO 7 or MEP 83-360E FO 26). Replace or repair any shorted wire or switch.
    c. If switch and wiring is good, replace PSIG PNEUMATIC meter 1M7 (WP 0137 00).
    d. Perform MOC.
5. Test PNEUMATIC POWER switch 1S8 in OFF position (refer to troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS).
    a. Replace switch if defective (WP 0135 00).
    b. If switch is good, replace PSIG PNEUMATIC meter 1M7 (WP 0137 00).
    c. Perform MOC.

154. PSIG PNEUMATIC METER READS 0 OR LOW (PNEUMATIC POWER SWITCH ON, ENGINE UP TO SPEED, AND EGT LESS THAN 1200 °F)

SYMPTOM

MALFUNCTION
PSIG PNEUMATIC METER READS 0 OR LOW (PNEUMATIC POWER SWITCH ON, ENGINE UP TO SPEED, AND EGT LESS THAN 1200 °F)

CORRECTIVE ACTION

1. Check visual position indicator on side of load control valve (WP 0083 00, Figure 1, Item 5).
    a. If valve is fully open, proceed to Step 7.
    b. If valve is not fully open, continue with Step 2.

154. PSIG PNEUMATIC METER READS 0 OR LOW (PNEUMATIC POWER SWITCH ON, ENGINE UP TO SPEED, AND EGT LESS THAN 1200 °F) – Continued

2. Shut down engine. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and lower control panel (WP 0032 00). Disconnect main harness connector P4 from ECU. Set PNEUMATIC POWER switch to on, and check for continuity between pins T and Z of harness connector P4 (refer to FO 7 or FO 26 for MEP 83-360E model).
    a. If continuity, reconnect harness connector P4 to ECU and proceed to Step 5.
    b. If no continuity, continue with Step 3.
3. Test EMERG STOP switch S2 (refer to troubleshooting procedure 91. EMERGENCY STOP SWITCH MALFUNCTION).
    a. Replace switch or associated wiring if defective (WP 0053 00), and perform MOC.
    b. If switch and wiring are good, proceed to Step 4.
4. Test PNEUMATIC POWER switch 1S8 (refer to troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS).
    a. Replace switch if defective (WP 0135 00).
    b. If switch tests good, remove battery charger access cover. Disconnect main harness connectors P5 and P6 from control panel connectors J5 and J6, and disconnect harness connector P4 from ECU. Check for continuity between the following points (refer to FO 7 or FO 26 for MEP 83-360E model). Replace any defective wire.

Check Continuity		If no continuity,
From	To	replace wire no.
J5-11L	1S8-8	E29A20
J6-T	1S8-9	E30A20
P6-T	P4-Z	E30B20

    c. Perform MOC.
5. Disconnect engine harness connector P5 from load control valve (WP 0083 00, Figure 1, Item 2). Operate system in pneumatic mode. Measure +28 VDC between pins C (positive meter lead) and A of harness connector P5 (refer to FO 7 or FO 26 for MEP 83-360E model). Shut down engine and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
    a. If voltage is present, replace load control valve (WP 0083 00), and perform MOC.
    b. If voltage is not present, proceed to Step 6.
6. Check engine harness wires M1A20 (P2-T to P5-C) and M2820N (P2-X to P5-A).
    a. Replace or repair any defective wires.
    b. If wiring is good, replace ECU (WP 0049 00).
    c. Perform MOC.
7. Observe pneumatic output hose.
    a. If hose is inflated, proceed to Step 11.
    b. If hose is not inflated, continue with Step 8.
8. Shut down engine. Inspect pneumatic hose for any damage or loose connections that could cause leakage.
    a. Replace or repair hose, and tighten hose clamps as required.

154. PSIG PNEUMATIC METER READS 0 OR LOW (PNEUMATIC POWER SWITCH ON, ENGINE UP TO SPEED, AND EGT LESS THAN 1200 °F) – Continued

b. If no hose leaks were evident, continue with Step 9.

9. Test PNEUMATIC POWER switch 1S8 (refer to troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS).
   a. Replace switch if defective (WP 0135 00), and perform MOC.
   b. If switch tests good, proceed to Step 10.
10. Remove battery charger access cover. Disconnect main harness connector P6 from control panel connector J6. Check for continuity between the following points (refer to FO 7 or FO 26 for MEP 83-360E model):

Check Continuity		If no continuity,
From	To	replace wire no.
J6-E	1S8-11	H6A20
P6-E	Pressure relief valve L1 NO	H6B20
GND TB	Pressure relief valve L1 GND	H9A20N

Refer to WP 0058 00, Figure 1, Item 2 for GND TB location and WP 0083 00, Figure 2, Item 23 for pressure relief valve (solenoid) L1 location.

   a. If no continuity, replace indicated wire.
   b. If all continuity checks are good, replace pressure relief valve L1 (WP 0084 00).
   c. Perform MOC.
11. Test pressure transducer MT2 (refer to troubleshooting procedure 123. PRESSURE TRANS DUCER MALFUNCTION).
   a. Replace pressure transducer if defective (WP 0088 00), and perform MOC.
   b. If pressure transducer tests good, continue with Step 12.
12. Shut down engine and Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. Lower control panel. Disconnect wire from TB1-13 ANODE (WP 0058 00, Figure 2). Measure resistance between disconnected wire and TB1-13 (CATHODE).
   a. If resistance is between 20 and 30 ohms, reconnect wire and proceed to Step 13.
   b. If resistance is not between 20 and 30 ohms, replace resistor R6 (WP 0058 00), and perform MOC.
13. Test PNEUMATIC POWER switch 1S8 (refer to troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS).
   a. Replace switch if defective (WP 0135 00), and perform MOC.
   b. If switch tests good, proceed to Step 14.
14. Remove battery charger access cover. Disconnect main harness connector P6 from control panel connector J6. Check for continuity between the following points (refer to FO 7 or FO 26 for MEP 83-360E model):

154. PSIG PNEUMATIC METER READS 0 OR LOW (PNEUMATIC POWER SWITCH ON, ENGINE UP TO SPEED, AND EGT LESS THAN 1200 °F) – Continued

– Continued

Check Continuity		If no continuity,
From	To	replace wire no.
S8-2	S8-11	H1D20
S8-12	J6-A	H1A20
P6-A	TB1-13 (ANODE)	H1C20
P6-B	TB1-13 (CATHODE)	H2B20
J6-B	1M7(+)	H2A20
J6-C	1M7(-)	H3A20
P6-C	Pressure transducer MT2(+)	H3B20
GND TB	Pressure transducer MT2(-)	H10A20N

Refer to (WP 0058 00, Figure 1, Item 2) for GND TB location, and (WP 0083 00, Figure 2, Item 19) for pressure transducer MT2 location.

a. If no continuity, replace indicated wire or notify maintenance supervisor.

b. If all continuity checks are good, replace PSIG PNEUMATIC meter 1M7 (WP 0137 00).

155. PSIG PNEUMATIC METER READS LOW (PNEUMATIC POWER SWITCH ON, ENGINE UP TO SPEED, AND EGT MORE THAN 1200 °F)

SYMPTOM

MALFUNCTION
PSIG PNEUMATIC METER READS LOW (PNEUMATIC POWER SWITCH ON, ENGINE UP TO SPEED, AND EGT MORE THAN 1200 °F).

CORRECTIVE ACTION

Shut down unit. Inspect pneumatic system for any damage or loose connections that could cause leakage.

a. Correct any condition that could cause leakage.

b. If no leakage is found, engine hot section fault is indicated. Notify maintenance supervisor.

156. PSIG PNEUMATIC METER READS HIGH

SYMPTOM

MALFUNCTION
PSIG PNEUMATIC METER READS HIGH

CORRECTIVE ACTION

Test pressure transducer (refer to troubleshooting procedure 123. PRESSURE TRANSDUCER MALFUNCTION).

a. Replace pressure transducer if defective (WP 0088 00).

b. If pressure transducer tests good, replace zener diode TB1-CR1 (WP 0058 00).

c. Perform MOC.

157. ENGINE SPEED DROPS WHEN PNEUMATIC POWER IS TURNED ON

SYMPTOM

MALFUNCTION
ENGINE SPEED DROPS WHEN PNEUMATIC POWER IS TURNED ON

CORRECTIVE ACTION

1. Check GTE LOW FUEL PRESS indicator.
   a. If indicator is illuminated (with engine running), proceed to Step 2. of 10. ENGINE HANGS DURING START - EGT LESS THAN NORMAL.
   b. If indicator is extinguished (with engine running), continue with Step 2.
2. Test fuel control unit (refer to troubleshooting procedure 120. FUEL CONTROL UNIT MAL FUNCTION).
   a. Replace fuel control unit if defective (WP 0074 00), and perform MOC.
   b. If fuel control unit is okay, an engine hot section fault is indicated. Notify maintenance supervisor.

158. HYDRAULIC OUTPUT PRESSURE GAUGE PROVIDES NO OR FAULTY INDICATION DURING OTHERWISE NORMAL OPERATION

SYMPTOM

MALFUNCTION
HYDRAULIC OUTPUT PRESSURE GAUGE PROVIDES NO OR FAULTY INDICATION DURING OTHERWISE NORMAL OPERATION

CORRECTIVE ACTION

Check that GAUGE SHUTOFF valve is open 1/4-turn.

a. Open GAGE SHUTOFF valve. If malfunction still exists, check that pump is connected and check wiring.
b. If malfunction still exists, troubleshooting of gauge, shutoff valve and associated tubing is required. Notify maintenance supervisor.

159. PROPER RESPONSE NOT OBSERVED WHEN ANY HYDRAULIC MODULE SWITCH IS ACTIVATED

SYMPTOM

MALFUNCTION
PROPER RESPONSE NOT OBSERVED WHEN ANY HYDRAULIC MODULE SWITCH IS ACTIVATED

CORRECTIVE ACTION

1. Test the switch in question (refer to troubleshooting procedure 106. HYDRAULIC CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS).
   a. Replace any defective switch (WP 0111 00) and perform MOC.
   b. If switches test good, proceed to Step 1.b.
2. Refer to FO 9 or FO 28 for MEP 83-360E model, and check wiring.

   Repair or replace any defective wiring, and perform MOC.

END OF WORK PACKAGE

CHAPTER 3

DIRECT SUPPORT

MAINTENANCE INSTRUCTIONS

FOR

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,

HYDRAULIC, PNEUMATIC (AGPU)

WHEEL MOUNTED, SELF-PROPELLED, TOWABLE

AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V

DC - 28 VOLT

PNEUMATIC - 60 LBS/MIN. AT 40 PSIG

HYDRAULIC - 15.2 GPM AT 3300 PSIG

LIN: P44627

(PART NO. 83-360A) (NSN: 1730-01-144-1897)

(MEP 83-360A)

(PART NO. 83-360D) (NSN: 1730-01-466-9371)

(MEP 83-360D)

(PART NO. 1024250) (NSN: 1730-01-552-2313)

(MEP 83-360E)

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

SERVICE UPON RECEIPT OF EQUIPMENT

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Grease, Molybdenum Disulfide (WP 0170 00, Item 25)

Personnel Required

CMF 15

References

TM1-1500-204-23-1
WP 0015 00
WP 0016 00
WP 0021 00
WP 0034 00
WP 0036 00
WP 0074 00
WP 0077 00
WP 0110 00
WP 0113 00
WP 0082 00

PRELIMINARY CHECKS AND ADJUSTMENTS

1. Unpackage as required.
2. Inspect AGPU by performing applicable weekly (W) and monthly (M) inspection procedures in PMCS, WP 0016 00.
3. Prepare battery for service (WP 0034 00 and WP 0036 00).
4. Check that equipment log book is in manual storage compartment next to control panel.
5. Drain lubricating oil from engine/gearcase (WP 0034 00) if no record of sampled within 180 days of operation, then refill .
6. Grease generator bearing (WP 0015 00, Lubrication).
7. Perform all lubrication checks and services for chassis and running gear (front and rear axle assemblies) (WP 0015 00, Lubrication).

CAUTION

Running engine with an inadequate supply of hydraulic fluid in hydraulic system may damage hydraulic pump.

8. Service hydraulic module (WP 0110 00). If hydraulic reservoir contains fluid that has no record of sampling within 30 days, drain and replenish with new fluid and filter (WP 0015 00, Lubrication).

PRELIMINARY CHECKS AND ADJUSTMENTS – CONTINUED

9. Check desiccant in hydraulic module vent dryer. Desiccant should be blue, if less than 25 percent blue, service vent dryer (WP 0113 00).
10. Position AGPU so that fuel tank drain valve is at lowest position relative to tank. Use a container and open drain valve to drain any water and/or fuel from tank. Close drain valve (WP 0082 00, Figure 1, Item 15).
11. Add fuel to fuel tank.

WARNING

Failure to properly secure positive starter cable will result in electrical shock and arcing. Arcing may cause fuel to ignite in the following procedure.

12. Purge fuel line to engine fuel control unit and shutdown solenoid as follows:
    a. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
    b. Disconnect positive cable from starter and secure cable so accidental contact with frame or engine (ground) cannot occur.
    c. Reconnect battery.
    d. Disconnect flexible inlet fuel hose (WP 0074 00, Figure 1, Item 3) from fuel control unit. Direct fuel line into a suitable container.
    e. Set control panel MASTER SWITCH to ON.
    f. Momentarily set ENGINE CONTROL switch to START and then release to RUN.

NOTE

The auxiliary fuel pump on the lower right side of the AGPU will operate and pump fuel.

    g. Allow approximately 1/2 cup of fuel to be pumped into suitable container.
    h. Set ENGINE CONTROL switch and MASTER SWITCH to OFF.
    i. Reconnect flexible fuel line to fuel control unit.
    j. Disconnect stainless steel fuel line from input side of shutdown solenoid (WP 0077 00, Figure 1, Item 8). Direct fuel line into a suitable container.
    k. Set MASTER SWITCH to ON. Momentarily set ENGINE CONTROL switch to ON.
    l. Allow approximately 1/2 cup of fuel to be pumped into suitable container.
    m. Set ENGINE CONTROL switch and MASTER SWITCH to OFF.
    n. Reconnect fuel line to shutdown solenoid.
    o. Disconnect battery. (MEP 83-360E only) Disconnect J-1 and P-1 connector.
    p. Reconnect positive cable to starter.
    q. Reconnect battery.
    r. Perform MOC.

INSTALLATION

POSITION FOR USE

INSTALLATION – CONTINUED

WARNING

Do not operate AGPU in an indoor location. Engine exhaust fumes contain deadly gases.

Location

The AGPU should be positioned in an outdoor site clear of obstacles with a minimum of 10 feet clearance on all sides. **Ensure that there are no obstacles over the exhaust ejector flap (such as tree limbs or helicopter blades).** Additionally, the AGPU should be within easy access of an approved static ground. Installation, marking and testing of earth ground is covered in TM 1-1500-204-23-1.

Leveling

The AGPU is designed to operate up to 15 degrees out-of-level. Set up the AGPU as level as possible during operation.

INSTALLATION – CONTINUED

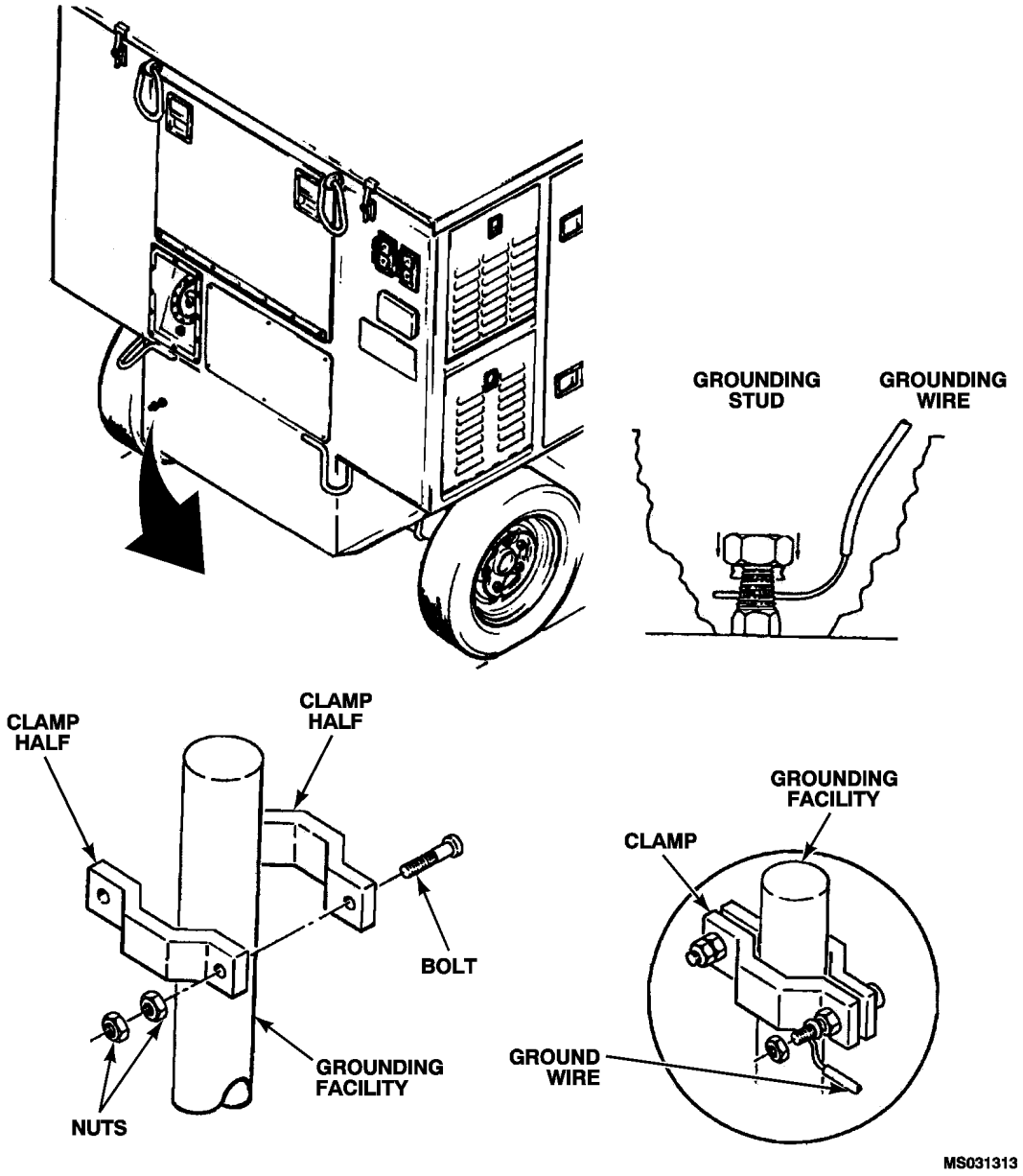


Figure 1. Grounding AGPU.

Grounding

NOTE

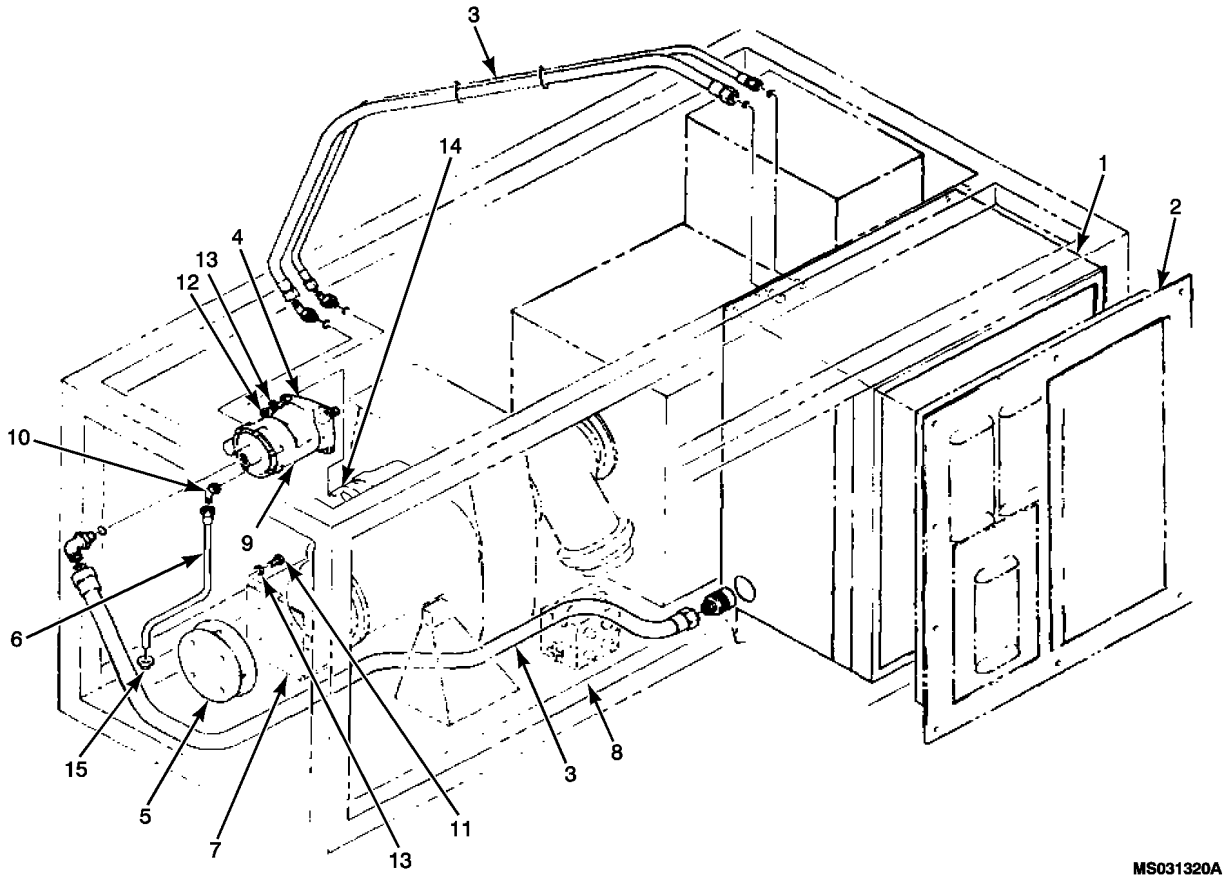
The AGPU must be grounded prior to operation.

Connect ground cable from suitable ground to grounding stud on AGPU as shown on Figure 1. If necessary, fabricate a static grounding cable assembly as shown in TM 1-1500-204-23-1, except the bonding plug is not required.

PRELIMINARY SERVICING OF EQUIPMENT

HYDRAULIC PUMP SPACER

Installation of Hydraulic Pump Spacer

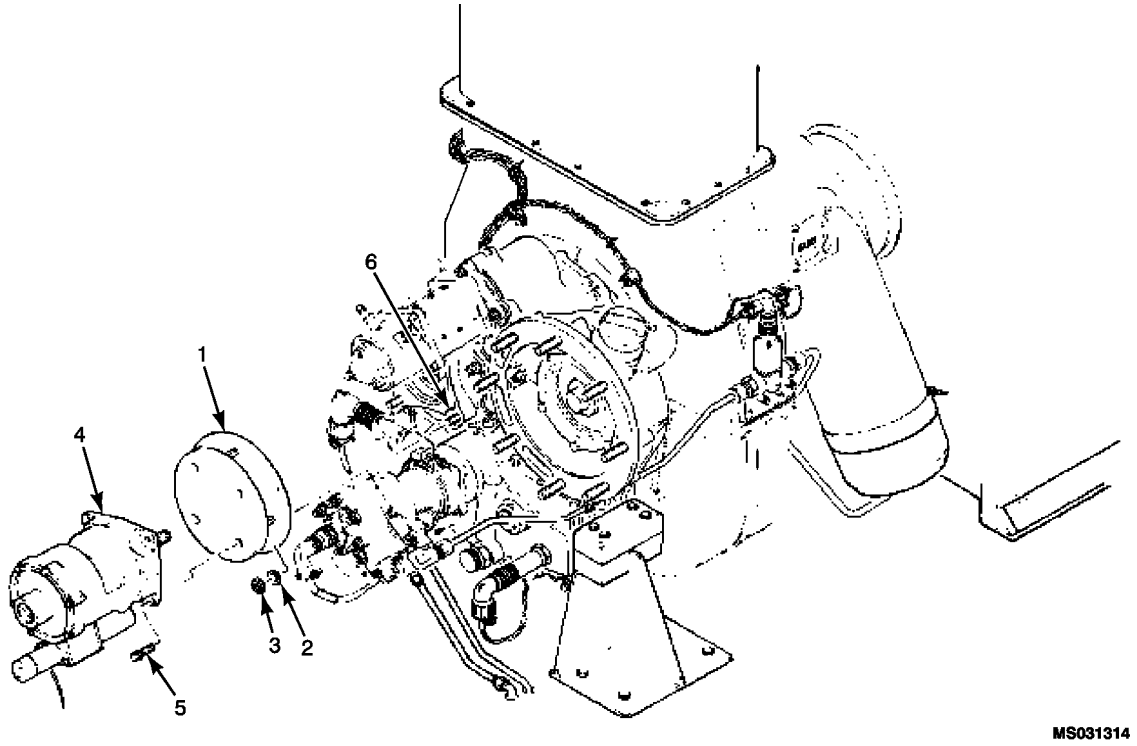


1. Hydraulic Module
2. Front Panel Assembly
3. Hose
4. Hydraulic Pump
5. Spacer
6. Drain Tube
7. Storage Bracket
8. Engine Compartment
9. Electrical Connector, P16
10. Pump Fitting
11. Bolt
12. Nut
13. Washer
14. Gearcase Pad
15. Grommet
16. Dual Service Module (Not Illustrated)

Figure 2. Hydraulic Module, Pump, Lines and Hoses.

PRELIMINARY SERVICING OF EQUIPMENT – CONTINUED

HYDRAULIC PUMP SPACER – CONTINUED



1. Spacer
2. Washer
3. Nut
4. Hydraulic Pump
5. Bolt
6. Gearcase Pad

Figure 3. Installation of Hydraulic Pump Spacer.

1. Disconnect battery. (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Open engine access cover (WP 0021 00, Figure 2, Item 12).
3. Remove DC cable from storage compartment and remove hydraulic access cover (WP 0021 00, Figure 2, Item 15).
4. Remove spacer (Figure 2, Item 5) from storage bracket, (Figure 2, Item 7) inside engine compartment (Figure 2, Item 8) by removing four bolts (Figure 2, Item 11).
5. Remove drain tube (Figure 2, Item 6) from pump fitting (Figure 2, Item 10) on hydraulic pump (Figure 2, Item 4).
6. Lift drain tube (Figure 2, Item 6) up and out of grommet (Figure 2, Item 15).
7. Support hydraulic pump and remove four nuts (Figure 3, Item 3) and four washers (Figure 3, Item 2) that secure pump to gearcase pad (Figure 3, Item 6).
8. Move hydraulic pump (Figure 3, Item 4) back approximately four inches.
9. Insert spacer (Figure 3, Item 1) between hydraulic pump (Figure 3, Item 4) and gearcase pad (Figure 3, Item 6). Ensure that flat side of spacer (Figure 3, Item 1) is against the gearcase pad (Figure 3, Item 6).
10. Install four nuts (Figure 3, Item 3) and washers (Figure 3, Item 2). This will attach spacer to gearcase pad.
11. Install four bolts (Figure 3, Item 5). This will attach pump to spacer.

PRELIMINARY SERVICING OF EQUIPMENT – CONTINUED

HYDRAULIC PUMP SPACER – CONTINUED

12. Connect drain tube (Figure 2, Item 6) to pump fitting (Figure 2, Item 10) on hydraulic pump (Figure 2, Item 4) and route tube through grommet (Figure 2, Item 15).
13. Replace hydraulic access cover (WP 0021 00, Figure 2) and store DC cable in storage compartment.
14. Reconnect battery.

REMOVAL OF HYDRAULIC PUMP SPACER

1. Disconnect battery. (MEP 83-360E only) Disconnect J-1 and P-1 connector. (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Open engine access door (WP 0021 00, Figure 2).
3. Remove DC cable from storage compartment and remove hydraulic access cover (WP 0021 00, Figure 2).
4. Remove drain tube (Figure 2, Item 6) from pump fitting (Figure 2, Item 10) on hydraulic pump (Figure 2, Item 4), and remove tube from grommet (Figure 2, Item 15).
5. Support hydraulic pump and remove four bolts (Figure 3, Item 5) which attach hydraulic pump (Figure 3, Item 4) to spacer (Figure 3, Item 1).
6. Remove four nuts (Figure 3, Item 3) and four washers (Figure 3, Item 2) which attach spacer (Figure 3, Item 1) to gearcase pad (Figure 3, Item 6), and remove spacer.
7. Lubricate splines on hydraulic pump shaft and internal splines on gearcase drive pad with a thin coat of grease MIL-G-21164C WP 0170 00, Item 25.

NOTE

If hydraulic pump does not go all the way in against pad easily, turn spline shaft on hydraulic pump.

8. Hold hydraulic pump (Figure 2, Item 4) in position on gearcase pad (Figure 2, Item 14) studs and install four nuts (Figure 2, Item 12) and washers (Figure 2, Item 13). Torque nuts to 190 inch-pounds.
9. Route tube through grommet (Figure 2, Item 15) and connect drain tube (Figure 2, Item 6) to pump fitting (Figure 2, Item 10) on hydraulic pump (Figure 2, Item 4).
10. Install spacer (Figure 2, Item 5) on storage bracket (Figure 2, Item 7) using four bolts (Figure 2, Item 11).
11. Replace hydraulic access cover (WP 0021 00, Figure 2), and store DC cable in storage compartment.
12. Reconnect battery.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU) WHEEL MOUNTED, SELF-PROPELLED, TOWABLE AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V DC - 28 VOLT PNEUMATIC - 60 LBS/MIN. AT 40 PSIG HYDRAULIC - 15.2 GPM AT 3300 PSIG LIN: P44627 PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A) EIC: UEG PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D) EIC: UDG PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E) EIC: UDH

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) INTRODUCTION

GENERAL

This section lists the required Preventive Maintenance Checks and Services for the AGPU. Always keep in mind the Warnings and Cautions listed in the **WARNING SUMMARY**. To ensure that the AGPU is ready for operation at all times, it must be inspected systematically so defects may be discovered and corrected before they result in serious damage or failure. The necessary preventive maintenance checks and services that are to be performed by operator personnel are listed and described in WP 0016 00.

Defects discovered during operation will be noted for future correction. Stop operation immediately if a deficiency is noted which would damage the equipment. All deficiencies and short comings will be recorded together with the corrective action taken on the applicable form. Air Force users shall refer to the applicable inspection manuals and work card sets in the TO 35C2-3 series and WP 0016 00 for detailed procedures. Marine Corps users should refer to current issue of TM 11275-15/1.

Determining PMCS Intervals

Operator PMCS on the AGPU should be performed on a daily (D), weekly (W), per-hour-of-operation (H), monthly (M), semi-annual (S), and annually (A) basis as indicated in WP 0016 00. The running time meters on the GTE and hydraulic module are used to determine AGPU operating time.

PMCS for Units in Continuous Operation

For PMCS performed on an operating time basis, perform PMCS as close as possible to the time intervals indicated. For units in continuous operation, perform PMCS before starting operation if continuous operation extends service past that which is shown, perform PMCS or scheduled service after continuous operation completion.

EXPLANATION OF COLUMNS

Item No. Column

The item numbers are listed sequentially and indicate the minimum requirements for the checks and services. This column shall be used as a source of item numbers for the TM Number Column on DA Form 2404, or DA Form 5988-E. Equipment Inspection and Maintenance Worksheet, IAW DA PAM 750-8 when recording results of PMCS.

Interval Column

Indicates the time interval upon which the checks and services must be performed. Intervals are divided as follows:

D - Daily
W - Weekly
H - Per-Hour-of-Operation
M - Monthly
Q - Quarterly
S - Semiannually

A - Annually

Item to be Inspected/Service Column

Indicates items and components to be inspected/serviced.

Procedures Column

Indicates the procedure by which the check or service is to be performed. Tolerances, adjustment limits, and instrument readings are included as applicable. When replacement or repair of a component is required, the procedures column will direct personnel to the appropriate task/work package.

Lubrication

To prevent excessive wear and ensure continued operation, lubrication of certain moving parts on the AGPU is required. These lubrication instructions show the areas of the AGPU which require lubrication, the proper lubricant to be used, and the frequency of lubrication.

1. Hard time intervals and the related man-hour times are based on normal operation recorded from dispatch records. The man-hour time specified is that time you need to do all the services prescribed for a particular interval. Change the interval if your lubricants are contaminated or if you are operating the equipment under adverse operating conditions, including longer than usual operating hours. The interval may be extended during periods of low activity. If extended, adequate preservation precautions must be taken.
2. Oil changes (GTE and Hydraulics) shall be determined by hard time intervals as dispatch intervals indicate.
3. Engine oil and filter, hydraulic oil and filters, fuel filters, change and generator/alternator lubrication shall be determined by hard time intervals.
4. Clean fittings before lubricating. Lubricate points indicated by dotted arrow shaft on both sides of equipment. Clean parts with degreasing solvent, MIL-PRF-680. Dry before lubricating. Drain gearcases when HOT. Fill and check level. The lowest level of maintenance authorized to lubricate a point is indicated by one of the following: (O) Operator, or (F) Field Maintenance.

Table 1. Lubrication Table.

LUBRICANTS			CAP.	EXPECTED TEMPERATURES			OIL SAMP INTVL	CHANGE INTVL
				Above +32 °F (Above 0 °C)	40 to -10 °F (+4 to -23 °C)	0 to -65 °F (-18 to -54 °C)		
MIL-PRF-83232	Hydraulic Oil	Hydraulic reservoir	10 gallon	MIL-PRF-83232			50 Hours or 30 days of operation (which ever comes first) (See note 8)	Semiannually/6 Months (with filters) (See note 8)
MIL-PRF-5606					MIL-PRF-5606			
LGT (MIL-PRF-23699 or MIL-PRF-7808)	Lubricating oil, engine	Engine Gearcase	2.3 qts. (2.2L)	MIL-PRF-23699, MIL-PRF-7808	MIL-PRF-23699, MIL-PRF-7808	MIL-PRF-7808	100 Hours/180 days of operation. (which ever comes first) (See note 1)	250 Hours or 6 months, which ever comes first. (See note 1)

Table 1. Lubrication Table. – Continued

LUBRICANTS			CAP.	EXPECTED TEMPERATURES			OIL SAMP INTVL	CHANGE INTVL
				Above +32 °F (Above 0 °C)	40 to -10 °F (+4 to -23 °C)	0 to -65 °F (-18 to -54 °C)		
GL/GOS (MIL-PRF-2105 and MIL-PRF-10324)	Lubricant, gear, universal	Gear Drive	2 pints (1.1 L)	GO 80/90	GO 75	MIL-L-46167	S - Semi-annually (Inspect level) (Add as required)	A – Annually (change)
		Rear axle differential	2.5 pints (1.2 L)	GO 80/90	GO 75	MIL-L-46167		
		Chain drive housing	2.5 pints (1.2 L)	GO 80/90	GO 75	MIL-L-46167		
GAA (MIL-L-10924)	Grease lube, automotive and artillery	Propulsion system general lubrication	As required	All Temperatures			S - Semi-annually (See Note 3)	
OE/HDO (MIL-PRF-2104)	Oil, lubricating, chassis	Hinges, Latches, Levers, Aircraft Pneumatic Coupling & Linkages	As required	All Temperatures			S - Semi-annually (See Note 3)	
DOD-G-24508	Grease, Lithium base, High temp.	Generator spline	As required	All Temperatures			250 Hours (see note 1) or S - Semi-annually	
MIL-PRF-81322	Grease, Aircraft	Generator bearings	As required	All Temperatures			250 Hours (see note 1) or S - Semi-annually	

NOTES:
1. Hours based on engine Running Time Meter reading.
2. For arctic operating, refer to FM 9-207.
3. Lubrication should be performed Monthly (M).
4. Do not mix MIL-PRF-83232 and MIL-PRF-5606. Mixing will degrade the fire resistant qualities of MIL-PRF-83232. For operations below -29 ºF (-34 ºC) MIL-PRF-5606 shall be used.

Table 2. Total Labor-Hours.

INTERVAL	LABOR-HOURS
D	0.6
S	1.5
A	6.0
250	3.0

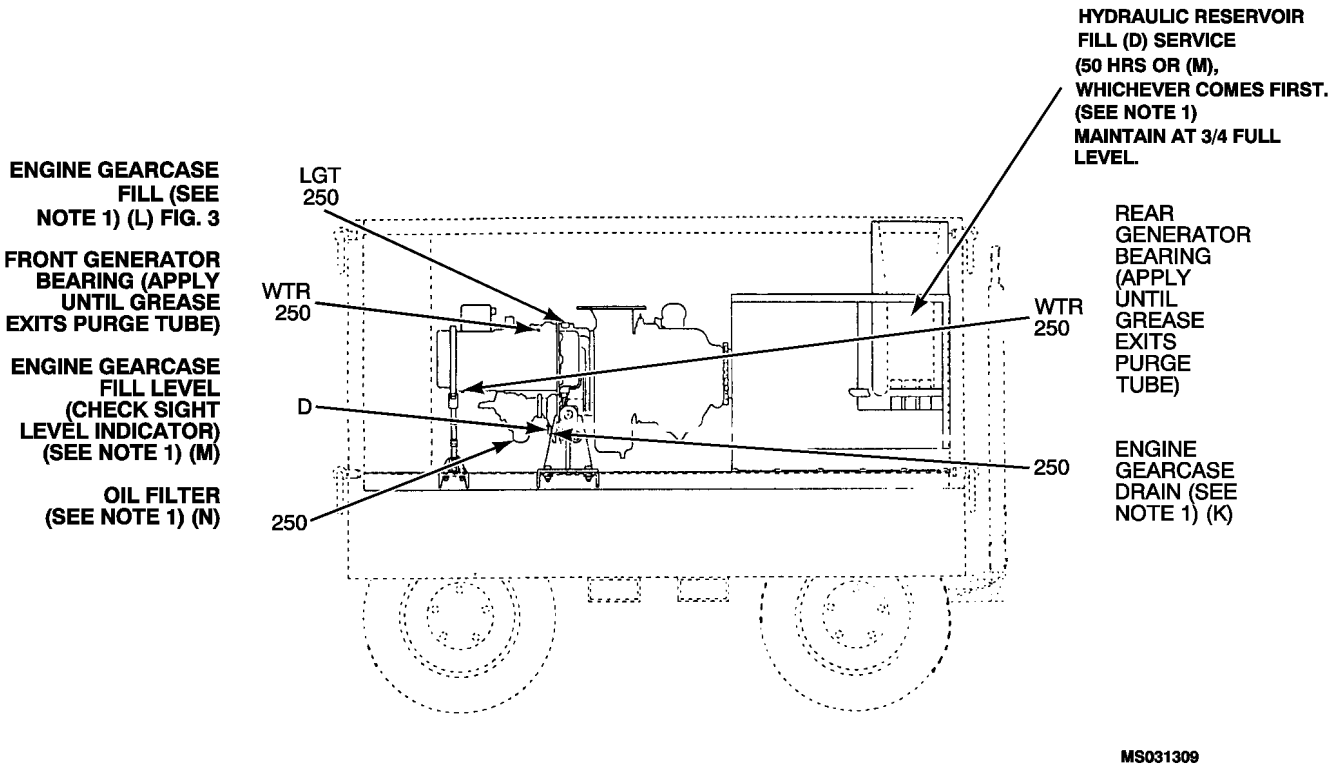


Figure 1. Lubrication (Sheet 1 of 3).

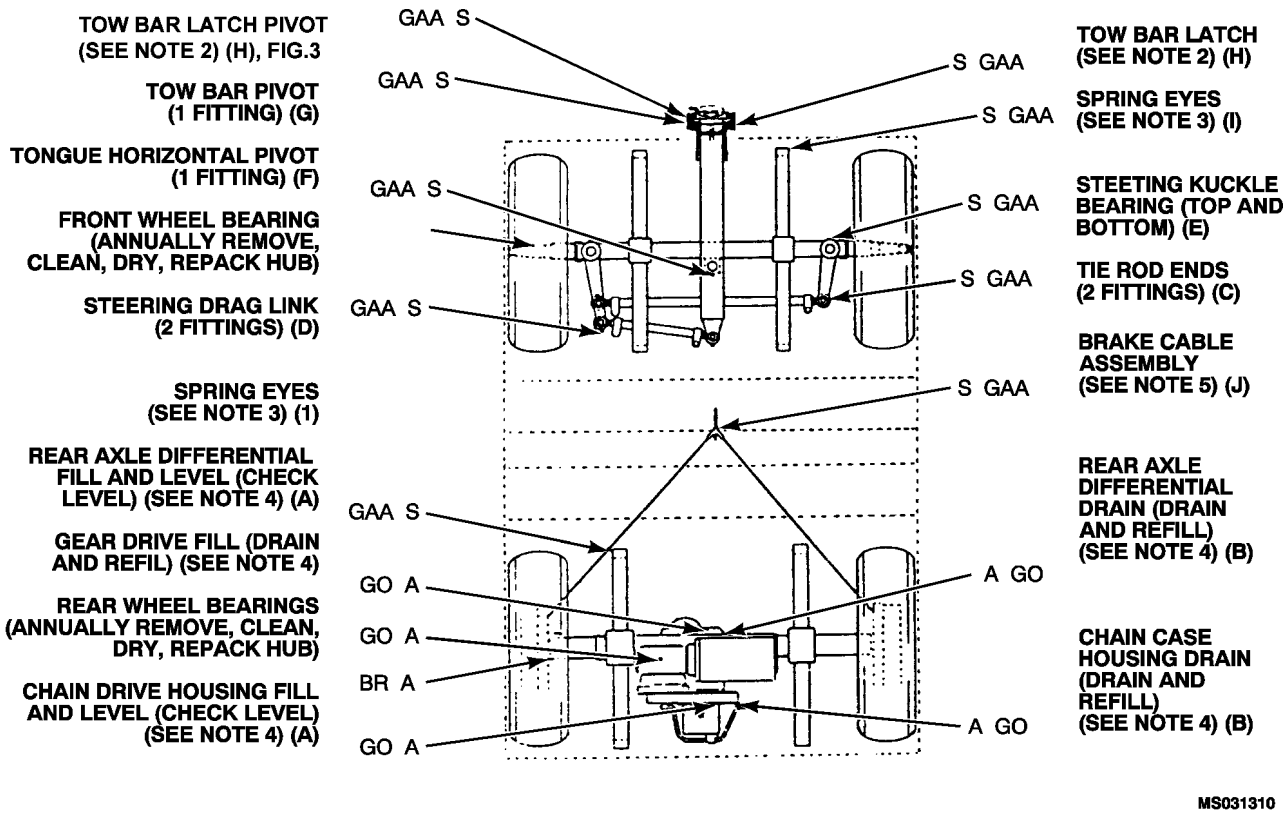


Figure 1. Lubrication (Sheet 2 of 3).

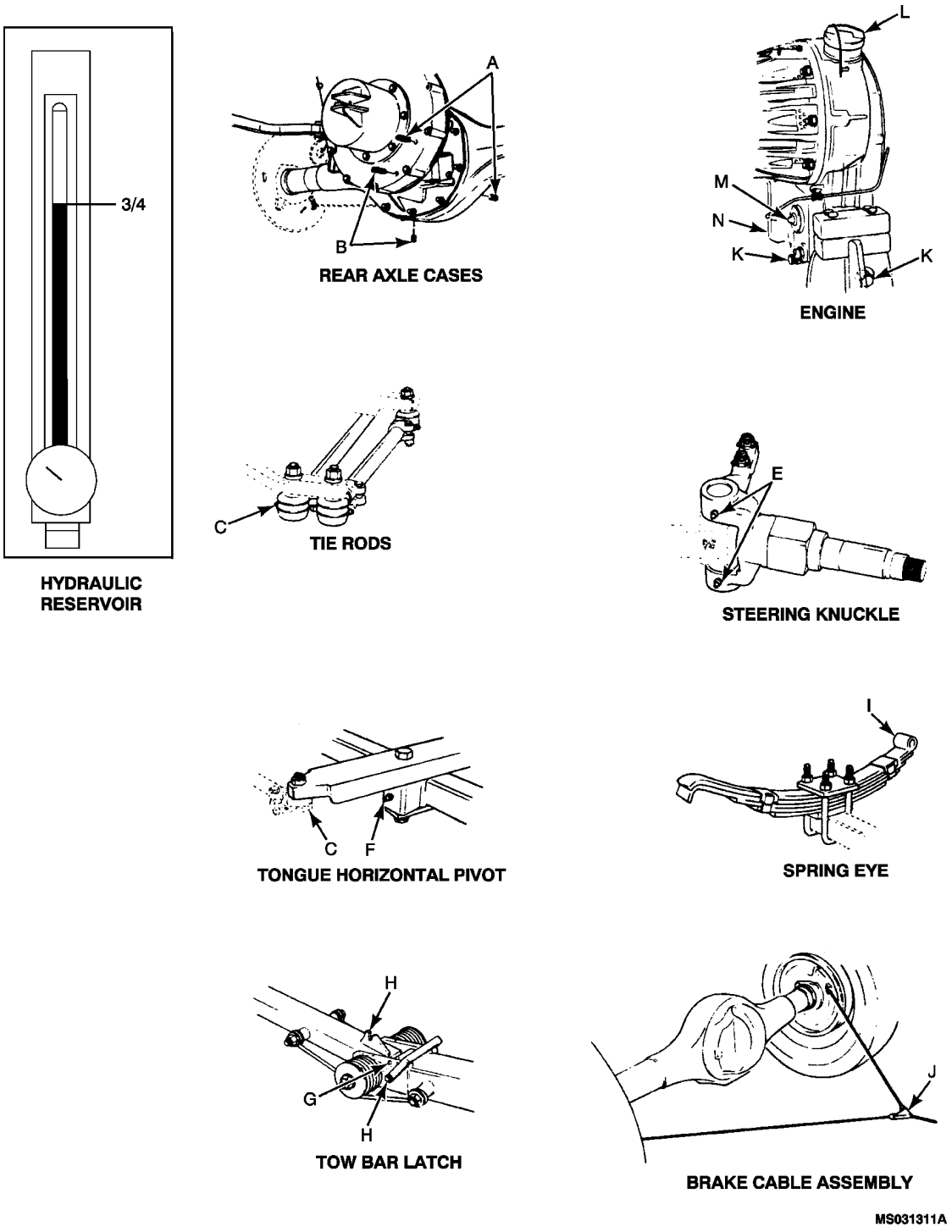


Figure 1. Lubrication (Sheet 3 of 3).

Table 3. NOTES.

1.	ENGINE GEARCASE AND OIL FILTER. Drain gearcase and replace oil filter semiannually or every 250 engine operating hours, whichever occurs first. **DRAIN ONLY WHEN HOT AFTER OPERATION.** Inspect magnetic drain plug and oil filter for metal particles. The presence of metal particles may indicate internal engine damage. Refill with MIL-PRF-23699 to full mark on gearcase fill level indicator (2.3 qts). Run engine for 15 minutes and recheck oil level. Engine oil sample interval 100 hours or 180 days which ever occurs first. Change oil every 180 days or 250 hours **WITH FILTER.** Submit oil sample after each oil/ filter change and after 100 hours of operation.
2.	TOW BAR LATCH. Semiannually lubricate tow bar latch lever bearing surfaces sparingly with OE/HDO. Coat latching surfaces with a thin coat of GAA.
3.	SPRING EYES. Semiannually lubricate spring eyes with OE/HDO.
4.	DRIVE GEARCASES. Drain gearcases annually. Drain only when unit is warm after operation. Check level at axle differential. Level should be within 1/2 inch of plug opening when cold, and at plug level when at operating temperature.
5.	BRAKE CABLE ASSEMBLY. Semiannually lubricate brake cable connection points with a thin coat of GAA. Lubricate brake lever bearing surfaces with OE/HDO.
6.	OIL CAN POINTS. Semiannually lubricate all hinges, latches, and clutch and brake linkages with OE/HDO.
7.	CLUTCH PUSH ROD. Semiannually lubricate. Remove hinge pin and quick release pin from the square rod clutch level. Move lever away and pull out the push rod until the rubber seal shows. Wipe clean. Coat push rod lightly with DC340 50Z. Reassemble. Replace cotter pin.
8.	HYDRAULIC SYSTEM. Semiannually drain and refill hydraulic reservoir and change both high and low pressure filters with **new type filters 2 and 5 microns.** Refill system with MIL-PRF-83232. (MIL-PRF-5606 in arctic environment). Oil sampling requirements are **every 50 hours or 30 days**. Hydraulic reservoir/ servicing refer to WP 0110 00.

LUBRICATION INSTRUCTIONS

NOTE

Hours are based upon engine Running Time Meter reading. For arctic operation refer to FM 9-207.

1. ENGINE GEARCASE AND OIL FILTER: Drain gearcase and replace oil filter semiannually or every 250 engine operating hours, whichever occurs first. Drain only when hot after operation. Inspect magnetic drain plug and oil filter for metal particles. The presence of metal particles may indicate internal engine damage. Refill with MIL-PRF-23699 to full mark on gearcase fill level indicator (2.3 quarts). Run engine for 15 minutes and recheck oil level.
2. TOW BAR LATCH: Semiannually lubricate tow bar latch lever bearing surfaces sparingly with OE/HDO. Coat latching surfaces with a thin coat of GAA.
3. SPRING EYES: Semiannually lubricate spring eyes with OE/HDO.
4. DRIVE GEARCASES: Drain gearcases annually. Drain only when unit is warm after operation. Check level at axle differential. Level should be within 1/2 inch of plug opening when cold, and at plug level when at operating temperature.
5. BRAKE CABLE ASSEMBLY: Semiannually lubricate brake cable connection points with a thin coat of GAA. Lubricate brake lever bearing surfaces with OE/HDO.
6. OIL CAN POINTS: Semiannually lubricate all hinges, latches, and clutch and brake linkages with OE/HDO.
7. CLUTCH PUSH ROD: Semiannually lubricate. Remove hinge pin and quick release pin from the square rod clutch level. Move lever away and pull out the push rod until the rubber seal shows. Wipe clean. Coat push rod slightly with DC340 50Z. Reassemble. Replace cotter pin.
8. HYDRAULIC SYSTEM: Semiannually drain and refill hydraulic reservoir and change both high and low pressure filters with new type filters 2 and 5 micron. Refill system with MIL-PRF-83232. For operations below -29 ºF (-34 ºC) MIL-PRF-5606 shall be used.

Corrosion Prevention and Control

Refer to WP 0001 00 for Corrosion Prevention and Control instructions.

Fluid Leaks

CAUTION

Equipment operation is allowed with minor leakage's (Class I). Consideration must be given to fluid capacity in the item/system being checked/inspected. When in doubt, notify your supervisor.

When operating with Class I, continue to check fluid levels as required in the PMCS.

NOTE

Oil filters shall be serviced/changed, as applicable, when they are known to be contaminated or clogged, service is recommended by AOAP laboratory analysis, or at prescribed hard time intervals listed in Table 1 of this WP.

NOTE

This equipment is required AOAP sampling as prescribed by TB 43-0211.

Engine oil, hydraulic reservoir fluids must be sampled at regular intervals refer to Table 1 and annotated on the historical maintenance as prescribed by DA PAM 750-8, The Army Maintenance Management System (TAMMS) Users Manual.

It is necessary for you to know how fluid leakage affects the status of the AGPU. The following are types/classes of leakage you need to know to be able to determine the status of the AGPU systems. Learn these leakage definitions and remember - when in doubt, notify your maintenance supervisor. All Class II and III leaks should be reported immediately to your maintenance supervisor.

1. Class I - Seepage of fluid (as indicated by wetness or discoloration) not great enough to form drops.
2. Class II - Leakage of fluid great enough to form drops but not enough to cause drops to drip from item being checked/inspected.
3. Class III - Leakage of fluid great enough to form drops that fall from item being checked/inspected.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Cleaning Compound, Solvent (WP 0170 00, Item 5)
Cleaning Compound, Solvent (WP 0170 00, Item 6)
Grease, Automotive and Artillery, GAA (WP 0170 00, Item 22)
Grease, Ball and Roller Bearing (WP 0170 00, Item 23)
Hydraulic Fluid, Fire Resistant (WP 0170 00, Item 26)
Hydraulic Fluid, Petroleum Base (WP 0170 00, Item 27)
Lubricating Oil, Aircraft Turbine (WP 0170 00, Item 32)
Lubricating Oil, Aircraft Turbine (WP 0170 00, Item 33)
Lubricating Oil, Engine (WP 0170 00, Item 34)
Lubricating Oil, Gear (WP 0170 00, Item 35)
Lubricating Oil, Molybdenum Disul (WP 0170 00, Item 36)
Turbine Fuel, Aviation (WP 0170 00, Item 58)

Personnel Required

CMF 15

References

WP 0002 00
WP 0015 00
WP 0022 00
WP 0026 00
WP 0032 00
WP 0035 00
WP 0036 00

References (cont.)

WP 0042 00
WP 0043 00
WP 0044 00
WP 0045 00
WP 0046 00
WP 0061 00
WP 0064 00
WP 0071 00
WP 0072 00
WP 0073 00
WP 0074 00
WP 0075 00
WP 0079 00
WP 0083 00
WP 0084 00
WP 0085 00
WP 0086 00
WP 0087 00
WP 0088 00
WP 0090 00
WP 0092 00
WP 0094 00
WP 0096 00
WP 0110 00
WP 0143 00
WP 0146 00
WP 0147 00
WP 0150 00
WP 0151 00
WP 0152 00
WP 0153 00
WP 0158 00
WP 0159 00

Table 1. Preventive Maintenance Checks And Services (PMCS).

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				NOTE Perform Purge/Flush operations prior to all hydraulic operations.	
1	B	.2	AGPU	a. Make sure AGPU is free of tools, equipment, and fluid leaks (fuel, engine oil, and hydraulic fluid), dirt and corrosion. Clean as required. b. Check that parking brake is set (lowered). Check that clutch lever (WP 0002 00, Figure 30, Item 10) is in tow position and quick-release pin is installed.	Signs of oil leakage in excess of a Class I leak. **(Fuel leakage of any type is not permitted)**
2	B	.1	Exhaust	a. Make sure area above exhaust flapper is clear of obstructions that may be ignited or damaged by extremely hot exhaust gases. Check exhaust system inside of engine compartment for missing, broken parts and loose or missing insulation tape (WP 0159 00). b. Check exhaust flapper for proper operation.	Exhaust leaks or missing or broken parts, loose or missing insulation and tape.
3	B	.1	Ground-ing	**WARNING** If AC operation is required, AGPU must be properly grounded. Inspect ground stud for secure mounting. Check that AGPU is properly grounded.	Ground stud missing, or ground wire and clip missing.
4	B	.2	Frame and Hous-ing	a. Inspect frame, covers, and panels for dents, cracks, punctures, corrosion and security. b. Check that four lifting (upper) and four tie down eyes (lower) are in place and not damaged.	Any internal panel, or top cover missing, or damaged.

Table 1. Preventive Maintenance Checks And Services (PMCS). - Continued

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				c. Check for Fire Extinguisher security and safety pin or seal is in place. Insure that inspection tag is in place and up to date for monthly inspections. Ensure proper Fire Extinguisher is installed (Type BC 5 lbs.) is used.	Fire extinguisher unserviceable or missing.
				d. Check operation of Emergency Stop Switch (red button). Insure operation is free of sticking and or travel.	Emergency Stop Switch missing or inoperative.
				e. Inspect Fuel Fill Cap, Chain and CCR Door for proper operation.	If Fuel Fill Cap is missing or CCR Door is inoperative.
				f. Inspect electrical outlets (four each) to ensure rain proof covers are present and ensure electrical outlets are free from dirt and corrosion.	Electrical cover missing or electrical outlets are cracked or damaged.
				g. Inspect slave receptacle to ensure protective cover is present. Open cover and inspect the positive/negative conductors to ensure that they are free of dirt, moisture, corrosion and clean conductors as required.	Conductors burned or protective cover missing.
				h. Inspect access doors for damage, and ensure that latches and hinges operate properly.	Access Doors are missing or Latches and Hinges are inoperative.
5	B	.1	Master Control Panel	a. Inspect switches, circuit breakers, and indicators for missing parts, damage, or corrosion.	Missing or broken circuit breakers, switches, and gauges.
				b. Inspect meters and gauges for cracked glass or signs of corrosion.	
6	B	.1	Battery	a. Inspect battery compartment, battery, battery holddown and guides for damage or corrosion. Check that vent drain tubes are in place (MEP 83-360A only), and holddowns are tight.	Batteries that will not hold a charge, leaking fluid, or holddowns missing. Connectors loose or missing.
				b. Ensure that battery cables and connectors are checked (WP 0035 00).	

Table 1. Preventive Maintenance Checks And Services (PMCS). - Continued

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				c. In the electrical tray compartment (located on lower tray) check that the BATT/CHGR selector switch is set in the **NORMAL** position (lowest setting). Refer to TM 1-1730-229-13, Operator Instructions, if selector switch is set to the highest setting continuously , battery charger failure will occur.	Switch will not turn or knob is missing.
7	B	.2	Engine Compart-ment	a. Before opening engine compartment door, check fuel selector valve is set to internal (INTL) position. Refer to TM 1-1730-229-13, Operator Instructions.	
				b. Drain fuel filter/water separator just prior to operation of the AGPU.	
				c. Check GTE for proper lubrication oil level by viewing sight glass located on GTE gear case, add GTE or engine lubrication oil as required (WP 0015 00, Lubrication).	Oil level cannot be seen in 3/4 of sight glass view of GTE.
				d. Inspect interior of engine compartment for damage, signs of oil leaks, dirt, and corrosion. Clean GTE compartment as required.	Signs of oil leakage in excess of a Class I leak. **(Fuel leakage of any type is not permitted)**
				e. Inspect air intake duct assembly for punctures, corrosion, and loose mounting screws. Check operation of spring-loaded bypass door (WP 0002 00, Figure 10, Item 8) by pushing in on door.	Damaged or missing mounting springs on bypass door.
				f. Check that drain tubes are connected to engine drain valves, fuel control unit (WP 0002 00, Figure 13, Item 9), and hydraulic pump.	Any signs of fuel leakage, or loose mounting hardware.
				g. Check that bolts on engine mounts (WP 0002 00, Figure 10, Item 9) are se-cure, and lockwired. Check that bolts on generator/alternator support (WP 0002 00, Figure 20, Item 7) are secure and lockwired.	Bolts or hardware missing or loose.
				h. Inspect GTE hourmeter (WP 0002 00, Figure 13, Item 22) for damage, and security of installation. Inspect Hydraulic Module (WP 0002 00, Figure 11, Item 11) for dam-age and security of installation.	Hour meter inoperative or missing.

Table 1. Preventive Maintenance Checks And Services (PMCS). - Continued

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				i. Inspect starter (WP 0002 00, Figure 13, Item 6) assembly to ensure power cables are secure.	Loose or missing mounting hardware or cables.
				j. Inspect hydraulic hoses (WP 0002 00, Figure 10, Item 2) for cuts and splits, inspect fittings for damage and freedom of dirt and corrosion.	Loose or leaking lines or fittings.
				k. Inspect hydraulic pump (WP 0002 00, Figure 19, Item 5) for security, damage, leaks, or loose fittings.	Missing or loose mounting hardware.
8	B	.1	Hydraulic Module		

NOTE

Check gauge Shut Off valve is 1/4 turn open before checking gauge reading.

	a. Check that hydraulic reservoir is at least 3/4 full.	Less than 3/4 full.
	b. Inspect hydraulic control panel switches and indicators for missing or loose parts or corrosion.	Loose or missing controls, leaking fluid from controls.
	c. Inspect reservoir gauge and thermometer and pressure gauge for leaks or cracked glass.	Pressure gauge inoperative.
	d. Remove protective caps and inspect hydraulic fittings for gouges, cracks, and corrosion.	
	e. Inspect hydraulic filter housing assembly, filter head indicator, and wiring for cracks, damage, or leaks.	Fluid leaks, broken, or frayed wiring.
	f. Inspect vent dryer desiccant for blue indication. if less than 25% blue, notify maintenance supervisor.	If less than 25% blue.

NOTE

Prior to Hydraulic System servicing of all type aircraft perform AGPU Hydraulic System self-filtering and purging operation. Refer to TM 1-1730-229-13, Operator Instructions.

	g. When it is suspected that the AGPU has serviced a contaminated aircraft hydraulic system. Refer to TM 1-1730-229-13, Operator Instructions flush hydraulic system and replace filters and hydraulic fluid.	White or milky fluid in reservoir sight glass, or fluid presents a burned smell. Ensure reservoir level is not below 3/4 mark.

Table 1. Preventive Maintenance Checks And Services (PMCS). - Continued

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				h. Check reservoir vent tube and plug to ensure the reservoir is sealed.	Vent tube plug missing.
				i. Check to see that all hose connectors are protected with metal dust caps or environmental plugs **(Hydraulic hoses are stored in engine access door).**	Hose connectors or caps and plugs damaged or missing.
				j. Check Dual Service Manifold Block (TM 1-1730-229-13, Operator Instructions) and Purge/Oil Sampling Adaptor (TM 1-1730-229-13, Operator Instructions) (located in the engine compartment) for missing dust caps and inspect quick disconnects for damage. Inspect storage mounts for security and damage.	Dual Service Manifold Block or Purge Oil Sample Adaptor missing.
9	B	.2	AC and DC Power Cables	a. Inspect cables (WP 0002 00, Figure 15, Item 9 and 12) and wire bundle ties for damage to insulation, frayed wires and inspect electrical connectors for damage and freedom from dirt and corrosion.	Open cuts that expose wires, damaged or loose connectors.
				b. Inspect TRU (located in DC cable storage compartment) (WP 0002 00, Figure 12, Item 14) for damage, ensure that all mounting bolts and security of wire connections (MEP 83-360D/E only).	Any electrical connections on TRU are loose, or cooling fan is inoperable. Missing or loose mounting hardware.
10	B	.2	Pneumatic Hose	a. Check that pneumatic hose clamps and safety wire on AGPU pneumatic system is secure, inspect hose for split or cuts, inspect aircraft connector fitting for damage and freedom from dirt and corrosion. (Lubricate aircraft connector as required to ensure freedom of internal debris flappers).	Damaged or broken clamps or safety wire. Splits or cuts in internal/external pneumatic hose. Missing or frozen debris flappers.
				b. Inspect AC/DC Inverter, located in pneumatic hose storage compartment. Inspect for security of mounting all wire connections are secure.	Frayed wires or loose hardware.
11	B	.2	Electrical Checks	a. Ensure Batteries are connected, set control panel MASTER switch (WP 0002 00) to ON, and perform the following checks .	
				b. Check that BATTERY VOLTAGE meter indicates in green band.	If meter indicates in red band.

Table 1. Preventive Maintenance Checks And Services (PMCS). - Continued

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				c. Push PRESS TO TEST push button and check that all indicator lights on control panel illuminate.	Any light that does not illuminate.
				d. Check reading on FUEL gauge, add fuel as required.	Fuel level must be full before hydraulic system operation.
				e. Place power switch to ON, hydraulic control panel, push PRESS TO TEST LIGHTS and check that all indicator lights illuminate.	Any light that do not illuminate.
				f. Check all Panel and Utility Lights for operation. Turn on panel light switch on master control panel and hydraulic control panel, operate bright and dim switch to ensure lights operate in the dim and bright settings. After inspection of panel lights, place all light switches in the OFF position.	
				g. Set all MASTER SWITCHES to the OFF position.	
12	B	.2	Propulsion System	a. Inspect tires and wheels for condition (excessive wear, cuts, or foreign objects). Inspect wheels for missing lug nuts.	Flat tires on one or more wheels.
				b. Inspect front axle assembly (WP 0003 00, Figure 3, Item 3) for bent or broken components, loose or missing components, and leakage of lubricant.	Leaf springs broken or missing.
				c. Inspect springs for bent or broken spring leaves and missing or loose mounting components.	Any springs or mounting hardware broken or missing.
				d. Inspect tow bar speed/direction control assembly for damage, loose or missing components, and dented housing.	Binding of Speed control, deadman switch missing or inoperative.
				e. Turn MASTER switch (on master control panel) to the ON position, turn the DRIVE switch to the ON position, and turn the BATTERY OUTPUT POWER switch to the ON position.	

Table 1. Preventive Maintenance Checks And Services (PMCS). - Continued

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				NOTE When tow bar is in the stowed position the audible alarm or power light will not be operational.	
				f. With drive motor clutch in the DRIVE position, check that the tow bar audible warning sound is heard. Check that the power light indicator located on the direction controller illuminates when the tow bar is lowered.	Audible alarm is not heard or power indicator light is not illuminated.
				g. Inspect brake handle and brake cable (WP 0003 00, Figure 3) assembly for broken handle, cable, strands, missing or loose fasteners, or improper operation.	Broken brake handle or cable or missing fasteners.
				h. Inspect rear axle assembly for cracked or dented housing, bent, missing, or broken components, loose or missing fasteners, broken or missing lubrication fittings, or drain plugs (WP 0016 00).	Rear axle broken or cracked. Class II leakage of oil.
				i. Inspect rear springs for bent or broken spring leaves and missing or loose components.	Broken springs or loose components.
				j. Inspect traction motor for housing damage, loose or missing fasteners, broken or loose electrical terminals, loose or missing brush covers, and corrosion or contamination on any electrical component Refer to TM 1-1730-229-13, Operator Instructions.	Wires that are loose or broken from their respective terminals.
				k. Inspect clutch assembly for bent or cracked main housing, bent or broken components, loose or missing components (WP 0002 00, Figure 5).	Clutch assembly bent, cracked or missing components.
				l. Inspect gear drive assembly for dented or cracked housing and lubricant leaks (WP 0002 00, Figure 5)	Dented or cracked housing or lubricant leaks greater than class I leaks.

Table 1. Preventive Maintenance Checks And Services (PMCS). - Continued

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				m. Inspect electric brake housing for damaged, or distortion of strain relief connector, and missing or loose fasteners. Prepare AGPU propulsion system for operation in the Alternate Propulsion Mode and check electric brake for operation (WP 0002 00, Figure 5). Move AGPU in both forward and backward direction while AGPU is in motion, release DEADMAN switch to ensure AGPU stops. After performing this check, remove propulsion system from operation, ensure drive switch, battery output switch and master switch are in the OFF position.	If electric brake or DEADMAN switch is inoperable, discontinue use of propulsion system.

WARNING

Hearing protection must be worn prior to startup of GTE.

NOTE

Ensure hydraulic pressure gauge shutoff valve on hydraulic control panel, is 1/4 turn (open) before checking gauge reading.

13	B/D	.3	Control Panels	a. Monitor Control Panel Gauges and Instruments and Warning Indicators.	

NOTE

If automatic shut down occurs, DO NOT CUT OFF MASTER POWER SWITCH on master control panel, record high EGT reading from EGT gauge and record any warning lights displayed on master control panel. Record all indications on DA form 2404.

Ensure all output switches (pneumatic power, AC/DC Power and hydraulic master switch) are in the OFF position or the AGPU will not start.

				b. Startup operations of GTE TM 1-1730-229-13, Operator Instructions	
				c. Check hydraulic pressure on hydraulic control panel pressure gauge immediately after GTE start. Shut down GTE (TM 1-1730-229-13, Operator Instructions) if pressure reading is less than 450 to 500 psig.	If less than 450 to 500 psig stop operation.

Table 1. Preventive Maintenance Checks And Services (PMCS). - Continued

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				d. If EGT is above green band, Shut down GTE (TM 1-1730-229-13, Operator Instructions).	If EGT stays above green band for more than 5 seconds or exceeds 1250 °F.
				e. If LOW FUEL indicator is illuminated, shut-down and refuel unless operations can be completed in 30 minutes. Fuel level must be full before hydraulic operations can take place.	If LOW FUEL indicator is illuminated.
				f. If INLET FILTER BLOCKED indicator is illuminated, shutdown and determine cause of problem, check air intake louvered panel for obstructions.	If any light continues to stay illuminated.
				g. If COMPT/GEN HI TEMP indicator is illuminated, shut down GTE (TM 1-1730-229-13, Operator Instructions).	If light continues to stay illuminated.
				h. If automatic shutdown occurs and any fault indicator lights illuminate on master control panel, record lamp indication prior to setting MASTER CONTROL SWITCH to OFF position. Record any indication/fault displayed on DA Form 2404.	If light continues to stay illuminated.
				i. Perform shutdown operation (TM 1-1730-229-13, Operator Instructions) **if Hydraulic operations are not required**. Ensure all master switches, drive switch and battery output switch are in the OFF position. Position propulsion clutch lever in the disengaged location with locking pin installed. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector. **Perform after operational checks prior to storing of AGPU**.	
				j. If Hydraulic control panel red HI TEMP indicator light illuminates, remove or reduce hydraulic load and pressure.	If light continues to stay illuminated.
				k. Disconnect main battery connector or terminals. Leave P1 and J1 connectors connected for drive clutch (Engaged) audible warning power (MEP 83-360E only).	
				If hydraulic operation has been performed, include the following after operational steps:	

Table 1. Preventive Maintenance Checks And Services (PMCS). - Continued

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
14	A	.1		After hydraulic operations are complete, reduce pressure to approximately 450-500 psig by holding panel switch to DECREASE.	If pressure will not reduce.
15	A	.1		a. Hydraulics shutdown operation, place output switch in the OFF position, and open hydraulic HIGH PRESSURE BYPASS valve to release pressure indicated on hydraulic pressure gauge. Once hydraulic pressure is reduced as indicated on gauge, close HIGH PRESSURE BYPASS VALVE. b. Place Master power Switch on the Hydraulic Control Panel in the OFF position.	If pressure will not reduce.
16	A	.2		Perform shutdown operation of GTE (TM 1-1730-229-13, Operator Instructions).	
17	A	.2		Store hydraulic hoses on rack on back of engine access door, wipe hoses clean, and install protective caps prior to storage (if used).	
18	A	.05		Store AC and DC power cables in storage bins. Wipe cables clean prior to storage (if used).	
19	A	.05		Carefully store pneumatic hose in storage bin. Check that butterfly shutter inside aircraft fitting is clean and closed (if used).	
20	A	.1		Remove grounding of AGPU as required.	
21	A	.05		Ensure parking brake is set.	
22	A	.1		Fill fuel tank to prevent water condensation.	
23	A	.05		Check engine for proper lubricating oil level, add as required (WP 0015 00, Lubrication).	
24	A	.05		Check hydraulic reservoir fluid level (3/4 or more full), add hydraulic fluid as required (WP 0110 00).	
25	A	.05		Ensure propulsion clutch lever is placed in the disengaged position and locking pin is secure.	
26	A	.05		Note GTE (engine) and Hydraulic Module operating hours on dispatch records and perform servicing if required.	
27	A	.05		Disconnect main battery connector or terminals. Leave P1 and J1 connectors connected for drive clutch (Engaged) audible warning power (83-360D/E only).	

Table 2. Field Preventive Maintenance Checks and Services.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				NOTE Perform all Before, During and After Preventive Maintenance Checks and Services (PMCS) in conjunction with the following checks and services.	
1	M	0.2	Control Panel and Electrical Compart-ment	a. Lower control panel for maintenance (WP 0032 00) and inspect control panel wiring harness for loose wiring connections, damaged or burned wires.	Loose wiring connections. Damaged or burned wires.
				b. Inspect components mounted on bulkhead behind control panel (WP 0002 00).	
				1) Inspect AC and DC main contactors for damage or loose connections.	Connector are damaged or loose and contactor case shows signs of damage.
				2) Inspect starter (external) DC contactors for damage or loose connections.	Connector are damaged or loose and contactor case shows signs of damage.
				3) Inspect Generator Control Unit (GCU) for signs of corrosion and check to ensure cable connections are secure. Ensure the proper GCU part number is installed for the appropriate model AGPU (MEP 83-360A is a -2 part number and the MEP 83-360D/E models have a -3 part number).	Signs of corrosion or cables, connections are loose. Wrong part number of GCU installed.
				4) Inspect engine Electronic Control Unit (ECU) for signs of corrosion. Check that cable connections are secure.	Signs of corrosion or cable connections loose.
				c. Inspect portion of main wiring harness ex-tending into electrical compartment (behind control panel) for frayed or damaged wires, loose wire connections, or burned wires.	Frayed or damaged wires, loose wire connections, or burned wires.
2	M	0.1	Battery Charger	a. Remove screws securing cover below control panel and remove cover. Inspect battery charger (WP 0002 00) for signs of corrosion. Check that cable and wire connections are secure.	Any cable and wire connections are not secure.

Table 2. Field Preventive Maintenance Checks and Services. - Continued

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
3	M	0.3	Battery	a. Test specific gravity (WP 0036 00). If AGPU has gel type batteries, this requirement is discarded.	
4	M	0.2	Air Cleaner	a. Remove louvered cover and inspect air cleaner (WP 0002 00) for missing tubes or damage. Remove debris and vacuum out all tubes and face of air cleaner. Replace louvered cover.	Tubes damaged or missing components.
5	M	0.1	Generator/Alternator	a. Remove roof (WP 0022 00).	
				b. Open GTE access door and inspect generator/alternator (WP 0061 00) for loose connections and hardware. Lubricate grease fittings as required by lubrication order.	Loose wires or missing components.
6	M	0.1	Exhaust Ejector	a. Open GTE access door and inspect exhaust ejector (WP 0158 00) for security of installation, damaged, loose or missing insulation, tape or mounting hardware. Inspect exhaust ejector flappers for proper operation, loose or missing hardware.	Insulation or tape is loose or missing. Mounting hardware is loose or missing. Exhaust ejector flappers, loose or missing hardware.
7	M	0.1	Interior Insulation	a. Open GTE access door and inspect interior insulation (WP 0026 00) for damage, and loose or missing retaining washers.	Damaged or missing insulation, missing retaining washers.
8	M	0.1	Main Wiring Harness and Current Transformers	a. Open GTE access door and inspect main wiring harness (WP 0042 00) for frayed or damaged wires, loose wires at connectors, burned wiring, and loose or missing harness brackets.	Damaged wires, loose wires at connectors, burned wiring.
				b. Inspect three (3) current transformers (WP 0064 00) for security of installation, loose connections, and damage.	Insulation, connections, and damage of current transformers.

Table 2. Field Preventive Maintenance Checks and Services. - Continued

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
9	M	0.2	Engine and Engine Mounted Components	a. Open GTE access door and inspect engine and gearcase for damage, cracks, fluid leaks (oil and fuel), and security of installation (WP 0094 00).	Any fluid leaks (oil, fuel)
				b. Inspect engine (GTE) inlet duct screen by opening bypass door. Remove any foreign material from screen (WP 0094 00).	Any foreign material found or damaged to inlet screen.
				c. Inspect Fuel Control Unit (FCU) and shutdown fuel solenoid for security of installation, signs of leakage, loose components or damage (WP 0074 00).	Fuel leaks of any kind or loose components.
				d. Inspect Load Control Valve (LCV) for security of installation, leaks, loose components, and damage. Inspect bleed air duct hoses for splits, punctures, and loose clamps. Inspect pressure transducer and tubing for security of installation, and loose fittings or wire connections (WP 0083 00).	Air leaks, loose components or damage to pneumatic air components.
				e. Inspect ignition unit for damage, signs of corrosion, and security of installation. Inspect igniter plug and lead for damage and security of installation (WP 0092 00).	Damage to ignition unit and/or components. Signs of extreme heat or burning of components.
				f. Inspect the following engine mounted components for security of installation, damage, and/or proper electrical connections: 1) Speed sensor (WP 0043 00). 2) Low oil pressure switch (WP 0044 00). 3) High oil temperature switch (WP 0045 00). 4) Thermocouple (WP 0046 00).	Any damage or security of insulation to engine mounted components.
				g. Inspect engine (GTE) wiring harness for frayed or loose wires and connectors, missing or loose brackets, and burned wires (WP 0096 00).	Any damage to engine wire harness, missing or loose brackets and/or components.

Table 2. Field Preventive Maintenance Checks and Services. - Continued

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
10	M	0.3	Auxiliary Fuel Pump and Filter	a. Inspect fuel pump, filter, and four way valve for security of installation, dents, cracks, and fuel leaks (WP 0072 00).	Damage to components or any sign of fuel leaks.
				b. Drain fuel filter/water separator just prior to operation of the AGPU (WP 0073 00).	Milky or abnormal smell of fuel.
11	M	0.1	Fuel Level Sensors	a. Inspect tank at fuel level sensor and low fuel sensor, sight glasses (located the front of AGPU), for leaks, security of installation, and proper wiring connections (WP 0079 00).	Any signs of leaks or loose installation or wiring connections.
12	M	0.1	Pneu-matic System, Hoses, Surge/Bleed Air Solenoid Valves, Pressure Trans-ducer and DC to AC Inverter.	a. Check that pneumatic mounting flange, hose clamps and safety wire on AGPU pneumatic system is secure. Inspect hose for split or cuts, inspect aircraft connector fitting for damage and freedom from dirt and corrosion. (Lubricate aircraft connector as required with OE/HDO (MIL-PRF-2104) to ensure freedom of internal debris flappers). Inspect complete Pneumatic System (WP 0085 00through WP 0088 00).	Damaged or broken clamps or safety wire. Splits or cuts in internal/external pneumatic hose. Missing or frozen debris flappers.
				b. Inspect bleed air surge/solenoid valve for security of installation, burned wires or damaged to valve bodies (WP 0084 00).	Any damage to clamps, valves, hoses, valve bodies or burned wiring.
				c. Inspect AC/DC Inverter, located in pneumatic hose storage compartment. Inspect for security of mounting all wire connections are secure (WP 0071 00).	Frayed wires or loose hardware.
13	M	.2	Hydraulic System	a. Inspect the security and mounting hardware of the hydraulic module. Inspect for all control panel components and instruments and gauges for security and/or operation.	Any damage or missing components to hydraulic module.
				b. Inspect hydraulic module for any signs of hydraulic fluid leakage or damaged piping and fittings. Inspect hydraulic fluid reservoir to ensure fluid level is at least 3/4 full (add hydraulic fluid as required). Perform AOAP sampling after oil sampling purge operation (TM 1-1730-229-13, Operator Instructions).	Any fluid leakage noted higher than a Class I leak, missing or damaged components, abnormal oil sample results

Table 2. Field Preventive Maintenance Checks and Services. - Continued

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
					of hydraulic system contaminated.
				c. Inspect high pressure and low pressure filter bowls for leakage of fluid. Inspect desiccant canister for desiccant color (desiccant granules should be 25% blue in color at a minimum)	Damage to any component or desiccant color less than 25% blue. Fluid leakage greater than Class I.
14	M	.2	Propulsion System	a. Place propulsion system into operation and observe smoothness of operation, both forward and backward. Adjust control pods as necessary (WP 0147 00). Ensure deadman switch is operable (applies electromagnetic brake upon release).	AGPU fails to move or jumps in forward or reverse motion.
				b. Inspect/service components of propulsion system, repair or replace any missing hardware. Inspect wiring and electrical connections for security, corrosion. Frayed or broken wires. Inspect propulsion controller and the components located in electrical bay tray one for missing or broken hardware, corrosion or burned components and wiring (WP 0146 00, WP 0150 00through WP 0153 00).	Any components damaged or missing, burned wires or propulsion will not operate.

NOTE

Perform all Before, During , After and Monthly Preventive Maintenance Checks and Services (PMCS) in conjunction with the following checks and services.

15	S	0.4	Front Axle Assembly	a. Lubricate (WP 0015 00, Lubrication) and (WP 0144 00).
16	S	1.0	Wheel Bearings	a. Inspect wheel bearings (WP 0143 00). Repack (WP 0015 00).
17	S	0.2	Brake Cable Assembly	a. Inspect/adjust brake cable assembly (WP 0146 00). Lubricate (WP 0015 00, Lubrication).
18	S	0.4	Rear Axle	a. Check differential lubrication level and add if required (WP 0015 00, Lubrication). Drain and refill (WP 0015 00, Lubrication) as required.

Table 2. Field Preventive Maintenance Checks and Services. - Continued

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
19	S	0.3	Gear Drive Assembly	a. Check gear drive assembly lubrication level and add if required (WP 0015 00, Lubrication). Drain and refill (WP 0015 00, Lubrication).	
20	S	0.3	Chain Drive Assembly	a. Check chain drive assembly adjustment/lubrication level and add fluid if required (WP 0015 00, Lubrication). Drain and refill (WP 0015 00, Lubricationand WP 0016 00).	

NOTE

Perform all Before, During , After, Monthly and Semi-annual Preventive Maintenance Checks and Services (PMCS) in conjunction with the following checks and services.

21	H	0.2	Generator/Alternator	a. Lubricate (WP 0015 00, Lubrication) every 250 hours.	
22	H	0.3	Engine Fuel Filters	a. Inspect and replace auxiliary and FCU fuel filters every 250 operating hours (WP 0076 00 and WP 0075 00).	
23	H	0.2	Igniter Plug	a. Remove, inspect and reinstall every 100 operating hours (WP 0090 00).	

NOTE

Engine (GTE) oil sampling interval 100 hour or 180 days which ever occurs first.

24	H	0.3	Engine Oil Filter	a. Remove, inspect, and replace every 250 operating hours or semiannually which ever occurs first or 500 hours/annually which ever occurs first (WP 0089 00). Perform AOAP sampling prior to changing filters (WP 0089 00, WP 0112 00 and WP 0095 00).	

NOTE

Engine (GTE) oil sampling interval 100 hour or 180 days which ever occurs first.

Table 2. Field Preventive Maintenance Checks and Services. - Continued

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
25	H	0.2	Engine (GTE) Oil Change	a. Drain and refill every 250 operating hours or semiannually which ever occurs first or 500 hours/annually which ever occurs first (WP 0015 00, Lubrication). Perform AOAP sampling prior to changing engine oil (WP 0089 00, WP 0112 00 and WP 0095 00).	
26	H	0.3	Engine Drain Check Valves	a. Remove Engine drain check valve, inspect, clean and reinstall every 250 operating hours (WP 0089 00). Check that drain hoses are unobstructed (WP 0025 00).	
27	H	0.5	Engine Fuel Nozzle	a. Inspect engine fuel nozzle clean and reinstall every 500 operating hours (WP 0097 00, Fuel Nozzle).	
28	H	0.5	Hydraulic Fluid Filter Elements	a. Remove Hydraulic fluid filters. Replace filter elements and fluid every 300 hours or 6 months and annually at 600 hours which ever comes first.	

NOTE

Perform AOAP sampling of the hydraulic system every 30 days or 50 hours of operation (which ever comes first).

MANDATORY REPLACEMENT PARTS

NA

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU) WHEEL MOUNTED, SELF-PROPELLED, TOWABLE AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V DC - 28 VOLT PNEUMATIC - 60 LBS/MIN. AT 40 PSIG HYDRAULIC - 15.2 GPM AT 3300 PSIG LIN: P44627 PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A) EIC: UEG PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D) EIC: UDG PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E) EIC: UDH

GENERAL INFORMATION

INITIAL SETUP:

NA

GENERAL

The following maintenance procedures are the responsibility of the aviation field maintenance technician as authorized by the Maintenance Allocation Chart (MAC) and Source Maintenance and Recoverability (SMR) coded items in the Repair Parts and Special Tools List (RPSTL). The maintenance procedures in this chapter are prepared in the form of summary and detailed procedures.

MAINTENANCE OPERATIONS

These instructions provide the proper technique and detailed procedures required to perform the maintenance operations. Each maintenance operation provides step-by-step instructions in the order in which the work is most logically accomplished. Any unusual or critical steps are covered in detail.

When maintenance is required, removal and replacement of a part or assembly is indicated. Removal procedures are given only to the extent necessary to repair or replace authorized parts. Most of the components are accessible from the panel(s) on the AGPU.

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

GENERAL INSPECTION AND DIMENSIONAL INSTRUCTIONS FOR ALL MAINTENANCE PRACTICES

INITIAL SETUP:

References
TM 1-1500-344-23
ASTM-E1417

References (cont.)
ASTM-E1444

TEST AND INSPECTION

Full-tolerance dimensional limits are given for individual serviceable parts. Replace parts which do not meet these requirements. However, do not reject a part not complying with a requirement until it has been determined that such parts cannot be repaired to meet limits specified in this section.

Arrange all parts on an inspection table to assist in judgement of the condition of the unit as a whole, with ready reference to other component parts which may have been affected by a worn part. In this way, it will often be possible to determine the cause of any abnormal wear.

If inspection reveals it necessary to repair or replace a part, tag the part to indicate disposition. This will facilitate repair and assembly operations.

Parts which are normally replaced at each overhaul shall be given a cursory inspection, since damage to these parts may reflect malfunction of other components in the unit. This possibility shall be considered when any part has been damaged.

Apply corrosion preventive compound IAW TM 1-1500-344-23 immediately after inspection and cleanup.

1. Instruments. All micrometers, gages, indicators and other measuring instruments or test equipment shall be checked periodically and calibrated accurately in accordance with applicable manufacturers' recommendations.
2. Inspection Records. Good shop practices include the compilation of complete and accurate inspection records. Such records not only expedite repair of the equipment, but ensure a complete and thorough overhaul. Inspection records shall be based upon the requirements outlined in this section. Parts requiring rework or replacement shall be so tagged and a notation of the disposition of these parts shall be entered on the inspection records. The same method shall be followed for parts requiring special treatment such as magnetic or fluorescent inspections, painting, and cadmium plating.
3. Visual Inspection. A visual inspection involves viewing the part for general appearance to determine conditions which cause deviation from normal wear. Whenever these conditions exist, the inspector shall refer to dimension inspection figures related to the damaged part and decide if rework is feasible. The part shall be tagged accordingly and disposed of in the manner utilized by the particular overhaul department. This disposition of the part shall then be noted on inspection records.

TEST AND INSPECTION – CONTINUED

4. Magnetic Particle Inspection. A magnetic particle inspection is necessary for all critical steel parts at each overhaul. This inspection shall be conducted in accordance with Specification ASTM-E1444, but only after a close visual inspection of a part has revealed no defects and a defect is suspected. This procedure will eliminate the time required to perform a magnetic inspection of obviously defective parts.
5. Fluorescent Penetrant. A fluorescent penetrant method of inspection of all critical non-ferrous metal parts is required at each overhaul. This inspection shall be conducted in accordance with Specification ASTM-E1417, Type I, Method A, but only after a close visual inspection of the part has revealed no defects and a defect is suspected. Remove paint only from suspected area. This procedure will eliminate the time required to conduct fluorescent penetrant inspections of obviously defective parts.
6. Dimensional Inspections of Gears and Splines. When measuring splines and gears, two measuring pins are set between the teeth of the spline or gear at points located 180 degrees apart. If the spline or gear has an odd number of teeth, the pins shall be located between teeth as near to the 180 degree position as possible.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

GENERAL REPAIR INSTRUCTIONS

INITIAL SETUP:

Tools and Special Tools
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts
Cleaning Compound, Solvent (WP 0170 00, Item 5)
Cloth, Abrasive (WP 0170 00, Item 7)
Corrosion Resistant Coating, Chemical (WP 0170 00, Item 14)

Materials/Parts (cont.)
Epoxy Primer (WP 0170 00, Item 19)
Lubricant, Solid Film (WP 0170 00, Item 31)
Remover, Paint (WP 0170 00, Item 43)
Remover, Paint (WP 0170 00, Item 44)

References
TM 1-1500-204-23-9
SAE AMS-STD-1595
MIL-A-8625

REPAIR OR REPLACEMENT

NOTE

The repair procedures contained in this section provide instructions to restore repairable assemblies, subassemblies and parts to serviceable condition. Instructions include the application and operation of special tools and test equipment required to perform repair and replacement operations. Common procedures are omitted.

NOTE

The repair and replacement instructions do not cover nonrepairable items. If inspection reveals defects or improper operation of non-repairable item, replace defective item.

1. Cleaning and Corrosion Removal. Parts shall be cleaned, including the removal of corrosion, in accordance with instructions provided in TM 1-1500-204-23-9, Corrosion Removal.
2. Fusion Arc Welding. Welding shall be performed by personnel qualified to SAE AMS-STD-1595.
3. Aluminum Parts. Burrs, nicks, scratches and galling shall be smoothed out with abrasive cloth P-C-451 and oil. Bare spots shall be treated with aluminum touch-up solution as described in Step 5. Reanodize aluminum parts if necessary, in accordance with MIL-A-8625.
4. Steel Parts. Burrs and minor galling, pitting or scratches shall be smoothed out with crocus cloth P-C-458 or with a fine stone.

REPAIR OR REPLACEMENT – CONTINUED

5. Aluminum Touch-Up. Use standard shop procedures to restore and protect aluminum surfaces.
6. Dry-Film Lubrication. Parts requiring dry-film lubrication shall be inspected for damage to the dry-film finish. If base metal is visible or if finish is chipped or scratched, the part shall be replaced or the dry-film surface restored in accordance with MIL-PRF-46010.
7. Expanding Parts by Heat. When removing or installing tight fitting parts, it is sometimes necessary to heat the surrounding metal to facilitate the operation. The most desirable method to accomplish this is by oven heating to the proper temperature; heating the part with a torch is satisfactory if the torch is handled properly. A soft flamed gas torch should be used and flame applied over the entire area surrounding the part to be removed. The flame shall not be held too long in one spot. Except where otherwise specified, aluminum parts shall be kept below 320 °F (160 °C).
8. Rubber Parts, Packing, Seals and Gaskets. Replace all packing with retainers, seals and gaskets (unless specifically directed not to be replaced in text) during repair regardless of condition.
9. Prepare Surfaces for Painting. Prepare surfaces for painting as follows:
    a. Prepare parts for local brush or spray touch up as follows:
        (1) Protect areas of exposed aluminum by removing oxidation or corrosion and applying MIL-C-81706, Class 1A.
        (2) Treat bare spots of aluminum parts with aluminum touch-up solution as described in Step 5.
    b. Prepare parts for complete repainting as follows:
        (1) Prepare areas of exposed aluminum for painting by removing corrosion and applying MIL-C-81706, Class 1A. Where dipping is not desirable or feasible, a brush-on paint stripper may be used. Paint remover conforming to MIL-R-81294, Type 1, Class 1 or TT-R-2918, Type 1, is satisfactory for this method.
        (2) Clean thoroughly, wipe and dry part following stripping operation.
        (3) Treat bare spots on aluminum parts with aluminum touch-up solution as described in Step 5.
    c. Plug all holes and mask all surfaces not to be painted.
10. Primer. Apply primer as follows:
    a. Prepare surfaces for painting in accordance with Step 9.
    b. Apply primer NSN 8010-00-148-7045 (CAGE 71191).
    c. Apply number of coats as required to meet thickness requirements as follows, then cure by air-drying for 15 to 30 minutes and bake for 1 hour at 150 to 175 °F (66 to 79 °C).
        (1) Apply full primer coat thickness between 0.0004 and 0.0006 inch to Type A anodic surfaces between 0.0004 and 0.0008 inch to nonporous surfaces of significant areas, such as flanges, mounting pads, register diameters, packing grooves, AN boss connections and other sprayable areas.
        (2) Apply wet coat to surfaces when dimensional tolerance is 0.0019 inch or less. Wet surfaces with primer using brush, swab, cloth or sponge. Continue to spread primer until uniform, thin film is left on surface.
        (3) Apply wet coat in inaccessible areas, such as passages, recessed areas and cavities that are not functionally significant. Apply primer by dip, fill and drain, slush or swab methods within thickness range between 0.000 and 0.001 inch. Spray method may be employed provided that thickness requirements are maintained. Skips and shadows shall not be accepted.
11. Paint. Apply gloss white paint as follows:
    a. Apply primer in accordance with Step 10.
    b. Apply one color coat.

REPAIR OR REPLACEMENT – CONTINUED

c. Air-dry for 18 hours or bake at 175 to 225 °F (79 to 107 °C) for 1 hour.

12. Replace Loose or Damaged Pins and Studs.

CAUTION

Exercise care not to damage basic part while removing pin or stud.

a. Remove pin or stud from basic part.

WARNING

Degreasing Solvent, MIL-PRF-680, is combustible and toxic to eyes, skin, and respiratory tract. Wear protective gloves and goggles/face shield. Avoid repeated or prolonged contact. Use only in well-ventilated areas (or use approved respirator as determined by local safety/industrial hygiene personnel). Keep away from open flames or other sources of ignition.

b. Clean pin or stud hole with solvent MIL-PRF-680. Allow solvent to evaporate completely.

c. Apply a thin coat of primer NSN 8010-00-148-7045 to sides of hole to receive a new pin or stud. Press pin into position as specified while primer is still wet. Wipe off excessive primer with degreasing solvent.

d. Allow primer to cure for four to six hours at room temperature or bake for one hour at 180 to 275 °F (82 to 135 °C).

13. Replace Loose or Damaged Inserts or Bushings.

CAUTION

Exercise care not to damage basic part while removing bushing.

a. Use long-nose pliers to remove inserts.

b. Press bushings pliers from housing.

CAUTION

Degreasing Solvent, MIL-PRF-680, is combustible and toxic to eyes, skin, and respiratory tract. Wear protective gloves and goggles/face shield. Avoid repeated or prolonged contact. Use only in well-ventilated areas (or use approved respirator as determined by local safety/industrial hygiene personnel). Keep away from open flames or other sources of ignition.

c. Clean insert or bushing hole with solvent MIL-PRF-680. Allow solvent evaporate completely.

d. Apply a thin, even coat of primer NSN 8010-00-148-7045 to sides of hole to receive new insert of bushing.

e. Install new insert of bushing into hole while primer is still wet. Insert shall be installed three-quarters to one and one-half turns below surface of countersink.

f. Allow primer to cure four to six hours at room temperature or by baking for one hour at 180 to 275 °F (82 to 135 °C).

14. Replace Loose, Worn, or Damaged Rosan Studs and Inserts.

a. Replace studs as follows:

REPAIR OR REPLACEMENT – CONTINUED

CAUTION

Exercise care not to damage assembly in which stud is installed.

(1) Cut stud off near to surface of assembly and then file cut end flat. Center punch flat end of stud.

(2) Using a slightly oversized drill bit, large enough to cut inner serrations of lock ring, remove enough of stud to remove serrations.

(3) Drill a small hole into stud to accommodate an appropriate easy out.

CAUTION

Do not allow easy out to catch on lock ring.

(4) Install easy out into stud and back stud out of assembly. Remainder of lock ring shall come out with stud.

(5) Install new stud into assembly. Drive or press lock ring into position.

b. Replace inserts as follows:

CAUTION

Exercise care not to damage assembly in which insert is installed.

(1) Using a rotary mill of appropriate size, mill out lock ring until only a thin shell remains. Remove remainder of lock ring using a scribe or suitable tool.

(2) Install an appropriate size easy out into insert and back insert out of assembly.

(3) Using compressed air, blow out insert hole to remove debris.

(4) Install new insert into assembly. Drive or press lock ring into position.

15. Replace Damaged Keensert Studs.

NOTE

Studs less than 3/8-inch diameter do not have a pilot hole.

a. Cut off stud just above mounting surface to expose pilot hole for removal drill.

CAUTION

Do not allow drill to touch housing or damage may result.

NOTE

If threads of hole for stud are damaged, tap new threads in hole one size larger than existing threads. Use new stud with matching threads. Threads on external portion of stud shall be the same as stud removed.

b. Using pilot hole as a guide, drill out stud remains.

REPAIR OR REPLACEMENT – CONTINUED

WARNING

Use solvent in a well-ventilated area. Avoid excessive skin contact or prolonged inhalation of vapor. Do not use near open flame or in area where high temperatures prevail.

c. Bend locking keys inward and break them off. Remove stud using an easy-out tool.

d. Clean components using acetone to remove all traces of grease or oil and the cleaner shall be allowed to evaporate before the next step.

e. Apply a thin even coat of wet primer to the threaded hole to receive the stud. Application of primer shall be uniform and neat in appearance without bare spots or runs.

f. Blind holes shall be coated to cover the adjacent walls with primer. The bottom need not be covered. Allow primer to dry 2 or 3 minutes before installing the stud.

g. Through holes in components shall be coated to cover all internal surfaces through to the adjacent painted surfaces. The end of the stud need not be covered.

h. While the primer is still soft, stud shall be turned into threaded hole until step is 0.010 to 0.030 inch below machined surface. Using a punch, drive lock keys into keyways of stud until flush with step of stud.

NOTE

Surfaces adjacent to the locking device of the stud shall be touched up by wiping on a thin even wet coat of primer to seal scratches and insulate dissimilar metal surface. A thin even coat of primer shall be applied to the area around the studs to seal all surfaces from the joint in all directions.

i. Allow primer to cure 4 to 6 hours at room temperature or for 1 hour at 180 to 275 °F (82 to 135 °C) prior to assembly usage.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

LIFTING EYES

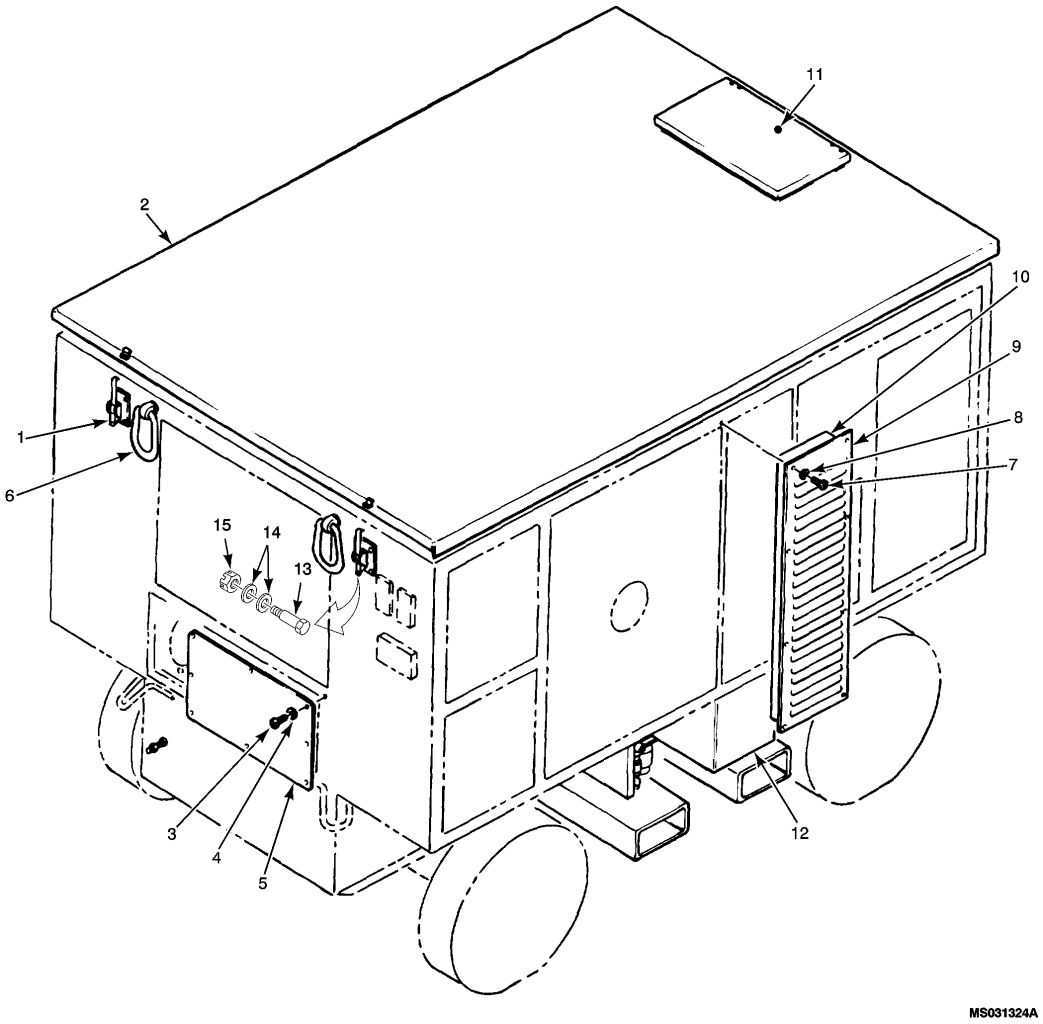
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK
(WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Anti-Seize Compound (WP 0170 00, Item 3)



1. Latch, Roof	4. Washer	7. Screw	10. Shroud
2. Roof	5. Cover, Battery Charger Access	8. Washer	11. Exhaust Flapper
3. Screw	6. Lifting Eye	9. Cover, Air Intake	12. Cover, Air Cleaner Exhaust

Figure 1. Frame and Housing Covers, Right Rear Three Quarter View.

REMOVAL

Remove lifting eye (Figure 1, Item 6) by inserting 1" solid rod or 1/2 " pry bar and by unscrewing lifting bolt from frame by turning counter clockwise.

INSTALLATION

Install lifting eye (Figure 1, Item 6) by coating threads with anti-seize compound and screwing in lifting eye and tightening with 1" solid rod or 1/2" pry bar clockwise until lifting eye is parallel with top of roof (Figure 1, Item 2) and tight.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
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DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

COVERS

INITIAL SETUP:

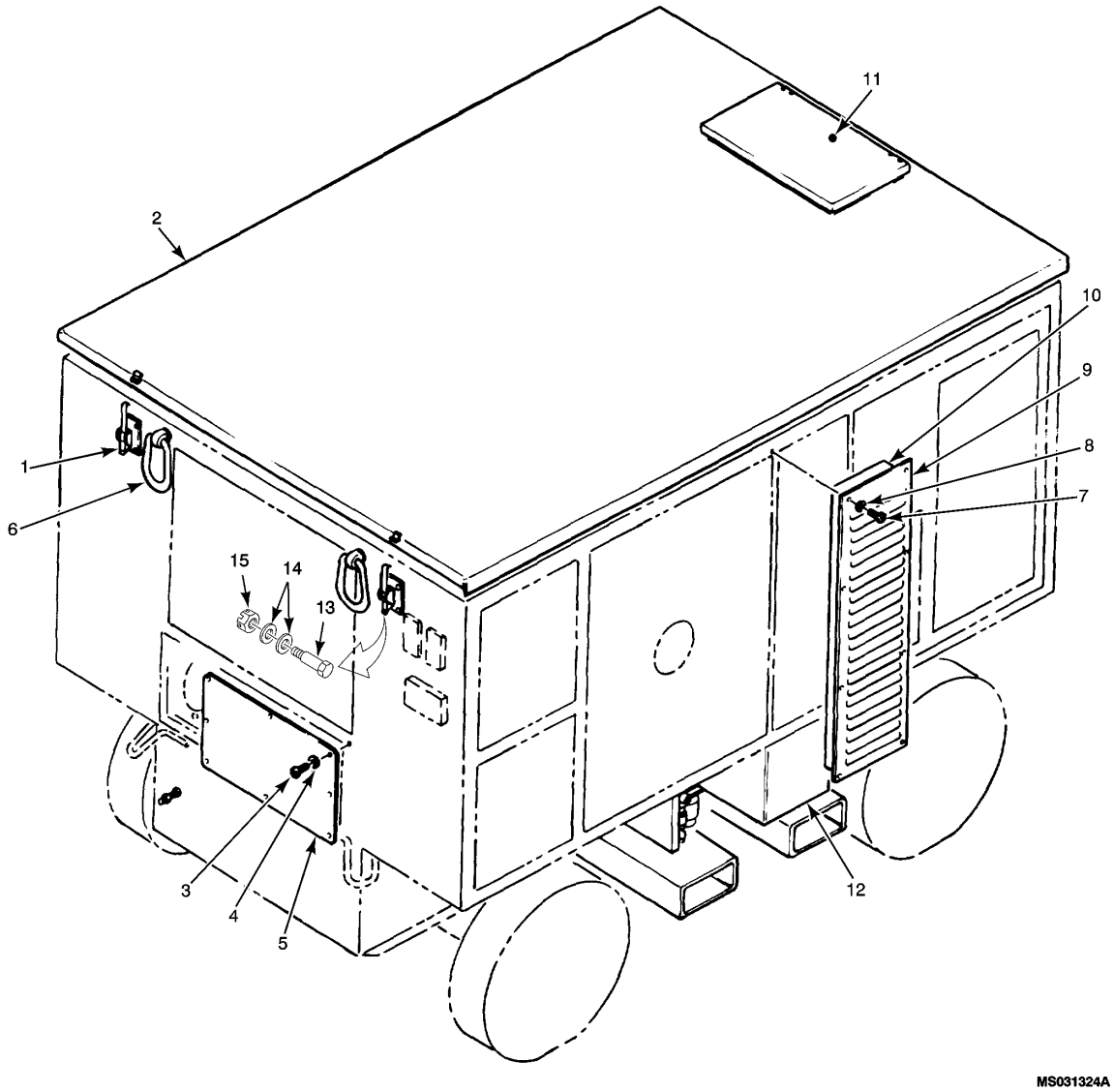
Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)

Tools and Special Tools (cont.)

Tool Set, Aviation Unit (WP 0171 00, Item 42)

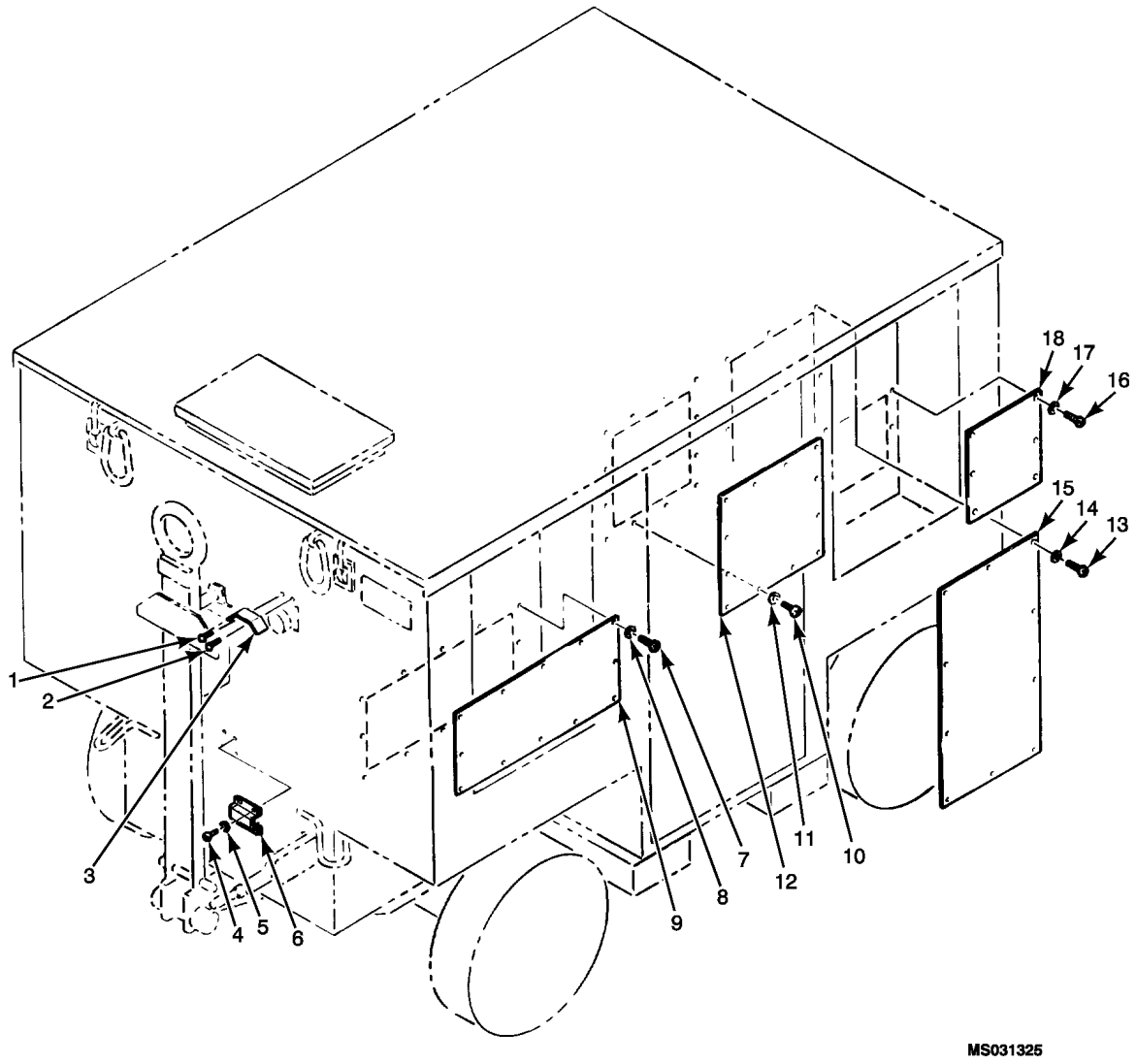
REMOVAL



1. Latch
2. Roof
3. Screw
4. Washer
5. Cover, Battery Charger Access
6. Lifting Eye
7. Screw
8. Washer
9. Cover, Air Intake
10. Shroud
11. Exhaust Flapper
12. Cover, Air Cleaner Exhaust'dljbnodzjnb

Figure 1. Frame and Housing Covers, Right Rear Three Quarter View.

REMOVAL – CONTINUED



1. Rivet
2. Rivet
3. Shield, Emergency Stop Switch
4. Screw
5. Washer
6. Shield, Exhaust Ejector Drain
7. Screw
8. Washer
9. Cover, Exhaust Access
10. Screw
11. Washer
12. Cover, Engine Access
13. Screw
14. Washer
15. Cover, Hydraulic Access
16. Screw
17. Washer
18. Cover, Fuel Access

Figure 2. Frame and Housing Covers, Right Front Three Quarter View.

1. Remove battery charger access cover (Figure 1, Item 5) by removing eight screws (Figure 1, Item 3) and washers (Figure 1, Item 4).

REMOVAL – CONTINUED

2. Remove exhaust access cover (Figure 2, Item 9) by first removing AC power cable from storage compartment and then removing twelve screws (Figure 2, Item 7) and washers (Figure 2, Item 8).
3. Remove engine access cover (Figure 2, Item 12) by first opening pneumatic hose access door and removing pneumatic hose and then removing twelve screws (Figure 2, Item 10) and washers (Figure 2, Item 11).
4. Remove hydraulic access cover (Figure 2, Item 15) by first removing DC power cable from storage compartment and then removing twelve screws (Figure 2, Item 13) and washers (Figure 2, Item 14).
5. Remove fuel access cover (Figure 2, Item 18) by first removing DC power cable from storage compartment and then removing four screws (Figure 2, Item 16) and washers (Figure 2, Item 17).

INSTALLATION

1. Install battery charger access cover (Figure 1, Item 5) with eight screws (Figure 1, Item 3) and washers (Figure 1, Item 4).
2. Install exhaust access cover (Figure 2, Item 9) with twelve screws (Figure 2, Item 7) and washers (Figure 2, Item 8). Replace AC power cable in storage compartment.
3. Install engine access cover (Figure 2, Item 12) with twelve screws (Figure 2, Item 10) and washers (Figure 2, Item 11). Replace pneumatic hose and close access door.
4. Install hydraulic access cover (Figure 2, Item 15) with twelve screws (Figure 2, Item 13) and washers (Figure 2, Item 14). Replace DC power cable in storage compartment.
5. Install fuel access cover (Figure 2, Item 18) with four screws (Figure 2, Item 16) and washers (Figure 2, Item 17). Replace DC power cable in storage compartment.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

ROOF

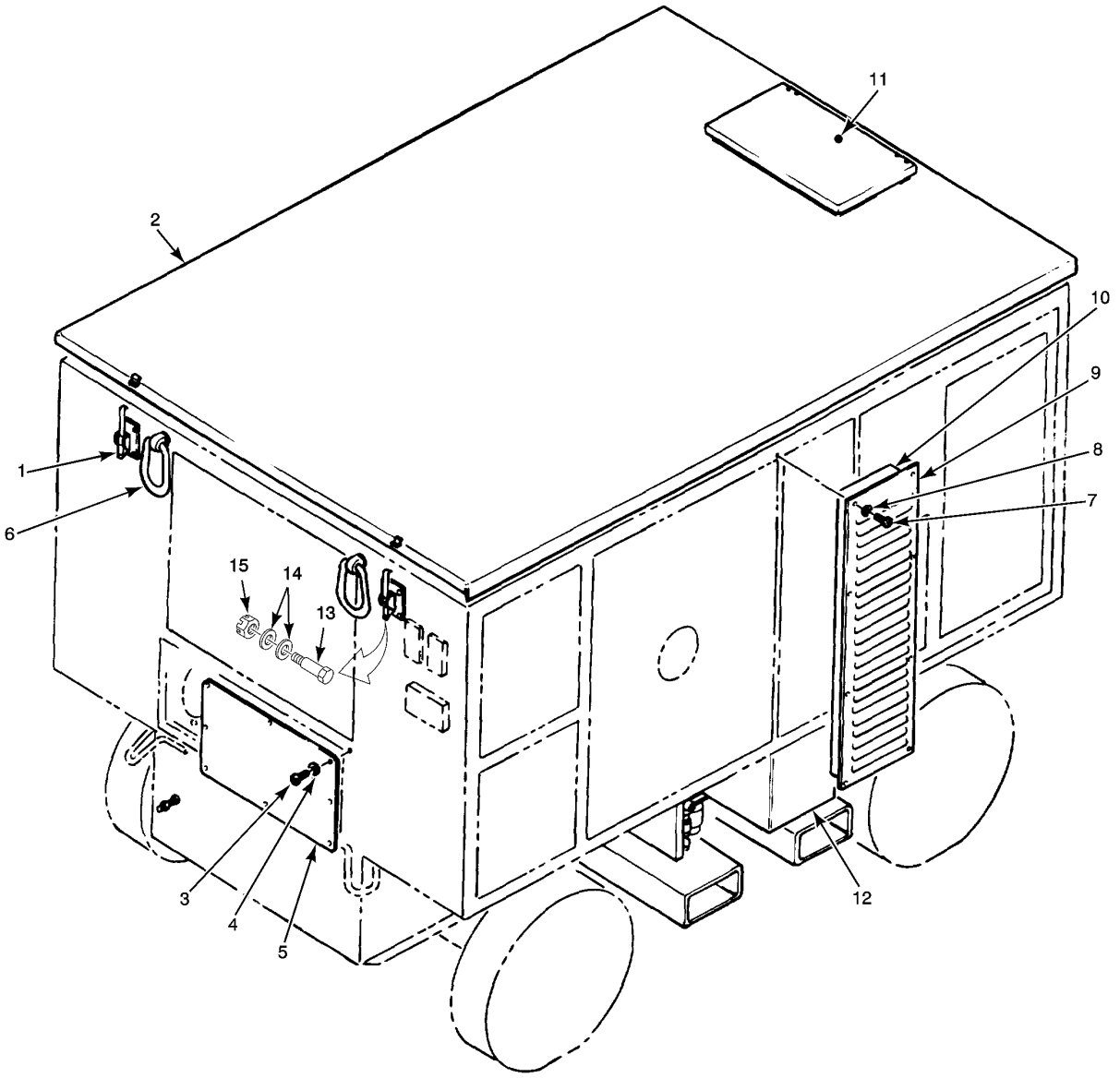
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)

Tools and Special Tools (cont.)

Tool Set, Aviation Unit (WP 0171 00, Item 42)



1. Latch	5. Cover, Battery Charger Access	9. Cover, Air Intake	13. Bolt
2. Roof	6. Lifting Eye	10. Shroud	14. Washer
3. Screw	7. Screw	11. Exhaust Flapper	15. Lock Nut
4. Washer	8. Washer	12. Cover, Air Cleaner Exhaust	

Figure 1. Roof.

REMOVAL

CAUTION

During removal of the roof, one person should be stationed at each corner of the roof to prevent warping or damage to the roof.

1. Remove bolt (Figure 1, Item 13) from each latch (Figure 1, Item 1) by removing lock nut (Figure 1, Item 15) and washers (Figure 1, Item 14).

REMOVAL – CONTINUED

2. Release four latches (Figure 1, Item 1) securing roof (Figure 1, Item 2) to AGPU.
3. With one person at each corner, lift the roof assembly to clear the top of the AGPU and walk the roof to the side of the AGPU until roof is clear. Set the roof on a flat surface (metal side down) to safeguard insulation.

INSTALLATION

1. With one person at each corner of the roof (Figure 1, Item 2) walk the roof to the AGPU and place the roof on top of the AGPU.
2. Secure the roof (Figure 1, Item 2) to the top of the AGPU with four latches (Figure 1, Item 1).
3. Install four screws (Figure 1, Item 13) into latches (Figure 1, Item 1) with two washers (Figure 1, Item 14) and lock nut (Figure 1, Item 15).

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
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EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

AIR CLEANER ASSEMBLY

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0021 00
WP 0034 00

INSPECTION OF INSTALLED ITEMS

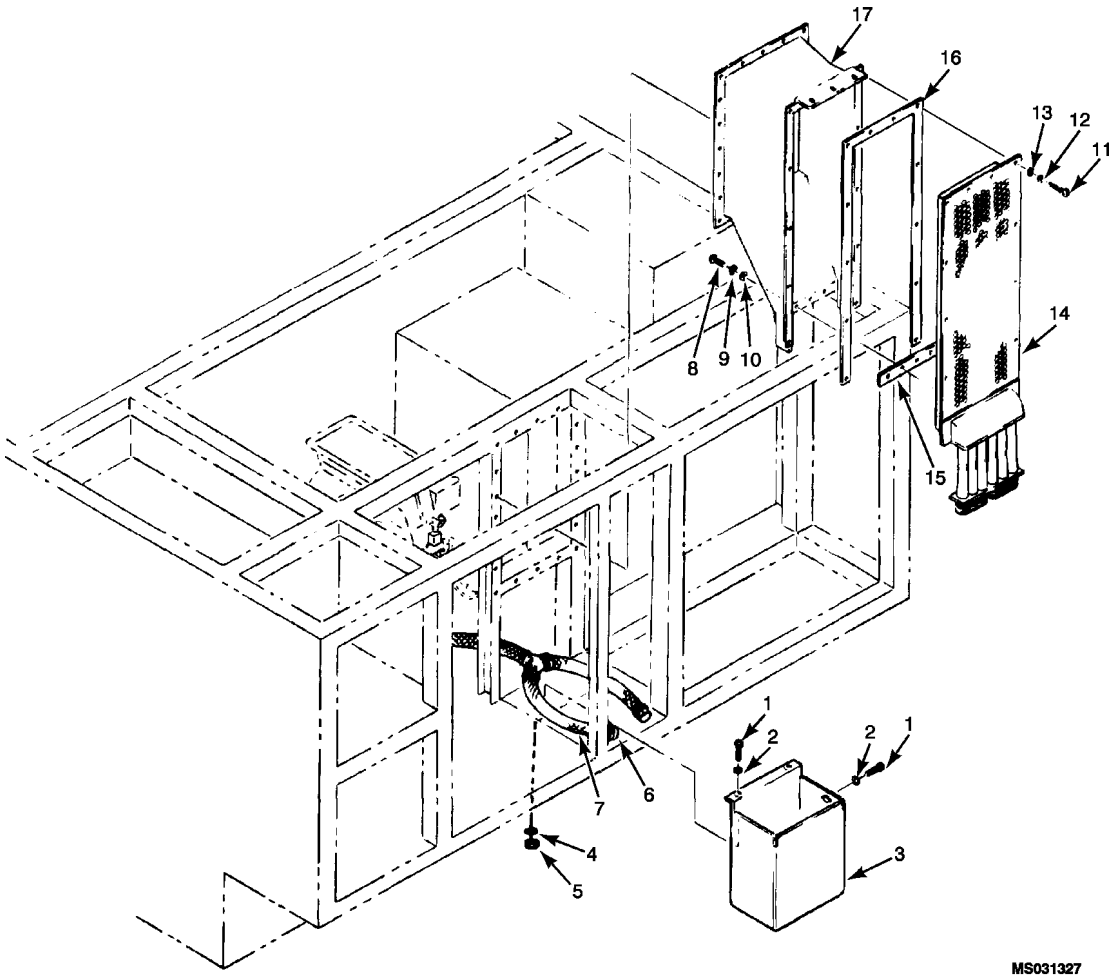
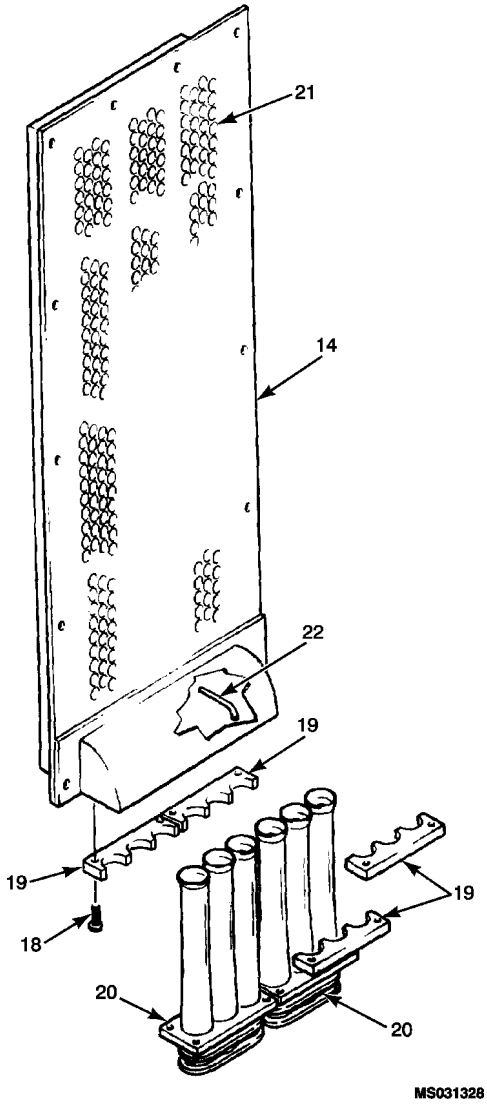


Figure 1. Air Cleaner and Air Intake Duct Assemblies (Sheet 1 of 2).

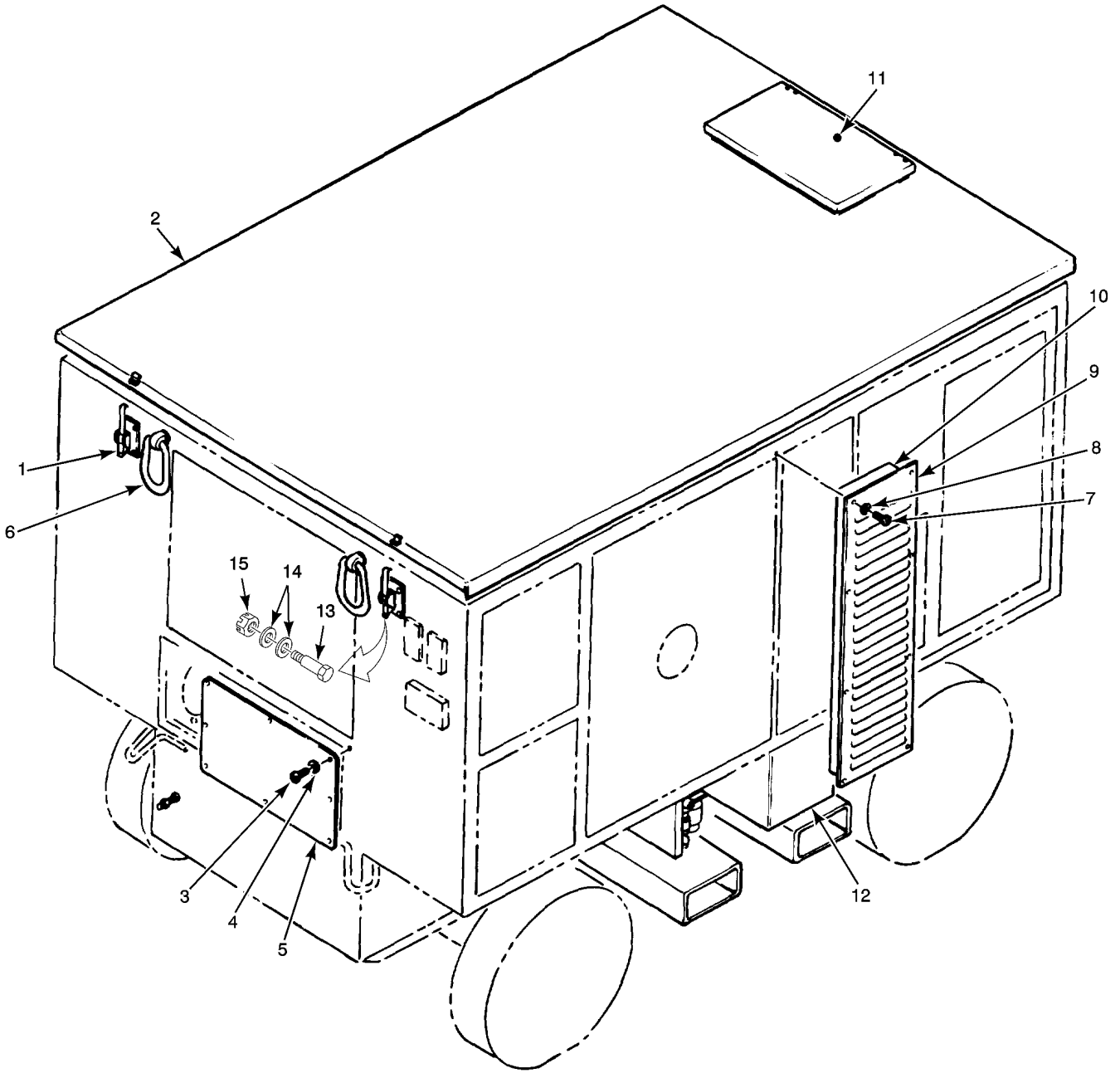
INSPECTION OF INSTALLED ITEMS – CONTINUED



1. Screw	9. Lockwasher	17. Duct, Outer
2. Washer, Flat	10. Washer, Flat	18. Bolt
3. Ejector Tube Cover	11. Screw	19. Bracket
4. Washer	12. Lockwasher	20. Ejector Tube Assembly
5. Nut	13. Washer, Flat	21. Swirlers
6. Clamp, Hose	14. Air Cleaner	22. Nozzle
7. Hose, Bleed Air	15. Gasket, Small	
8. Screw	16. Gasket, Large	

Figure 1. Air Cleaner and Air Intake Duct Assemblies (Sheet 2 of 2).

INSPECTION OF INSTALLED ITEMS – CONTINUED



1. Latch	5. Cover, Battery Charger Access	9. Cover, Air Intake
2. Roof	6. Lifting Eye	10. Shroud
3. Screw	7. Screw	11. Exhaust Flapper
4. Lockwasher	8. Lockwasher	12. Cover, Air Cleaner Exhaust

Figure 2. Frame and Housing Covers, Right Rear Three Quarter View.

INSPECTION OF INSTALLED ITEMS – CONTINUED

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Remove intake cover (Figure 2, Item 9) and shroud (Figure 2, Item 10) by removing eight screws (Figure 2, Item 7) and lock washers (Figure 2, Item 8).
3. Inspect air cleaner assembly (Figure 1, Item 14) for missing or damaged tubes (Figure 1, Item 21). Remove debris and vacuum out all tubes and face of cleaner. Replace cleaner assembly if tubes are missing or damaged.

REMOVAL

1. Remove intake cover and shroud by performing by removing eight screws (Figure 2, Item 7) and lock washers (Figure 2, Item 8).
2. Open engine access door (WP 0021 00, Figure 2).
3. Loose two hose clamps (Figure 1, Item 6) and disconnect two bleed air hoses (Figure 1, Item 7) from fittings on bottom of air cleaner (Figure 1, Item 14).
4. Remove ejector tube cover (Figure 1, Item 3) by removing four screws (Figure 1, Item 1), washers (Figure 1, Item 2). Some models may have two lock washers (Figure 1, Item 4), and two nuts (Figure 1, Item 5).
5. Remove four screws (Figure 1, Item 8), lock washers (Figure 1, Item 9), and flat washers (Figure 1, Item 10) from bottom of outer duct (Figure 1, Item 17).
6. Remove air cleaner (Figure 1, Item 14) by removing twelve screws (Figure 1, Item 11), lock washers (Figure 1, Item 12), and flat washers (Figure 1, Item 13).
7. Remove two ejector tube assemblies, (Figure 1, Item 20) by removing eight bolts (Figure 1, Item 18) and four brackets (Figure 1, Item 19).
8. Inspect gaskets (Figure 1, Item 15 and 16) for cuts, tears, or other damage. Reuse gasket if not damaged.
9. Inspect six air cleaner nozzles (Figure 1, Item 22) for cracks or deformation. Replace air cleaner if damaged.
10. Inspect six nozzles (Figure 1, Item 22) for clogged openings. If clogged, use small wire to remove obstruction (do not enlarge opening).

REPAIR OR REPLACEMENT

Inspect air cleaner for missing or damaged tubes (Figure 1, Item 21). Replace air cleaner if tubes are missing or damaged. Replace broken or cracked ejector tube assemblies (Figure 1, Item 20).

INSTALLATION

1. Ensure gaskets (Figure 1, Item 15 and 16) are in position on outer duct (Figure 1, Item 17).
2. Install air cleaner (Figure 1, Item 14) and secure with twelve screws (Figure 1, Item 11), lock washers (Figure 1, Item 12), and flat washers (Figure 1, Item 13).
3. Install four screws (Figure 1, Item 8), lock washers (Figure 1, Item 9), and flat washers (Figure 1, Item 10) at bottom of outer duct (Figure 1, Item 17).
4. Connect two bleed air hoses (Figure 1, Item 7) to fittings on bottom of air cleaner (Figure 1, Item 14), and secure by tightening two hose clamps (Figure 1, Item 6).
5. Install two ejector tube assemblies (Figure 1, Item 20) with four brackets (Figure 1, Item 19) and eight bolts (Figure 1, Item 18).
6. Install ejector tube cover (Figure 1, Item 3) with four screws (Figure 1, Item 1) and washers (Figure 1, Item 2).
7. Install intake cover (Figure 2, Item 9) and shroud (Figure 2, Item 10) with eight screws (Figure 2, Item 7) and lock washers (Figure 2, Item 8).

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
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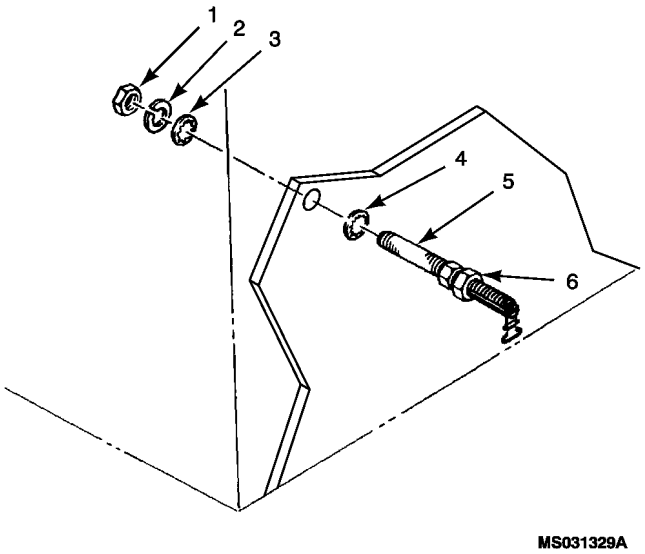
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

GROUND STUD

INITIAL SETUP:

Tools and Special Tools
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)

Tools and Special Tools (cont.)
Tool Set, Aviation Unit (WP 0171 00, Item 42)



1. Nut
2. Washer, Flat
3. Washer, Star
4. Washer, Star
5. Ground Stud
6. Nut, Outer

Figure 1. Ground Stud Installation.

REMOVAL

NOTE

Ensure that hand brake is set and wheels are chocked before beginning procedure.

Remove nut (Figure 1, Item 1), flat washer (Figure 1, Item 2), star washer (Figure 1, Item 3) and remove ground stud (Figure 1, Item 5) with star washer (Figure 1, Item 4).

INSTALLATION

Ensure that area around hole in chassis is clean and free from corrosion and paint. Install star washer (Figure 1, Item 4) on ground stud (Figure 1, Item 5) and install in hole in chassis. Install flat washer (Figure 1, Item 2), star washer (Figure 1, Item 3) and nut (Figure 1, Item 1).

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
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EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

DRAIN TUBES

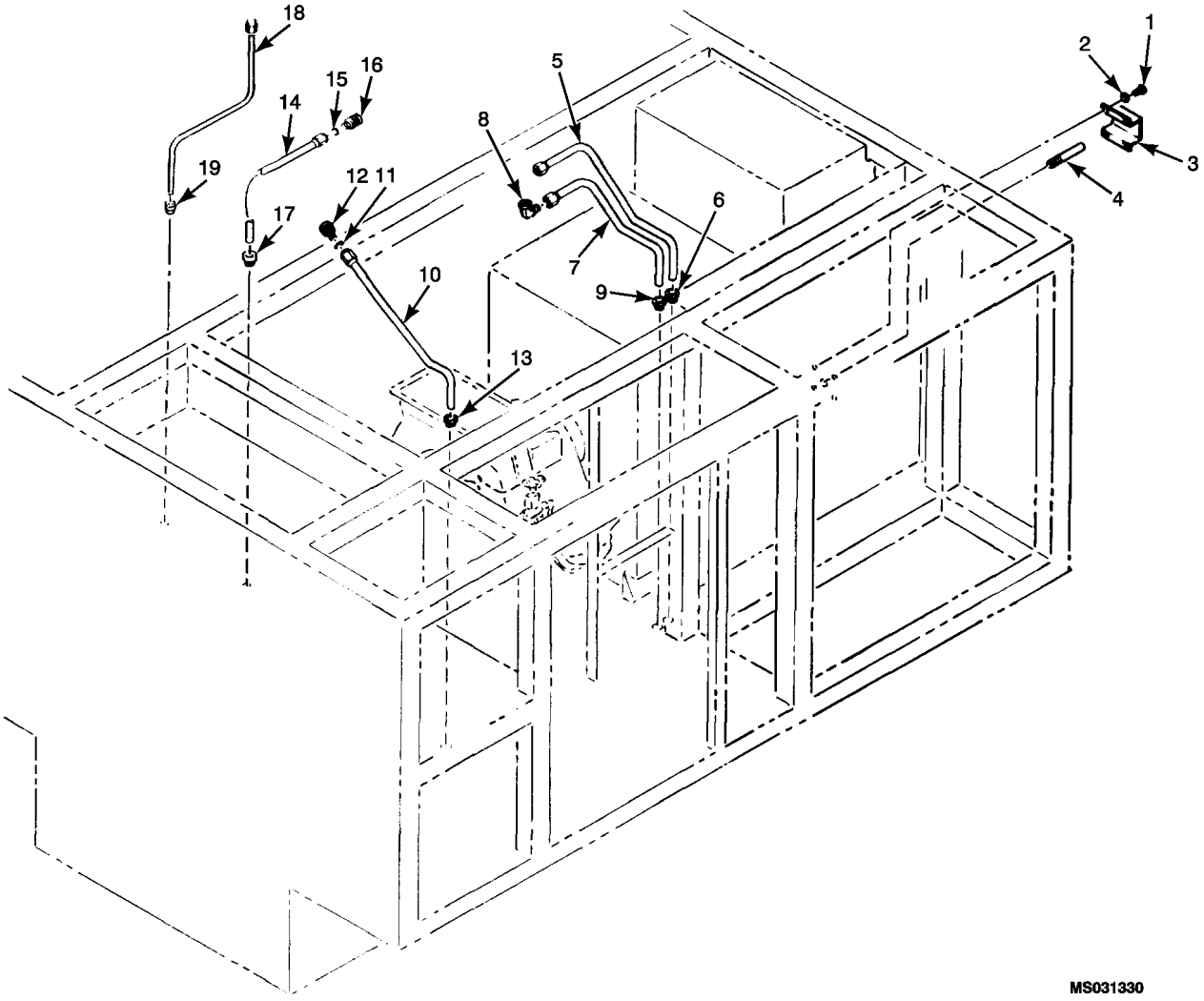
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK
(WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0021 00



1. Screw	8. Elbow, Swivel	15. Packing
2. Washer, Flat	9. Grommet	16. Nut, Coupling
3. Cover	10. Tube, FCU Drain	17. Grommet
4. Tube, Exhaust Ejector Drain	11. Packing	18. Tube, Hydraulic Pump Drain
5. Tube, Turbine Engine Drain	12. Nut, Coupling	19. Grommet
6. Grommet	13. Grommet	
7. Tube, Combustor Drain	14. Tube, Gearcase Drain	

Figure 1. Drain Tubes and Fittings.

REMOVAL

1. Remove exhaust ejector drain tube (Figure 1, Item 4) by unthreading tube, after removal of cover (Figure 1, Item 3) and four attaching screws (Figure 1, Item 1) and flat washers (Figure 1, Item 2).
2. Open engine access door (WP 0021 00, Figure 2, Item 12).
3. Remove turbine engine drain tube (Figure 1, Item 5) and combustor drain tube (Figure 1, Item 7).
4. Remove Fuel Control Unit (FCU) drain tube (Figure 1, Item 10).
5. Remove gearcase drain tube (Figure 1, Item 14).

REMOVAL – CONTINUED

6. Remove hydraulic pump drain tube (Figure 1, Item 18).

INSTALLATION

1. Install exhaust ejector drain tube (Figure 1, Item 4) by threading tube into ejector tube. Install cover (Figure 1, Item 3) with four attaching screws (Figure 1, Item 1) and flat washers (Figure 1, Item 2).
2. Install turbine engine drain tube (Figure 1, Item 5) and combustor drain tube (Figure 1, Item 7). Route tubes through floor grommet.
3. Install FCU drain tube (Figure 1, Item 10). Route tube through floor grommet.
4. Install gearcase drain tube (Figure 1, Item 14). Route tube through floor grommet.
5. Install hydraulic pump drain tube (Figure 1, Item 18).
6. Close engine access door.

END OF WORK PACKAGE

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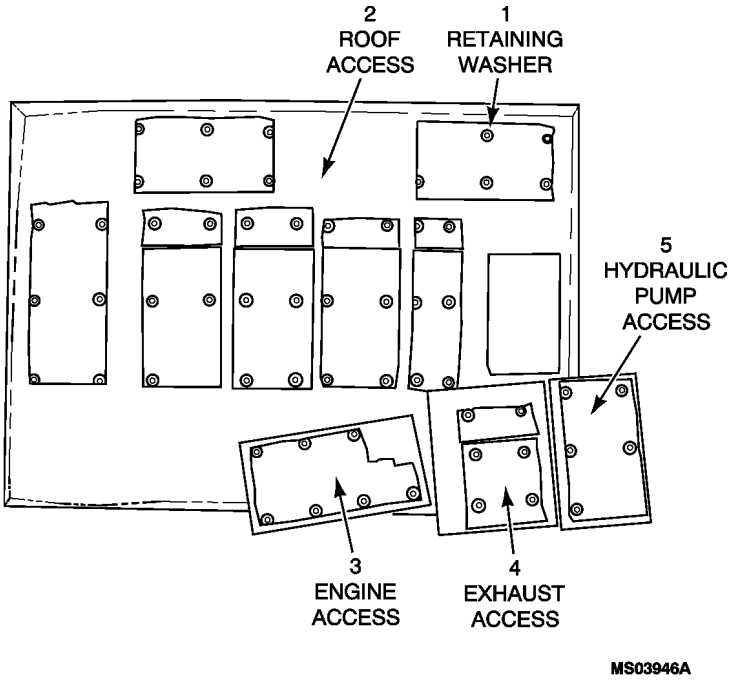
PART NO. MEP 83-360D NSN 1730-01-466-9371 EIC: UDG
PART NO. MEP 83-360E NSN 1730-01-552-2313 EIC: UDH

INSULATION

INITIAL SETUP:

Tools and Special Tools
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References
WP 0021 00
WP 0022 00



1. Retaining Washer
2. Roof, Access Panel
3. Engine Access Panel
4. Exhaust Access Panel
5. Hydraulic Pump Access Panel

Figure 1. Insulation Inspection Points.

INSPECTION OF INSTALLED ITEMS

1. Remove all access panels (WP 0021 00) and the roof (WP 0022 00).
2. Perform inspection of all internal insulation for damage and loose or missing retaining washers (Figure 1, Item 1).

INSPECTION OF INSTALLED ITEMS – CONTINUED

3. Perform inspection of all roof insulation for damage and loose or missing retaining washers (Figure 1, Item 1).
4. Perform inspection of all access panels (Figure 1, Item 2, 3, 4 and 5) insulation for damage and loose or missing retaining washer.
5. Minor damage to insulation such as dents, minor cuts or abrasions is allowed. Replace full section of insulation if oil or fuel soaked or torn or missing portions of insulation section.
6. Replace any missing retaining washers (Figure 1, Item 1) on any panel of insulation.
7. Notify maintenance supervisor if portions of insulation are missing or retaining washers (Figure 1, Item 1) are missing.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

GENERAL MAINTENANCE, FRAME AND HOUSING

INITIAL SETUP:

Tools and Special Tools
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts
Cleaning Compound, Solvent (WP 0170 00, Item 5)
Cleaning Compound, Solvent (WP 0170 00, Item 6)
Corrosion Preventive Compound (WP 0170 00, Item 12)
Corrosion Preventive Compound (WP 0170 00, Item 13)

Materials/Parts (cont.)
Epoxy Primer Coating Kit (WP 0170 00, Item 20)
Isopropyl Alcohol, Technical (WP 0170 00, Item 28)
Polyurethane Coating (WP 0170 00, Item 39)
Polyurethane Coating (WP 0170 00, Item 40)

References
MIL-DTL-53072
MIL-STD-1261
MIL-STD-2219
WP 0019 00

SERVICE

WARNING

Cleaning Compound Solvent, MIL-PRF-680, is combustible and toxic to eyes, skin, and respiratory tract. Wear protective gloves and goggles/face shield. Avoid repeated or prolonged contact. Use only in well-ventilated areas (or use approved respirator as determined by local safety/industrial hygiene personnel). Keep away from open flames or other sources of ignition.

WARNING

Isopropyl alcohol, TT-I-735, is flammable and toxic to eyes, skin, and respiratory tract. Wear protective gloves and goggles/face shield. Avoid repeated or prolonged contact. Use only in well ventilated areas (or use approved respirator as determined by local safety/hygiene personnel). Keep away from open flames, sparks, or other sources of ignition.

1. **Cleaning.** Cleaning of the frame and housing, and propulsion system components can be accomplished with soap and water, followed by a fresh water rinse and wipe down with clean cloths. Stubborn grease and

SERVICE – CONTINUED

grime may require cleaning with solvent MIL-PRF-680, Type II or III or TT-I-735. Clean electrical components by vacuuming and/or wiping with a cloth dampened with isopropyl alcohol.

2. **Welding.** The frame and housing is constructed of 1010/20 steel; weld per MIL-STD-2219. The exhaust ejector is constructed of 304/321 SST; weld per MIL-STD-1261 Class I. Welding allowed on engine components is covered in WP 0019 00, Fusion Arc Welding.
3. **Riveted Assemblies.** Riveted assemblies (door hinges, latches, and attaching hardware) may be replaced as follows:
    a. Drill out rivets using care not to enlarge holes.
    b. Clean area under riveted assembly to remove all signs of rust or corrosion.
    c. Touchup paint if required.
    d. Install assembly and rivet. Touchup paint as required.
4. **Painting.** Standard surface preparation and painting procedures per MIL-DTL-53072 are used for the frame and housing, and propulsion system components. Whenever it becomes necessary to remove paint to bare metal it is necessary to clean and smooth the rough edges or remaining paint, treat the bare metal, and then paint the surfaces. Do not paint surfaces not previously painted, such as anodized or galvanized surfaces.
    a. Ensure surface is free of all rust or corrosion.

WARNING

Cleaning Compound Solvent, MIL-PRF-680, is combustible and toxic to eyes, skin, and respiratory tract. Wear protective gloves and goggles/face shield. Avoid repeated or prolonged contact. Use only in well-ventilated areas (or use approved respirator as determined by local safety/industrial hygiene personnel). Keep away from open flames or other sources of ignition.

    b. Clean surface to be painted using cleaning solvent to ensure it is free from all oil and grease.
    c. Pretreat area to be painted with a wash using primer DOD-P-15328 or MIL-C-10578, Type III, within 4 hours after cleaning. Allow to air dry.
    d. Apply primer coat MIL-P-53030, and allow to air dry.
    e. Apply final coat of desert sand or 383 green MIL-C-53039, and allow to air dry.
5. **Corrosion Contro.**

CAUTION

Do not spray electrical connector pins and receptacle contacts with any corrosion preventive compound (CPC) other than MIL-C-81309E(3) Type III.

    a. Electrical Connector Pins/Contacts. Disconnect all electrical connectors and spray corrosion preventive compound (CPC) MIL-C-81309E(3) Type III (NSN 8030-00-546-8637) on connector pins and mating receptacle contacts. Reconnect electrical connectors.

CAUTION

Do not spray CPC MIL-C-85054 Type I on electrical connector pins or contacts, components subject to heat (engine), or moving parts such as door hinges.

    b. Electrical Terminals. Spray corrosion preventive compound (CPC MIL-C-85054 Type I, NSN 8030-01-041-1596) on following electrical terminals (after cleaning):

SERVICE – CONTINUED

(1) Behind control panel - indicator lights, switches, and meters.

(2) Electrical compartment component terminals.

(3) Upper and lower tray component terminals.

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

FRAME AND PANELS

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0016 00
WP 0027 00

INSPECTION, REPLACEMENT AND REPAIR OF FRAME, PANELS, AND INSULATION

The frame and panels are a welded one-piece unit. The frame and panels are constructed from 1010/1020 steel channel, angle, and sheet stock. Weld per MIL-STD-1261 CL1.

INSPECTION, REPLACEMENT AND REPAIR OF FRAME, PANELS, AND INSULATION – Continued

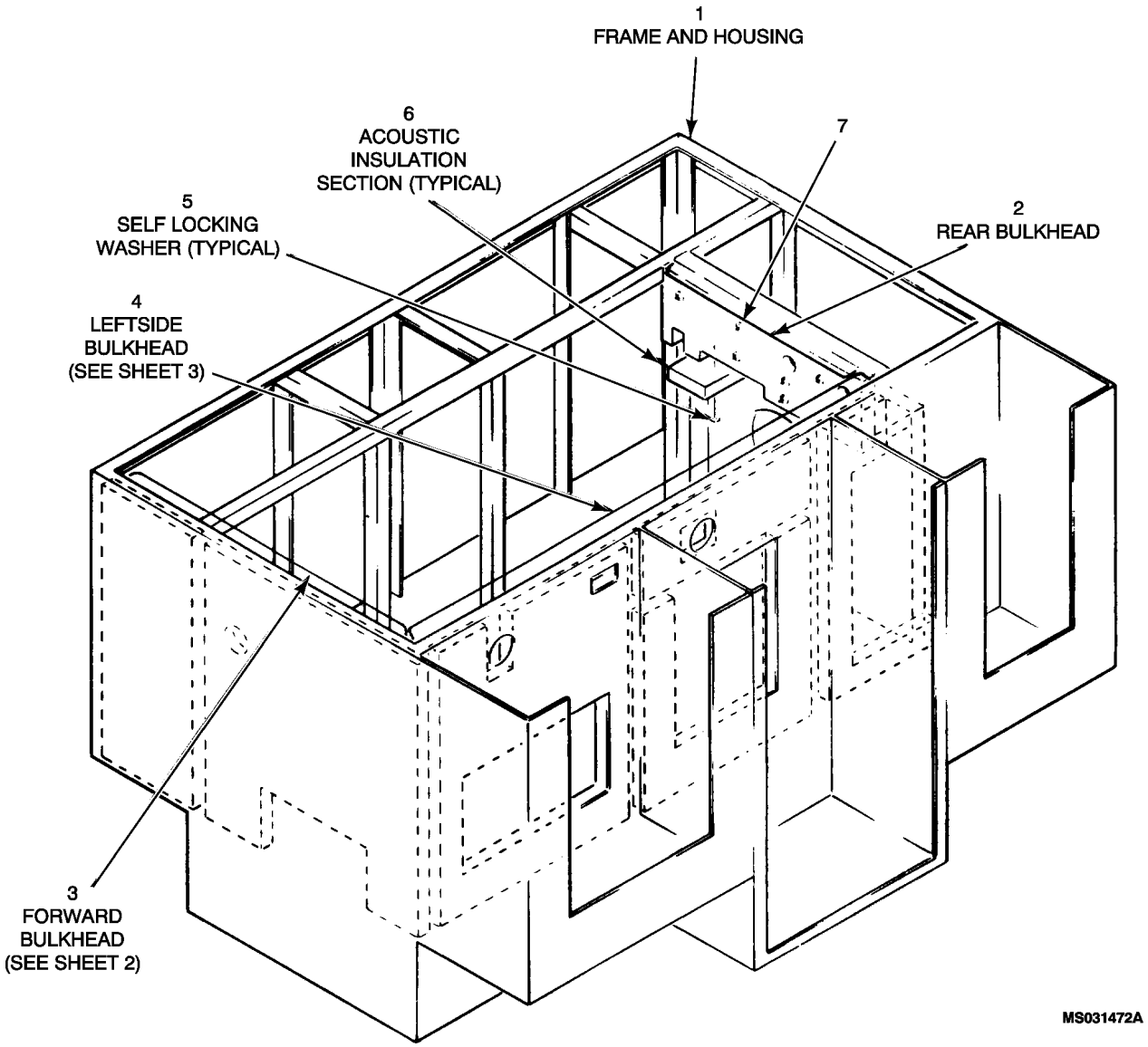


Figure 1. Acoustic Insulation, Frame and Housing (Sheet 1 of 3).

INSPECTION, REPLACEMENT AND REPAIR OF FRAME, PANELS, AND INSULATION – Continued

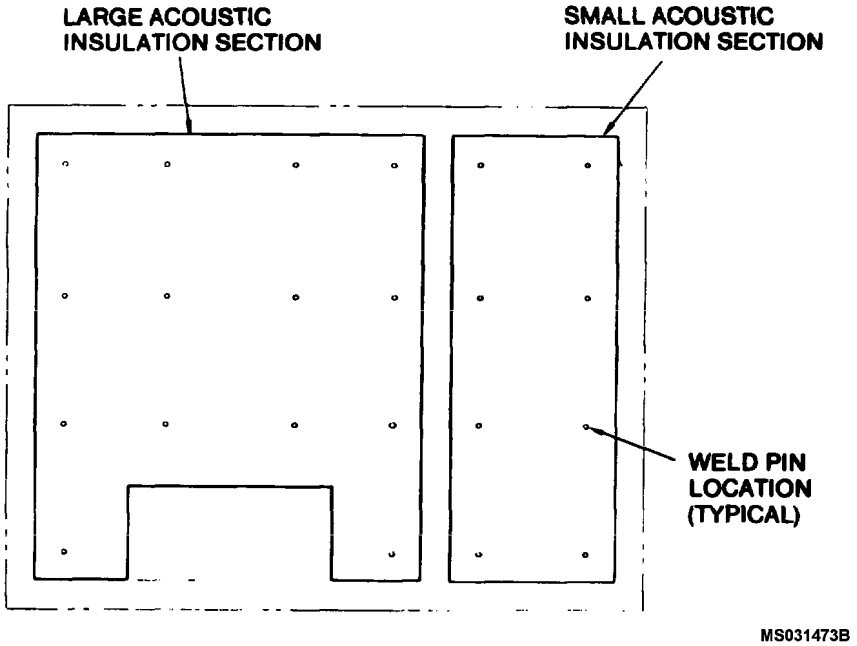


Figure 1. Acoustic Insulation, Frame and Housing (Sheet 2 of 3).

INSPECTION, REPLACEMENT AND REPAIR OF FRAME, PANELS, AND INSULATION – Continued

Rear and Left Bulkhead

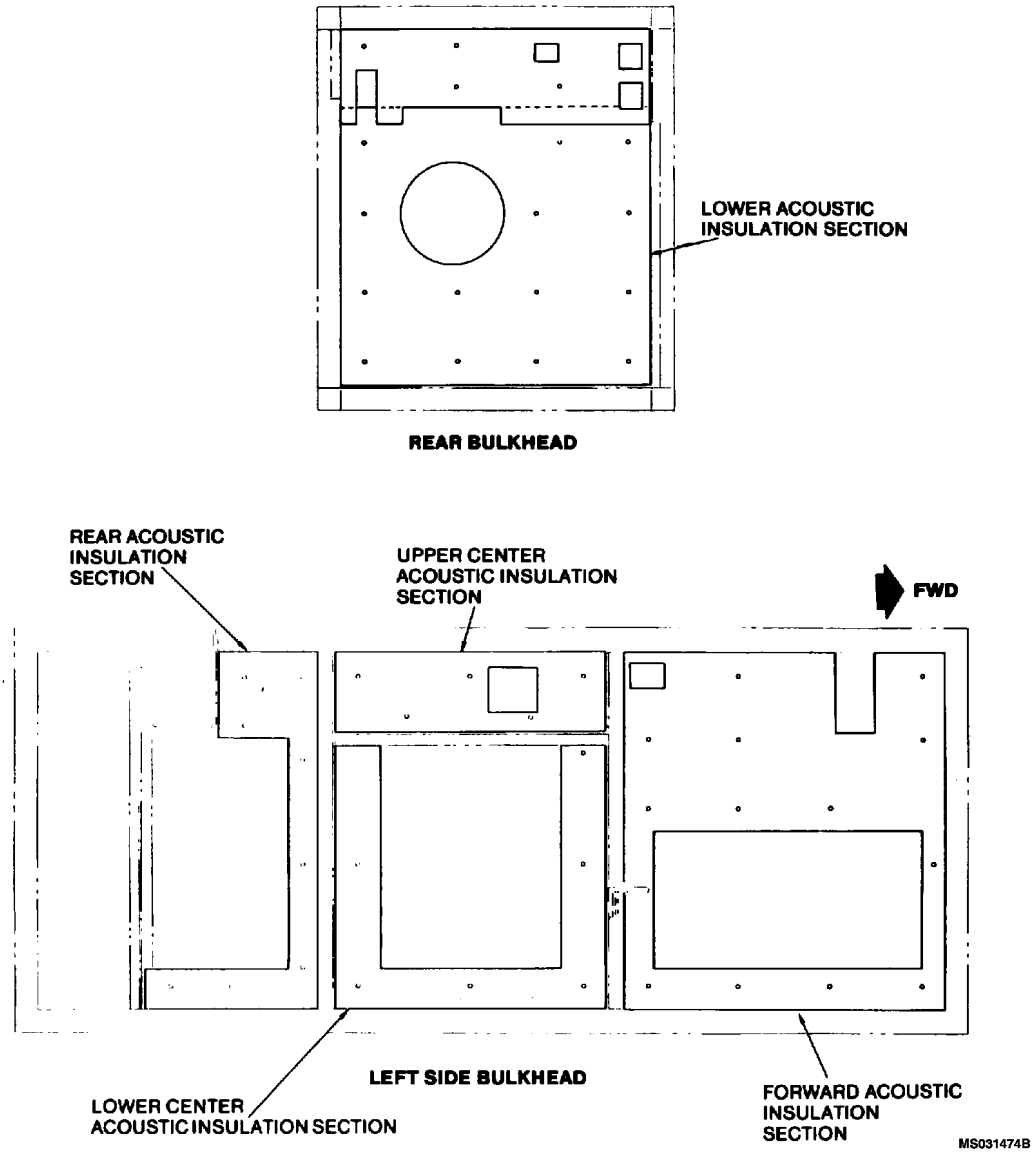
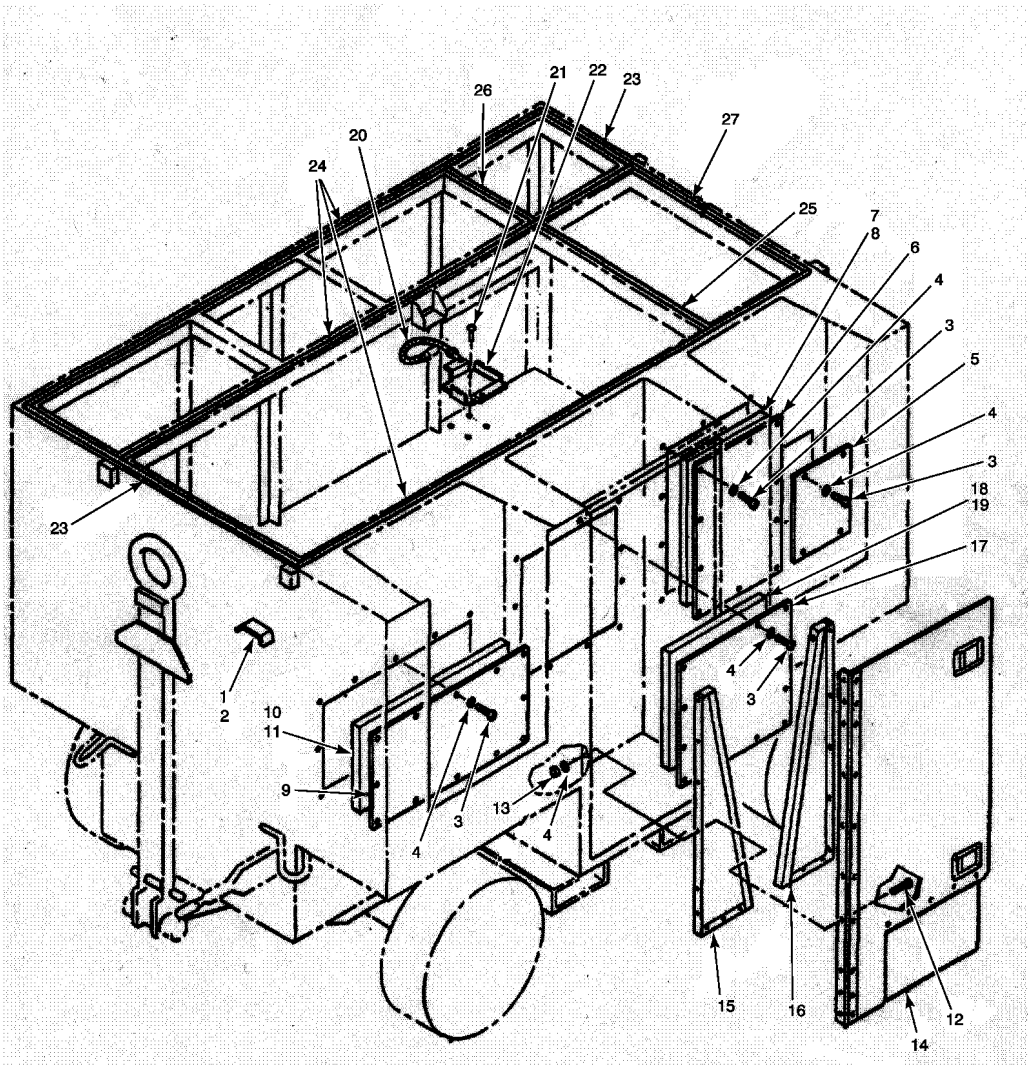


Figure 1. Acoustic Insulation, Frame and Housing (Sheet 3 of 3).

INSPECTION, REPLACEMENT AND REPAIR OF FRAME, PANELS, AND INSULATION – Continued



1. Washer, Flat	8. Washer, Self Locking, Weld Pin	15. Retainer Hose, Pneumatic, Left Hand Side	22. Bracket, Hydraulic Manifold
2. Sheet, Sleet, Emergency Switch	9. Panel Assembly, Side Porch Exhaust	16. Retainer, Hose, Pneumatic, Right Hand Side	23. Seal, Roof (Front)
3. Screw, Pan Head	10. Insulation, Acoustic	17. Panel, Assembly, Access, Side Porch, Engine	24. Seal, Roof (Outside and Inside bulkhead) (Left)
4. Lockwasher	11. Washer, Self Locking, Weld Pin	18. Insulation, Acoustic	25. Seal, Roof (Front inside bulkhead) (Right)
5. Panel, Fuel Access	12. Screw, Pan Head	19. Washer, Self Locking, Weld Pin	26. Seal, Roof (Front Inside bulkhead (Left)
6. Panel Assembly, Access, Side Porch, Hydraulic Module	13. Nut, Plain	20. Cord, Shock, Elastic	27. Seal Channel
7. Insulation, Acoustic	14. Door Access, Pneumatic	21. Rivet, Dome Head	

Figure 2. Frame and Housing, Panels and Doors, Left Hand Side.

TEST AND INSPECTION

Inspect frame and panels for cracks and weld stress (WP 0016 00).

REPAIR OR REPLACEMENT

1. Repair cracks in channels and angles by welding.
2. Repair damaged panels by straightening and welding, or if severely damaged replace with new sheet stock (cut to size).
3. Clean and paint repaired area in accordance with WP 0027 00.
4. Repair nut plates (Figure 1. Sheet 1 of 3, Item 7).
    a. Drill out rivets on damaged nut plate (Figure 1. Sheet 1 of 3, Item 7) and remove nut plate (Figure 1. Sheet 1 of 3, Item 7).
    b. Clean and paint area under nut plate (Figure 1. Sheet 1 of 3, Item 7).
    c. Install new 10-32 (MS21076L3 NSN 5310-00-771-7406) nut plate (Figure 1. Sheet 1 of 3, Item 7) or 6-32 (MS21076L6 NSN 5310-00-771-7396) nut plate (Figure 1. Sheet 1 of 3, Item 7) with rivets (3/32 x.125/.250 grip).
5. Replace damaged or missing weld pins (Figure 1. Sheet 2 of 3, Item 3) (to retain acoustic insulation).
    a. Remove self-locking washers (Figure 1. Sheet 1 of 3, Item 5) retaining acoustic insulation and remove insulation section.
    b. If applicable, remove damaged weld pin (Figure 1. Sheet 2 of 3, Item 3).
    c. Install new weld pin (83-14851-04) (Figure 1. Sheet 2 of 3, Item 3) using pin welder PW500 (Erico Jones) or equivalent.
    d. Touchup paint repaired area.
6. Replace damaged or missing acoustic insulation (Figure 1. Sheet 1 of 3, Item 6).
    a. Remove self-locking washers (Figure 1. Sheet 1 of 3, Item 5) from weld pins.
    b. Remove damaged acoustic insulation (Figure 1. Sheet 1 of 3, Item 6) section.
    c. Replace any missing or damaged weld pins (Figure 1. Sheet 2 of 3, Item 3).
    d. Clean and paint area behind insulation section.
    e. Position replacement insulation section over weld pins (Figure 1. Sheet 2 of 3, Item 3) and press into place.
    f. Install self-locking washers (83-14852) (Figure 1. Sheet 1 of 3, Item 5) on weld pins (Figure 1. Sheet 2 of 3, Item 3) to hold insulation section in place.
7. Replace damaged roof seal (Figure 2, Item 23).
    a. Remove damaged roof seal (Figure 2, Item 23).
    b. Ensure that seal channel is free from rust or corrosion. Clean and touchup paint if required.
    c. Press new roof seal (Figure 2, Item 23) into seal channel (Figure 2, Item 27).

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

COVERS

INITIAL SETUP:

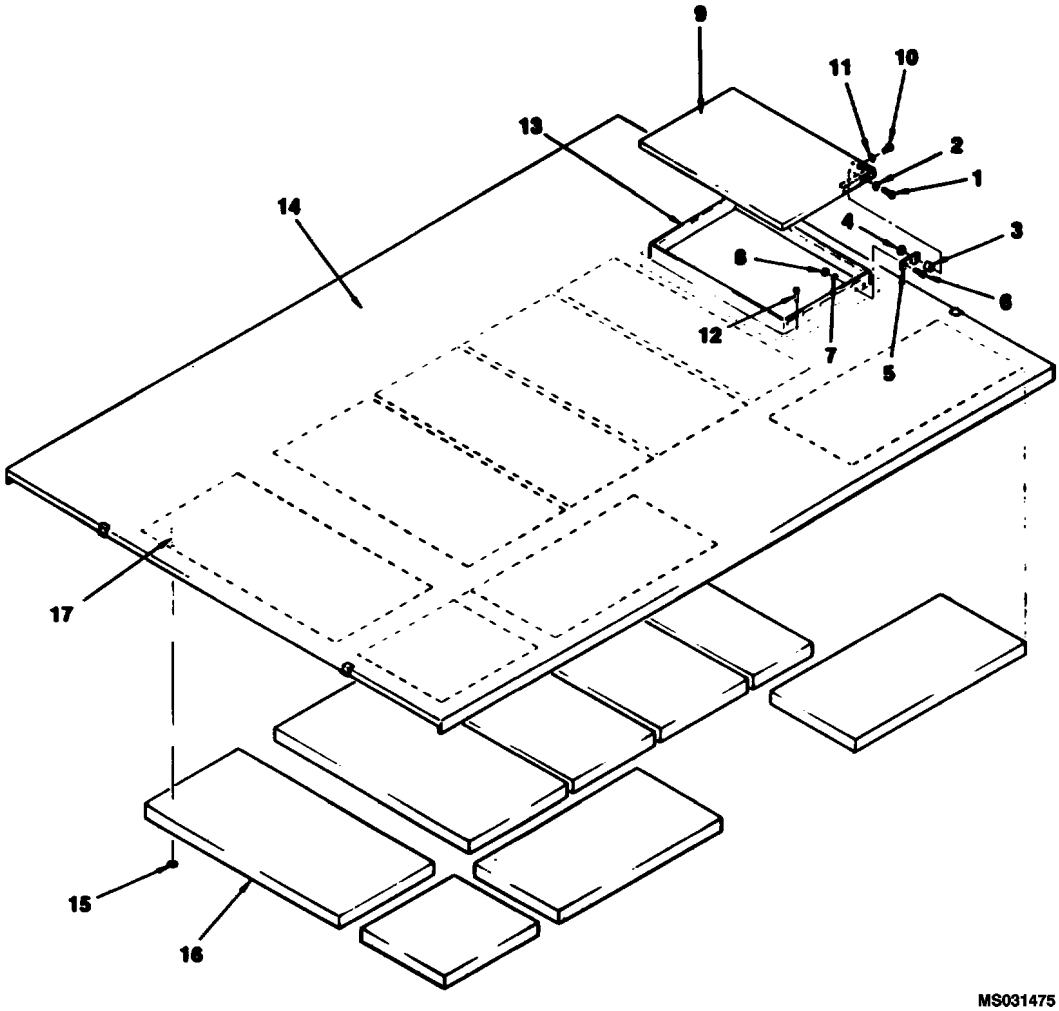
Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0028 00

GENERAL



1. Screw	6. Screw	11. Nut	16. Insulation, Acoustic
2. Washer	7. Washer	12. Rivet	17. Weld Pin
3. Spacer	8. Nut	13. Stack, Exhaust	
4. Nut	9. Flapper, Exhaust (MEP 83-360A and MEP 83-360D)	14. Roof	
5. Bracket, Hinge	10. Screw	15. Washer, Self-Locking	

Figure 1. Roof Assembly.

REPAIR OR REPLACEMENT

1. Repair flat covers.
    a. Straighten and paint covers.
    b. Replace acoustic insulation on back of covers (WP 0028 00).
2. Repair roof (Figure 1).
3. Repair or replace exhaust flapper (Figure 1, Item 9).
    a. Replace exhaust flapper (Figure 1, Item 9) by removing two screws (Figure 1, Item 1), washers (Figure 1, Item 2), spacers (Figure 1, Item 3), and nuts (Figure 1, Item 4).

REPAIR OR REPLACEMENT – CONTINUED

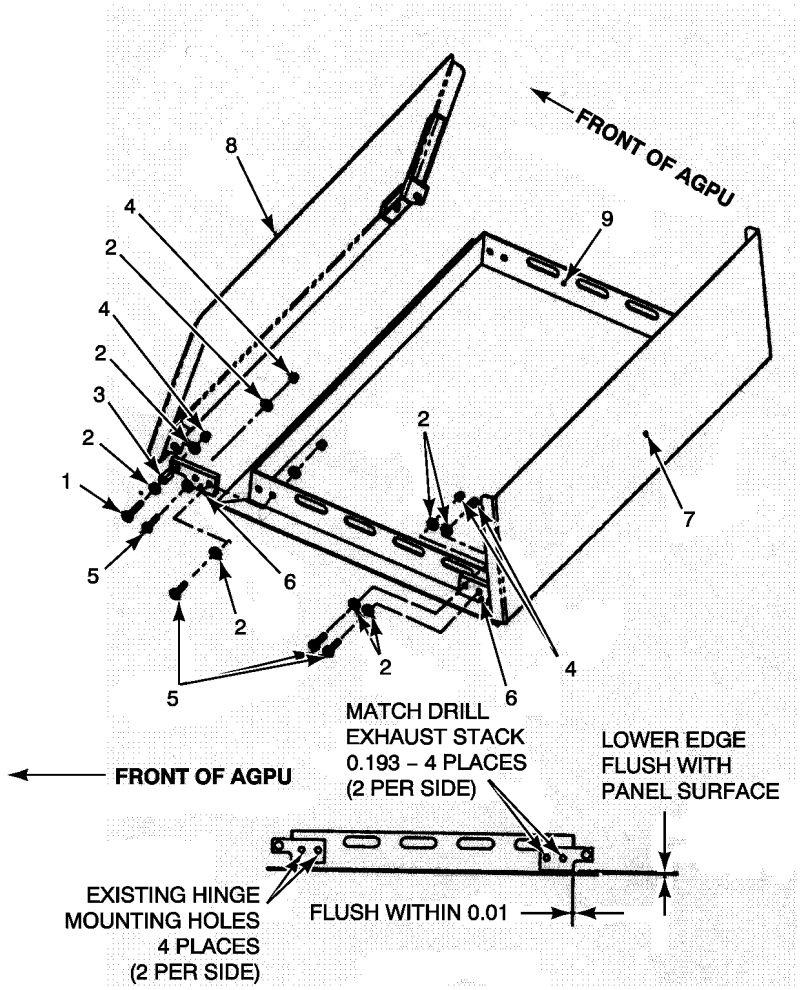
b. Adjust exhaust flapper so that it will not open over approximately 80 degrees by adjusting screws (Figure 1, Item 10). Lock screws (Figure 1, Item 10) in place by tightening nuts (Figure 1, Item 11).

c. Replace hinge bracket (Figure 1, Item 5) by removing two screws (Figure 1, Item 6), washers (Figure 1, Item 7), and nuts (Figure 1, Item 8).

d. Replace exhaust stack (Figure 1, Item 13) by drilling out 30 rivets (Figure 1, Item 12), and installing new exhaust stack and rivets.

e. Replace weld pins (Figure 1, Item 17), acoustic insulation (Figure 1, Item 16), and self-locking washers (Figure 1, Item 15) as described in WP 0028 00.

f. Refer to Figure 2 and Figure 3 for upgraded exhaust flapper replacement and adjustment.



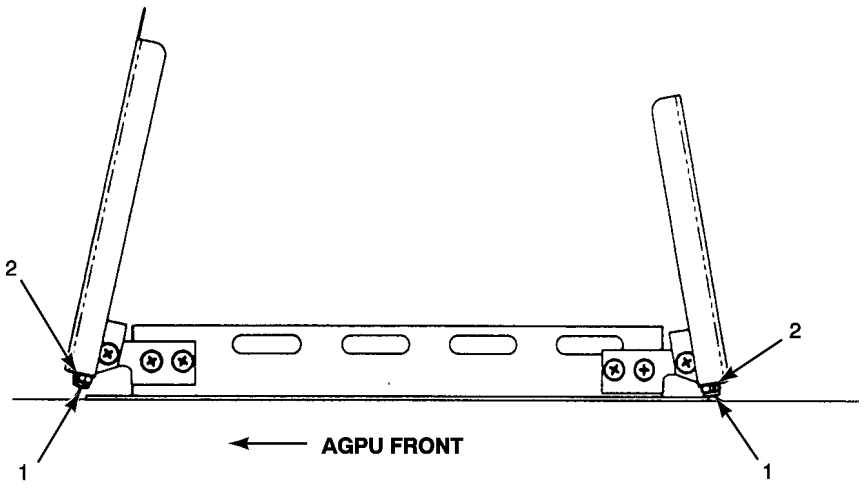
SIDE VIEW

MS035701

1. Screw
2. Washer
3. Bushing
4. Nut
5. Screw
6. Hinge
7. Aft Exhaust Flapper Door
8. Forward Exhaust Flapper Door
9. Exhaust

Figure 2. Dual Exhaust Flapper Door Installation (MEP 83-360E).

REPAIR OR REPLACEMENT – CONTINUED



1. Screw
2. Stop Nut

Figure 3. Dual Exhaust Flapper Door Installation Rigging (MEP 83-360E).

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

ACCESS DOORS

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

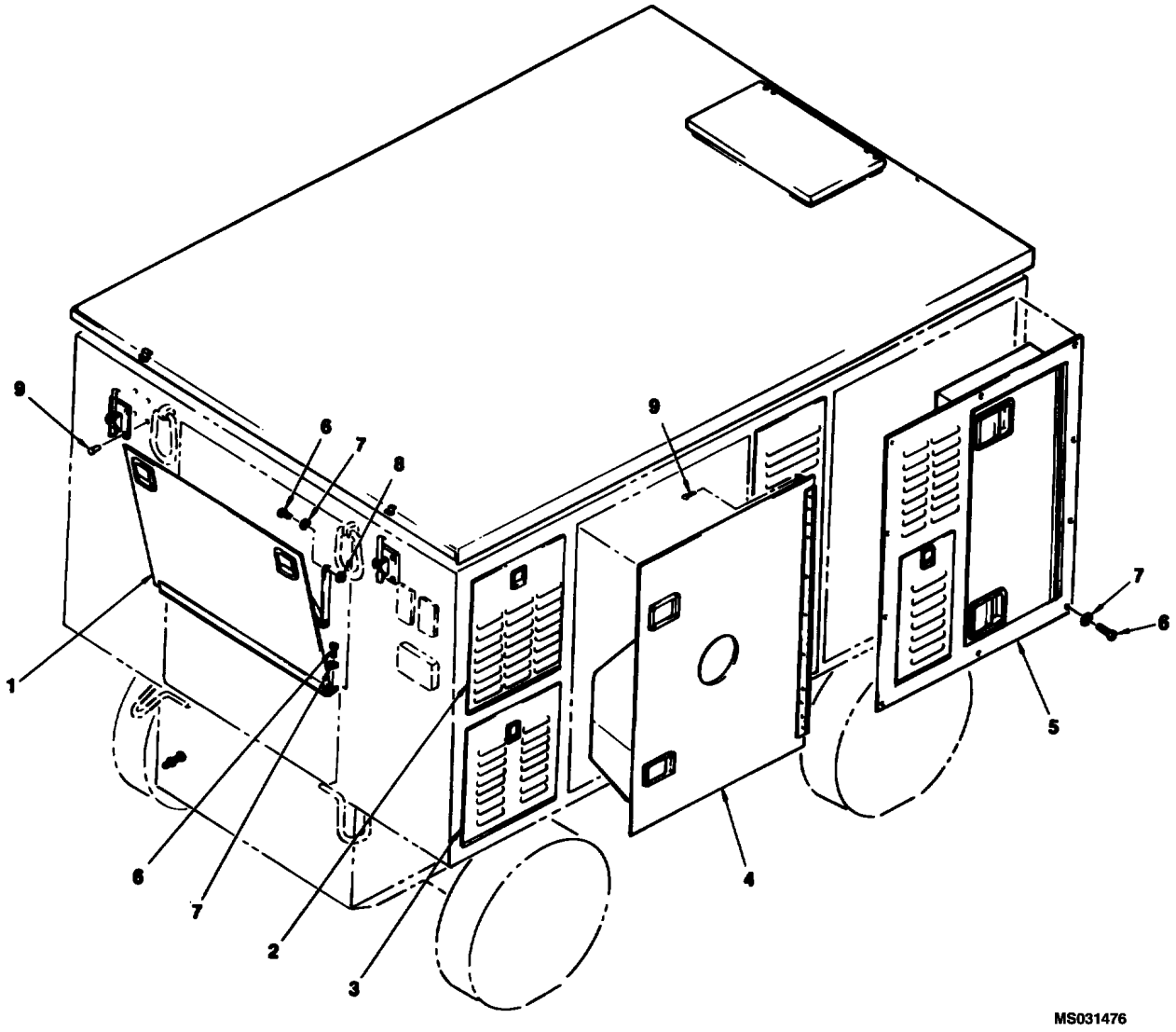
References

WP 0002 00
WP 0028 00
WP 0029 00

GENERAL

WP 0029 00, Figure 1 shows location of all access doors except the pneumatic hose access door which is located on the left side of the AGPU. Figure 2 through Figure 8 illustrate access door details.

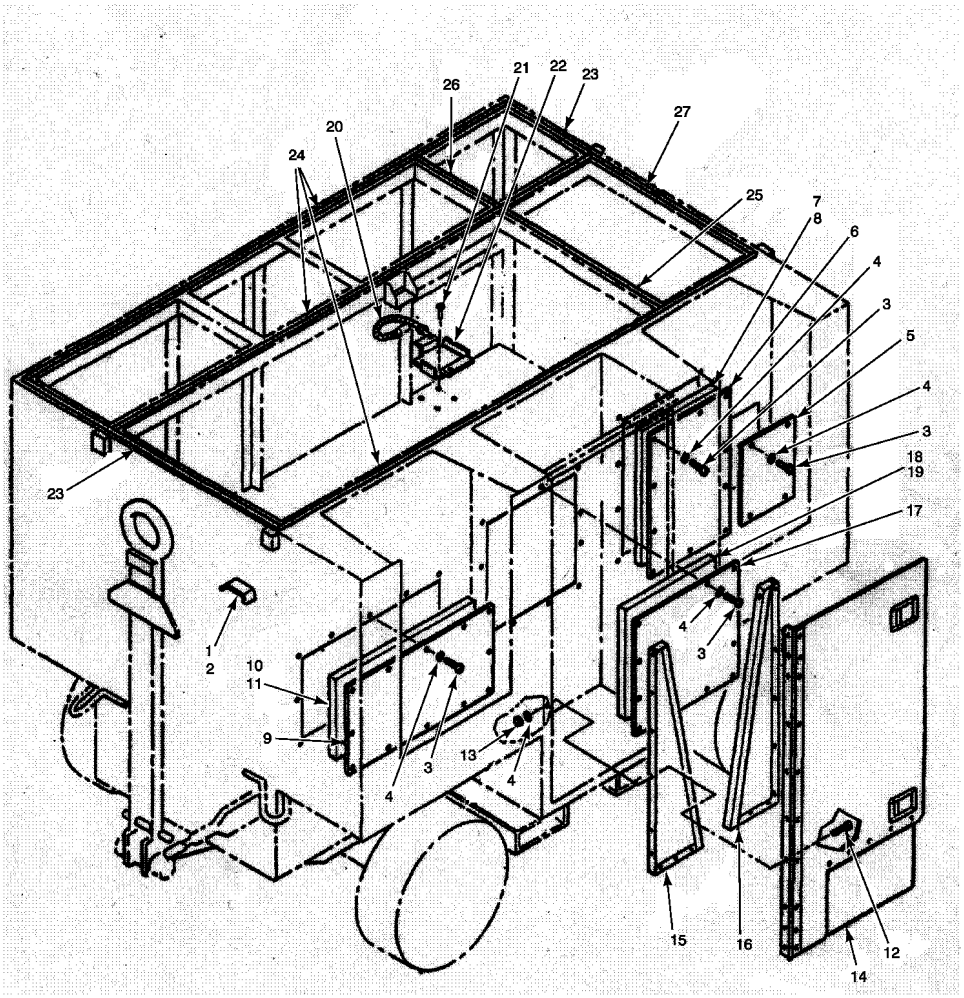
GENERAL – Continued



1. Access Door, Control Panel
2. Access Door, Electrical Trays
3. Access Door, Battery
4. Access Door, Engine
5. Front Panel, Hydraulic Module
6. Screw
7. Washer
8. Nut
9. Rivet

Figure 1. Location of Access Doors, Rear and Right Side.

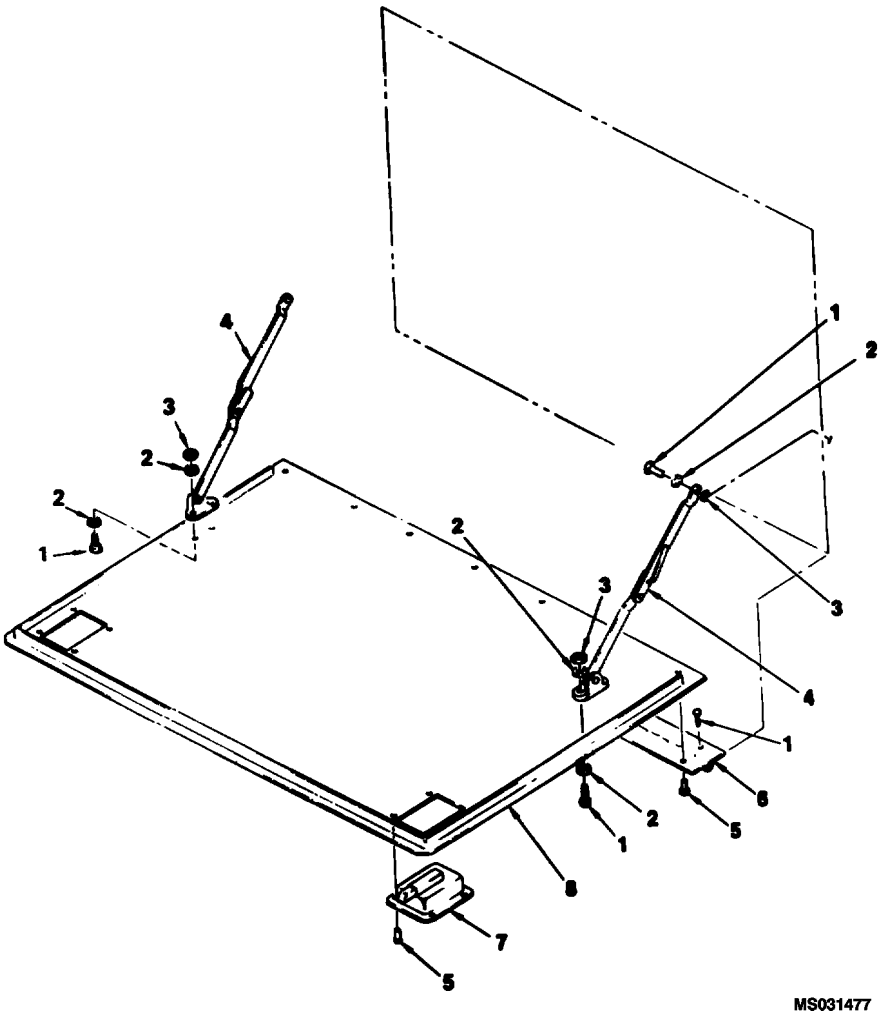
GENERAL – Continued



1. Washer, Flat	10. Insulation, Acoustic	19. Washer, Self Locking, Weld Pin
2. Shield, Sleet, Emergency Switch	11. Washer, Self Locking, Weld Pin	20. Cord, Shock, Elastic
3. Screw, Pan Head	12. Screw, Pan Head	21. Rivet, Dome Head
4. Lockwasher	13. Nut, Plain	22. Bracket, Hydraulic Manifold
5. Panel, Fuel Access	14. Door Access, Pneumatic	23. Front Seal, Roof
6. Panel Assembly, Access, Side Porch, Hydraulic Module	15. Retainer Hose, Pneumatic, Left-hand Side	24. Seal, Roof, Outside and Inside Bulkhead. (Left)
7. Insulation, Acoustic	16. Retainer, Hose, Pneumatic, Right-Hand Side	25. Seal, Roof, Front inside Bulkhead (Right)
8. Washer, Self Locking, Weld Pin	17. Panel, Assembly, Access, Side Porch, Engine	26. Seal, Roof, front Inside Bulkhead (Left)
9. Panel Assembly, Access, Side Porch Exhaust	18. Insulation, Acoustic	27. Seal Channel

Figure 2. Frame and Housing, Panels and Doors, Left-Hand Side.

GENERAL – Continued



1. Screw	3. Nut, Jam	5. Rivet	7. Latch
2. Washer	4. Support	6. Hinge	8. Door

Figure 3. Control Panel Access Door Assembly.

GENERAL – Continued

REMOVAL

Access Doors

1. Remove screws (Figure 3, Item 1) securing hinge (Figure 3, Item 6) to AGPU.
2. Loosen two jam nuts (Figure 3, Item 3) and remove screws (Figure 3, Item 1), washers (Figure 3, Item 2), and nuts (Figure 3, Item 3) securing supports (Figure 3, Item 4) to frame.

REPAIR OR REPLACEMENT

1. Repair door (Figure 3, Item 8) by straightening and painting.
2. Replace latches (Figure 3, Item 7) by drilling out rivets (Figure 3, Item 5), and installing new latch. Rivet new latch.

NOTE

If replacement hinge is not available, one can be fabricated from (MS35825-3E NSN 5340-01-118-8098) hinge stock. Cut to length, and match drill rivet holes.

3. Replace hinge (Figure 3, Item 6) by drilling out rivets (Figure 3, Item 5), and installing new hinge. Rivet new hinge.

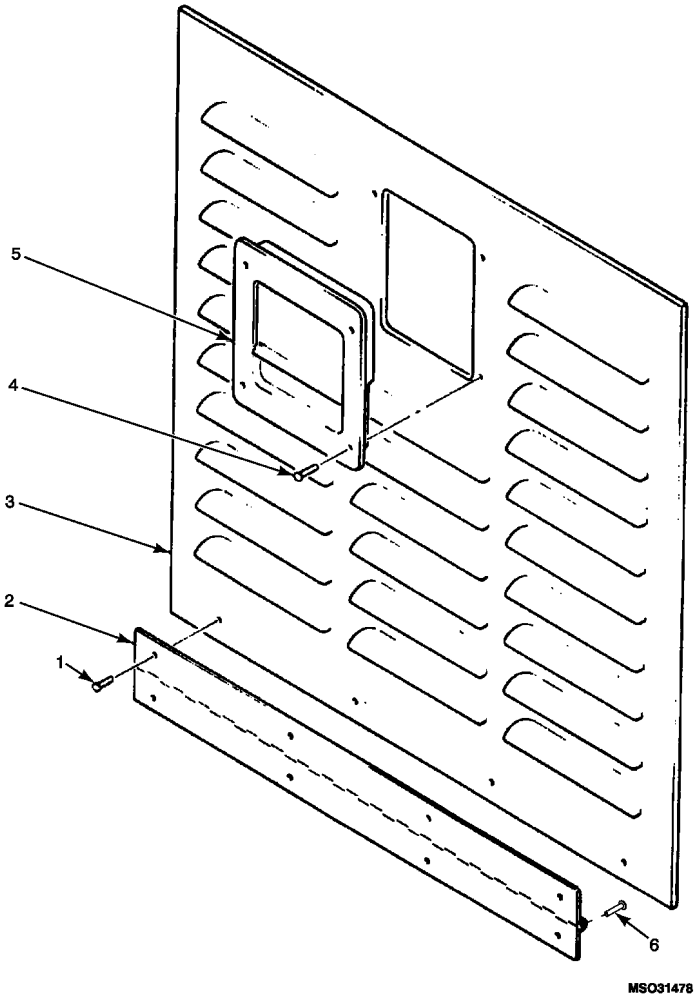
INSTALLATION

1. Position door and secure hinge (Figure 3, Item 6) to AGPU using screws (Figure 3, Item 1).
2. Attach supports (Figure 3, Item 4) to AGPU using screws (Figure 3, Item 1), washers (Figure 3, Item 2), and nuts (Figure 3, Item 3).

INSTALLATION – CONTINUED

– Continued

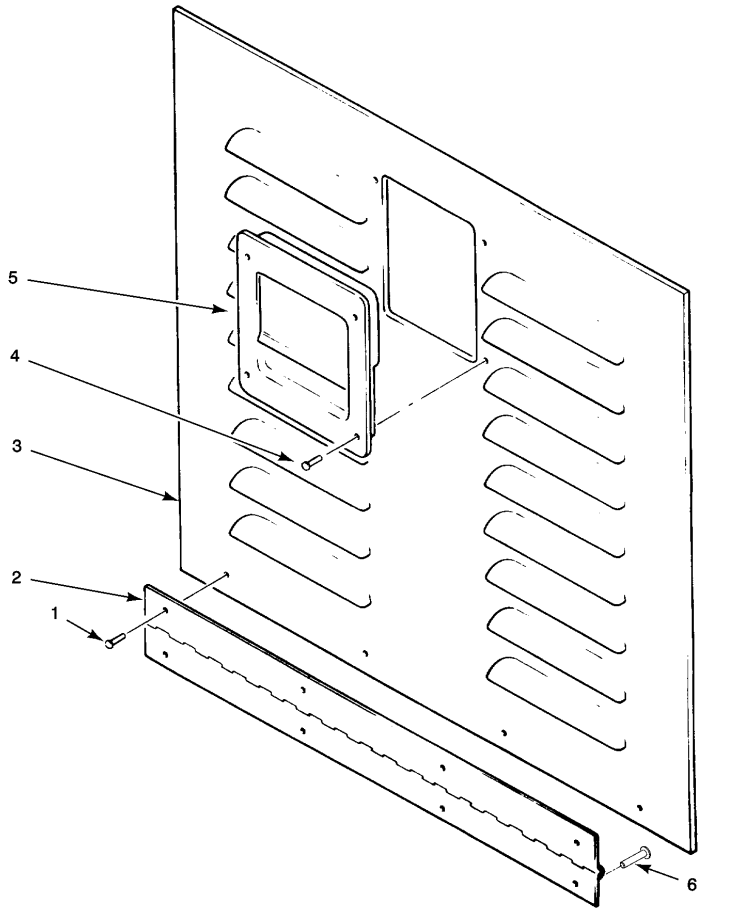
REMOVAL



1. Rivet
2. Hinge
3. Door
4. Rivet
5. Latch
6. Rivet

Figure 4. Electrical Trays Access Door Assembly.

REMOVAL – CONTINUED



1. Rivet
2. Hinge
3. Door
4. Rivet
5. Latch
6. Rivet

Figure 5. Battery Compartment Access Door Assembly.

Electrical Trays and Battery Compartment Access Doors

For description of frame and housing components, refer to WP 0002 00.

Drill out four rivets each door (Figure 5, Item 6) and remove door assemblies.

REPAIR OR REPLACEMENT

1. Repair doors (Figure 5, Item 3) by straightening and painting.

REPAIR OR REPLACEMENT – CONTINUED

2. Replace latch (Figure 5, Item 5) by drilling out four rivets (Figure 5, Item 4), and installing new latch. Rivet new latch.

NOTE

If replacement hinge is not available, one can be fabricated from (MS35825-3E NSN 5340-01-118-8098) hinge stock. Cut to length, and match drill rivet holes.

3. Replace hinge (Figure 5, Item 2) by drilling out four rivets (Figure 5, Item 1) and installing new hinge. Rivet new hinge.

INSTALLATION

Position door assembly (Figure 5, Item 3) and secure with rivets (Figure 5, Item 4) to AGPU frame.

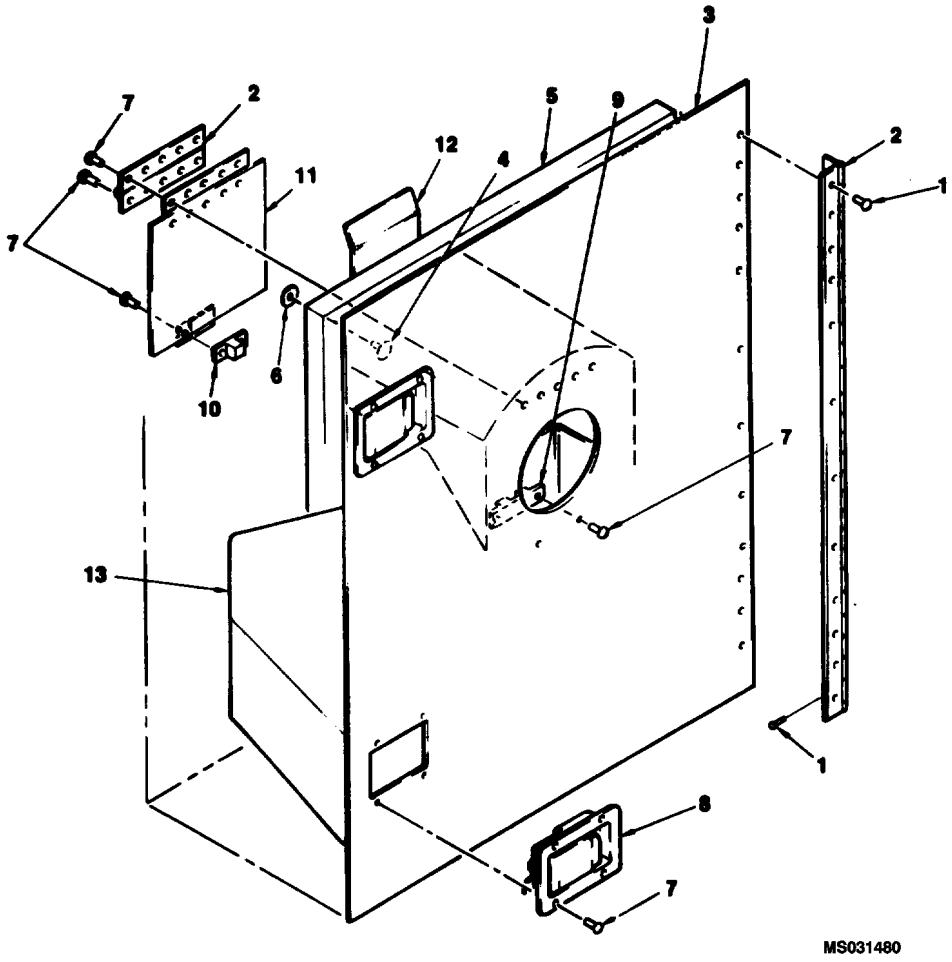
REMOVAL

Engine Access Door

For description of frame and housing components, refer to WP 0002 00.

Drill out twelve rivets (Figure 6, Item 1) and remove door.

REMOVAL – CONTINUED



1. Rivet	5. Insulation, Acoustic	9. Latch, Detent (Female)
2. Hinge	6. Washer, Self-Locking	10. Latch, Detent (Male)
3. Door Panel	7. Rivet	11. Panel
4. Weld Pin	8. Latch	12. Hose Hanger
		13. Hydraulic Tray

Figure 6. Hydraulic Module Front Panel Assembly.

REPAIR OR REPLACEMENT

1. Repair door panel (Figure 6, Item 3), hose hanger (Figure 6, Item 12), and tray (Figure 6, Item 13) by straightening, welding, and painting.

REPAIR OR REPLACEMENT – CONTINUED

2. Replace latches (Figure 6, Item 8) by drilling out four rivets (Figure 6, Item 7), and installing new latch. Rivet new latch.

NOTE

If replacement hinge is not available, one can be fabricated from (MS35825-3E NSN 5340-01-118-8098) hinge stock. Cut to length, and match drill rivet holes.

3. Replace hinges (Figure 6, Item 2) by drilling out twelve rivets (Figure 6, Item 1), and installing new hinge. Rivet new hinge.
4. Replace detent latch (Figure 6, Item 9, 10) by drilling out two rivets (Figure 6, Item 7), and installing new latch. Match drill holes for detent latch (female) (Figure 6, Item 9) to align with holes on detent latch (male) (Figure 6, Item 10) if required. Rivet new latch.
5. Replace weld pins (Figure 6, Item 4), acoustic insulation (Figure 6, Item 5), and self-locking washers (Figure 6, Item 6) as described in WP 0028 00, Step 6.Repair

INSTALLATION

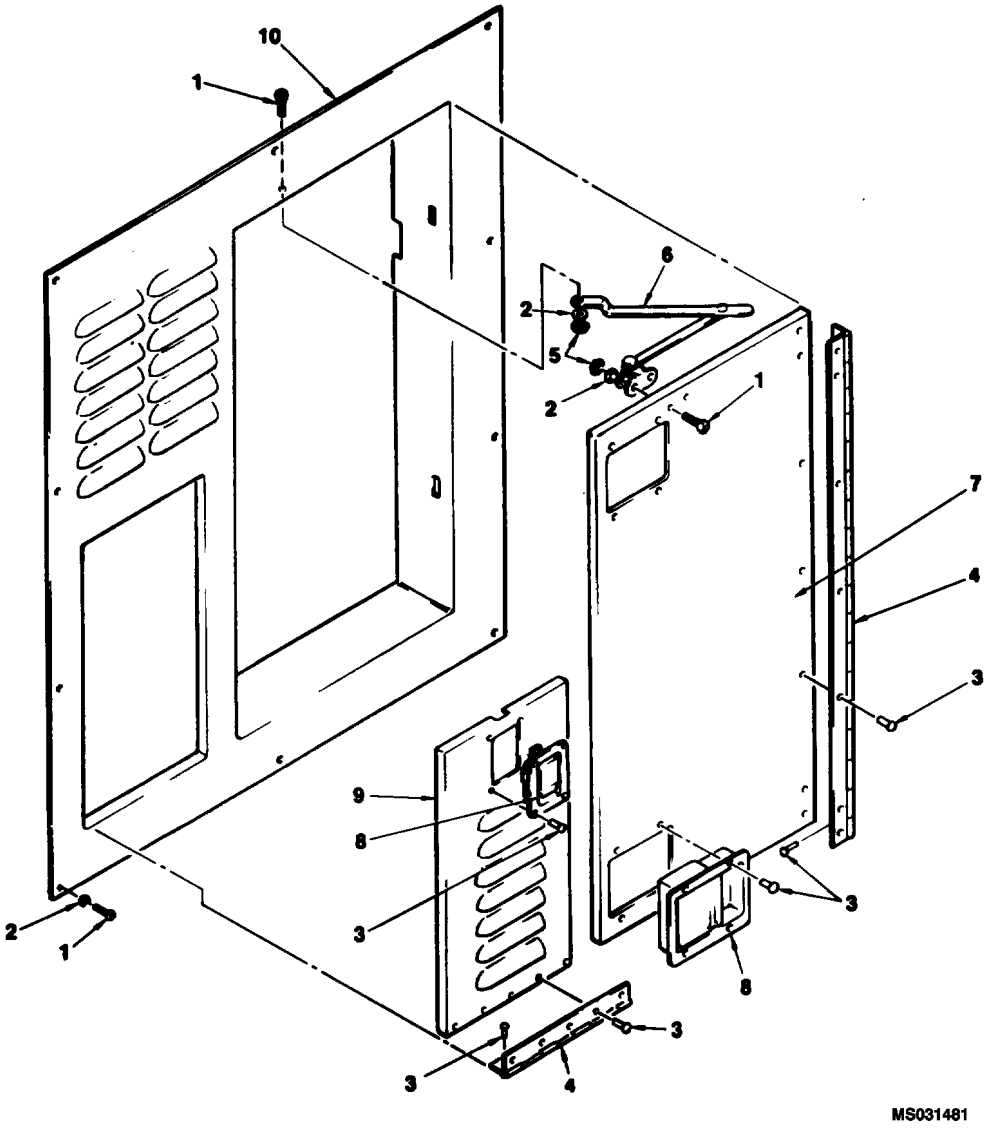
Position door and secure with rivets.

REMOVAL

Hydraulic Module Front Panel Assembly

For description of frame and housing components, refer to WP 0002 00.

Remove ten screws (Figure 7, Item 1) and washers (Figure 7, Item 2) and remove panel assembly.



1. Screw
2. Washer
3. Rivet
4. Hinge
5. Nut
6. Latch Stop
7. Access Door, Large
8. Latch
9. Access Door, Small
10. Front Panel

Figure 7. Hydraulic Module Front Panel Assembly.

REPAIR OR REPLACEMENT

1. Repair front panel (Figure 7, Item 10) and doors (Figure 7, Item 7 and 9) by straightening and painting (refer to WP 0128 00).
2. Replace latches (Figure 7, Item 8) by drilling out four rivets (Figure 7, Item 3), and installing new latch. Rivet new latch.

NOTE

If replacement hinge is not available, one can be fabricated from (MS35825-3E NSN 5340-01-118-8098) hinge stock. Cut to length, and match drill rivet holes.

3. Replace hinges (Figure 7, Item 4) by drilling out seven rivets (Figure 7, Item 3) and installing new hinge. Rivet new hinge.

INSTALLATION

Position panel assembly and install with ten screws (Figure 7, Item 1) and washers (Figure 7, Item 2).

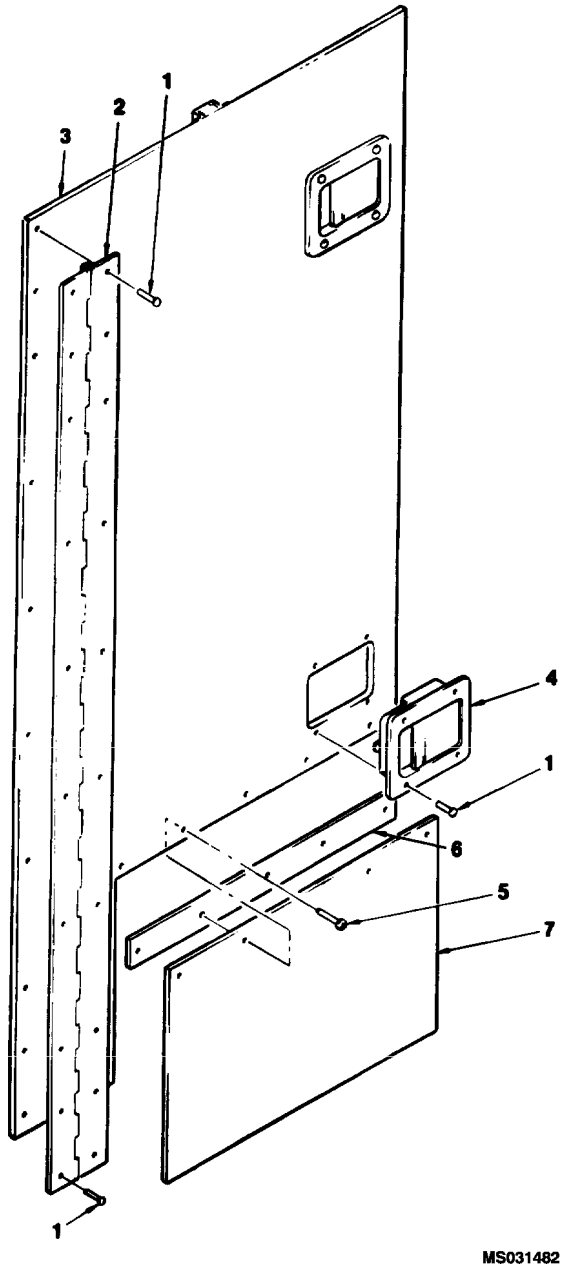
REMOVAL

Pneumatic Hose Access Door Assembly

For description of frame and housing components, refer to WP 0002 00.

Drill out ten rivets (Figure 8, Item 1) and remove door.

REMOVAL – CONTINUED



1. Rivet
2. Hinge
3. Door
4. Latch
5. Rivet
6. Strip, Mounting
7. Flap

Figure 8. Pneumatic Hose Access Door Assembly.

REPAIR OR REPLACEMENT

1. Repair door (Figure 8, Item 3) by straightening and painting.
2. Replace latches (Figure 8, Item 4) by drilling out four rivets (Figure 8, Item 1), and installing new latch. Rivet new latch.
3. Replace flap (Figure 8, Item 7) by drilling out five rivets (Figure 8, Item 1), and installing new flap . Rivet flap to door (Figure 8, Item 3) and mounting strip (Figure 8, Item 6) using five rivets (Figure 8, Item 5).

NOTE

If replacement hinge is not available, one can be fabricated from (MS35825-3E NSN 5340-01-118-8098) hinge stock. Cut to length, and match drill rivet holes.

4. Replace hinge (Figure 8, Item 2) by drilling out ten rivets (Figure 8, Item 1), and installing new hinge. Rivet new hinge.

END OF WORK PACKAGE

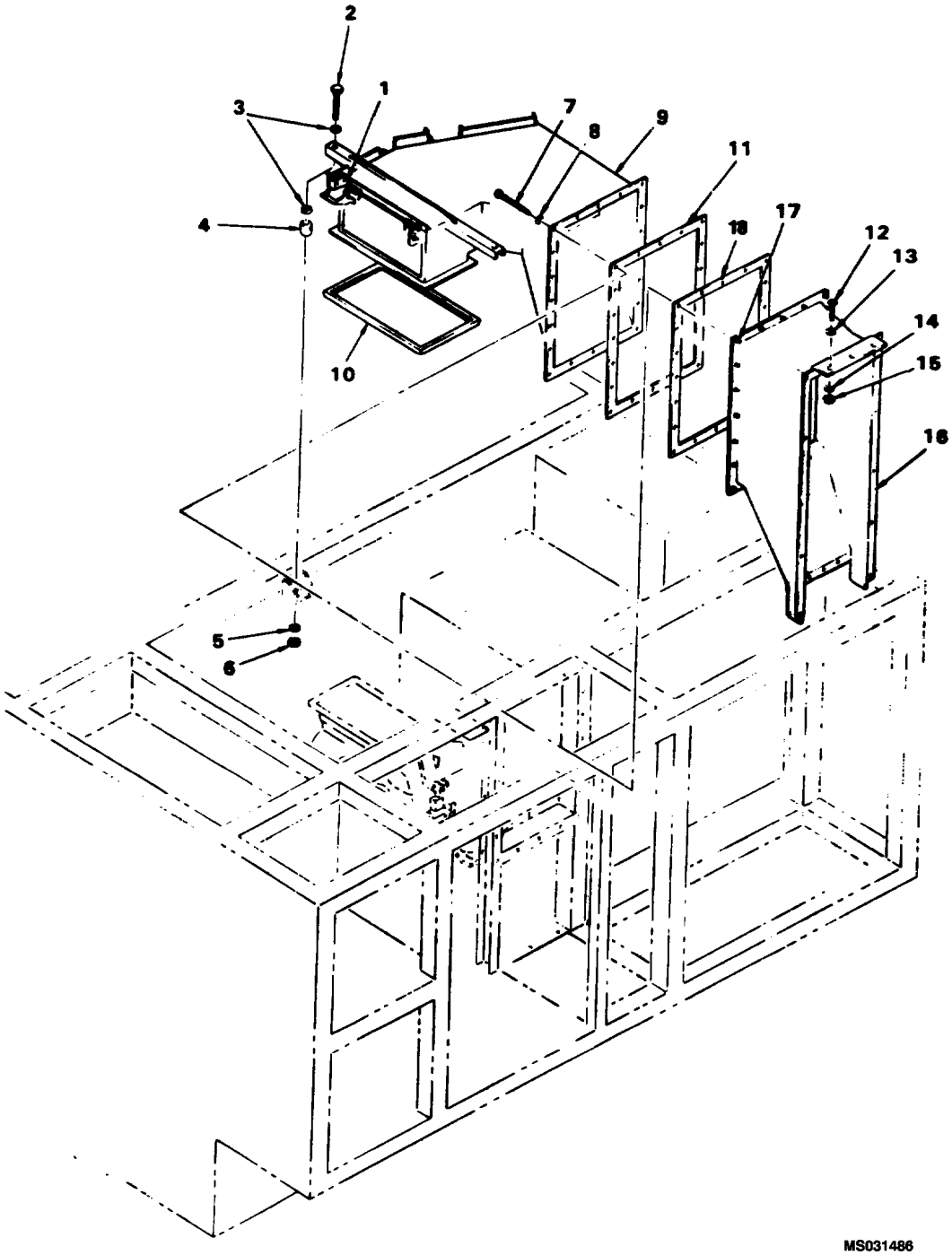
**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

AIR INTAKE DUCT ASSEMBLY AND REPAIR

INITIAL SETUP:

References
WP 0022 00
WP 0023 00

References (cont.)
WP 0034 00



1. Switch, Bypass Door
2. Bolt
3. Washer, Flat
4. Spacer
5. Lockwasher
6. Nut
7. Screw
8. Washer, Flat
9. Duct, Inner
10. Gasket, Engine Intake
11. Gasket, Inner Duct
12. Screw
13. Washer, Flat
14. Lockwasher
15. Nut
16. Duct, Outer
17. Rivets
18. Gasket, Outer Duct
19. GTE Air Inlet
20. Lockwasher

Figure 1. Air Intake Duct Assembly.

REMOVAL

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
3. Remove roof. Refer to WP 0022 00.
4. Remove air cleaner assembly. Refer to WP 0023 00.
5. Tag and disconnect wires from bypass door switch (Figure 1, Item 1).
6. Remove two screws (Figure 1, Item 2), flat washers (Figure 1, Item 3), spacers (Figure 1, Item 4), lockwashers (Figure 1, Item 5) and nuts (Figure 1, Item 6) from each end of inner duct (Figure 1, Item 9) support.
7. Remove twenty screws (Figure 1, Item 7), lock washers (Figure 1, Item 20) and flat washers (Figure 1, Item 8) securing inner duct (Figure 1, Item 9) to rivets (Figure 1, Item 17) on outer duct (Figure 1, Item 16).
8. Ensure hydraulic pressure and return hoses are pulled away from inner duct support bracket. Remove inner duct. (Figure 1, Item 9).
9. Cover up GTE Air Inlet (Figure 1, Item 19).
10. Inspect gaskets (Figure 1, Item 10, 11) Replace if split or torn.
11. Remove three screws (Figure 1, Item 12), flat washers (Figure 1, Item 13), lockwashers (Figure 1, Item 14), and nuts (Figure 1, Item 15) seeming top of outer duct (Figure 1, Item 16) to frame.
12. Remove outer duct (Figure 1, Item 16).
13. Inspect outer duct gasket (Figure 1, Item 18). Replace if split or torn.

REPAIR OR REPLACEMENT

1. Repair dent in duct sections by straightening.
2. Repair splits and cracks by welding. Regalvanize after welding.

INSTALLATION

1. Ensure that outer duct gasket (Figure 1, Item 18) is properly positioned.
2. Place outer duct (Figure 1, Item 16) in position in frame.
3. Install three screws (Figure 1, Item 12), flat washers (Figure 1, Item 13), lockwashers (Figure 1, Item 14), and nuts (Figure 1, Item 15) to secure top of outer duct (Figure 1, Item 16) to frame.
4. Ensure that engine intake gasket and inner duct gasket (Figure 1, Item 10, 11) are properly positioned.
5. Place inner duct (Figure 1, Item 9) in position in frame.
6. Install twenty screws (Figure 1, Item 7), lock washers (Figure 1, Item 20) and flat washers (Figure 1, Item 8) to secure inner duct (Figure 1, Item 9) to outer duct (Figure 1, Item 16).
7. Install two bolts (Figure 1, Item 2), flat washers (Figure 1, Item 3), spacers (Figure 1, Item 4), lockwashers (Figure 1, Item 5) and nuts (Figure 1, Item 6) to secure each end of inner duct (Figure 1, Item 9) support.
8. Connect wires to bypass door switch (Figure 1, Item 1).
9. Install air cleaner assembly. Refer to WP 0023 00.
10. Install roof. Refer to WP 0022 00.
11. Reconnect batteries.
12. Perform MOC and check for air leaks at GTE.

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

PREPARING DC ELECTRICAL AND CONTROL SYSTEM FOR MAINTENANCE

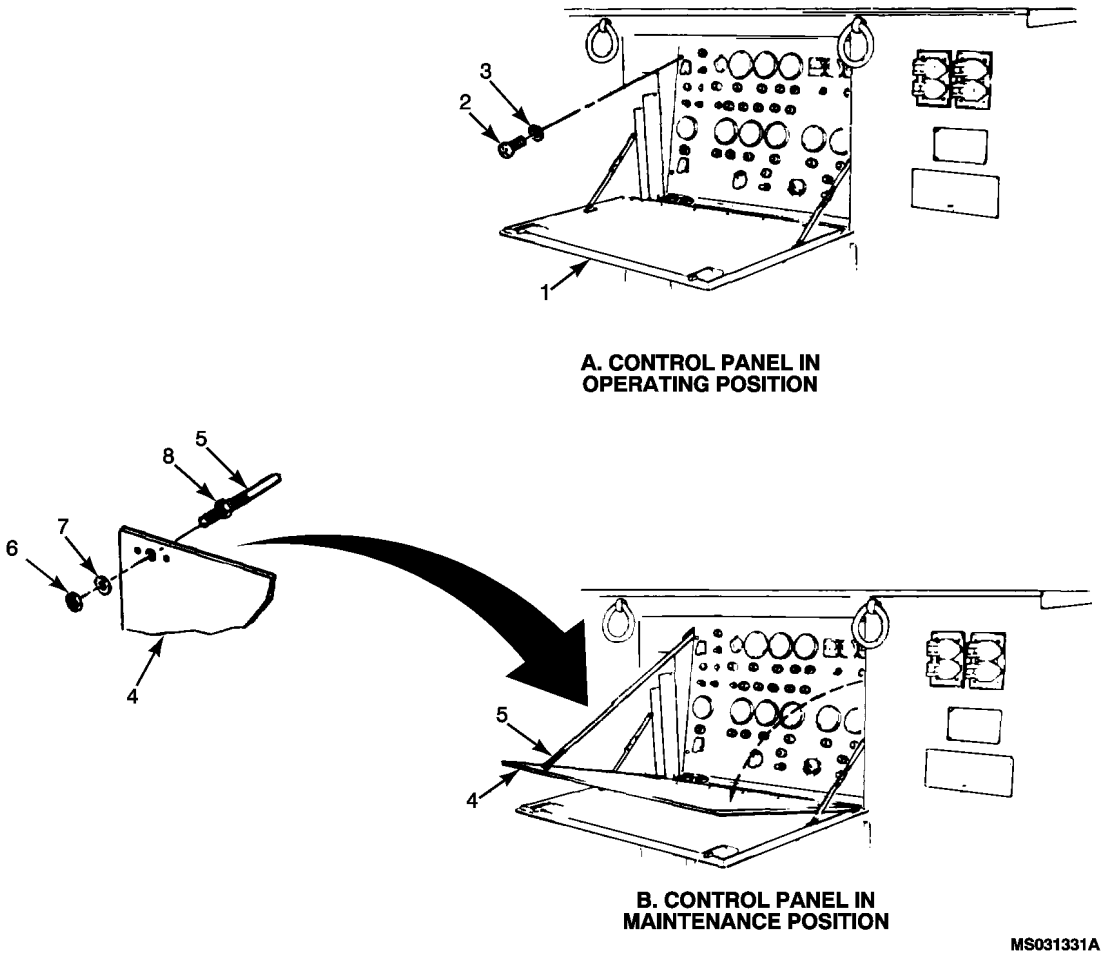
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

TM 1-1730-229-13
WP 0034 00
WP 0036 00



1. Control Panel Access Door
2. Screw
3. Washer
4. Control Panel
5. Support Cable
6. Nut
7. Washers
8. Jam Nut

Figure 1. Control Panel Lowered for Maintenance (MEP 83-360A and MEP 83-360D/E).

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

WARNING

Battery power (24 VDC) may be present at terminals of electrical components whenever battery is connected. AC power (115 VAC) may be present when engine is running. To prevent shock hazard, flash burns, or prevent equipment damage, observe the following precautions:

1. Shut down engine and disconnect battery before opening control panel or extending lower electrical tray.
2. Shut down engine and disconnect battery before contacting any electrical terminal with body or tools.
3. Temporarily install control panel before starting engine.

NOTE

Some maintenance procedures require that the control panel be lowered, or that the lower electrical tray be extended.

ASSEMBLY AND PREPARATION FOR USE

LOWER CONTROL PANEL FOR MAINTENANCE

When required by specific maintenance procedure, proceed as follows:

1. Shut down engine (refer to inside control panel access door or TM 1-1730-229-13, Operator Instructions) and disconnect battery (WP 0034 00).
2. Open control panel access door (Figure 1, Item 1).
3. While holding control panel (Figure 1, Item 4) in place remove four screws (Figure 1, Item 2) and washers (Figure 1, Item 3).
4. Grasp control panel at top by toggle switches and carefully pull top by toggle switches and carefully pull top of panel back. Lower panel so that panel is supported by support cable (Figure 1, Item 5).

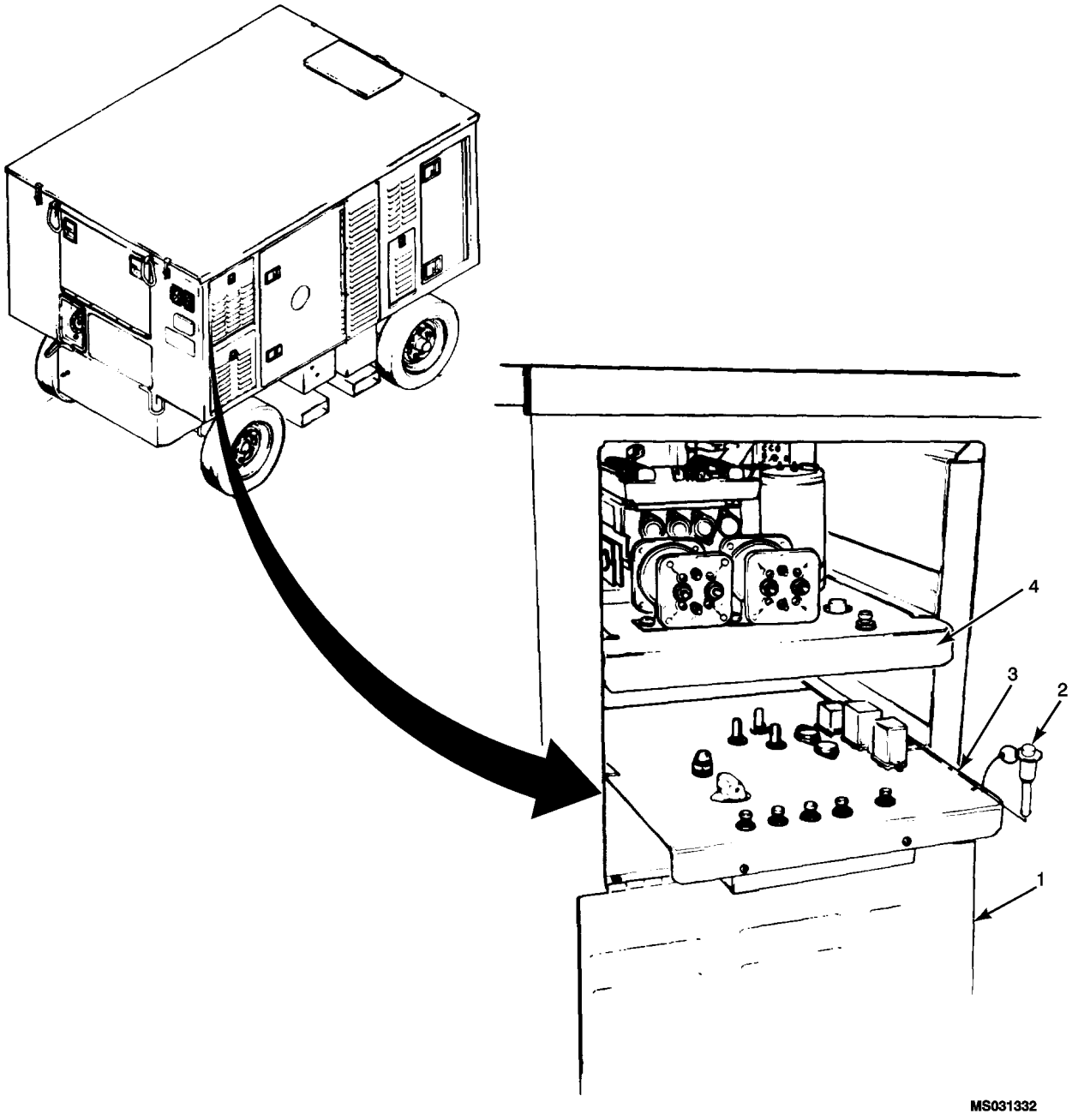
NOTE

Some maintenance tasks may be easier with control panel flat on access cover. If so, perform Step 5.

Pad the control panel face if Step 5 is performed. Safeguard wiring on AC/DC selector switch.

5. Remove nut (Figure 1, Item 6) and washer (Figure 1, Item 7) from support cable (Figure 1, Item 5), and lower control panel onto access cover.
6. When maintenance task is completed, attach support cable (Figure 1, Item 5) to control panel with washers (Figure 1, Item 7) and nut (Figure 1, Item 6). Place control panel into operating position, and secure with four washers (Figure 1, Item 3) and screws (Figure 1, Item 2).

ASSEMBLY AND PREPARATION FOR USE – CONTINUED



1. Electrical trays access door
2. Quick release pin
3. Lower electrical tray
4. Upper electrical tray

Figure 2. Lower Electrical Tray Extended For Maintenance (MEP 83-360A and MEP 83-360D/E).

EXTENDING LOWER ELECTRICAL TRAY FOR MAINTENANCE

When required by specific maintenance procedure, extend lower tray as follows:

1. Shut down engine (TM 1-1730-229-13) and disconnect battery (WP 0034 00).
2. Open electrical trays access door (Figure 2, Item 1).

ASSEMBLY AND PREPARATION FOR USE – CONTINUED

EXTENDING LOWER ELECTRICAL TRAY FOR MAINTENANCE – CONTINUED

3. Remove one quick release pin (Figure 2, Item 2).
4. Carefully extend lower electrical tray (Figure 2, Item 3) as required for maintenance by pulling tray outward. If there is any abnormal resistance to tray movement, lower control panel following the previous procedures and check for restrictions. It may be necessary to remove some cable ties to extend tray.
5. If necessary for access to upper electrical tray (Figure 2, Item 4), carefully pull lower electrical tray all the way out of slides and secure.
6. When maintenance task is complete, install lower electrical tray (Figure 2, Item 3) and secure with quick release pins.

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

BATTERY HOLD DOWN

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK
(WP 0171 00, Item 16)

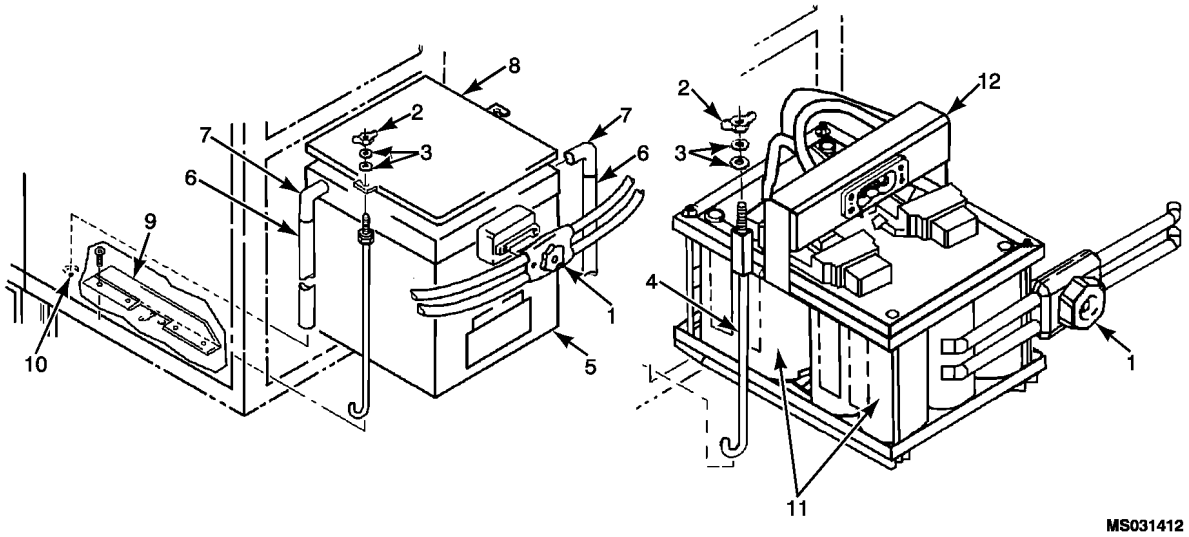
Tools and Special Tools (cont.)

Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

References (cont.)

WP 0034 00



1. Battery Connector	5. 24V Battery	9. Battery Guide (2)
2. Nut, Wing	6. Drain Tube	10. Drain Tube Hole (2)
3. Washers	7. Drain Fitting	11. 12V Batteries (2) (MEP 83-360E only)
4. Hold Down Rod	8. Battery Cover	12. Battery Box Assembly (MEP 83-360E only)

Figure 1. Battery Hold Down.

REMOVAL

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Remove wing nuts (Figure 1, Item 2) and washers (Figure 1, Item 3). Remove hold down rod (Figure 1, Item 4) from slot in floor of battery compartment.

INSTALLATION

1. Insert curved end of hold down rod (Figure 1, Item 4) into slot in floor of battery compartment. Position threaded end of hold down rod (Figure 1, Item 4) into slot in battery cover (Figure 1, Item 8). Secure hold down rod in place with washers (Figure 1, Item 3) and wing nut (Figure 1, Item 2).
2. Connect battery connector (Figure 1, Item 1).

NOTE

Connect P1-J1 connectors together after battery is installed and connected (MEP 83-360E only).

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

SEALED LEAD ACID BATTERY BOX ASSEMBLY

INITIAL SETUP:

Tools and Special Tools

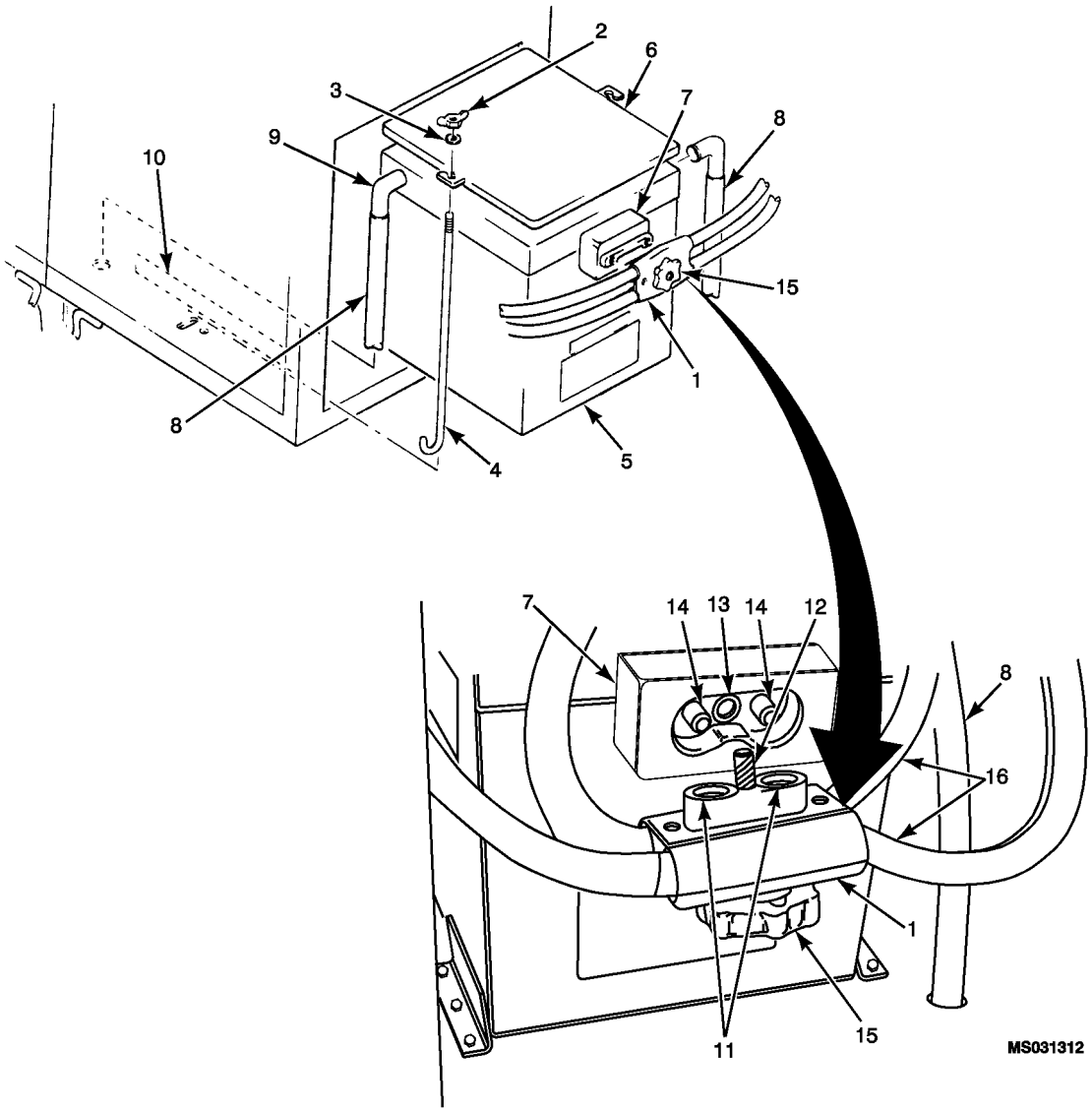
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Baking Soda (WP 0170 00, Item 4)
Distilled Water, Reagent (WP 0170 00, Item 17)

References

MWO 1-1730-229-50-4



1. Battery Cable Terminal Adapter
2. Wing Nut
3. Washer
4. Tie-Down J-Rod
5. Battery
6. Battery Cover
7. Battery Terminal Block
8. Vent Tube
9. Vent Adapter
10. Battery Tray Assembly
11. Terminal Post Receptacles
12. Mounting Screw
13. Mounting Screw Receptacle
14. Terminal Post
15. Knob
16. Electrical Cable

Figure 1. Battery Inspection and Servicing (MEP 83-360A ONLY).

REMOVAL

WARNING

Remove all rings, watches and other jewelry when performing maintenance on battery. Wear protective gear, including goggles.

WARNING

Do not attempt to service sealed lead acid battery. Never add water or electrolyte.

WARNING

Overcharging sealed lead-acid batteries can cause the safety valve to open releasing flammable battery gases. Never set battery charge output higher than 28.5 volts for more than 2 hours. Any battery that becomes very hot while charging should be disconnected immediately.

NOTE

The standard batteries incorporated by MWO 1-1730-229-50-4, are two 12-volt, sealed, lead-acid type, which require no routine maintenance. The two batteries connected in series are installed in a battery tray which has the same battery terminal block and uses the same tie-down rods as the 24-volt battery. Removal of the batteries from the battery tray is covered in WP 0036 00. MWO 1-1730-229-50-4 is applied to all MEP 83-360D and MEP 83-360E models that have been through the SLEP/Reset at Letterkenny Army Depot.

1. Disconnect battery cable terminal adapter (Figure 1, Item 1) from battery terminal block (Figure 1, Item 7) by turning knob (Figure 1, Item 15) counterclockwise.
2. Disconnect Do Not Tow indicator cable J1 (Battery) (Figure 2, Item 7) and Do Not Tow indicator cable P1 (AGPU) (Figure 2, Item 8) on MEP 83-360D/E only.
3. On MEP 83-360A only, remove wing nuts (Figure 1, Item 2) and washers (Figure 1, Item 3) from Tie-Down J-Rods (Figure 1, Item 4) and remove battery.
4. On MEP 83-360D/E only, remove wing nuts Figure 2, Item 4), lock washers (Figure 2, Item 5) and washers (Figure 2, Item 6) from battery hold down rods (Figure 2, Item 2) and remove battery.

TEST AND INSPECTION

1. Check voltage for each battery or batteries. A fully charged battery should be at 12.8 volts with a multi-meter.
2. Check cables within battery box, connectors, and terminals for damage or corrosion.
3. Repair as needed.

INSTALLATION

83-360A (ONLY)

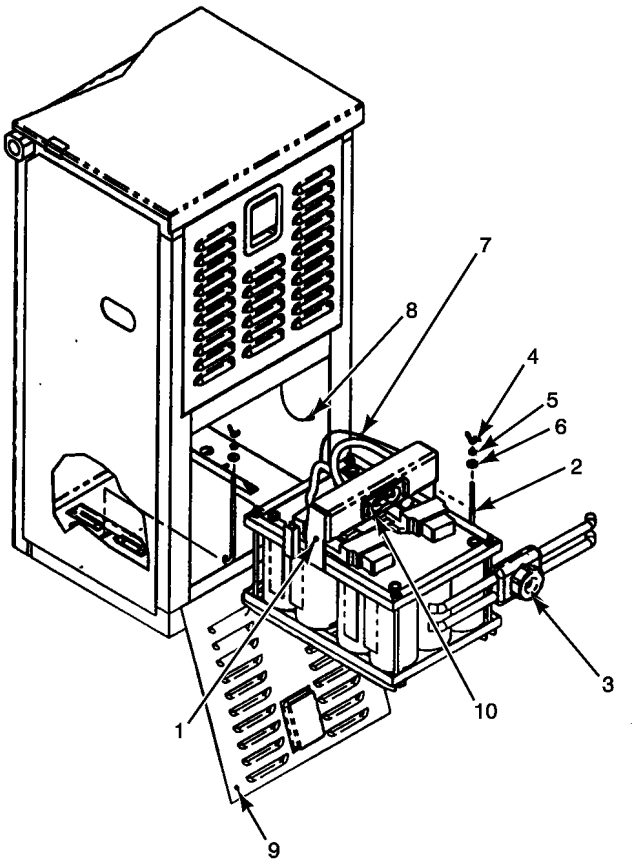
1. Set battery into battery compartment between battery tray assembly (Figure 1, Item 10) with battery terminal block (Figure 1, Item 7) facing out.

INSTALLATION – CONTINUED

83-360A (ONLY) – CONTINUED

2. Secure battery box assembly with existing forward and aft battery Tie-Down J-Rods (Figure 1, Item 4), wing nuts (Figure 1, Item 2), and washers (Figure 1, Item 3). Hold-down rods fit in receptacles on battery assembly.
3. Reconnect Do Not Tow indicator cable J1 (Battery) (Figure 2, Item 7) and Do Not Tow indicator cable P1 (AGPU) (Figure 2, Item 8).
4. Connect battery terminal adapter (Figure 1, Item 1) to battery terminal block (Figure 1, Item 7) and secure by turning knob (Figure 1, Item 15) clockwise. Make sure connector is secure.

REMOVAL



1. Battery Assembly
2. Battery Hold-Down Rod
3. Battery Terminal Adapter
4. Wing Nut
5. Lock Washer
6. Washer
7. Do Not Tow Indicator Cable J1 (Battery)
8. Do Not Tow Indicator Cable P1 (AGPU)
9. Battery Access Door
10. Battery Receptacle Connector

Figure 2. Battery Inspection and Servicing (MEP 83-360D and 83-360E ONLY).

1. Disconnect battery terminal adapter (Figure 2, Item 3) from battery terminal block (Figure 1, Item 7) by turning knob (Figure 1, Item 15) counterclockwise.

REMOVAL – CONTINUED

2. Disconnect Do Not Tow indicator cable J1 (battery) (Figure 2, Item 7) and Do Not Tow indicator cable P1 (AGPU) (Figure 2, Item 8) on MEP 83-360D/E only.
3. Remove wing nuts (Figure 1, Item 2) and washers (Figure 1, Item 3) from tie-down J-rods (Figure 1, Item 4) and remove battery.

TEST AND INSPECTION

1. Check voltage for each battery. A fully charged battery should be at 12.8 volts.
2. Check cables within battery box, connectors, and terminals for damage or corrosion.
3. Clean with baking soda and water solution.

INSTALLATION

1. Install battery tray assembly (Figure 1, Item 10) back into AGPU BATT compartment.
2. Reinstall battery tie-down J-rods (Figure 1, Item 4) with associated wing nuts (Figure 1, Item 2) and washers Figure 1, Item 3. Tighten wing nut (Figure 2, Item 4) responsibly.
3. Reconnect Do Not Tow indicator cable J1 (Battery) (Figure 2, Item 7) and Do Not Tow indicator cable P1 (AGPU) (Figure 2, Item 8) on MEP 83-360D/E only.
4. Reinstall battery terminal adapter (Figure 2, Item 4) and close battery access door (Figure 2, Item 9).

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

AIRCRAFT 24V BATTERY AND CABLES (MEP 83-360A ONLY)

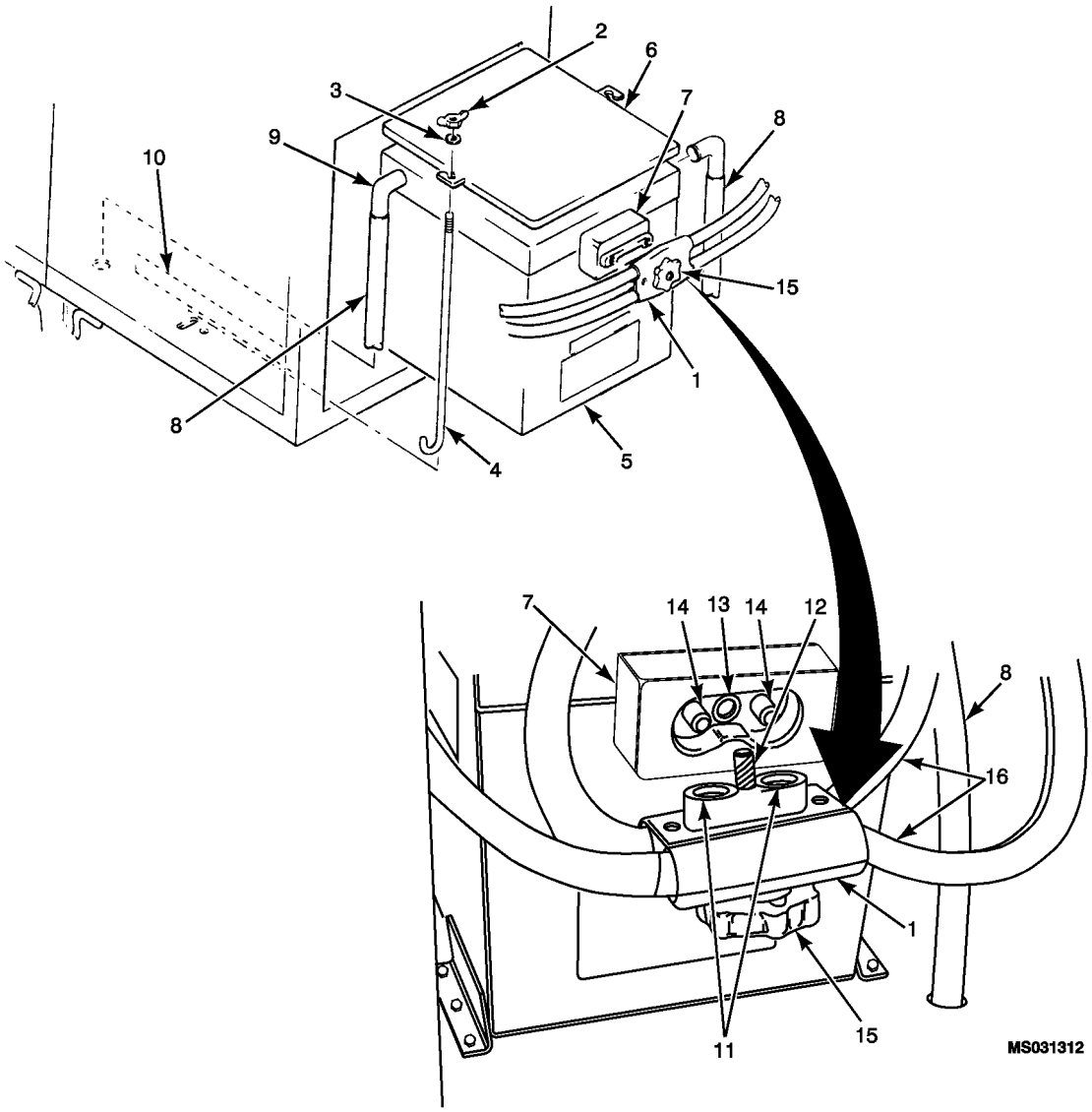
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Baking Soda (WP 0170 00, Item 4)
Distilled Water, Reagent (WP 0170 00, Item 17)



1. Battery Terminal Adapter
2. Wing Nut
3. Washer
4. Tie-Down Rod
5. Battery
6. Battery Cover
7. Battery Terminal Block
8. Vent Tube
9. Vent Adapter
10. Battery Guide
11. Terminal Post Receptacles
12. Mounting Screw
13. Mounting Screw Receptacle
14. Terminal Post
15. Knob
16. Electrical Cable

Figure 1. Battery Inspection and Servicing.

REMOVAL

WARNING

Do not attempt to service NiCad battery. Never add water or electrolyte.

WARNING

Remove all rings, watches and other jewelry when performing maintenance on battery. Wear protective gear, including goggles.

1. Disconnect battery terminal adapter (Figure 1, Item 1) from battery terminal block (Figure 1, Item 7) by turning knob (Figure 1, Item 15) counterclockwise.
2. Remove wing nuts (Figure 1, Item 2) and washers (Figure 1, Item 3) from tie-down rods (Figure 1, Item 4) and remove battery box assembly.

TEST AND INSPECTION

1. Inspect battery (Figure 1, Item 5) for cracked or broken case.
2. Inspect electrical cables (Figure 1, Item 16) for damaged insulation.
3. Inspect vent tubes (Figure 1, Item 8) for cracks or splits. Check for proper vent tube routing.

NOTE

Clean lead acid battery components with a baking soda and water solution.

NOTE

Cleaning of NiCad battery components - use a nylon brush and a solution of mild vinegar and water.

4. Inspect terminal posts (Figure 1, Item 14) and terminal post receptacles (Figure 1, Item 11) for corrosion, damage, signs of burning, or excessive wear. Clean posts and receptacles.
5. Inspect mounting screw (Figure 1, Item 12) on cable terminal adapter and mounting screw receptacle (Figure 1, Item 13) on terminal block for damage or corrosion. Clean screw and receptacle.

INSTALLATION

1. Set battery or batteries into battery compartment between battery guides (Figure 1, Item 10) with battery terminal block (Figure 1, Item 7) facing out. Attach vent tubes (Figure 1, Item 8) to battery.
2. Place battery cover (Figure 1, Item 6) on battery.
3. Secure battery cover (Figure 1, Item 6) with tie-down rods (Figure 1, Item 4), washers (Figure 1, Item 3), and wing nuts (Figure 1, Item 2). Before tightening wing nuts, check that tie-down rods are vertical.
4. Route vent tubes (Figure 1, Item 8) through holes in floor of battery compartment.
5. Connect battery terminal adapter (Figure 1, Item 1) to battery terminal block (Figure 1, Item 7) and secure by turning knob (Figure 1, Item 15) clockwise. Make sure connection is secure.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

BATTERY (BT1) (MEP 83-360A ONLY)

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)
Hydrometer, Graduated Scale (WP 0171 00, Item 20)

Materials/Parts

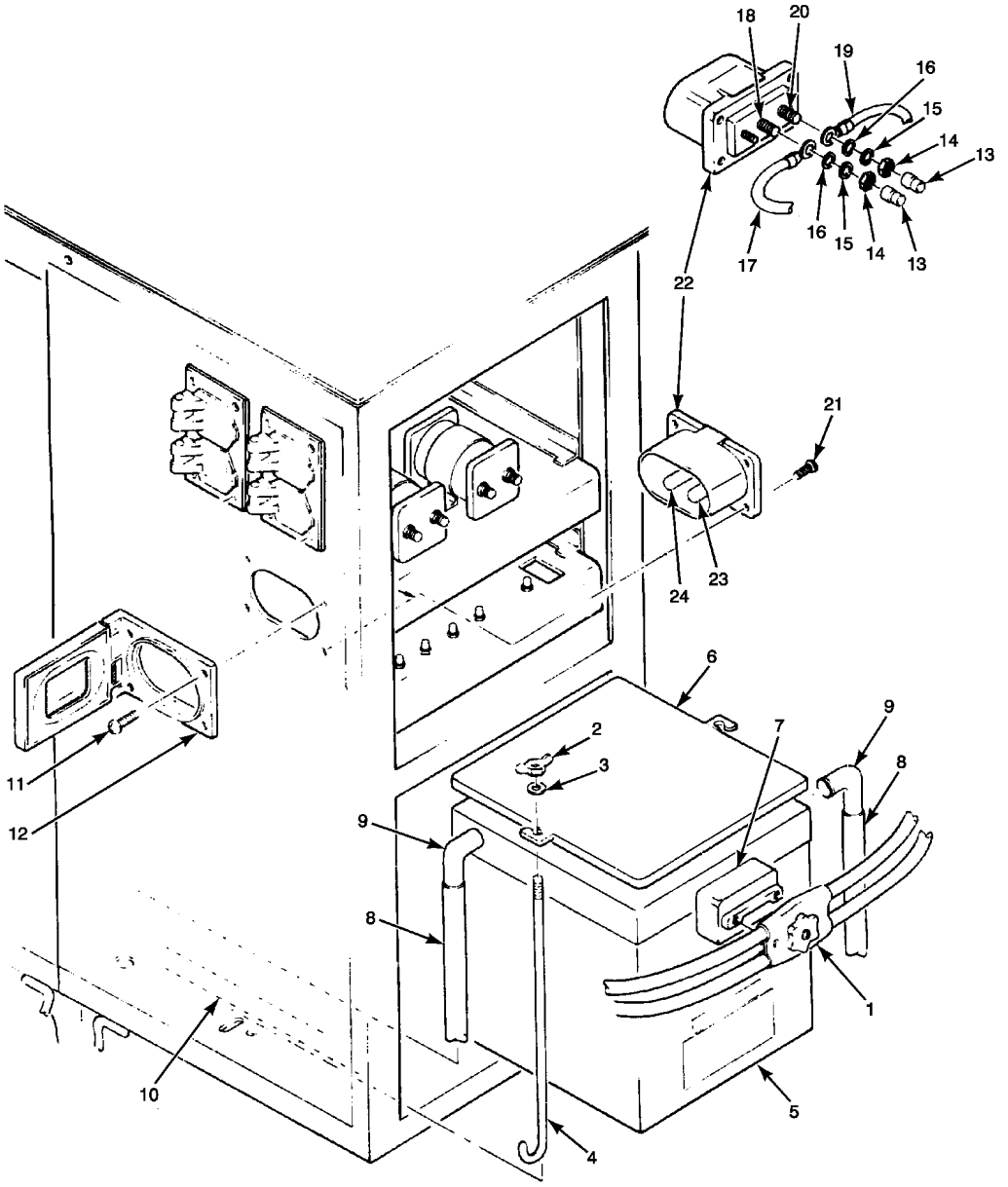
Baking Soda (WP 0170 00, Item 4)

Materials/Parts (cont.)

Kit, Electrolite Filling (WP 0170 00, Item 29)
Distilled Water, Reagent (WP 0170 00, Item 18)

References

TB 1-1730-229-30-1
MWO 1-1730-229-50-4
WP 0034 00



1. Battery Terminal Adapter	7. Battery Terminal Block	13. Terminal Screw Cover	19. Negative Slave Cable
2. Wing Nut	8. Vent Tube	14. Nut	20. Negative Terminal
3. Washer	9. Vent Adapter	15. Lock Washer	21. Screw
4. Tie-Down Rod	10. Battery Guide	16. Washer	22. Slave Receptacle
5. Battery	11. Screw	17. Positive Slave Cable	23. Positive Terminal Post
6. Battery Cover	12. Cover Plate	18. Positive Terminal	24. Negative Terminal Post

Figure 1. Battery and Slave Receptacle.

REMOVAL

WARNING

Remove all rings, watches and other jewelry when performing maintenance on battery. Wear protective gear, including goggles.

WARNING

Do not smoke around gassing batteries. Gas is highly explosive.

WARNING

Do not attempt to service sealed lead acid battery. Never add water or electrolyte.

WARNING

Overcharging sealed lead-acid batteries can cause the safety valve to open releasing flammable battery gases. Never set battery charge output higher than 28.5 volts for more than 2 hours. Any battery that becomes very hot while charging should be disconnected immediately.

WARNING

Battery electrolyte can cause severe burns to the skin. Flush exposed parts of the skin with water as quickly as possible.

NOTE

The standard batteries incorporated by MWO 1-1730-229-50-4, are two 12-volt, sealed, lead-acid type, which require no routine maintenance. The two batteries connected in series are installed in a battery tray which has the same battery terminal block and uses the same tie-down rods as the 24-volt battery. Removal of the batteries from the battery tray is covered in WP 0036 00. MWO 1-1730-229-50-4 is applied to all MEP 83-360D and MEP 83-360E models that have been through the SLEP/Reset at Letterkenny Army Depot.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Remove wing nuts (Figure 1, Item 2) and washers (Figure 1, Item 3) from battery tie-down rods (Figure 1, Item 4).
3. Remove battery cover (Figure 1, Item 6) from battery (Figure 1, Item 5).
4. Pull vent tubes (Figure 1, Item 8) up through holes in battery compartment floor.

REMOVAL – CONTINUED

5. Remove battery from battery compartment.

TEST AND INSPECTION

1. Remove the vent plugs from each cell and check fluid level.
2. If fluid level is at or below the plate level, fill with distilled water (do not use tap water) to bottom of split ring.
3. Install vent plugs tightly into cells.
4. Test specific gravity of each cell using a hydrometer.
    a. Remove vent plug from one cell and draw fluid from cell into hydrometer.
    b. Read hydrometer, then return fluid to same cell and replace vent plug.
    c. Correct hydrometer reading for ambient temperature by adding 0.004 for each 10 °F above 80 °F and subtracting 0.004 for each 10 °F below 80 °F.
    d. If corrected hydrometer (WP 0171 00, Item 20) reading is less than 1.280, the battery should be charged.
5. If one or more cells will not take a charge, replace battery.

ASSEMBLY AND PREPARATION FOR USE

1. Ensure that battery is clean and undamaged.
2. Remove battery top cover.
3. Remove vent plugs from top of battery. Remove seals (if present) from cells.

WARNING

Battery electrolyte can cause severe burns to the skin. Flush exposed parts of skin with water as quickly as possible. Observe all precautions on electrolyte container.

4. Fill each cell to bottom of split ring with 1.285 specific gravity electrolyte (WP 0170 00, Item 29). Follow instructions provided with electrolyte.
5. Install vent plugs tightly into cells.
6. Remove any electrolyte spilled on battery using a suitable neutralizing agent (baking soda or equivalent).
7. Charge battery at a 3 amp rate until all cells are gassing freely, then reduce charging rate to 1.5 amps. At this time, check specific gravity (as covered in test and inspection) at one hour intervals. When specific gravity is between 1.285 and 1.295 for three successive readings, battery is fully charged.
8. If electrolyte level needs to be adjusted, add or remove electrolyte as required, and charge for one hour.
9. If battery fails any inspection above or fails to charge, replace battery or perform TB 1-1730-229-30-1 or obtain parts from MWO 1-1730-229-50-4.

INSTALLATION

1. Make sure that all vent plugs are tightly installed in top of battery.
2. Check that vent adapters (Figure 1, Item 9) and vent tubes (Figure 1, Item 8) are securely attached to battery vent ports.
3. Set battery into battery compartment between battery guides (Figure 1, Item 10) with battery terminal block (Figure 1, Item 7) facing out.
4. Place battery cover (Figure 1, Item 6) on battery.
5. Secure battery cover (Figure 1, Item 6) with tie-down rods (Figure 1, Item 4), washers (Figure 1, Item 3), and wing nuts (Figure 1, Item 2). Before tightening wing nuts, check that tie-down rods are vertical.

INSTALLATION – CONTINUED

6. Route vent tubes (Figure 1, Item 8) through holes in floor of battery compartment of AGPU.
7. Connect battery terminal adapter (Figure 1, Item 1) to battery terminal block (Figure 1, Item 7).
8. Check resistance between positive and negative terminals of battery terminal adapter (Figure 1, Item 1). If resistance is less than 40K ohms (with MASTER switch off), check cables for shorts. Preferred reading is 48K Ohms.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

BATTERY CABLES AND TERMINAL ADAPTER

INITIAL SETUP:

Tools and Special Tools	References
Aviation Foot Locker, AFL (WP 0171 00, Item 3)	WP 0002 00
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)	WP 0012 00
	WP 0022 00
Tool Set, Aviation Unit (WP 0171 00, Item 42)	WP 0032 00
	WP 0034 00

REMOVAL

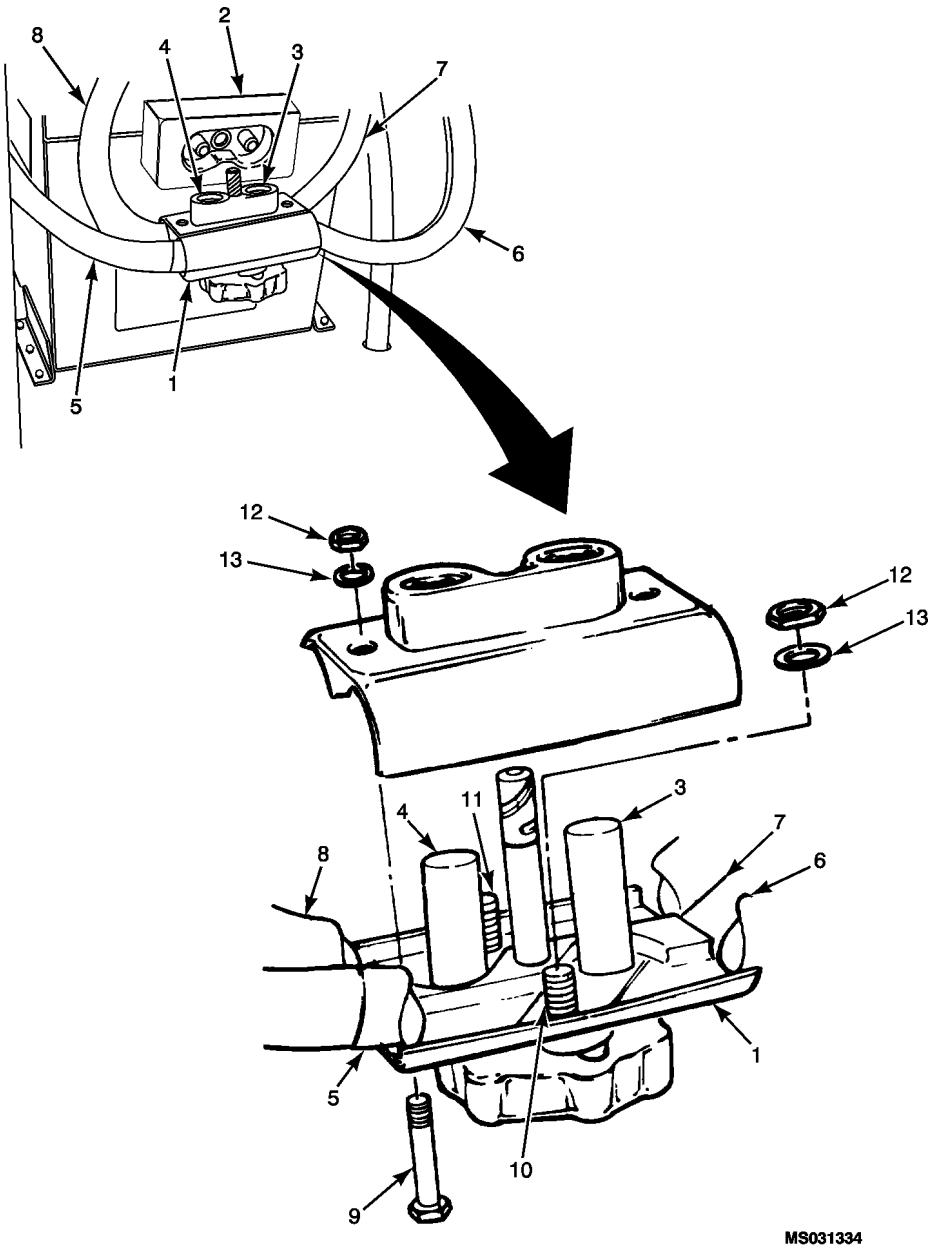
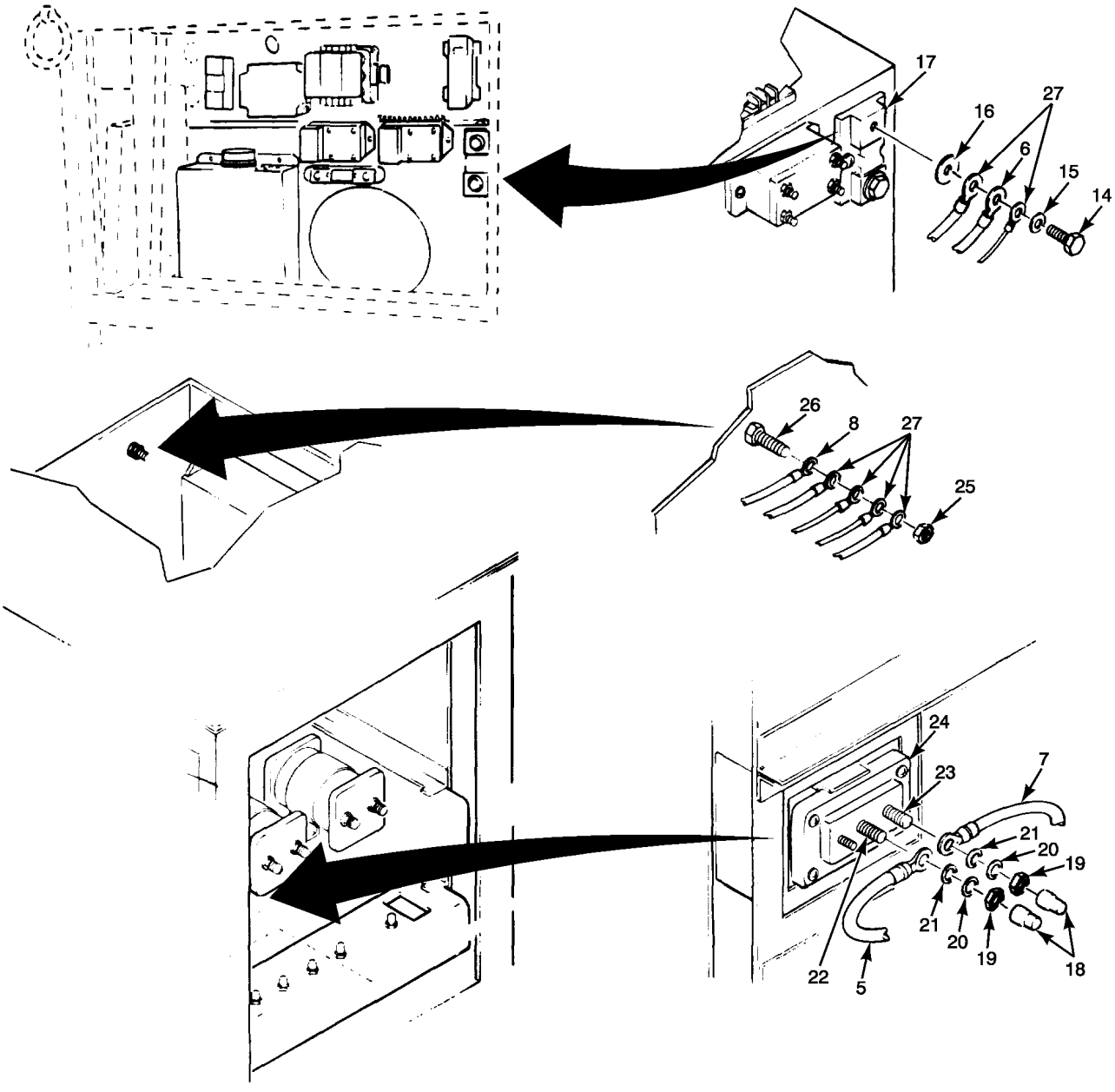


Figure 1. Battery Cables and Terminal Adapter (Sheet 1 of 2).

REMOVAL – CONTINUED



MS031335

1. Battery Terminal Adapter
2. Battery Terminal Block
3. Positive Terminal Post Receptacle
4. Negative Terminal Post Receptacle
5. Slave Positive Cable
6. System Positive Cable
7. Slave Negative Cable
8. System Negative Cable
9. Screw
10. Positive Terminal Screw
11. Negative Terminal Screw
12. Nut
13. Washer
14. Terminal Screw
15. Lock Washer
16. Washer
17. Shunt R2
18. Terminal Cover
19. Nut
20. Lock Washer
21. Washer
22. Terminal (+) (Positive)
23. Terminal (-) (Negative)
24. Slave Receptacle
25. Nut
26. Ground Stud
27. Cables

REMOVAL – CONTINUED

Figure 1. Battery Cables and Terminal Adapter (Sheet 2 of 2).

WARNING

Remove all rings, watches and other jewelry when performing maintenance on battery. Wear protective gear, including goggles.

NOTE

Refer to WP 0012 00, trouble shooting procedure 53. BATTERY VOLTAGE METER READS LOW (MASTER SWITCH ON, ENGINE NOT RUNNING) Step 5. and Step 6. for test.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
3. Remove two screws (Figure 1, Item 9) and separate halves of battery adapter (Figure 1, Item 1).
4. Remove nut (Figure 1, Item 12) and washer (Figure 1, Item 13) from positive terminal screw (Figure 1, Item 10) and negative terminal screw (Figure 1, Item 11) to disconnect cable to be removed.
5. If removing slave positive cable (Figure 1, Item 5) or slave negative cable (Figure 1, Item 7):
    a. Open electrical trays access door (WP 0002 00, Figure 1, Item 9).
    b. Pull terminal cover (Figure 1, Item 18) from slave receptacle positive terminal (Figure 1, Item 22) or negative terminal (Figure 1, Item 23) screw.
    c. Remove nut (Figure 1, Item 19), lock washer (Figure 1, Item 20), washer (Figure 1, Item 21), and slave positive or negative cable (Figure 1, Item 5) or (Figure 1, Item 7).
6. If removing system positive cable (Figure 1, Item 6):
    a. Lower control panel (WP 0032 00).
    b. Remove terminal screw (Figure 1, Item 14) and disconnect positive system cable.
7. If removing system negative cable (Figure 1, Item 8):
    a. Remove roof (WP 0022 00).
    b. Remove nut (Figure 1, Item 25) and negative system cable (Figure 1, Item 8) from ground stud (Figure 1, Item 26).
8. Remove any cable ties or clamps as necessary and remove cable.

INSTALLATION

1. If battery terminal adapter (Figure 1, Item 1) is being replaced, remove two screws (Figure 1, Item 9) and separate terminal halves.
2. If any cable is being replaced, route replacement cable in the same manner as cable removed.
3. If replacing slave cable:
    a. Connect slave positive cable (Figure 1, Item 5) to screw of positive terminal (Figure 1, Item 22) on slave receptacle.
    b. Connect negative slave cable (Figure 1, Item 7) to screw of negative terminal (Figure 1, Item 23).
    c. Install washers (Figure 1, Item 21), lock washers (Figure 1, Item 20), nuts (Figure 1, Item 19), and terminal covers (Figure 1, Item 18) on terminal screws.

INSTALLATION – CONTINUED

4. If replacing positive system cable (Figure 1, Item 6), install cables on shunt R2 (Figure 1, Item 17). Remove terminal screw (Figure 1, Item 14). Install (in order) on terminal screw, lock washer (Figure 1, Item 15), three cables (smaller cable first), and washer (Figure 1, Item 16). Thread terminal screw into shunt.
5. If replacing negative system cable (Figure 1, Item 8), install cables on ground stud (Figure 1, Item 26). Install all cables removed from stud (larger cables first) and secure with the nut (Figure 1, Item 25).

CAUTION

Make sure that all cables are connected with correct polarity.

6. As necessary, connect cables (Figure 1, Item 5 through 8) to terminal screws Figure 1, Item 10 and 11) as shown, and secure with washers (Figure 1, Item 13) and nuts (Figure 1, Item 12).
7. Assemble halves of terminal adapter (Figure 1, Item 1) and secure with two screws (Figure 1, Item 9).
8. Replace any cable ties or clamps previously removed.
9. Replace control panel (WP 0032 00), roof (WP 0022 00) and close electrical tray access door, (WP 0002 00, Figure 1) as required.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

SLAVE RECEPTACLE

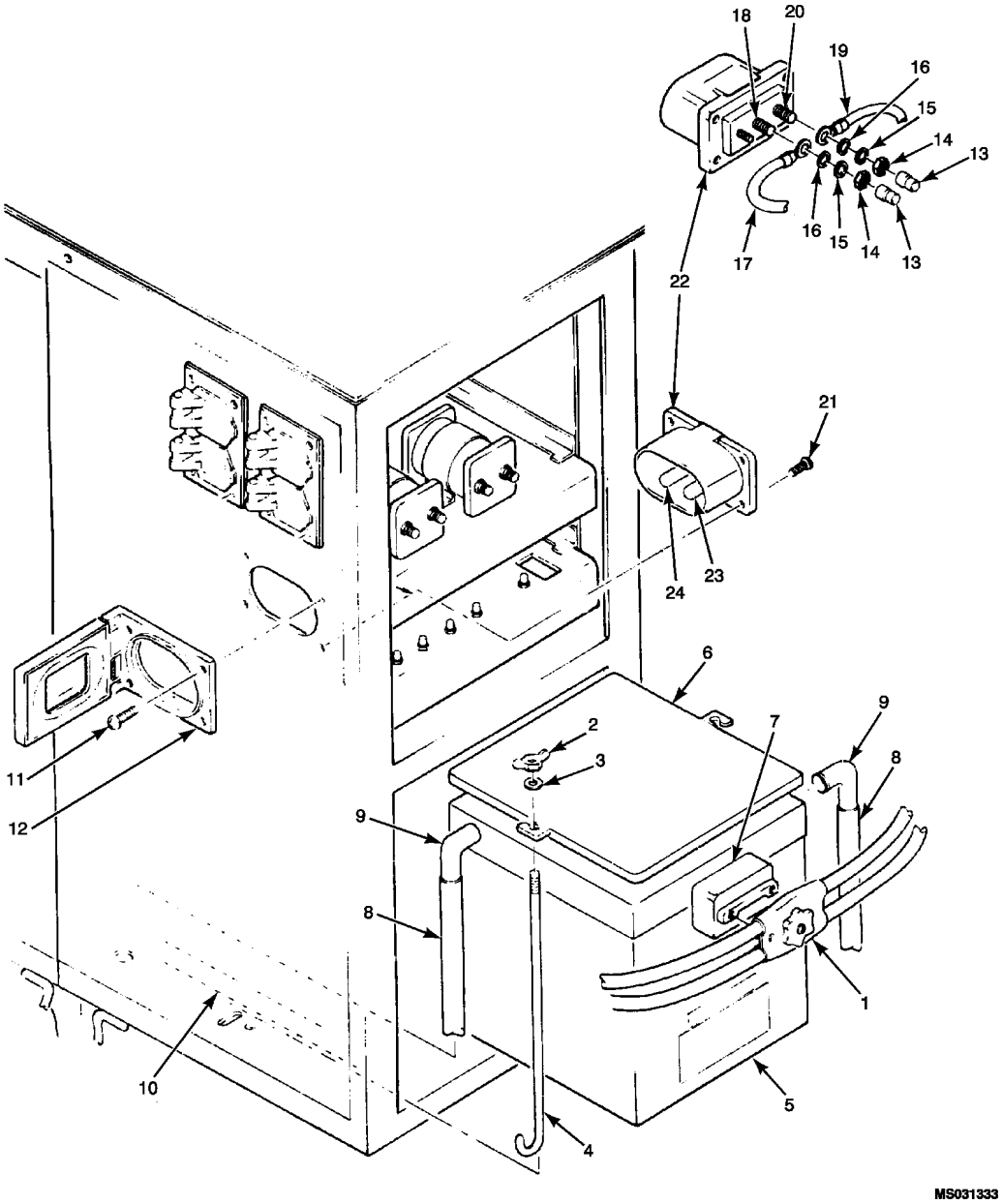
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0002 00
WP 0012 00
WP 0034 00



1. Battery Terminal Adapter	7. Battery Terminal Block	13. Terminal Screw Cover	19. Negative Slave Cable
2. Wing Nut	8. Vent Tube	14. Nut	20. Negative Terminal Stud
3. Washer	9. Vent Adapter	15. Lock Washer	21. Screw
4. Tie-Down Rod	10. Battery Guide	16. Washer	22. Slave Receptacle
5. Battery	11. Screw	17. Positive Slave Cable	23. Positive Terminal Post
6. Battery Cover	12. Cover Plate	18. Positive Terminal Stud	24. Negative Terminal Post

Figure 1. Slave Receptacle.

REMOVAL

WARNING

Remove all rings, watches and other jewelry when performing maintenance on battery. Wear protective gear, including goggles.

WARNING

Do not attempt to service sealed lead acid battery. Never add water or electrolyte.

NOTE

The standard batteries incorporated by MWO 1-1730-229-50-4, are two 12-volt, sealed, lead-acid type, which require no routine maintenance. The two batteries connected in series are installed in a battery tray which has the same battery terminal block and uses the same tie-down rods as the 24-volt battery. Removal of the batteries from the battery tray is covered in WP 0036 00. MWO 1-1730-229-50-4 is applied to all MEP 83-360D and MEP 83-360E models that have been through the SLEP/Reset at Letterkenny Army Depot.

1. Disconnect battery terminal adapter (Figure 1, Item 1).
2. Open electrical tray access door (WP 0002 00, Figure 1, Item 9).
3. Pull terminal screw covers (Figure 1, Item 13) from terminal studs (Figure 1, Item 18 and 20).
4. Remove nuts (Figure 1, Item 14), lock washers (Figure 1, Item 15) and washers (Figure 1, Item 16). Tag and disconnect positive and negative slave cables (Figure 1, Item 17 and 19) from positive and negative terminal studs (Figure 1, Item 18 and 20).
5. Remove four screws (Figure 1, Item 21) and slave receptacle (Figure 1, Item 22).

INSTALLATION

1. Install slave receptacles (Figure 1, Item 22) and secure with four screws (Figure 1, Item 21).
2. Install positive and negative slave cables (Figure 1, Item 17 and 19) to positive and negative terminal studs (Figure 1, Item 18 and 20). Secure cables with two washers (Figure 1, Item 16), lock washers (Figure 1, Item 15) and nuts (Figure 1, Item 14).
3. Install two terminal screw covers (Figure 1, Item 13) on positive and negative terminal studs (Figure 1, Item 18 and 20).
4. Close electrical tray access door (WP 0002 00, Figure 1, Item 9).

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

BATTERY CHARGER (A3)

INITIAL SETUP:

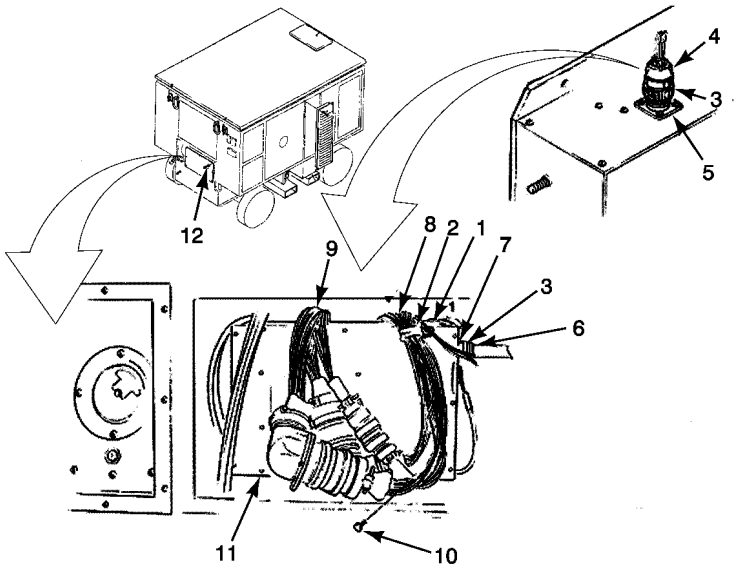
Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0012 00
WP 0032 00
WP 0034 00

TEST AND INSPECTION



1. Cover Screw
2. Cable Clamp
3. Locking Collar
4. Connector P1
5. Connector J1
6. Connector P2
7. Connector J2
8. Main Harness Cables
9. Control Panel Cables
10. Screw
11. Battery Charger
12. Battery Charger Access Panel

Figure 1. Battery Charger (MEP 83-360A/D only).

TEST AND INSPECTION – CONTINUED

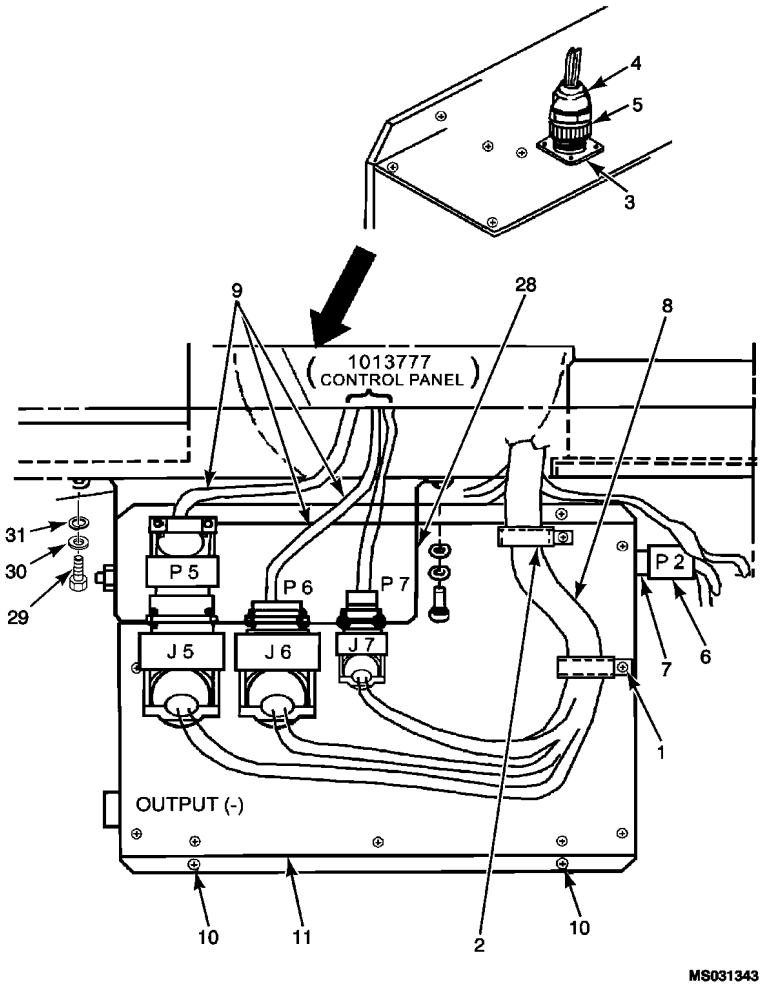
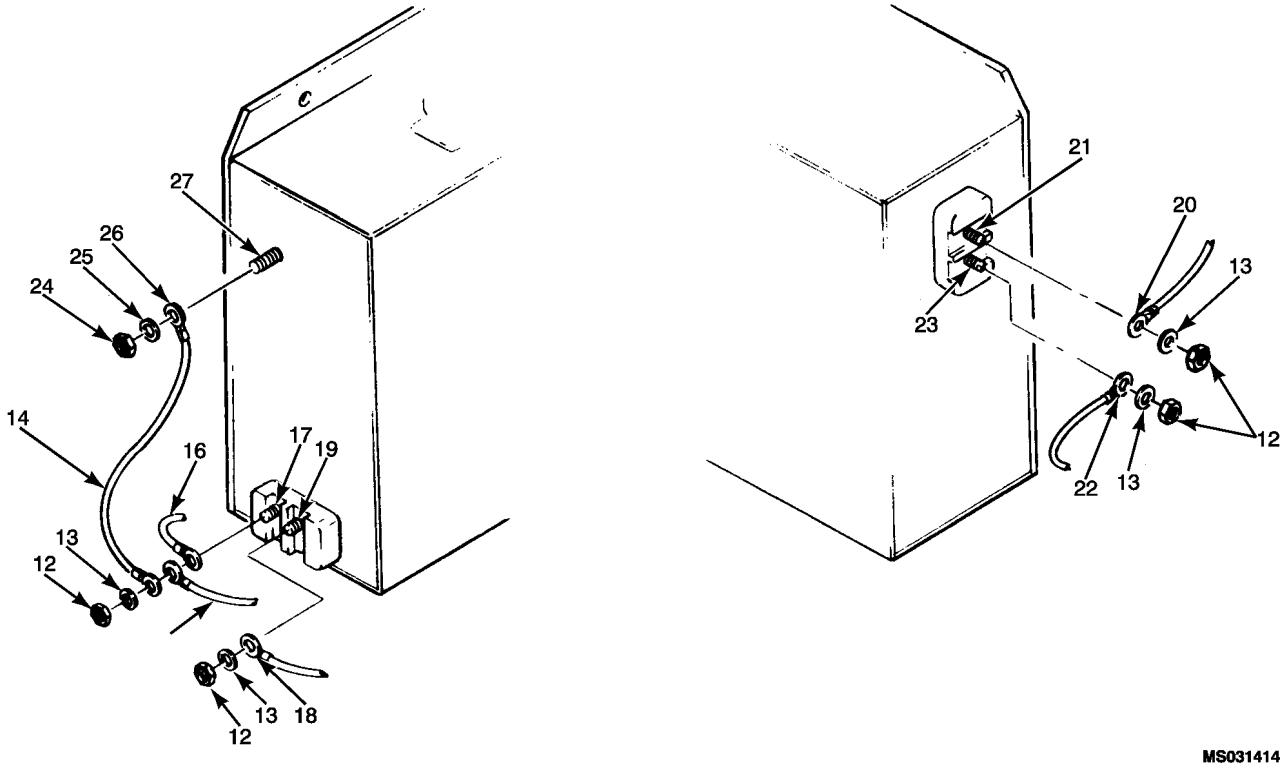


Figure 2. Battery Charger (MEP 83-360E only) (Sheet 1 of 2).

TEST AND INSPECTION – CONTINUED



NOTE:

Figure 2, items 12 through 27, are applicable to all battery chargers in all models of AGPU.

1. Cover Screw	12. Nut	23. 50 AMP Output J3 (-) Terminal
2. Cable Clamp	13. Washer	24. Nut
3. Locking Collar	14. Wire P21C20N	25. Washer
4. Connector P1	15. Cable P21A6N	26. Wire P21C20N
5. Connector J1	16. Cable P21B2N	27. Case Ground Terminal
6. Connector P2	17. 50 AMP Input J4 (-) Terminal	28. Mounting Bracket
7. Connector J2	18. Cable P22A2	29. Screw, Bracket
8. Main Harness Cables	19. 50 AMP Input J4 (+) Terminal	30. Lock Washer
9. Control Panel Cables	20. Cable P32A6	31. Washer
10. Screw	21. 50 AMP Output J3 (+) Terminal	
11. Battery Charger	22. Cable P21A6N	

Figure 2. Battery Charger (MEP 83-360E only) (Sheet 2 of 2).

TEST AND INSPECTION – CONTINUED

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

Refer to WP 0012 00, trouble shooting procedure 107. CHARGER CIRCUIT MALFUNCTION for test.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
3. Remove battery charger access panel (Figure 1, Item 12).
4. Inspect battery charger (Figure 1, Item 11 or Figure 2, Item 11) for signs of overheating or corrosion.
5. Check that connectors P1 (Figure 1, Item 4 or Figure 2, Item 4) and P2 (Figure 1, Item 6 or Figure 2, Item 6) are securely attached to battery charger. Tighten locking collars.
6. Check that cable connections to J4 terminals (Figure 2, Item 17 and 19) and J3 terminals (Figure 2, Item 21 and 23) are tight. Tighten nuts (Figure 2, Item 12) if required.

REMOVAL

1. Disconnect battery. (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Remove battery charger access panel (Figure 1, Item 12).
3. Lower the control panel (WP 0032 00).
4. Remove two battery charger cover screws (Figure 1, Item 1 or Figure 2, Item 1) and cable clamps (Figure 1, Item 2 or Figure 2, Item 2). Replace cover screws.
5. Turn locking collar (Figure 1, Item 3 or Figure 2, Item 3) counterclockwise and remove harness connector P1 (Figure 1, Item 4 or Figure 2, Item 4) from battery charger connector J1 (Figure 1, Item 5 or Figure 2, Item 5).
6. Remove harness connector P2 (Figure 1, Item 6 or Figure 2, Item 6) from battery charger connector J2 (Figure 1, Item 7 or Figure 2, Item 7).
7. Disconnect main harness cables (Figure 2, Item 8) at connectors J5, J6, and J7 from control panel harness (Figure 2, Item 9) connectors P5, P6 and P7.
8. Remove four screws (Figure 2, Item 29), lock washers (Figure 2, Item 30), and washers (Figure 2, Item 31) securing control panel connector mounting bracket (Figure 2, Item 28) to frame.
9. Hold battery charger (Figure 2, Item 11) in place and remove four screws (Figure 2, Item 10).
10. Move main harness cables (Figure 2, Item 8), control panel harness connectors (Figure 2, Item 9), and mounting bracket (Figure 2, Item 28) out of way. Pull bottom of battery charger back toward edge of compartment floor and tilt top of charger forward against panel.

NOTE

An 8 or 10 inch No. 2 magnetic screw driver or screw starter is required for battery charger mounting screws.

11. Tag and remove cables from negative (Figure 2, Item 1) and positive (Figure 2, Item 19) terminals of J4.
12. Tag and remove cables from negative (Figure 2, Item 23) and positive (Figure 2, Item 21) terminals of J3.

REMOVAL – CONTINUED

13. Remove ground wire from case ground terminal (Figure 2, Item 27).
14. Remove battery charger (Figure 2, Item 11) from compartment.

INSTALLATION

1. Check nutplates and cover screws (Figure 1, Item 1) on bulkhead panel. If any of the four nutplates is missing or damaged, notify supervisor.
2. Set replacement battery charger (Figure 1, Item 11 or Figure 2, Item 11) on compartment floor with connector J1 (Figure 2, Item 5) up. Move mounting bracket (MEP 360E only) Figure 2, Item 28) , wire harness (Figure 1, Item 9) and cables from behind battery charger (Figure 1, Item 11 or Figure 2, Item 11). Tilt top of charger forward against back bulkhead panel.
3. Install ground wire P21C20N (Figure 2, Item 26), washer (Figure 2, Item 25) and nut (Figure 2, Item 24) on battery charger case ground terminal (Figure 2, Item 27) on all models.
4. Install cable P32A6 (Figure 2, Item 20), washer (Figure 2, Item 13) and nut (Figure 2, Item 12) on J3 positive terminal (Figure 2, Item 21) on all models.
5. Install cable P21A6N (Figure 2, Item 22), washer (Figure 2, Item 13) and nut (Figure 2, Item 12) on J3 negative terminal (Figure 2, Item 23) on all models.
6. Install cable P21B2N (Figure 2, Item 16), cable P21A6N (Figure 2, Item 15), and wire P21C20N (Figure 2, Item 14) on J4 negative terminal (Figure 2, Item 17) on all models..
7. Install cable P22A2 (Figure 2, Item 18), washer (Figure 2, Item 13) and nut (Figure 2, Item 12) on J4 positive terminal (Figure 2, Item 19) on all models.
8. Position battery charger (Figure 2, Item 11) in place against bulkhead panel and fasten with four screws (Figure 2, Item 10) on all models.
9. Install harness connector P2 (Figure 1, Item 6 or Figure 2, Item 6) on battery charger connector J2 (Figure 1, Item 7 or Figure 2, Item 7). Turn locking collar (Figure 1, Item 3 or Figure 2, Item 3) clockwise.
10. Install harness connector P1 (Figure 1, Item 4 or Figure 2, Item 4) to battery charger connector J1 (Figure 1, Item 5 or Figure 2, Item 5). Turn locking collar (Figure 2, Item 3) clockwise.
11. Install control panel connector mounting bracket (Figure 1, Item 28 or Figure 2, Item 28) on MEP 360E only, to frame using four washers (Figure 2, Item 31), lock washers (Figure 2, Item 30) and screws (Figure 2, Item 29).
12. Connect main harness cables (Figure 1, Item 8 or Figure 2, Item 8) at connectors J5, J6, and J7 to control panel harness cables (Figure 2, Item 9) at connectors P5, P6, and P7, or J1, P2 and J2 on MEP 360A/D.
13. Install cable clamp (Figure 1, Item 2 or Figure 2, Item 2) around main harness cables (Figure 1, Item 8 or Figure 2, Item 8). Attach clamp to charger with charger cover screw (Figure 1, Item 1 or Figure 2, Item 1).
14. Replace battery charger access cover.
15. Replace control panel and close control panel access door.
16. Reconnect batteries.
17. Perform MOC.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

INSPECTING ELECTRICAL CONNECTORS FOR SHORTS, BATTERY CHARGER

INITIAL SETUP:

Tools and Special Tools

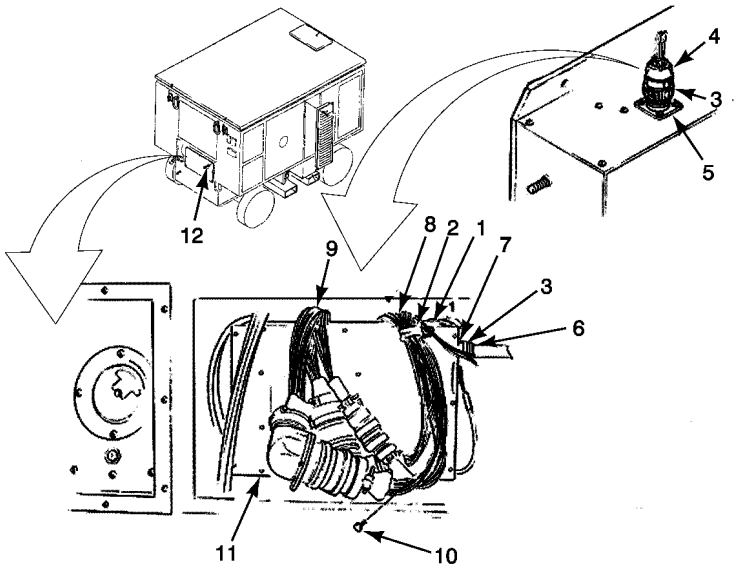
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Item Tape, Electrical Wire-Flexible Insulated (WP 0170 00, Item 55)

References

WP 0032 00
WP 0034 00



1. Cover Screw
2. Cable Clamp
3. Locking Collar
4. Connector P1
5. Connector J1
6. Connector P2
7. Connector J2
8. Main Harness Cables
9. Control Panel Cables
10. Screw
11. Battery Charger
12. Battery Charger Access Panel

Figure 1. Battery Charger (MEP 83-360A/D only).

– Continued

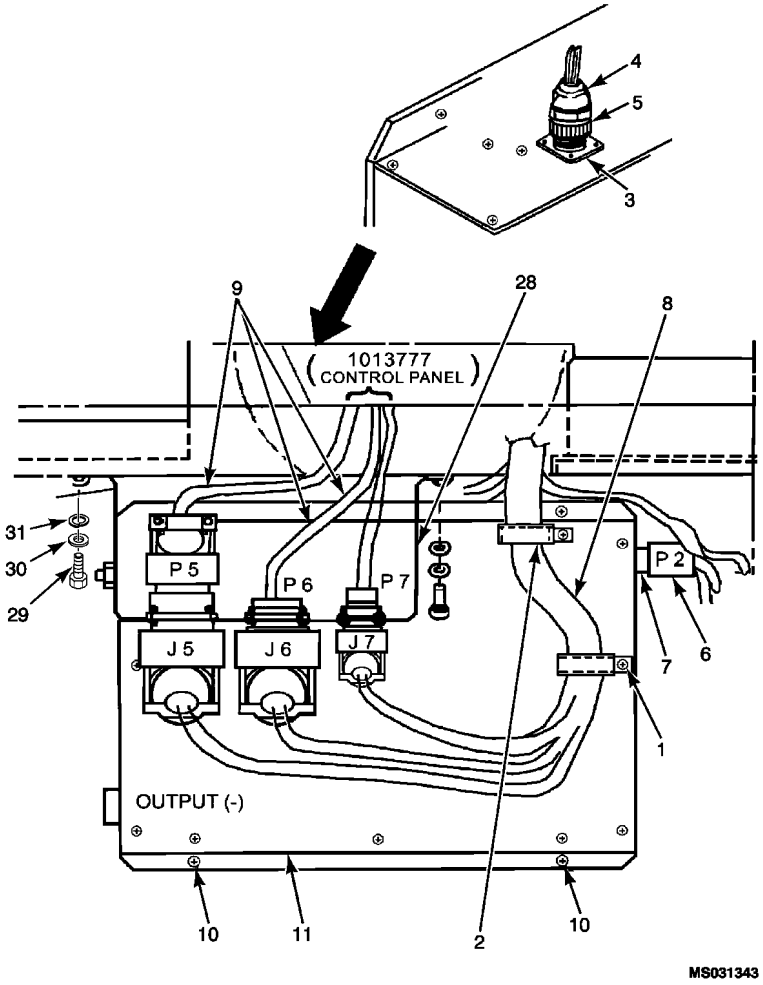
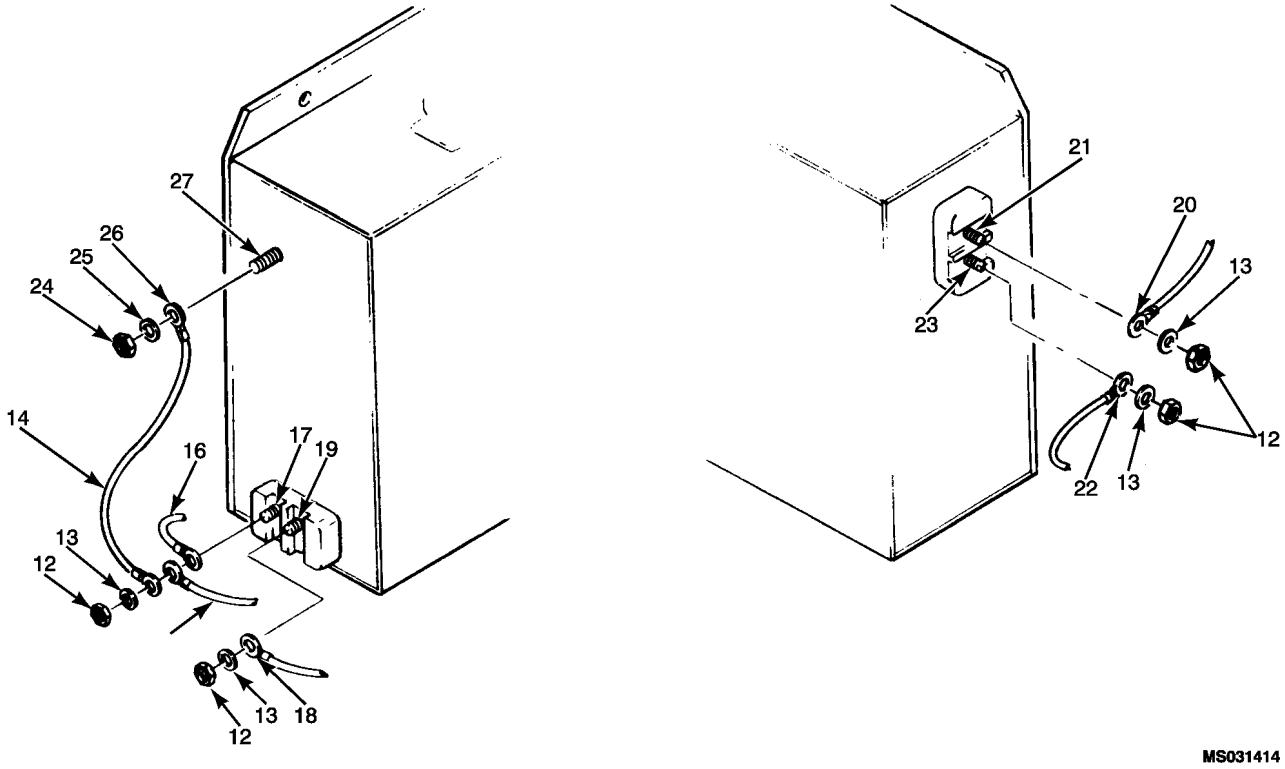


Figure 2. Battery Charger (MEP 83-360E only) (Sheet 1 of 2).

– Continued



NOTE:

Figure 2, items 12 through 27, are applicable to all battery chargers in all models of AGPU.

1. Cover Screw
2. Cable Clamp
3. Locking Collar
4. Connector P1
5. Connector J1
6. Connector P2
7. Connector J2
8. Main Harness Cables
9. Control Panel Cables
10. Screw
11. Battery Charger
12. Nut
13. Washer
14. Wire P21C20N
15. Cable P21A6N
16. Cable P21B2N
17. 50 AMP Input J4 (-) Terminal
18. Cable P22A2
19. 50 AMP Input J4 (+) Terminal
20. Cable P32A6
21. 50 AMP Output J3 (+) Terminal
22. Cable P21A6N
23. 50 AMP Output J3 (-) Terminal
24. Nut
25. Washer
26. Wire P21C20N
27. Case Ground Terminal
28. Mounting Bracket
29. Screw, Bracket
30. Lock Washer
31. Washer

Figure 2. Battery Charger (MEP 83-360E only) (Sheet 2 of 2).

REMOVAL

ELECTRICAL CONNECTORS P-1 AND P-6 BATTERY CHARGER

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

Electrical connectors P-1 and P-6 (battery charger voltage adjustment plug and in-line connector to the lower tray), located behind the main control panel, should be removed from their mating connectors and inspected for possible shield-wire shorts as described below:

1. Disconnect battery. (MEP 83-360E only) Disconnect J-1 and P-1 connector. **(MEP 83-360E only)** Disconnect J-1 and P-1 connector.
2. Remove mounting screws on the Main Control Panel and place in maintenance position (WP 0032 00, Figure 1) to provide access to the electrical area.
3. Disconnect connector P-1 (Figure 2. Sheet 1 of 2, Item 4) from the top of battery charger.
4. Remove the cable restraint and backshell from the back of P-1 (Figure 2. Sheet 1 of 2, Item 4) and identify the black 4-wire neoprene covered, shielded cable.
5. Remove the heat shrink material that covers the black 4-wire cable and locate the wire soldered to the shield which connects to pin E of P-1 (Figure 2. Sheet 1 of 2, Item 4). Due to compression of the heat-shrink material and the cable restraint, the soldered portion of this lead has been found to penetrate the insulation of one or more of the adjacent wires.

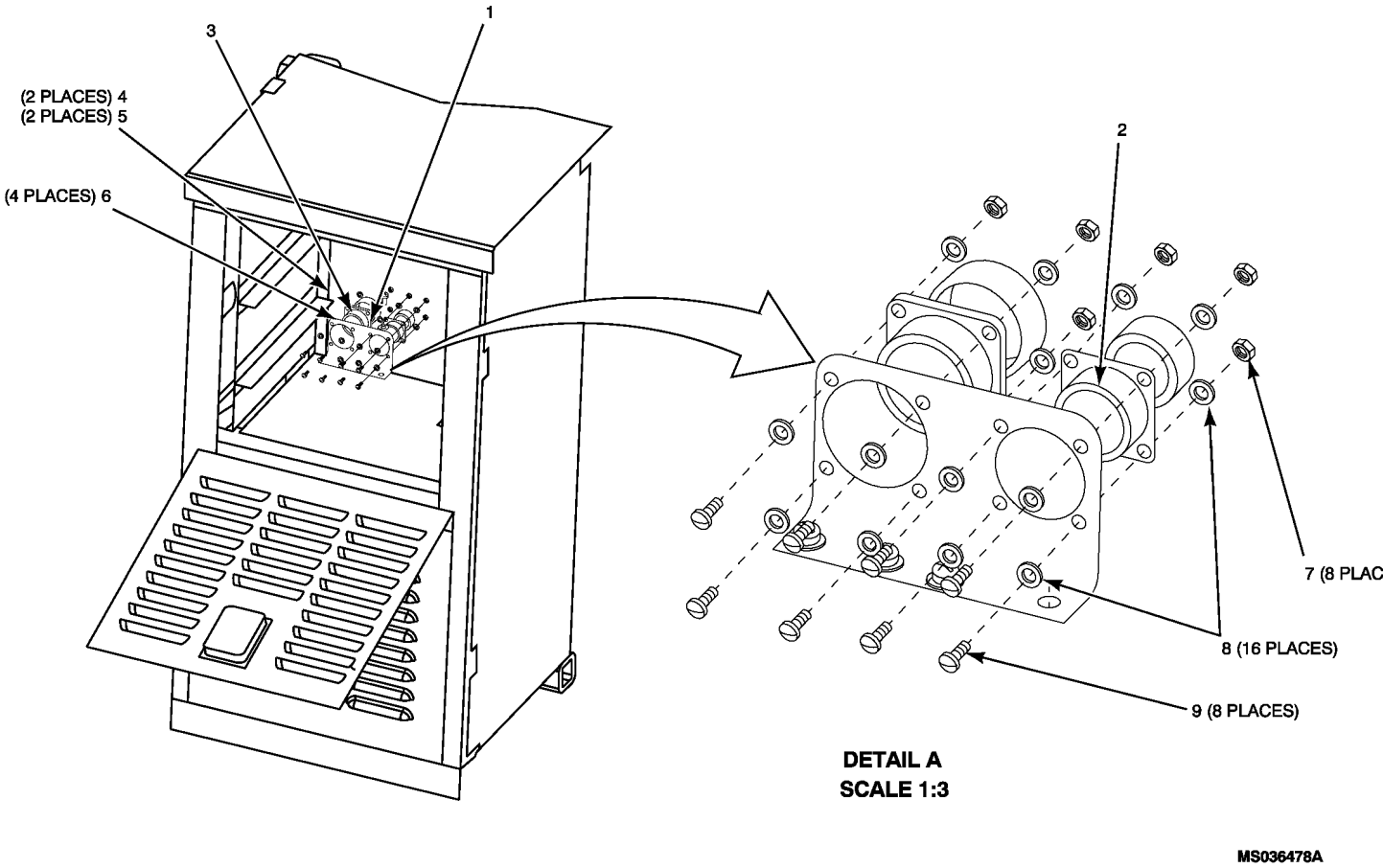
TEST AND INSPECTION

1. Inspect each of the four wires for any apparent damage to the insulation. If any of the wires have damaged or cut insulation each wire must be protected by sleeving or tape. If no damage is apparent, the bundle must be protected with a layer of tape.
2. Place tape or sleeving around the soldered portion of the jumper from the shielding to Pin E to further assure insulation of the circuit.

INSTALLATION

1. Reassemble connector by reinstalling cable restrain and backshell of P-1 (Figure 2. Sheet 1 of 2, Item 4) .
2. Reconnect connector P-1 (Figure 2. Sheet 1 of 2, Item 4) into connector J-1 (Figure 2. Sheet 1 of 2, Item 5) of the battery charger.
3. Install mounting screws on the Main Control Panel (WP 0032 00, Figure 1).
4. Reconnect AGPU battery connector P-17 in battery compartment. (MEP 83-360E only) Reconnect J-1 and P-1 connector.
5. Perform MOC.

REMOVAL



1. Bracket	4. Screw	7. Nut
2. Connector J9/P9	5. Nut	8. Washer
3. Connector J8/P8	6. Washer	9. Screw

Figure 3. Lower Tray Connector Installation (MEP 83-360E only).

NOTE

P-8 and P-9 connectors (Figure 3, Item 2 and 3) will not be found on MEP 83-360A and MEP 83-360D models. These connections for the wiring harness are soldered connections only between tray 2 and main control panel harness.

1. Disconnect battery. (MEP 83-360E only) Disconnect J-1 and P-1 connector. (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Remove mounting screws on the Main Control Panel and place in maintenance position (WP 0032 00, Figure 1) to provide access to the electrical area.

REMOVAL – CONTINUED

3. Remove and inspect in-line connector P-8 and P-9 (Figure 3, Item 2 and 3) from lower tray connector J-8 and J-9 (Figure 3, Item 2 and 3) as follows:

NOTE

The shielding on the black neoprene cable is not connected to any pin of P-8 and P-9 (Figure 3, Item 2 and 3). It should be trimmed and insulated. The cables should be inspected for breaks or cuts in the insulation which could cause shield-to-wire shorting.

4. Remove cable restraint and backshell from P-8 and P-9 (Figure 3, Item 2 and 3).

TEST AND INSPECTION

1. Locate and inspect the four wires that extend from the trimmed neoprene cables for broken or cut insulation or any apparent damage to the insulation.
2. If any of the wires have been damaged or cut insulation is seen, each wire must be protected by sleeving or tape. If no damage is apparent, each bundle must be protected with a layer of tape.

INSTALLATION

1. Reassemble connectors by reinstalling cable restraint and backshell of P-8 and P-9 (Figure 3, Item 2 and 3).
2. Reconnect P-8 and P-9 (Figure 3, Item 2 and 3) into J-8 and J-9 (Figure 3, Item 2 and 3) of lower tray assembly.
3. Install mounting screws on the Main Control Panel (WP 0032 00, Figure 1).
4. Reconnect AGPU battery connector P-17 in battery compartment. (MEP 83-360E only) Reconnect J-1 and P-1 connector.
5. Perform MOC.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

SHUNTS (R1 - R3)

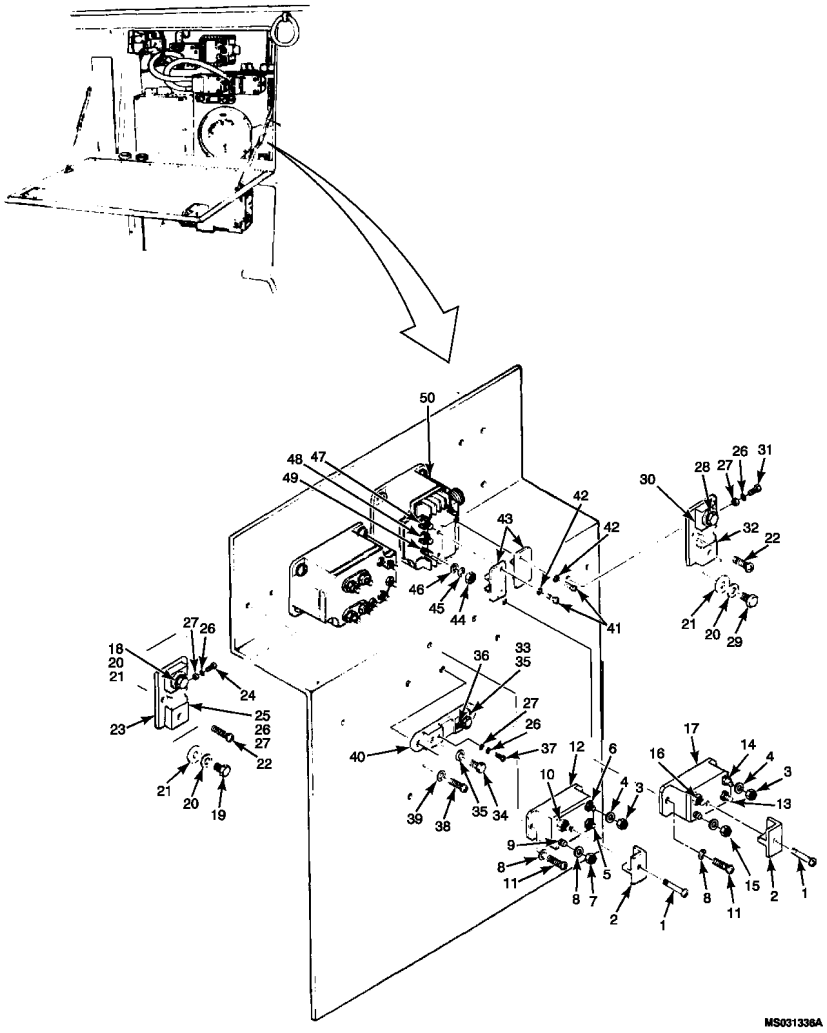
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0032 00
WP 0034 00



1. Screw
2. Terminal shield
3. Nut
4. Washer
5. Terminal X1 (K3)
6. Terminal X2 (K3)
7. Nut
8. Washer
9. Terminal A1 (K3)
10. Terminal A2 (K3)
11. Screw
12. Battery Output/traction Motor Contactor K3
13. Terminal X1 (K4)
14. Terminal X2 (K4)
15. Terminal A1 (K4)
16. Terminal A2 (K4)
17. GTE Starter Contactor K4
18. Load Terminal (R1+)
19. Load Terminal (R1-)
20. Lock Washer
21. Washer
22. Screw
23. Output Shunt R1
24. Meter Terminal (R1+)
25. Meter Terminal (R1-)
26. Lock Washer
27. Washer
28. Load Terminal (R2+)
29. Load Terminal (R1-)
30. Starter Shunt R2
31. Meter Terminal (R2+)
32. Meter Terminal (R2-)
33. Load Terminal (R3-)
34. Load Terminal (R3+)
35. Washer
36. Meter Terminal (R3-)
37. Meter Terminal (R3+)
38. Screw
39. Washer
40. Shunt R3
41. Screw
42. Lock Washer
43. Terminal Shield
44. Nut
45. Lock Washer
46. Washer
47. Terminal A2 (K1)
48. Terminal B2 (K1)
49. Terminal C2 (K1)
50. AC Contactor (K1)

Figure 1. Starter Contactors and Shunts.

TEST AND INSPECTION

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Lower the control panel (WP 0032 00).
3. Inspect shunts R1 (Figure 1, Item 23), R2 (Figure 1, Item 30) and R3 (Figure 1, Item 40) for signs of overheating or corrosion.
4. Check that all shunt cable and wire connections are tight.

REMOVAL

Removal of Shunt R1

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Lower the control panel (WP 0032 00).
3. Remove screws (Figure 1, Item 41), lock washers (Figure 1, Item 42) and terminal shield (Figure 1, Item 43) from AC contactor K1 (Figure 1, Item 50). Tag and remove cables and wires from terminals A2, (K1) (Figure 1, Item 47), B2 (Figure 1, Item 48) and C2 (Figure 1, Item 49). Removing these cables is necessary for access to shunt R1.
4. Tag and remove cables and wire from shunt load terminals (Figure 1, Item 18 and 19).
5. Remove two screws (Figure 1, Item 22) and shunt R1 (Figure 1, Item 23).
6. Tag and remove all wires from shunt meter terminals (Figure 1, Item 24 and 25).

INSTALLATION

Installation of Shunt R1

1. Check nutplates on bulkhead panel. If any nutplate is missing, notify maintenance personnel.
2. Remove meter terminal screws (Figure 1, Item 24 and 25) from shunt (Figure 1, Item 23). Using ID tags, install (in order) on each screw, lock washer (Figure 1, Item 26), washer (Figure 1, Item 27), and wire or wires. Thread screws into shunt.
3. Fasten shunt R1 (Figure 1, Item 23) to panel with two screws (Figure 1, Item 22).
4. Remove load terminal screws (Figure 1, Item 18 and 19) from shunt (Figure 1, Item 23). Using ID tags, install (in order) on each screw, lock washer (Figure 1, Item 20), cable or cables (with smaller cable first), and washer (Figure 1, Item 21). Thread screws into shunt.
5. Using ID tags, install cables first and then wires to contactor terminals A2 (Figure 1, Item 47), B2 (Figure 1, Item 48), and C2 (Figure 1, Item 49). Install washer (Figure 1, Item 46), lock washer (Figure 1, Item 45), and nut (Figure 1, Item 44) on each terminal.
6. Install terminal shield (Figure 1, Item 43), washers (Figure 1, Item 42), and screws (Figure 1, Item 41).
7. Replace control panel.

REMOVAL

Removal of Shunt R2

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Lower the control panel (WP 0032 00).
3. Tag and remove cables and wires from shunt load terminals (Figure 1, Item 28 and 29).
4. Remove two screws (Figure 1, Item 22) and shunt R2 (Figure 1, Item 30).

REMOVAL – CONTINUED

5. Tag and remove wires from shunt meter terminals (Figure 1, Item 31 and 32).

INSTALLATION

Installation of Shunt R2

1. Check nutplates on bulkhead panel. If any nutplate is missing, notify maintenance supervisor.
2. Remove meter terminal screws (Figure 1, Item 31 and 32) from shunt (Figure 1, Item 30). Using ID tags, install (in order) on each screw, lock washer (Figure 1, Item 26), washer (Figure 1, Item 27), and wire or wires (with smaller wire first). Thread screw into shunt.
3. Fasten shunt R2 (Figure 1, Item 30) to panel with two screws (Figure 1, Item 22).
4. Remove load terminal screws (Figure 1, Item 28 and 29). Using ID tags, install (in order) on each screw, lock washer (Figure 1, Item 20), cable or cables (with smaller cable first), and washer (Figure 1, Item 21). Thread screws into shunt.
5. Replace control panel.

REMOVAL

Removal of Shunt 3

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Lower the control panel (WP 0032 00).
3. Tag and remove wires from meter terminal screws (Figure 1, Item 36 and 37).
4. Tag and remove cables and wires from load terminal screws (Figure 1, Item 33 and 34).
5. Remove two screws (Figure 1, Item 38), washers (Figure 1, Item 39), and shunt R3 (Figure 1, Item 40).

INSTALLATION

Installation of Shunt R3

1. Check nutplates on bulkhead panel. If any nutplate is missing, notify maintenance supervisor.
2. Fasten shunt R3 (Figure 1, Item 40) to panel with two washers (Figure 1, Item 39) and screws (Figure 1, Item 38). If either load terminal screw (Figure 1, Item 33 or 34) is marked with a + (plus), mount shunt with + (plus) screw to the left.
3. Remove meter terminal screws (Figure 1, Item 33 and 34) from shunt. Using ID tags, install (in order) on each screw, lock washer (Figure 1, Item 26), washer (Figure 1, Item 27), and wire. Thread screws into shunt (Figure 1, Item 40).
4. Remove load terminal screws (Figure 1, Item 33 and 34) from shunt. Using ID tags, install (in order) on each screw, washer (Figure 1, Item 35), wire on screw (Figure 1, Item 33) only, and cable. Thread screws into shunt.
5. Replace control panel.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

WIRING HARNESS (MAIN HARNESS AND ELECTRICAL TRAY HARNESSES)

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0014 00
WP 0034 00
TM 1-1500-323-24-1

WARNING

Remove all rings, watches and other jewelry when performing on this equipment.

TEST AND INSPECTION

For the following procedures, refer to WP 0014 00. Inspect wire harnesses as follows:

1. Set MASTER SWITCH to OFF, and disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Inspect wiring harness for damaged insulation and broken wires. Refer to FO 15 through FO 18 for wire identification and connections.
3. Check that all terminal connections are secure.
4. Inspect harness connectors for damage.

REPAIR OR REPLACEMENT

NOTE

Refer to electrical schematic foldouts in rear of manual for all model AGPUs.

For repair of wiring harnesses, refer to TM 1-1500-323-24-1.

Table 1. Main Harness and Loose Wire List, Model 83-360A (Only).

Wire No.	Size	Color	Length	From	To	Remarks	Fold Out and Sheet No.

REPAIR OR REPLACEMENT – CONTINUED

Table 1. Main Harness and Loose Wire List, Model 83-360A (Only). – Continued

Wire No.	Size	Color	Length	From	To	Remarks	Fold Out and Sheet No.
P25A20	20	RED	36”	P1-A	P9-F	4 COND. SHIELD WIRE	FO 15 (Sheet 2 of 5)
P26A20	20	BLACK	36”	P1-B	P9-C	4 COND. SHIELD WIRE	FO 15 (Sheet 2 of 5)
P27A20	20	GREEN	36”	P1-C	P9-D	4 COND. SHIELD WIRE	FO 15 (Sheet 2 of 5)
P28A20	20	WHITE	36”	P1-D	P9-E	4 COND. SHIELD WIRE	FO 15 (Sheet 2 of 5)
SHIELD GND		NONE	A/R	WIRE SHIELDS	P1-E	4 COND. SHIELD WIRE	FO 15 (Sheet 2 of 5)
P29A20	20	WHT	42”	P1-G	TB3-8	ANODE	FO 15 (Sheet 2 of 5)
P24A16	16	WHT	67”	P1-H	2CB2-L	#8 LUG	FO 15 (Sheet 2 of 5)
P23A16	16	WHT	66”	P1-I	2CB2-L	#8 LUG	FO 15 (Sheet 2 of 5)
P30A18	18	WHT	37.5”	P2-A	P9-S		FO 15 (Sheet 2 of 5)
P31A18N	18	WHT	36.5”	P2-B	GND TB	#6 LUG	FO 15 (Sheet 2 of 5)
E2C18	18	WHT	146”	P5-1L	S2E-2	EMER. SWITCH #6 LUG	FO 15 (Sheet 2 of 5)
E3C20	20	WHT	29”	P5-1R	TB1-1	ANODE, #6 LUG	FO 15 (Sheet 2 of 5)
E4H18	18	WHT	44”	P5-2R	P18-B		FO 15 (Sheet 2 of 5)
E18A20	20	WHT	30”	P5-3L	TB2-15	CATHODE, #6 LUG	FO 15 (Sheet 2 of 5)
E37B20N	20	WHT	40.5”	P5-3R	GND TB	#6 LUG	FO 15 (Sheet 2 of 5)
E7A20	20	WHT	43.5”	P5-4L	P4 - a		FO 15 (Sheet 2 of 5)
E8A20	20	WHT	43.5”	P5-4R	P4 - b		FO 15 (Sheet 2 of 5)
E9A20	20	WHT	43.5”	P5-5L	P4-M		FO 15 (Sheet 2 of 5)
E10A20	20	WHT	43.5”	P5-5R	P4 -c		FO 15 (Sheet 2 of 5)
E21A20	20	WHT	36.5”	P5-6L	S1E, THERM SWITCH	BARE WIRE	FO 15 (Sheet 2 of 5)
E11C20	20	WHT	41”	P5-6R	TB3-1	ANODE, #6 LUG	FO 15 (Sheet 2 of 5)
E12C20	20	WHT	40”	P5-7R	TB3-2	#6 LUG	FO 15 (Sheet 2 of 5)
E13C20	20	WHT	41.5”	P5-8L	TB3-3	ANODE, #6 LUG	FO 15 (Sheet 2 of 5)

REPAIR OR REPLACEMENT – CONTINUED

Table 1. Main Harness and Loose Wire List, Model 83-360A (Only). – Continued

Wire No.	Size	Color	Length	From	To	Remarks	Fold Out and Sheet No.
E22A20	20	WHT	104.5”	P5-8R	S3E-NC, S3E	INLET FILTER SW.	FO 15 (Sheet 2 of 5)
						AIR STARVATION SW.	FO 15 (Sheet 2 of 5)
E14C20	20	WHT	41”	P5-9L	TB3-4	ANODE, #6 LUG	FO 15 (Sheet 2 of 5)
E15C20	20	WHT	41.5”	P5-9R	TB3-5	ANODE, #6 LUG	FO 15 (Sheet 2 of 5)
E1K20	20	WHT	36.5”	P5-10L	SIF-NO	BARE WIRE	FO 15 (Sheet 2 of 5)
E39B20N	20	WHT	39.5”	P5-10R	GND TB	#6 LUG	FO 15 (Sheet 2 of 5)
E28A20	20	WHT	118.5”	P5-11L	P14-F		FO 15 (Sheet 2 of 5)
E29B20	20	WHT	147”	P5-11R	S2E-6	EMER. SW., #6 LUG	FO 15 (Sheet 2 of 5)
Q1D20	20	WHT	31”	P5-12L	TB1-15	ANODE, R1Q RESISTOR,	FO 15 (Sheet 2 of 5)
						#6 LUG	FO 15 (Sheet 2 of 5)
Q2A20	20	WHT	39”	P5-12R	TB1-14	DIODE, ZENER, #6 LUG	FO 15 (Sheet 2 of 5)
						CATHODE	FO 15 (Sheet 2 of 5)
Q4B20	20	WHT	76”	P5-13L	S1Q	BARE WIRE, FUEL LEV. SW.	FO 15 (Sheet 2 of 5)
Q5B20	20	WHT	87”	P5-13R	S2Q	FUEL PRES SW., #8 LUG	FO 15 (Sheet 2 of 5)
Q6B20	20	WHT	71”	P5-14L	MT1Q(+)	FUEL LEV SEND, FLOAT	FO 15 (Sheet 2 of 5)
						SW., #12 LUG	FO 15 (Sheet 2 of 5)
L26A20	20	WHT	29”	P5-14R	TB2-13	CATHODE, #6 LUG	FO 15 (Sheet 2 of 5)
L24A20	20	WHT	31”	P5-15L	TB1-2	ANODE, #6 LUG	FO 15 (Sheet 2 of 5)
L23A20	20	WHT	30”	P5-15R	TB1-3	ANODE, #6 LUG	FO 15 (Sheet 2 of 5)
L22A20	20	WHT	30”	P5-16L	TB1-4	ANODE, #6 LUG	FO 15 (Sheet 2 of 5)
L21A20	20	WHT	29”	P5-16R	TB1-6	ANODE, #6 LUG	FO 15 (Sheet 2 of 5)

REPAIR OR REPLACEMENT – CONTINUED

Table 1. Main Harness and Loose Wire List, Model 83-360A (Only). – Continued

Wire No.	Size	Color	Length	From	To	Remarks	Fold Out and Sheet No.
L19A20	20	WHT	30”	P5-17L	TB1-7	ANODE, #6 LUG	FO 15 (Sheet 2 of 5)
L18A20	20	WHT	29”	P5-17R	TB1-8	ANODE, #6 LUG	FO 15 (Sheet 2 of 5)
L17A20	20	WHT	29”	P5-18L	TB1-9	ANODE, #6 LUG	FO 15 (Sheet 2 of 5)
L20A20	20	WHT	28”	P5-18R	TB2-11	CATHODE, #6 LUG	FO 15 (Sheet 2 of 5)
L16A20	20	WHT	29”	P5-19L	TB1-10	ANODE, #6 LUG	FO 15 (Sheet 2 of 5)
P15A20	20	WHT	54”	P5-19R	P12-e		FO 15 (Sheet 2 of 5)
P16A20	20	WHT	54”	P5-20L	P12-r		FO 15 (Sheet 2 of 5)
P46A20	20	WHT	52”	P5-21L	K2-B2	DC CONTACTOR, #12 LUG	FO 15 (Sheet 2 of 5)
P34C20	20	WHT	42.5”	P5-21Rv	P9-P		FO 15 (Sheet 2 of 5)
P35F18	18	WHT	42.5”	P5-22L	P9-N		FO 15 (Sheet 2 of 5)
P53H20N	20	WHT	39.5”	P5-23L	GND TB	#6 LUG	FO 15 (Sheet 2 of 5)
P47A20	20	WHT	35.5”	P5-23R	R3 (-)	SHUNT METER (-), #8 LUG	FO 15 (Sheet 2 of 5)
P48A20	20	WHT	38”	P5-24L	R3 (+)	SHUNT METER (+), #8 LUG	FO 15 (Sheet 2 of 5)
P42A20	20	WHT	33.5”	P5-24R	R2 (-)	#8 LUG (TWISTED PAIR)	FO 15 (Sheet 2 of 5)
P43A20	20	WHT	36”	P5-Av	R2 (+)	#8 LUG (TWISTED PAIR)	FO 15 (Sheet 2 of 5)
P17B20	20	WHT	60”	P5-C	R1(-)	#8 LUG	FO 15 (Sheet 2 of 5)
P18B20	20	WHT	62”	P5-(+)	R1(+)	#8 LUG	FO 15 (Sheet 2 of 5)
P3C20	20	WHT	64”	P5-(-)	R1(+)	#8 LUG	FO 15 (Sheet 2 of 5)
E44A20N	20	WHT	35.5”	P4-G	GND TB	#8 LUG	FO 15 (Sheet 2 of 5)
E16A20	20	WHT	32”	P4-J	K4-X1	#8 LUG	FO 15 (Sheet 2 of 5)
E45A20N	20	WHT	37”	P4-N	GND TB	#6 LUG	FO 15 (Sheet 2 of 5)
E17A20	20	WHT	41”	P4-S	P8-A		FO 15 (Sheet 2 of 5)

REPAIR OR REPLACEMENT – CONTINUED

Table 1. Main Harness and Loose Wire List, Model 83-360A (Only). – Continued

Wire No.	Size	Color	Length	From	To	Remarks	Fold Out and Sheet No.
E6A20	20	WHT	147.5”	P4-T	S2E-5	EMER. SHUTofF SW.	FO 15 (Sheet 2 of 5)
						#6 LUG	FO 15 (Sheet 2 of 5)
E42A18N	18	WHT	42”	P4-X	GND TB	#6 LUG	FO 15 (Sheet 2 of 5)
E30B20	20	WHT	43”	P4-Z	P6-T		FO 15 (Sheet 2 of 5)
E43A20N	20	WHT	42”	P4-j	GND TB	#6 LUG	FO 15 (Sheet 2 of 5)
H1C20	20	WHT	32”	P6-A	TB1-13	R1H RESISTOR (+), ANODE,	FO 15 (Sheet 2 of 5)
						#6 LUG	FO 15 (Sheet 2 of 5)
H2B20	20	WHT	38”	P6-B	TB1-13	R1H RESISTOR (-), CATHODE,	FO 15 (Sheet 2 of 5)
						#6 LUG	FO 15 (Sheet 2 of 5)
H3B20	20	WHT	96”	P6-C	MT1H - (+)	BARE WIRE, PRESSURE	FO 15 (Sheet 2 of 5)
						TRANS-DUCER ENGINE	FO 15 (Sheet 2 of 5)
H4C20N	20	WHT	44”	P6-D	GND TB	#6 LUG	FO 15 (Sheet 2 of 5)
H6B20	20	WHT	119”	P6-E	L1H-1–N0	BARE WIRE, PNEU. VALVE	FO 15 (Sheet 2 of 5)
						LCV	FO 15 (Sheet 2 of 5)
L9A20	20	WHT	32”	P6-F	TB2-4	CATHODE #6 LUG	FO 15 (Sheet 2 of 5)
L29A20	20	WHT	28.5”	P6-G	TB1-5	ANODE, #6 LUG	FO 15 (Sheet 2 of 5)
G2C20	20	WHT	45.5”	P6-H	TB4-10	#6 LUG	FO 15 (Sheet 2 of 5)
G4B20N	20	WHT	44.5’	P6-J	TB3-11	ANODE, #6 LUG	FO 15 (Sheet 2 of 5)
L28B20	20	WHT	43.5”	P6-K	TB2-3	ANODE, #6 LUG	FO 15 (Sheet 2 of 5)
L30B20N	20	WHT	41”	P6-L	GND TB	#6 LUG	FO 15 (Sheet 2 of 5)
L27B20	20	WHT	39’	P6-M	TB1-2	CATHODE #6 LUG	FO 15 (Sheet 2 of 5)
L2B20	20	WHT	42”	P6-N	P8-S		FO 15 (Sheet 2 of 5)

REPAIR OR REPLACEMENT – CONTINUED

Table 1. Main Harness and Loose Wire List, Model 83-360A (Only). – Continued

Wire No.	Size	Color	Length	From	To	Remarks	Fold Out and Sheet No.
L3B20	20	WHT	42”	P6-P	P8-T		FO 15 (Sheet 3 of 5)
L4B20	20	WHT	42.5”	P6-R	P9-A		FO 15 (Sheet 3 of 5)
L5B20	20	WHT	42.5”	P6-S	P9-B		FO 15 (Sheet 3 of 5)
E35C20N	20	WHT	32.5”	P8-B	GND TB	#6 LUG	FO 15 (Sheet 3 of 5)
P6A20	20	WHT	60.5”	P8-C	P13-J		FO 15 (Sheet 3 of 5)
P11A20	20	WHT	45.5”	P8-D	P12-Z		FO 15 (Sheet 3 of 5)
P5A20	20	WHT	60.5”	P8-E	P13-H		FO 15 (Sheet 3 of 5)
P12A20	20	WHT	45.5”	P8-F	P12-X		FO 15 (Sheet 3 of 5)
P4A20	20	WHT	60.5”	P8-G	P13-E		FO 15 (Sheet 3 of 5)
P13A20	20	WHT	45.5”	P8-H	P12-W		FO 15 (Sheet 3 of 5)
E33C20	20	WHT	110”	P8-J	P14-B		FO 15 (Sheet 3 of 5)
E34C20	20	WHT	110”	P8-K	P14-C		FO 15 (Sheet 3 of 5)
E25D18	18	WHT	141”	P8-L	S2E-1	EMER. SW., #6 LUG	FO 15 (Sheet 3 of 5)
E31C20	20	WHT	42”	P8-N	TB4-13	FUEL BOOST PUMP, #6	FO 15 (Sheet 3 of 5)
G5F20	20	WHT	29.5”	TB2-2	P10-S	CR2G CATHODE, #6 LUG	FO 15 (Sheet 3 of 5)
G6F20	20	WHT	30.5”	TB2-1	P10-A	CR1G CATHODE, #6 LUG	FO 15 (Sheet 3 of 5)
X59B20	20	WHT	41.5”	P9-G	P7-15R		FO 15 (Sheet 3 of 5)
X9J20N	20	WHT	41.5”	P9-H	P7-14L		FO 15 (Sheet 3 of 5)
X41C20	20	WHT	42”	P9-J	P7-7R		FO 15 (Sheet 3 of 5)
X9N20N	20	WHT	43.5”	P18-A	P7-16R		FO 15 (Sheet 3 of 5)
P49C20N	20	WHT	65.75”	P9-L	GND TB	#6 LUG	FO 15 (Sheet 3 of 5)
C1C20	20	WHT	118.5”	P7-5R	P14-J		FO 15 (Sheet 3 of 5)
P33D16	16	WHT	26.5”	P9-R	R3 (-)	3/8” LUG	FO 15 (Sheet 3 of 5)
P41D20	20	WHT	32.5”	P7-1R	R2 (-)	#8 LUG	FO 15 (Sheet 3 of 5)
P40B20	20	WHT	39”	P7-1L	K3-X2	#8 LUG	FO 15 (Sheet 3 of 5)
L10A20	20	WHT	27”	P7-2L	TB2-5	CATHODE, #6 LUG	FO 15 (Sheet 3 of 5)
L11A20	20	WHT	30”	P7-3R	TB2-6	CATHODE, #6 LUG	FO 15 (Sheet 3 of 5)

REPAIR OR REPLACEMENT – CONTINUED

Table 1. Main Harness and Loose Wire List, Model 83-360A (Only). – Continued

Wire No.	Size	Color	Length	From	To	Remarks	Fold Out and Sheet No.
L25A20	20	WHT	28”	P7-3L	TB2-12	CATHODE, #6 LUG	FO 15 (Sheet 3 of 5)
L8A20	20	WHT	29”	P7-4R	TB2-14	CATHODE, #6 LUG	FO 15 (Sheet 3 of 5)
L7A20	20	WHT	30”	P7-7L	TB1-11	ANODE, #6 LUG	FO 15 (Sheet 3 of 5)
X38A20	20	WHT	63.5”	P7-8R	P11-C		FO 15 (Sheet 3 of 5)
L12A20	20	WHT	31”	P7-8L	TB2-7	CATHODE, #6 LUG	FO 15 (Sheet 3 of 5)
X21A20	20	WHT	54”	P7-9R	P12-b		FO 15 (Sheet 3 of 5)
L13A20	20	WHT	29”	P7-9L	TB2-8	CATHODE, #6 LUG	FO 15 (Sheet 3 of 5)
X22A20	20	WHT	54”	P7-10R	P12–a		FO 15 (Sheet 3 of 5)
L14A20	20	WHT	30”	P7-10L	TB2-9	CATHODE, #6 LUG	FO 15 (Sheet 3 of 5)
X23A20	20	WHT	54”	P7-11R	P12-d		FO 15 (Sheet 3 of 5)
L15A20	20	WHT	29”	P7-11L	TB2-10	CATHODE, #6 LUG	FO 15 (Sheet 3 of 5)
X24A20	20	WHT	54”	P7-12R	P12-c		FO 15 (Sheet 3 of 5)
X19A20	20	WHT	54”	P7-12L	P12-R		FO 15 (Sheet 3 of 5)
X36A20	20	WHT	63.5”‘	P7-13R	P11-B		FO 15 (Sheet 3 of 5)
X20A20	20	WHT	54”	P7-13L	P12-S		FO 15 (Sheet 3 of 5)
X34A20	20	WHT	63.5”	P7-15L	P11-F		FO 15 (Sheet 3 of 5)
X9S20N	20	WHT	54”	P7-16L	P12-N		FO 15 (Sheet 3 of 5)
X37A20	20	WHT	63.5”	P7-17R	P11-E		FO 15 (Sheet 3 of 5)
X30A20	20	BLK	61”	P7-17L	T4 (-)	BARE WIRE	FO 15 (Sheet 3 of 5)
X28A20	20	BLK	58”	P17-18R	T3 (-)	BARE WIRE	FO 15 (Sheet 3 of 5)
X26A20	20	BLK	54”	P7-18L	T2 (-)	BARE WIRE	FO 15 (Sheet 3 of 5)
X29A20	20	WHT	61”	P7-19R	TR (+)	BARE WIRE	FO 15 (Sheet 3 of 5)
X27A20	20	WHT	58”	P7-19L	T3 (+)	BARE WIRE	FO 15 (Sheet 3 of 5)
X25A20	20	WHT	54”	P7-20R	T2 (+)	BARE WIRE	FO 15 (Sheet 3 of 5)
X33B20C	20	WHT	53”	P7-20L	K1-C2	3/8” LUG	FO 15 (Sheet 3 of 5)
X32B20B	20	WHT	54.5”	P7-21R	K1-B2	3/8” LUG	FO 15 (Sheet 3 of 5)
X31B20A	20	WHT	55.5”	P7-21L	K1-A2	3/8” LUG	FO 15 (Sheet 3 of 5)
X46A20	20	WHT	54”	P7-22A	P12-z		FO 15 (Sheet 3 of 5)
Z47A20	20	WHT	54”	P7-22L	P12-P		FO 15 (Sheet 3 of 5)

REPAIR OR REPLACEMENT – CONTINUED

Table 1. Main Harness and Loose Wire List, Model 83-360A (Only). – Continued

Wire No.	Size	Color	Length	From	To	Remarks	Fold Out and Sheet No.
X48A20	20	WHT	54”	P7-23R	P12-E		FO 15 (Sheet 3 of 5)
X49A20	20	WHT	54”	P7-23L	P12-v		FO 15 (Sheet 3 of 5)
X50A20	20	WHT	54”	P7-24R	P12-u		FO 15 (Sheet 3 of 5)
X51A20	20	WHT	54”	P7-24L	P12-t		FO 15 (Sheet 3 of 5)
X53A20	20	WHT	54”	P7-A	P12-w		FO 15 (Sheet 3 of 5)
X56A20	20	WHT	54”	P7-C	P12-c		FO 15 (Sheet 3 of 5)
X57A20	20	WHT	54”	P7- (+)	P12-r		FO 15 (Sheet 3 of 5)
X58A20	20	WHT	54”	P7- (-)	P12-s		FO 15 (Sheet 3 of 5)
G3F20	20	WHT	42.5”	P10-B	P7-6L		FO 15 (Sheet 3 of 5)
G7B20	20	WHT	40”	P10-C	TB4-3	#6 LUG	FO 15 (Sheet 3 of 5)
G8B20	20	WHT	41”	P10-D	TB4-4	#6 LUG	FO 15 (Sheet 3 of 5)
G9B20	20	WHT	41”	P10-E	TB4-5	#6 LUG	FO 15 (Sheet 3 of 5)
G6C20	20	WHT	41”	P10-F	TB4-6	#6 LUG	FO 15 (Sheet 3 of 5)
G5C20	20	WHT	42”	P10-G	TB4-7	PROPUL-SION CON-TROLLER	FO 15 (Sheet 3 of 5)
						#6 LUG	FO 15 (Sheet 3 of 5)
G18C20N	20	WHT	34.5	P10-H	GND TB	#6 LUG	FO 15 (Sheet 3 of 5)
G16C20	20	WHT	64”	TB4-1	S4G-1–NC	#6 LUG, CLUTCH SW.	FO 15 (Sheet 3 of 5)
X18A20	20	WHT	28”	P11-A	P12-Q		FO 15 (Sheet 3 of 5)
X35A20N	20	WHT	39”	P11-D	GND TB	#6 LUG	FO 15 (Sheet 3 of 5)
X1B20A	20	WHT	21.5	P12-A	K1-A1	3/8” LUG	FO 15 (Sheet 3 of 5)
X2B20B	20	WHT	20.5”	P12-B	K1-B1	3/8” LUG	FO 15 (Sheet 3 of 5)
X3B20C	20	WHT	19”	P12-C	K1-C1	3/8” LUG	FO 15 (Sheet 3 of 5)
X5A20	20	WHT	59”	P12-D	P13-D		FO 15 (Sheet 3 of 5)
X6A20	20	WHT	59”	P12-F	P13-P		FO 15 (Sheet 3 of 5)
X13A20	20	WHT	36”	P12-G	T1-N	#4 LUG	FO 15 (Sheet 3 of 5)
P14A20	20	WHT	18”	P12-H	K2-X1	#8 LUG	FO 15 (Sheet 3 of 5)
X10A20	20	WHT	36”	P12-J	T1-T1	#4 LUG	FO 15 (Sheet 3 of 5)
X11A20	20	WHT	36”	P12-K	T1-T2	#4 LUG	FO 15 (Sheet 3 of 5)
X12A20	20	WHT	36”	P12-L	T1-T3	#4 LUG	FO 15 (Sheet 4 of 5)
P2E20	20	WHT	18”	P12-M	K2-B1	#8 LUG	FO 15 (Sheet 4 of 5)
P7A20	20	WHT	59”	P12-T	P13-A		FO 15 (Sheet 4 of 5)

REPAIR OR REPLACEMENT – CONTINUED

Table 1. Main Harness and Loose Wire List, Model 83-360A (Only). – Continued

Wire No.	Size	Color	Length	From	To	Remarks	Fold Out and Sheet No.
P8A20	20	WHT	59”	P12-V	P13-B		FO 15 (Sheet 4 of 5)
P9A20	20	WHT	59”	P12-Y	P13-C		FO 15 (Sheet 4 of 5)
X7A20	20	WHT	59”	P12-g	P13-K		FO 15 (Sheet 4 of 5)
X8A20	20	WHT	59”	P12-h	P13-L		FO 15 (Sheet 4 of 5)
P18A20	20	WHT	15”	P12-j	R1 (+)	#8 LUG	FO 15 (Sheet 4 of 5)
P17A20	20	WHT	13”	P12-y	R1 (-)	#8 LUG	FO 15 (Sheet 4 of 5)
P50A12N	12	WHT	24”	GND TB	DC GND STUD	1/2” LUG	FO 15 (Sheet 4 of 5)
H8A20N	20	WHT	26”	TB1-12	GND TB	ANODE, #6 LUG	FO 15 (Sheet 4 of 5)
H9A20	20	WHT	91.5”	L1H-1-GND	GND TB	PNEU. VALVE, #6 LUG	FO 15 (Sheet 4 of 5)
H10A20N	20	WHT	67”	MT1H-(-)	GND TB	PRES. XDUCER, #6 LUG	FO 15 (Sheet 4 of 5)
Q3A20N	20	WHT	24”	TB1-14	GND TB	CR1Q, ANODE, #6 LUG	FO 15 (Sheet 4 of 5)
G19A20N	20	WHT	33”	TB2-2	GND TB	CR2G, ANODE, #6 LUG	FO 15 (Sheet 4 of 5)
L6B20N	20	WHT	77.5”	DS101-(-)	GND TB	#6 LUG	FO 15 (Sheet 4 of 5)
L6A20N	20	WHT	36”	DS101-(-)	DS102-(-)	BARE WIRE	FO 15 (Sheet 4 of 5)
L3D20	20	WHT	36”	DS101-(+)	DS102-(+)	BARE WIRE	FO 15 (Sheet 4 of 5)
L5D20	20	WHT	83”	DS103-(+)	DS104-(+)	BARE WIRE	FO 15 (Sheet 4 of 5)
L5E20	20	WHT	132”	DS104-(+)	P14-A		FO 15 (Sheet 4 of 5)
L31A20N	20	WHT	83”	DS104-(-)	DS103-(-)	BARE WIRE	FO 15 (Sheet 4 of 5)
L31B20N	20	WHT	47.5”	DS103-(-)	GND TB	#6 LUG	FO 15 (Sheet 4 of 5)
G17A20N	20	WHT	41”	TB4-9	GND TB	#6 LUG	FO 15 (Sheet 4 of 5)
E26A20	20	WHT	109”	P14-E	K4-X2	#8 LUG	FO 15 (Sheet 4 of 5)
C4A20	20	WHT	137.5”	P14-G	P16-B		FO 15 (Sheet 4 of 5)
C3A20	20	WHT	137.5”	P14-H	P16-A		FO 15 (Sheet 4 of 5)
C2A20N	20	WHT	98”	P14-I	GND TB	#6 LUG	FO 15 (Sheet 4 of 5)
C5A20N	20	WHT	78”	P16-E	GND TB	#6 LUG	FO 15 (Sheet 4 of 5)
Q7A20N	20	WHT	70”	S1Q-(N0)	GND TB	FUEL LEV. SW., #6 LUG	FO 15 (Sheet 4 of 5)

REPAIR OR REPLACEMENT – CONTINUED

Table 1. Main Harness and Loose Wire List, Model 83-360A (Only). – Continued

Wire No.	Size	Color	Length	From	To	Remarks	Fold Out and Sheet No.
Q7B20N	20	WHT	81”	S2Q-(N0)	GND TB	FUEL PRES. SW., GND	FO 15 (Sheet 4 of 5)
						TB #6 LUG	FO 15 (Sheet 4 of 5)
Q7C20N	20	WHT	65”	MT1O-(-)	GND TB	FUEL LEVEL SENDER,	FO 15 (Sheet 4 of 5)
						#6 LUG	FO 15 (Sheet 4 of 5)
P41A20	20	WHT	6”	K3-A2	K3-X1	3/8” LUG, #8 LUG	FO 15 (Sheet 4 of 5)
E40A20N	20	WHT	83”	S3E-C	GND TB	S3E INLET SW., AIR	FO 15 (Sheet 4 of 5)
						STARV. SW., #6 LUG	FO 15 (Sheet 4 of 5)
E41A20N	20	WHT	52”	TB4-14	GND TB	#6 LUG, #6 LUG	FO 15 (Sheet 4 of 5)
G11C2	2	WHT	44”	R1-(-)	2K1-N0	1/2”, 3/8”, R1(-) DC CBL SIDE	FO 15 (Sheet 4 of 5)
G11B2	2	WHT	2”	2K1-N0	2K2-N0	3/8”, 3/8”	FO 15 (Sheet 4 of 5)
G11A2	2	WHT	19”	2K2-N0	2A1-B+POS	3/8”, 3/8”	FO 15 (Sheet 4 of 5)
G13A2	2	WHT	7”	2K1-N0	2K1-NC	3/8”, 3/8”	FO 15 (Sheet 4 of 5)
G13B2	2	WHT	80”	2K1-NC	B1G-A1	3/8”, 3/8”, PROP MOTOR	FO 15 (Sheet 4 of 5)
G10B2	2	WHT	7”	2K1-NC	2K2-NC	3/8”, 3/8”	FO 15 (Sheet 4 of 5)
G10A2	2	WHT	10”	2K2-NC	2A1-(S2)	3/8”, 3/8”, ARM/FLD	FO 15 (Sheet 4 of 5)
G12A2	2	WHT	7”	2K2-N0	2K2-NC	3/8”, 3/8”	FO 15 (Sheet 4 of 5)
G12B2	2	WHT	80”	2K2-NC	B1G-A2	3/8”, 3/8”, PROP MOTOR	FO 15 (Sheet 4 of 5)
G14A2	2	WHT	80”	B1G-S1	2A1-S1	3/8”, 3/8”	FO 15 (Sheet 4 of 5)
G15A2	2	WHT	80”	B1G-S2	2A1-S2	3/8”, 3/8”	FO 15 (Sheet 4 of 5)
G21A2N	2	WHT	14”	DC GND STUD	2A1-B-NEG	1/2”, 3/8”	FO 15 (Sheet 4 of 5)
P33C6	6	WHT	13”	R2(+)	R3(+)	1/2”, 1/2”	FO 15 (Sheet 4 of 5)

REPAIR OR REPLACEMENT – CONTINUED

Table 1. Main Harness and Loose Wire List, Model 83-360A (Only). – Continued

Wire No.	Size	Color	Length	From	To	Remarks	Fold Out and Sheet No.
P32A6	6	WHT	20	R3(-)	J3(+) BAT CHGR	1/2”, 1/4”, BAT CHGR	FO 15 (Sheet 4 of 5)
⋆P32A6	6			R3(-)	J3-(+) BAT CHGR	1/4”, 1/4”, BAT CHGR	FO 15 (Sheet 5 of 5)
P21A6N	6	WHT	24”	J4(-) BAT CHGR	J3(-) BAT CHGR	1/4”, 1/4”, BAT CHGR	FO 15 (Sheet 4 of 5)
⋆P21A6N	6			J4-(-) BAT CHGR	J3-(-) BAT CHGR	1/4”,1/4”, BAT CHGR	FO 15 (Sheet 5 of 5)
P21B2N	2	WHT	36”	J4(-) BAT CHGR	DC GND STUD	1/4”, 1/2”, BAT CHGR	FO 15 (Sheet 4 of 5)
P21B2N	2			J4-(-) BAT CHGR	DC GND STUD	1/4”, 1/2, BAT CHGR	FO 15 (Sheet 5 of 5)
X31D14A	14	WHT	72”	K1-A2	3CB6-B	3/8” LUG, #10 LUG	FO 15 (Sheet 4 of 5)
X32D14B	14	WHT	72”	K1-B2	3CB5-B	3/8” LUG, #10 LUG	FO 15 (Sheet 4 of 5)
X33D14C	14	WHT	72”	K1-C2	3CB4-B	3/8” LUG, #10 LUG	FO 15 (Sheet 4 of 5)
X33E14C	14	WHT	6”	3CB3-B	3CB4-B	#10 LUG, #10 LUG	FO 15 (Sheet 4 of 5)
X42A14	14	WHT	48”	3CB6-L	J4(+) AC OUTLET	BARE WIRE, #10 LUG	FO 15 (Sheet 4 of 5)
X43A14	14	WHT	48”	3CB5-L	J3(+) AC OUTLET	BARE WIRE, #10 LUG	FO 15 (Sheet 4 of 5)
X44A14	14	WHT	48”	3CB4-L	J2(+) AC OUTLET	BARE WIRE, #10 LUG	FO 15 (Sheet 4 of 5)
X44A14	14			3CB4-L	J2-(+) AC OUTLET	BARE WIRE, #10 LUG	FO 15 (Sheet 5 of 5)
X45A14	14	WHT	48”	3CB3-L	J1(+) AC OUTLET	BARE WIRE, #10 LUG	FO 15 (Sheet 4 of 5)
X45A14	14			3CB3-L	J1-(+) AC OUTLET	BARE WIRE, #10 LUG	FO 15 (Sheet 5 of 5)
X9B14N	14	WHT	6”	J3(-) AC OUTLET	J2(-) AC OUTLET	BARE WIRE, #10 LUG	FO 15 (Sheet 4 of 5)
X9D8N	8	WHT	66”	J4(-) AC OUTLET	G1X-N	#10 LUG, 1/4 LUG	FO 15 (Sheet 4 of 5)
X9D8N	R.C.E.			J4-(-) AC OUTLET	G1X-N	BARE WIRE, 1/4 & #10 LUG	FO 15 (Sheet 5 of 5)

REPAIR OR REPLACEMENT – CONTINUED

Table 1. Main Harness and Loose Wire List, Model 83-360A (Only). – Continued

Wire No.	Size	Color	Length	From	To	Remarks	Fold Out and Sheet No.
X9E20N	20	WHT	59.5”	J1(-) AC OUTLET	P7-l4R	BARE WIRE	FO 15 (Sheet 4 of 5)
X9E20N	20			J1-(-) AC OUTLET	P7-14R	BARE WIRE	FO 15 (Sheet 5 of 5)
E3D20	20	WHT	40”	TB1-1 CATHODE	P8-P	#6 LUG	FO 15 (Sheet 4 of 5)
E11A20	20	WHT	43”	TB3-1 CATHODE	P4-g	CATHODE, #6 LUG	FO 15 (Sheet 4 of 5)
E11A20	20		16”	TB3-1 CATHODE	P4-g	CATHODE, #6 LUG	FO 15 (Sheet 5 of 5)
E12A20	20	WHT	43”	TB3-2 CATHODE	P4-d	CATHODE, #6 LUG	FO 15 (Sheet 4 of 5)
E12A20	20		161/2	TB3-2 CATHODE	P4-d	CATHODE, #6 LUG	FO 15 (Sheet 5 of 5)
E12E20	20	WHT	6”	TB3-2 ANODE	TB3-6 ANODE	#6 LUG, #6 LUG	FO 15 (Sheet 4 of 5)
E12E20	20			TB3-2 ANODE	TB3-6 ANODE	ANODE, CATHODE, #6 LUG; #6 LUG	FO 15 (Sheet 5 of 5)
E12D20	20	WHT	45”	TB3-6 CATHODE	P4-L	CATHODE, #6 LUG	FO 15 (Sheet 4 of 5)
E13A20	20	WHT	43”	TB3-3 CATHODE	P4-h	CATHODE, #6 LUG	FO 15 (Sheet 4 of 5)
E14A20	20	WHT	43.5”	TB3-4 CATHODE	P4-r	CATHODE, #6 LUG	FO 15 (Sheet 4 of 5)
E14A20	20		171/4	TB3-4 CATHODE	P4-f	CATHODE, #6 LUG	FO 15 (Sheet 5 of 5)
E15A20	20	WHT	44”	TB3-5 CATHODE	P4-e	CATHODE, #6 LUG	FO 15 (Sheet 4 of 5)
C1D18	18	WHT	42”	P7-4L	P9-M		FO 15 (Sheet 4 of 5)
P22A2	2	WHT	68”	J4(+) BAT CHGR	3CB1-L	1/4”, 1/4”	FO 15 (Sheet 4 of 5)
⋆P22A2	not done at RCE			J4-(+) BAT CHGR	3CB1-L	1/4” & 1/4”	FO 15 (Sheet 5 of 5)
P2B2	2	WHT	34”	3CB1-B	K2-A1	1/4”, 3/8”	FO 15 (Sheet 4 of 5)
⋆P2B2	2			3CB1-B	K2-A1	1/4” & 1/4”	FO 15 (Sheet 5 of 5)
P38B20	20	WHT	51”	P7-5L	K2-X2	#8 LUG	FO 15 (Sheet 4 of 5)
P2C8	8	WHT	36”	3CB2-B	K2-A1	3/8” LUG, #8 LUG	FO 15 (Sheet 4 of 5)

REPAIR OR REPLACEMENT – CONTINUED

Table 1. Main Harness and Loose Wire List, Model 83-360A (Only). – Continued

Wire No.	Size	Color	Length	From	To	Remarks	Fold Out and Sheet No.
E18C20	20	WHT	36”	K4-A1	TB2-15 ANODE	ANODE, 3/8” LUG, #6 LUG	FO 15 (Sheet 4 of 5)
							FO 15 (Sheet 5 of 5)
P2D20	20	WHT	6”	K2-A1	K2-B1	3/8”, 3/8”	FO 15 (Sheet 4 of 5)
L5C20	20	WHT	62”	DS103(+)	P9-B	BARE WIRE	FO 15 (Sheet 4 of 5)
L5C20	20			ØDS3-(+)	P9-B	BARE WIRE	FO 15 (Sheet 5 of 5)
G24A20	20	WHT	54”	TB4-2	BIG TEMP SW	PROP MOTOR, BARE WIRE	FO 15 (Sheet 4 of 5)
G22A20	20	WHT	26”	R3(-)	P8-R	3/8” LUG, SHUNT	FO 15 (Sheet 4 of 5)
G21B20	20	WHT	65”	S4G-1-COM	P9-K	BARE WIRE, CLUTCH SW.	FO 15 (Sheet 4 of 5)
G21B20	20			S4G – COM	P9-K	BARE WIRE, CLUTCH SW.	FO 15 (Sheet 5 of 5)
G25A20	20	WHT	65”	TB3-11 CATHODE	K2-X2	CATHODE	FO 15 (Sheet 4 of 5)
G11D20	20	WHT	24”	C1G(+)	2A1G-B(+) POS	BARE WIRE #10	FO 15 (Sheet 4 of 5)
G11E20	20	WHT	24”	C1G(-)	2A1G-B(-) NEG	BARE WIRE #10	FO 15 (Sheet 4 of 5)
L3C20	20	WHT	52.5”	P8-T	DS101(+) PANEL LT	BARE WIRE	FO 15 (Sheet 4 of 5)
X9B8N	not done at			J3-(-) AC OUTLET	J2-(-) AC OUTLET	BARE WIRE #10 LUG	FO 15 (Sheet 5 of 5)
G3OA20	20	WHT	30”	28 VDC INPUT	TB2-16 ANODE	20 AWG RE-CEPTACLE #6 LUG	FO 15 (Sheet 5 of 5)
G30B20	20	WHT	48”	TB2-16 CATHODE	ELECTRIC BRAKE	#6 LUG IN LINE SPLICE	FO 15 (Sheet 5 of 5)
G31A20N	20	WHT	24”	ELECTRIC BRAKE	TB4-9	IN LINE SPLICE #6 LUG	FO 15 (Sheet 5 of 5)

REPAIR OR REPLACEMENT – CONTINUED

Table 2. Control Panel Harness and Loose Wire List.

Wire No.	Size	Color	Length	From	To	Remarks	Fold Out and Sheet No.
E2B18	18	WHT	50”	S1-A11- RUN	J5-1R	BARE WIRE	FO-16 (Sheet 1 of 3)
E3B20	20	WHT	50”	S1-B6- START	J5-1L	BARE WIRE	FO-16 (Sheet 1 of 3)
E4G18	18	WHT	48”	CB2-L	J5-2L	#8 LUG	FO-16 (Sheet 1 of 3)
E18B20	20	WHT	49”	DS2(+)	J5-3R	#4 LUG	FO-16 (Sheet 1 of 3)
E37A20N	20	WHT	49”	DS2(-)	J5-3L	#4 LUG	FO-16 (Sheet 1 of 3)
E7B20	20	WHT	54”	M1(+)	J5-4R	TWISTED PAIR 1/4” LUG	FO-16 (Sheet 1 of 3)
E8B20	20	WHT	54”	M1(-)	J5-4L	TWISTED PAIR 1/4” LUG	FO-16 (Sheet 1 of 3)
E9B20	20	WHT	57”	M2(+)	J5-5R	TWISTED PAIR 1/4” LUG	FO-16 (Sheet 1 of 3)
E10B20	20	WHT	57”	M2(-)	J5-5L	TWISTED PAIR 1/4” LUG	FO-16 (Sheet 1 of 3)
E21B20	20	WHT	41”	CR9E- ANODE	J5-6R	#4 LUG	FO-16 (Sheet 1 of 3)
E11B20	20	WHT	39”	DS12(-)	J5-6L	#4 LUG	FO-16 (Sheet 1 of 3)
E12B20	20	WHT	53”	DS10(-)	J5-7L	#4 LUG	FO-16 (Sheet 1 of 3)
E13B20	20	WHT	51”	DS9(-)	J5-8R	#4 LUG	FO-16 (Sheet 1 of 3)
E22B20	20	WHT	49”	DS8(-)	J5-8L	#4 LUG	FO-16 (Sheet 1 of 3)
E14B20	20	WHT	54”	DS4(-)	J5-9R	#4 LUG	FO-16 (Sheet 1 of 3)
E15B20	20	WHT	52”	DS3(-)	J5-9L	#4 LUG	FO-16 (Sheet 1 of 3)
E1J20	20	WHT	52”	DS3(+)	J5-10	#4 LUG	FO-16 (Sheet 1 of 3)
E39A20N	20	WHT	34”	S12-(8)	J5-10L	#6 LUG	FO-16 (Sheet 1 of 3)
E28B20	20	WHT	39”	S8-(4)	J5-11R	#6 LUG	FO-16 (Sheet 1 of 3)
E29A20	20	WHT	39”	S8-(8)	J5-11L	#6 LUG	FO-16 (Sheet 1 of 3)
Q1C20	20	WHT	42”	DS5(+)	J5-12R	#4 LUG	FO-16 (Sheet 1 of 3)
Q2B20	20	WHT	42”	M3(+)	J5-12L	#1/4 LUG	FO-16 (Sheet 1 of 3)
Q4A20	20	WHT	42”	DS5(-)	J5-13R	#4 LUG	FO-16 (Sheet 1 of 3)
Q5A20	20	WHT	40”	DS6(-)	J5-13L	#4 LUG	FO-16 (Sheet 1 of 3)
Q6A20	20	WHT	42”	M3(-)	J5-14R	#1/4 LUG	FO-16 (Sheet 1 of 3)
L26B20	20	WHT	49”	DS2(+)	J5-14L	#4 LUG	FO-16 (Sheet 1 of 3)
L24B20	20	WHT	52”	DS3(-)	J5-15R	#4 LUG	FO-16 (Sheet 1 of 3)
L23B20	20	WHT	54”	DS4(-)	J5-15L	#4 LUG	FO-16 (Sheet 1 of 3)
L22B20	20	WHT	42”	DS5(-)	J5-16R	#4 LUG	FO-16 (Sheet 1 of 3)
L21B20	20	WHT	40”	DS6(-)	J5-16L	#4 LUG	FO-16 (Sheet 1 of 3)

REPAIR OR REPLACEMENT – CONTINUED

Table 2. Control Panel Harness and Loose Wire List. – Continued

Wire No.	Size	Color	Length	From	To	Remarks	Fold Out and Sheet No.
L19B20	20	WHT	49”	DS8(-)	J5-17R	#4 LUG	FO-16 (Sheet 1 of 3)
L18B20	20	WHT	51”	DS9(-)	J5-17L	#4 LUG	FO-16 (Sheet 1 of 3)
L17B20	20	WHT	53”	DS10(-)	J5-18R	#4 LUG	FO-16 (Sheet 1 of 3)
L20B20	20	WHT	41”	DS11(+)	J5-18L	#4 LUG	FO-16 (Sheet 1 of 3)
L16B20	20	WHT	39”	DS12(-)	J5-19R	#4 LUG	FO-16 (Sheet 1 of 3)
P15B20	20	WHT	33”	CR11P-ANODE	J5-19L	#4 LUG	FO-16 (Sheet 1 of 3)
P16B20	20	WHT	36”	CR10P-ANODE	J5-20R	#4 LUG	FO-16 (Sheet 1 of 3)
P29B20	20	WHT	44”	DS7(+)	J5-20L	#4 LUG	FO-16 (Sheet 1 of 3)
P46B20	20	WHT	34”	DS21(+)	J5-21R	#4 LUG	FO-16 (Sheet 1 of 3)
P34D20	20	WHT	54”	S2-2	J5-21L	#6 LUG	FO-16 (Sheet 1 of 3)
P35D18	18	WHT	54”	S2-5	J5-22R	#6 LUG	FO-16 (Sheet 1 of 3)
P53G20N	20	WHT	34”	M11(-)	J5-23R	#1/4 LUG	FO-16 (Sheet 1 of 3)
P47B20	20	WHT	45”	M6(+)	J5-23L	#6 LUG	FO-16 (Sheet 1 of 3)
P48B20	20	WHT	45”	M6(-)	J5-24R	#6 LUG	FO-16 (Sheet 1 of 3)
P48B20	20	WHT	45”	M5(-)	J5-24L	TWISTED PR 1/4” LUG	FO-16 (Sheet 1 of 3)
P43B20	20	WHT	45”	M5(+)	J5-A	TWISTED PR 1/4” LUG	FO-16 (Sheet 1 of 3)
P17C20	20	WHT	37”	M12(-)	J5-C	#1/4 LUG	FO-16 (Sheet 1 of 3)
P18C20	20	WHT	37”	M12(+)	J5(+)	#1/4 LUG	FO-16 (Sheet 1 of 3)
P3D20	20	WHT	34”	M11(+)	J5(-)	#1/4 LUG	FO-16 (Sheet 1 of 3)
P41E20	20	WHT	39”	M4(+)	J7-1L	#4 LUG	FO-16 (Sheet 1 of 3)
P40A20	20	WHT	40”	CR6P- ANODE	J7-1R	#4 LUG	FO-16 (Sheet 1 of 3)
L10B20	20	WHT	36”	DS19(+)	J7-2R	#4 LUG	FO-16 (Sheet 1 of 3)
L11B20	20	WHT	34”	DS18(+)	J7-3L	#4 LUG	FO-16 (Sheet 1 of 3)
L25B20	20	WHT	44”	DS7(+)	J7-3R	#4 LUG	FO-16 (Sheet 1 of 3)
L18B20	20	WHT	33”	DS21(+)	J7-4L	#4 LUG	FO-16 (Sheet 1 of 3)
E37C20N	20	WHT	40”	DS11(-)	DS2(-)	BARE WIRE, BARE WIRE	FO 16 (Sheet 2 of 3)
P38A20	20	WHT	21”	S12-6	J7-5R	#6 LUG	FO 16 (Sheet 2 of 3)
L29D20	20	WHT	65”	DS1(+)	J7-6L	#4 LUG	FO 16 (Sheet 2 of 3)
X41B20	20	WHT	42”	M8(+)	J7-7L	#1/4 LUG	FO 16 (Sheet 2 of 3)
L7B20	20	WHT	33”	DS20(-)	J7-7R	#4 LUG	FO 16 (Sheet 2 of 3)

REPAIR OR REPLACEMENT – CONTINUED

Table 2. Control Panel Harness and Loose Wire List. – Continued

Wire No.	Size	Color	Length	From	To	Remarks	Fold Out and Sheet No.
X38B20	20	WHT	33”	DS20(-)	J7-8L	#4 LUG	FO 16 (Sheet 2 of 3)
L12B20	20	WHT	32”	DS17(+)	J7-8R	#4 LUG	FO 16 (Sheet 2 of 3)
X21B20	20	WHT	31”	CR4X- ANODE	J7-9L	#4 LUG	FO 16 (Sheet 2 of 3)
L13B20	20	WHT	46”	DS16(+)	J7-9R	#4 LUG	FO 16 (Sheet 2 of 3)
X22B20	20	WHT	45”	CR3X- ANODE	J7-10L	#4 LUG	FO 16 (Sheet 2 of 3)
L14B20	20	WHT	44”	DS15(+)	J7-10R	#4 LUG	FO 16 (Sheet 2 of 3)
X23B20	20	WHT	43”	CR2X- ANODE	J7-11L	#4 LUG	FO 16 (Sheet 2 of 3)
L15B20	20	WHT	42”	DS14(+)	J7-11R	#4 LUG	FO 16 (Sheet 2 of 3)
X24B20	20	WHT	41”	CR1X- ANODE	J7-12L	#4 LUG	FO 16 (Sheet 2 of 3)
X19B20	20	WHT	28”	S10 (6)	J7-12R	#6 LUG	FO 16 (Sheet 2 of 3)
X36B20	20	WHT	28”	S10 (5)	J7-13L	#6 LUG	FO 16 (Sheet 2 of 3)
X20B20	20	WHT	28”	S10 (2)	J7-13R	#6 LUG	FO 16 (Sheet 2 of 3)
X9G20N	20	WHT	42”	M8(-)	J7-14L	#1/4 LUG	FO 16 (Sheet 2 of 3)
X9H20N	20	WHT	35”	M10(-)	J7-14R	#1/4 LUG	FO 16 (Sheet 2 of 3)
X59C20	20	WHT	35”	M10(+)	J7-15L	#1/4 LUG	FO 16 (Sheet 2 of 3)
X34B20	20	WHT	45”	M9(-)	J7-15R	#1/4 LUG	FO 16 (Sheet 2 of 3)
X9P20N	20	WHT	42”	M8(-)	J7-16L	#1/4 LUG	FO 16 (Sheet 2 of 3)
X9R20N	20	WHT	42”	M8(-)	J7-16R	#1/4 LUG	FO 16 (Sheet 2 of 3)
X37B20	20	WHT	32”	S9-A-COM	J7-17L	BARE WIRE	FO 16 (Sheet 2 of 3)
X30B20	20	WHT	32”	S9-A-3	J7-17R	BARE WIRE	FO 16 (Sheet 2 of 3)
X28B20	20	WHT	32”	S9-A-2	J7-18L	BARE WIRE	FO 16 (Sheet 2 of 3)
X26B20	20	WHT	32”	S9-A-1	J17-18R	BARE WIRE	FO 16 (Sheet 2 of 3)
X29B20	20	WHT	32”	S9-B-6	J7-19L	BARE WIRE	FO 16 (Sheet 2 of 3)
X27B20	20	WHT	32”	S9-B-5	J7-19R	BARE WIRE	FO 16 (Sheet 2 of 3)
X25B20	20	WHT	32”	S9-B-4	J7-20L	BARE WIRE	FO 16 (Sheet 2 of 3)
X33C20C	20	WHT	32”	S9-C-3	J7-20R	BARE WIRE	FO 16 (Sheet 2 of 3)
X32C20C	20	WHT	32’	S9-C-2	J7-21L	BARE WIRE	FO 16 (Sheet 2 of 3)
X31C20A	20	WHT	32”	S9-C-1	J7-21R	BARE WIRE	FO 16 (Sheet 2 of 3)
X46B20	20	WHT	39”	CR5X- ANODE	J7-22L	#4 LUG	FO 16 (Sheet 2 of 3)
X47B20	20	WHT	25”	S11-A- COM	J7-22R	BARE WIRE	FO 16 (Sheet 2 of 3)
X48B20	20	WHT	25”	S11-4	J7-23L	BARE WIRE	FO 16 (Sheet 2 of 3)
X49B20	20	WHT	25”	S11-B-8	J7-23R	BARE WIRE	FO 16 (Sheet 2 of 3)
X50B20	20	WHT	25”	S11-B-7	J7-24L	BARE WIRE	FO 16 (Sheet 2 of 3)

REPAIR OR REPLACEMENT – CONTINUED

Table 2. Control Panel Harness and Loose Wire List. – Continued

Wire No.	Size	Color	Length	From	To	Remarks	Fold Out and Sheet No.
X51B20	20	WHT	25”	S11-B-6	J7-24R	BARE WIRE	FO 16 (Sheet 2 of 3)
X53B20	20	WHT	25”	S11-B-COM	J7-A	BARE WIRE	FO 16 (Sheet 2 of 3)
X56B20	20	WHT	25”	S11-B-3	J7-C	BARE WIRE	FO 16 (Sheet 2 of 3)
X57B20	20	WHT	25”	S11-B-2	J7-(+)	BARE WIRE	FO 16 (Sheet 2 of 3)
X58B20	20	WHT	25”	S11-B-1	J7-(-)	BARE WIRE	FO 16 (Sheet 2 of 3)
H1A20	20	WHT	38”	S8-12	J6-A	#6 LUG	FO 16 (Sheet 2 of 3)
H2A20	20	WHT	44”	M7(+)	J6-B	#1/4 LUG	FO 16 (Sheet 2 of 3)
H3A20	20	WHT	44”	M7(-)	J6-C	#1/4 LUG	FO 16 (Sheet 2 of 3)
H4B20N	20	WHT	40”	DS13(-)	J6-D	#4 LUG	FO 16 (Sheet 2 of 3)
H6A20	20	WHT	38”	S8-12	J6-E	#6 LUG	FO 16 (Sheet 2 of 3)
L9B20	20	WHT	40”	DS13(+)	J6-F	#4 LUG	FO 16 (Sheet 2 of 3)
L29B20	20	WHT	50”	DS1(-)	J6-G	#4 LUG	FO 16 (Sheet 2 of 3)
G2B20	20	WHT	49”	S3-3	J6-H	#6 LUG	FO 16 (Sheet 2 of 3)
G4A20N	20	WHT	50”	DS1(-)	J6-J	#4 LUG	FO 16 (Sheet 2 of 3)
L28A20	20	WHT	50”	S4-N01	J6-K	BARE WIRE	FO 16 (Sheet 2 of 3)
L30A20N	20	WHT	50”	S4-COM2	J6-L	BARE WIRE	FO 16 (Sheet 2 of 3)
L27A20	20	WHT	50”	S4-N02	J6-M	BARE WIRE	FO 16 (Sheet 2 of 3)
L2A20	20	WHT	47”	S6-1	J6-N	#6 LUG	FO 16 (Sheet 2 of 3)
L3A20	20	WHT	47”	S6-3	J6-P	#6 LUG	FO 16 (Sheet 2 of 3)
L4A20	20	WHT	45”	S7-1	J6-R	#6 LUG	FO 16 (Sheet 2 of 3)
L5A20	20	WHT	45”	S7-3	J6-S	#6 LUG	FO 16 (Sheet 2 of 3)
E30A20	20	WHT	38”	S8-9	J6-T	#6 LUG	FO 16 (Sheet 2 of 3)
F2A18	18	WHT	7.5”	CB2-L	S1-A1-COM	#8 LUG, BARE WIRE	FO 16 (Sheet 2 of 3)
E2D18	18	WHT	6”	S1-A1-COM	S1-B7-COM	BARE WIRE, BARE WIRE	FO 16 (Sheet 2 of 3)
E2E18	18	WHT	6”	S1-A11-RUN	S1-A12-START	BARE WIRE, BARE WIRE	FO 16 (Sheet 2 of 3)
E1A20	20	WHT	7”	CB1-L	DS8(+)	#8 LUG, #4 LUG	FO 16 (Sheet 2 of 3)
E1B20	20	WHT	5.5”	DS8(+)	DS9(+)	#4 LUG, #4 LUG	FO 16 (Sheet 2 of 3)
E1C20	20	WHT	5.5”	DS9(+)	DS10(+)	#4 LUG, #4 LUG	FO 16 (Sheet 2 of 3)
E1D20	20	WHT	40’	DS10(+)	DS12(+)	#4 LUG, #4 LUG	FO 16 (Sheet 2 of 3)

REPAIR OR REPLACEMENT – CONTINUED

Table 2. Control Panel Harness and Loose Wire List. – Continued

Wire No.	Size	Color	Length	From	To	Remarks	Fold Out and Sheet No.
E1E20	20	WHT	7”	DS12(+)	DS6(+)	#4 LUG, #4 LUG	FO 16 (Sheet 2 of 3)
E1F20	20	WHT	5”	DS6(+)	DS5(+)	#4 LUG, #4 LUG	FO 16 (Sheet 2 of 3)
E1G20	20	WHT	46.5”	DS5(+)	DS4(+)	#4 LUG, #4 LUG	FO 16 (Sheet 2 of 3)
E1H20	20	WHT	5.5”	DS4(+)	DS3(+)	#4 LUG, #4 LUG	FO 16 (Sheet 2 of 3)
E27A20	20	WHT	15”	S8-(5)	S10-(8)	#6 LUG, #6 LUG	FO 16 (Sheet 2 of 3)
E32A20	20	WHT	13.5	S10-(7)	S12-(7)	#6 LUG, #6 LUG	FO 16 (Sheet 2 of 3)
X48C20	20	WHT	6.5”	S11-A-4	S11-A-3	BARE WIRE, BARE WIRE	FO 16 (Sheet 2 of 3)
X48D20	20	WHT	6.5”	S11-A-3	S11-A-2	BARE WIRE, BARE WIRE	FO 16 (Sheet 2 of 3)
X48E20	20	WHT	6.5”	S11-A-2	S11-A-1	BARE WIRE, BARE WIRE	FO 16 (Sheet 2 of 3)
X47C20	20	WHT	15”	DS12(+)	DS20(+)	#4 LUG, #4 LUG	FO 16 (Sheet 3 of 3)
X20C20	20	WHT	15”	S10-2	S12-2	#6 LUG, #6 LUG	FO 16 (Sheet 3 of 3)
X19C20	20	WHT	5.5”	S10-6	S10-1	#6 LUG, #6 LUG	FO 16 (Sheet 3 of 3)
X19D20	20	WHT	15.5”	S10-1	S12-1	#6 LUG, #6 LUG	FO 16 (Sheet 3 of 3)
X19E20	20	WHT	11.5”	S12-1	DS17(-)	#6 LUG, #4 LUG	FO 16 (Sheet 3 of 3)
X19F20	20	WHT	31”	DS17(-)	DS16(-)	#4 LUG, #4 LUG	FO 16 (Sheet 3 of 3)
X19G20	20	WHT	5.25”	DS16(-)	DS15(-)	#4 LUG, #4 LUG	FO 16 (Sheet 3 of 3)
X19H20	20	WHT	5.25	DS15(-)	DS14(-)	#4 LUG, #4 LUG	FO 16 (Sheet 3 of 3)
X40A20	20	WHT	19”	S9-B-COM	M9(+)	BARE WIRE, #1/4 LUG	FO 16 (Sheet 3 of 3)
X41A20	20	WHT	16.5”	S9-C-COM	M8(+)	BARE WIRE, 1/4 LUG	FO 16 (Sheet 3 of 3)
P53A20N	20	WHT	37”	S2-8	DS21(-)	#6 LUG, #4 LUG	FO 16 (Sheet 3 of 3)
P53B20N	20	WHT	13.5”	DS21(-)	DS19(-)	#4 LUG, #4 LUG	FO 16 (Sheet 3 of 3)
P53C20N	20	WHT	6”	DS19(-)	DS18(-)	#4 LUG, #4 LUG	FO 16 (Sheet 3 of 3)
P53D20N	20	WHT	4”	DS18(-)	M11(-)	#4 LUG, #1/4 LUG	FO 16 (Sheet 3 of 3)
P53E20N	20	WHT	8.25”	M4(-)	DS7(-)	#4 LUG, #4 LUG	FO 16 (Sheet 3 of 3)
P36A20N	20	WHT	6”	S2-3	CB1-B	#6 LUG, #8 LUG	FO 16 (Sheet 3 of 3)
P37A18	18	WHT	10”	S2-6	CB2-B	#6 LUG, #8 LUG	FO 16 (Sheet 3 of 3)
P45A20	20	WHT	39”	S2-9	S12-5	#6 LUG, #6 LUG	FO 16 (Sheet 3 of 3)
P39A20	20	WHT	21”	S12-4	S5-3	#6 LUG, #6 LUG	FO 16 (Sheet 3 of 3)
H1B20	20	WHT	13”	CB1-L	S8-2	#8 LUG, #6 LUG	FO 16 (Sheet 3 of 3)

REPAIR OR REPLACEMENT – CONTINUED

Table 2. Control Panel Harness and Loose Wire List. – Continued

Wire No.	Size	Color	Length	From	To	Remarks	Fold Out and Sheet No.
H7A20	20	WHT	7.5”	S8-3	DS13(+)	#6 LUG, #4 LUG	FO 16 (Sheet 3 of 3)
G2A20	20	WHT	5.25”	S3-2	DS1(+)	#6 LUG, #4 LUG	FO 16 (Sheet 3 of 3)
L1A20	20	WHT	8”	CB1-L	S6-2	#8 LUG, #6 LUG	FO 16 (Sheet 3 of 3)
L1B20	20	WHT	6.25”	S6-2	S7-2	#6 LUG, #6 LUG	FO 16 (Sheet 3 of 3)
L1C20	20	WHT	5”	CB1-L	S4-COM-1	#8 LUG, BARE WIRE	FO 16 (Sheet 3 of 3)
P45B20	20	WHT	42.5”	S2-9	M4(-)	#6 LUG, #4 LUG	FO 16 (Sheet 3 of 3)
C1E18	18	WHT	51”	J7-4R	S2-11	—, #6 LUG	FO 16 (Sheet 3 of 3)
C1F18	18	WHT	51”	J7-5L	S2-12	—, #6 LUG	FO 16 (Sheet 3 of 3)
H1D20	20	WHT	5.5”	S8-2	S8-11	#6 LUG, #6 LUG	FO 16 (Sheet 3 of 3)
G3D20	20	WHT	48”	J7-2L	S3-6	—, #6 LUG	FO 16 (Sheet 3 of 3)
G3E20	20	WHT	48”	J7-6R	S3-5	—, #6 LUG	FO 16 (Sheet 3 of 3)
H4D20	20	WHT	24”	S8-10	S11-C-COM	BARE WIRE, BARE WIRE	FO 16 (Sheet 3 of 3)
H5A20	20	WHT	2”	S11-C-5	S11-C-4	BARE WIRE, BARE WIRE	FO 16 (Sheet 3 of 3)
H5B20	20	WHT	36”	S11-C-4	J5-7R	BARE WIRE, BARE WIRE	FO 16 (Sheet 3 of 3)

Table 3. Upper Tray Wiring Harness Wire List.

Wire No.	Size	Color	Length	From	To	Remarks	Fold Out and Sheet No.
G6E20	20	WHT	36”	J-10-A	2K1(+)	#10 LUG	FO 17
G3G20	20	WHT	24.5”	J-10-B	28VDC INPUT	ON MOTOR CONTROLLER	FO 17
G7A20	20	WHT	36”	J-10-C	2P1-3		FO 17
G8A20	20	WHT	36”	J-10-D	2P1-2		FO 17
G9A20	20	WHT	36”	J-10-E	2P1-1		FO 17
G6D20	20	WHT	36”	J-10-F	2K1(+)	#10 LUG	FO 17
G5D20	20	WHT	36”	J-10-G	2K2(+)	#10 LUG	FO 17
G18B20N	20	WHT	36”	J-10-H	2K2(-)	#10 LUG	FO 17
G5E20	20	WHT	36”	J-10-S	2K2(+)	#10 LUG	FO 17
G18A20N	20	WHT	8”	2K1(-)	2K2(-)	#10 LUG, #10 LUG	FO 17

REPAIR OR REPLACEMENT – CONTINUED

Table 4. Lower Electrical Tray Harness Wire List.

Wire No.	Size	Color	Length	From	To	Remarks	Fold Out and Sheet No.
E17B20	20	WHT	31”	J8-A	3XK1-X1	BARE WIRE	FO-18 (Sheet 1 of 2)
E35B20N	20	WHT	31”	J8-B	3XK1-X2	SEE E36B20N	FO-18 (Sheet 1 of 2)
P6B20	20	WHT	31”	J8-C	3XK1-A1	BARE WIRE	FO-18 (Sheet 1 of 2)
P11B20	20	WHT	31”	J8-D	3XK1-A2	BARE WIRE	FO-18 (Sheet 1 of 2)
P5B20	20	WHT	31”	J8-E	3XK1-B1	BARE WIRE	FO-18 (Sheet 1 of 2)
P12B20	20	WHT	31”	J8-F	3XK1-B2	BARE WIRE	FO-18 (Sheet 1 of 2)
P4B20	20	WHT	31”	J8-G	3XK1-C1	BARE WIRE	FO-18 (Sheet 1 of 2)
P13B20	20	WHT	31”	J8-H	3XK1-C2	BARE WIRE	FO-18 (Sheet 1 of 2)
E33B20	20	WHT	31”	J8-J	3XK1-D1	BARE WIRE	FO-18 (Sheet 1 of 2)
E34B20	20	WHT	31”	J8-K	3XK1-D2	BARE WIRE	FO-18 (Sheet 1 of 2)
E25C18	18	WHT	31”	J8-L	3XK2-A1	BARE WIRE	FO-18 (Sheet 1 of 2)
E4B18	18	WHT	31”	J8-M	SPLICE	SEE PG. 5 FIG. 5	FO-18 (Sheet 1 of 2)
E31B20	20	WHT	31”	J8-N	SPLICE	SEE PG. 5 FIG. 5	FO-18 (Sheet 1 of 2)
E3E20	20	WHT	31”	J8-P	SPLICE	SEE PG. 5 FIG. 4	FO-18 (Sheet 1 of 2)
G22B20	20	WHT	35.5”	J8-R	3F1(+)		FO-18 (Sheet 1 of 2)
G5G20	20	WHT	26”	J8-S	3VR1+	BARE WIRE	FO-18 (Sheet 1 of 2)
G19A20	20	WHT	26”	J8-T	3VR1-	#6 LUG	FO-18 (Sheet 1 of 2)
G6G20	20	WHT	26”	J9-A	3VR2(+)	BARE WIRE	FO-18 (Sheet 1 of 2)
G20A20	20	WHT	26”	J9-B	3VR2(-)	#6 LUG	FO-18 (Sheet 1 of 2)
P26B20	20	WHT	32”	J9-C	3S1-1	BARE WIRE	FO-18 (Sheet 1 of 2)
P27B20	20	WHT	32”	J9-D	3S1-2	BARE WIRE	FO-18 (Sheet 1 of 2)
P28B20	20	WHT	32”	J9-E	3S1-3	BARE WIRE	FO-18 (Sheet 1 of 2)

REPAIR OR REPLACEMENT – CONTINUED

Table 4. Lower Electrical Tray Harness Wire List. – Continued

Wire No.	Size	Color	Length	From	To	Remarks	Fold Out and Sheet No.
P25B20	20	WHT	32”	J9-F	3S1-COMM	BARE WIRE	FO-18 (Sheet 1 of 2)
X59A20	20	WHT	31”	J9-G	FTMTR(+)	#1/4 LUG	FO-18 (Sheet 1 of 2)
X9K20N	20	WHT	31”	J9-H	FTMTR(-)	#1/4 LUG	FO-18 (Sheet 1 of 2)
E3F20	20	WHT	8”	E3E20, SPLICE	3XK2-X1	SEE PG. 5 FIG. 4	FO-18 (Sheet 1 of 2)
E3G20	20	WHT	8”	E3E20, SPLICE	3XK2-A2	SEE PG. 5 FIG. 4	FO-18 (Sheet 1 of 2)
E4A18	18	WHT	8”	E4B18, SPLICE	3XK2-B2	SEE PG. 5 FIG. 5	FO-18 (Sheet 1 of 2)
E36B20N	20	WHT	8”	3XK1-X2	3XK2-X2		FO-18 (Sheet 1 of 2)
X41D20	20	WHT	30”	J9-J	FT115VAC(+)	#1/4 LUG	FO 18 (Sheet 2 of 2)
G21A20	20	WHT	31”	J9-K	3F1(-)	BARE WIRE	FO 18 (Sheet 2 of 2)
P49B20N	20	WHT	27”	J9-L	3XK3-X2		FO 18 (Sheet 2 of 2)
C1B20	20	WHT	27”	J9-M	3XK3-C2		FO 18 (Sheet 2 of 2)
P35B18	18	WHT	13”	J9-N	SPLICE	SEE PG. 1 FIG. 3	FO 18 (Sheet 2 of 2)
P34B20	20	WHT	27”	J9-P	3XK3-A2		FO 18 (Sheet 2 of 2)
P33E18	18	WHT	12”	J9-R	SPLICE	SEE PG. 1 FIG.1	FO 18 (Sheet 2 of 2)
P30B18	18	WHT	12”	J9-S	SPLICE	SEE PG. 1 FIG. 2	FO 18 (Sheet 2 of 2)
P33F20	20	WHT	8”	P33E18, SPLICE	3XK3-3	SEE PG. 1 FIG. 1	FO 18 (Sheet 2 of 2)
P33G20	20	WHT	8”	P33E18, SPLICE	3XK3-A3	SEE PG. 1 FIG. 1	FO 18 (Sheet 2 of 2)
P30C20	20	WHT	8”	P30B18, SPLICE	3XK3-C1	SEE PG. 1 FIG. 2	FO 18 (Sheet 2 of 2)
P30D20	20	WHT	8”	P30B18, SPLICE	3XK2-A1	SEE PG. 1 FIG. 2	FO 18 (Sheet 2 of 2)
P30E20	20	WHT	8”	P30B18, SPLICE	3XK3-X1	SEE PG. 1 FIG. 2	FO 18 (Sheet 2 of 2)
X9T20N	20	WHT	31”	J18-A	FT115VAC(-)	#1/4 LUG 5	FO 18 (Sheet 2 of 2)
E4J18	18	WHT	33”	J18-B	3XK2-B1	BARE WIRE	FO 18 (Sheet 2 of 2)
P33H20	20	WHT	8”	P33E18, SPLICE	3XK3-D3	SEE PG. 1 FIG. 1	FO 18 (Sheet 2 of 2)
P33J20	20	WHT	27”	3XK3-D2	J18-E	BARE WIRE	FO 18 (Sheet 2 of 2)

REPAIR OR REPLACEMENT – CONTINUED

Table 4. Lower Electrical Tray Harness Wire List. – Continued

Wire No.	Size	Color	Length	From	To	Remarks	Fold Out and Sheet No.
P33L18	18	WHT	8”	P33E18, SPLICE	CR8P-CATHODE	SEE PG. 1 FIG. 1	FO 18 (Sheet 2 of 2)
P33M18	18	WHT	10”	3CR8P-ANODE	3CR9P-ANODE	JUMPER, 3CR9P: 20A DIODE	FO 18 (Sheet 2 of 2)
P33N18	18	WHT	10”	3CR9P-CATHODE	3XK3-B2	JUMPER, 3CR9P:20A DIODE	FO 18 (Sheet 2 of 2)
P30N18	18	WHT	8”	P35B18, SPLICE	CR9P-CATHODE	SEE PG. 1 FIG. 3	FO 18 (Sheet 2 of 2)
P30F20	20	WHT	8”	P30B18, SPLICE	CR7P-ANODE	SEE PG. 1 FIG. 2	FO 18 (Sheet 2 of 2)
P33P20	20	WHT	8”	P33E18, SPLICE	3XK3-B3	SEE PG. 1 FIG. 1	FO 18 (Sheet 2 of 2)
P35H18	18	WHT	8”	P35B18, SPLICE	3XK3-B2	SEE PG. 1 FIG. 3	FO 18 (Sheet 2 of 2)

NOTE

Refer to electrical schematic foldouts FO-19 (Sheet 1 of 2) through FO 33in rear of manual for MEP 83-360D/E (only).

Table 5. Main Harness and Loose Wire List, Model 83-360D/E.

Wire No.	Size	Color	Length	From	Lug	To	Lug	Remarks
C1C20	20	WHT	119”	P14-J		J7-C		
C1D18	18	WHT	36”	J9-D		J7-B		
C2A20N	20	WHT	83”	P14-I		GND TB-1L	#6	
C3A20	20	WHT	134”	P14-H		P16-A		
C4A20	20	WHT	134”	P14-G		P16B		
C5A20N	20	WHT	72”	P16-E		GND TB-1R	#6	
E1K20	20	WHT	42”	J5-43		S1E	BW	Thermal switch
E2C18	18	WHT	146”	J7-E		S2E-2	#6	Emergency switch
E3C20	20	WHT	32”	J5-32		TB1-1A	#6	
E3D20	20	WHT	39”	TB1-1C	#6	J8-N		
E4H18	18	WHT	42”	J7-D		J9-E		
E4K18	18	WHT	30”	P4-A		J9-G		

REPAIR OR REPLACEMENT – CONTINUED

Table 5. Main Harness and Loose Wire List, Model 83-360D/E. – Continued

Wire No.	Size	Color	Length	From	Lug	To	Lug	Remarks
E6A20	20	WHT	141”	P4-T		S2E-5	#6	Emergency shutoff switch
E7A20	20	WHT	40”	J5-33		P4-a		
E8A20	20	WHT	40”	J5-34		P4-b		
E9A20	20	WHT	40”	J5-35		P4-M		
E10A20	20	WHT	40”	J5-36		P4-c		
E11A20	20	WHT	41”	TB3-1C	#6	P4-g		
E11C20	20	WHT	40”	J5-40		TB3-1a	#6	
E12A20	20	WHT	42”	TB3-2C	#6	P4-d		
E12C20	20	WHT	40”	J5-39		TB3-2A	#6	
E12D20	20	WHT	44”	TB3-6C	#6	P4-L		
E12E20	20	WHT	3.5”	TB3-2A	#6	TB3-6A	#6	
E13A20	20	WHT	42”	TB3-3C	#6	P4-h		
E13C20	20	WHT	41.5”	J5-38		TB3-3A	#6	
E14A20	20	WHT	43”	TB3-4C	#6	P4-f		
E14C20	20	WHT	41”	J5-41		TB3-4A	#6	
E15A20	20	WHT	43”	TB3-5C	#6	P4-e	#6	
E15C20	20	WHT	41.5”	J5-42		TB3-5A	#6	
E16A20	20	WHT	29”	P4-J		K4-X1	#10	
E17A20	20	WHT	30”	P4-S		J8-R		
E18A20	20	WHT	40”	J5-30		TB2-15C	#6	
E18C20	20	WHT	37”	K4-A1	3/8	TB2-15A	#6	
E21A20	20	WHT	42”	J5-44		S1E	BW	Thermal switch
E22A20	20	WHT	104.5”	J5-37		S3E-NC	#8	IN FLTR SW C
E25D18	18	WHT	139”	J9-F		S2-1	#6	Emergency switch
E26A20	20	WHT	86”	P14-E		K4-X2	3/8	
E28A20	20	WHT	114”	J5-28		P14-F		
E29B20	20	WHT	147”	J5-58		S2E-6	#6	Emergency switch
E30B20	20	WHT	40”	P4-Z		J5-59		
E31C20	20	WHT	38”	J8-P		TB4-13	#6	Fuel boost pump
E31D20	20	WHT	67”	TB4-13	#6	CRG wire fuel pump	BW	N Line splice (28VDC)
E33C20	20	WHT	101”	J8-f		P14-B		
E34C20	20	WHT	101”	J8-e		P14-C		

REPAIR OR REPLACEMENT – CONTINUED

Table 5. Main Harness and Loose Wire List, Model 83-360D/E. – Continued

Wire No.	Size	Color	Length	From	Lug	To	Lug	Remarks
E35C20N	20	WHT	24”	J8-M		GND TB-2L	#6	
E37B20N	20	WHT	38”	J5-31		GND TB-2R	#6	
E39B20N	20	WHT	35”	J5-29		GND TB-3L	#6	
E40A20N	20	WHT	74”	S3E-C	#6	GND TB-3R	#6	S3E inlet sw, air starv sw
E41A20N	20	WHT	35”	TB4-14	#6	GND TB-1L	#6	
E41B20N	20	WHT	68”	TB4-14	#6	BLK wire fuel pump	BW	In line splice (GND)
E42A18N	18	WHT	31”	P4-X		GND TB-4R	#6	
E43A20N	20	WHT	29”	P4-j		GND TB-3L	#6	
E44A20N	20	WHT	32”	P4-G		GND TB-5R	#6	
E45A20N	20	WHT	30”	P4-N		GND TB-4L	#6	
G2C20	20	WHT	43.5”	J5-65		TB4-10	#6	
G2D20	20	WHT	42”	TB4-10	#6	TB5-5	BW	
G2E20	20	WHT	40”	TB4-11	#6	TB5-6	BW	
G2F20	20	WHT	59”	R1(-)	#6	TB4-11	#6	
G3C20	20	WHT	50”	J6-AA		TB5-2	BW	
G3F20	20	WHT	40”	P10-B		J6-z		
G4B20N	20	WHT	44”	J5-66		TB3-11A	#6	
G5C20	20	WHT	40”	P10-G		TB4-7	#6	Prop controller
G5F20	20	WHT	29.5”	P10-S		TB2-2C	#6	CR23
G6C20	20	WHT	39.5”	P10-F		TB4-6	#6	
G6F20	20	WHT	30”	P10-A		TB2-1C	#6	CR10
G7B20	20	WHT	38”	P10-C		TB4-3	#6	
G8B20	20	WHT	39”	P10-D		TB4-4	#6	
G9B20	20	WHT	39”	P10-E		TB4-5	#6	
G10A2	2	WHT	10”	2K1-NC	3/8	2A1-(S2)	3/8	ARM/FLD loose wire
G11A2	2	WHT	19”	2K1-NO	3/8	2A1-B+POS	3/8	Loose wire
G11C2	2	WHT	44”	R1-(-)	3/8	2K1-NO	1/2	DC CBL SDE loose wire
G12A2	2	WHT	7”	2K1-NO	3/8	2K2-NC	3/8	Loose wire
G12B2	2	WHT	77”	2K1-NC	3/8	B1G-A2	3/8	Prop motor loose wire
G13A2	2	WHT	7”	2K1-NO	3/8	2K1-NC	3/8	Loose wire
G13B2	2	WHT	75”	2K1-NC	3/8	B1G-A1	3/8	Prop motor loose wire
G14A2	2	WHT	73.5”	B1G-S1	3/8	2A1-S1	3/8	Loose wire
G15A2	2	WHT	72”	B1G-S2	3/8	2A1-S2	3/8	Loose wire

REPAIR OR REPLACEMENT – CONTINUED

Table 5. Main Harness and Loose Wire List, Model 83-360D/E. – Continued

Wire No.	Size	Color	Length	From	Lug	To	Lug	Remarks
G16C20	20	WHT	43”	TB4-1	#6	TB5-3	BW	Clutch switch
G17A20N	20	WHT	38”	TB4-9	#6	GND TB-5R	#6	
G18C20N	20	WHT	18”	P10-H		GND TB-7L	#6	
G19A20N	20	WHT	29”	TB2-2A	#6	GND TB-7R	#6	
G21A2N	2	WHT	20”	DC GND stud #2	1/2	2A1-BNEG	3/8	Loose wire
G21B20	20	WHT	62”	TB5-4	BW	J8-d		Clutch switch
G22A20	20	WHT	23”	P1-1		J8-c		
G24A20	20	WHT	27”	TB4-2	#6	TB5-9	3/8	Prop motor, bare wire
G25A20	20	WHT	63”	TB3-11C	#6	K2-X2	#10	
G26A20	20	WHT	45”	TB3-12C	#6	K3-X2	#10	
G28A20	20	WHT	3”	HS1G-5	#6	HS1G-9	#6	Loose wire
G29A20	20	WHT	3”	HS1G-6	#6	HS1G-10	#6	Loose wire
G30A20	20	WHT	30”	MTR SP.CTL		TB2-16A	#6	
G30C20	20	WHT	48”	TB2-16C		TB5-7	/SPL	
G31B20N	20	WHT	24”	TB5-8	/SPL	TB4-9	#6	
H1C20	20	WHT	32”	J5-61		TB1-13 A	#6	R1H Res. (+)
H1C20A	20	WHT	40”	TB1-13A	#6	R1H	BW	
H1D20A	20	WHT	11”	S8-11	#6	S8-10	#6	S8 jumper
H2B20	20	WHT	43”	J5-62		TB1-13C	#6	R1H Res. (-)
H3B20	20	WHT	96”	J5-63		MT1H (+)	#6	Pres. Trans. Eng.
H4C20N	20	WHT	34”	J5-60		GND TB-8L	#6	
H5C20	20	WHT	135”	J5-67		L1H-2	BW	
H6B20	20	WHT	119”	J5-64		L1H-1-NO	BW	Pneu. Valve LCV
H6C20N	20	WHT	108”	L1H-2	BW	GND TB-8R	#6	
H8A20N	20	WHT	25”	TB1-12A	#6	GND TB-9L	#6	
H9A20N	20	WHT	91.5”	L1H-1-GND	BW	GND TB-9R	#6	Pneu valve
H10A20N	20	WHT	79”	MT1H-(-)	#10	GND TB-10L	#6	Pres Xducer
B-R-W			156”	TB4-5	#6	HS1G-1	#6	M17500-20-TE-10U-14 Loose wire
BKW-BN			156”	TB4-2	#6	Deadman Stick SW	/SPL	M17500-20-TE-10U-1 Loose wire 4

REPAIR OR REPLACEMENT – CONTINUED

Table 5. Main Harness and Loose Wire List, Model 83-360D/E. – Continued

Wire No.	Size	Color	Length	From	Lug	To	Lug	Remarks
BK-W			156”	Dead-man Stick SW		HS1G-9	#6	M17500-20-TE-10U-14 Loose Wire
L2B20	20	WHT	38”	J8-H		J5-25		
L3B20	20	WHT	38”	J5-24		L3F20 splice		
L3C20	20	WHT	52”	DS101(+)	BW	L3F20 splice	BW	Panel LT
L3D20	20	WHT	36”	DS101(+)	BW	DS102(+)	BW	Loose wire
L3F20	20	WHT	3”	Splice		J8-K		
L4B20	20	WHT	40”	J5-26		J8-J		
L5B20	20	WHT	40”	J5-27		L5F20 Splice		
L5C20	20	WHT	40”	DS103(+)	BW	L5F20 Splice		
L5D20	20	WHT	86”	DS103(+)	BW	DS104-(+)		
L5E20	20	WHT	126”	DS104(+)	BW	P14A		
L5F20	20	WHT	3”	Splice		J8-L		
L6A20N	20	WHT	31”	DS101(+)	BW	DS102(-)		Loose Wire
L6B20N	20	WHT	54”	DS101(-)+	BW	GND TB-10R	#6	
L7A20	20	WHT	28.5”	J6-K		TB1-11A	#6	
L8A20	20	WHT	29.5”	J6-J		TB2-14C	#6	
L9A20	20	WHT	33”	J5-14		TB2-4C	#6	
L10A20	20	WHT	29.5”	J6-H		TB2-5C	#6	
L11A20	20	WHT	29”	J6-G		TB2-6C	#6	
L12A20	20	WHT	28.5”	J6-F		TB2-7C	#6	
L13A20	20	WHT	28”	J6-E		TB2-8C	#6	
L14A20	20	WHT	27.5”	J6-D		TB2-9C	#6	
L15A20	20	WHT	27.5”	J6-C		TB2-10C	#6	
L16A20	20	WHT	30”	J5-20		TB1-10A	#6	
L17A20	20	WHT	29”	J5-21		TB1-9A	#6	
L18A20	20	WHT	29”	J5-22		TB1-8A	#6	
L19A20	20	WHT	30”	J5-23		TB1-7A	#6	
L20A20	20	WHT	30.5”	J5-13		TB2-11C	#6	
L21A20	20	WHT	29”	J5-19		TB1-6A	#6	
L22A20	20	WHT	30”	J5-18		TB1-4A	#6	
L23A20	20	WHT	31”	J5-17		TB1-3A	#6	
L24A20	20	WHT	31”	J5-16		TB1-2A	#6	

REPAIR OR REPLACEMENT – CONTINUED

Table 5. Main Harness and Loose Wire List, Model 83-360D/E. – Continued

Wire No.	Size	Color	Length	From	Lug	To	Lug	Remarks
L25A20	20	WHT	30”	J6-B		TB2-12C	#6	
L26A20	20	WHT	35”	J5-12		TB2-13C	#6	
L27B20	20	WHT	48”	J5-10		TB1-2C	#6	
L28B20	20	WHT	45”	J5-11		TB2-3A	#6	
L29A20	20	WHT	41”	J5-15		TB1-5A	#6	
L29C20	20	WHT	30”	J6-A		TB2-3C	#6	
L2B20	20	WHT	38”	J8-H		J5-25		
L30B20N	20	WHT	35”	J5-9		GND TB-11L	#6	
L31A20N	20	WHT	35”	DS104-(-)	BW	DS103-(-)	BW	
L31B20N	20	WHT	44”	DS103-(-)	BW	GND TB-11R	#6	
BN-W			156”	TB4-3	#6	HS1G-3	#6	M27500-20-TE-10-U-14 Loose wire
BN-W-Y			156”	TB4-4	#6	HS1G-2	#6	M27500-20-TE-10-U-14 Loose wire
P1A2/0NA	2/0	BLK	29”	TB1(-) TRU	3/8	DC GND stud #1	1/2	TRU output
P1B14N	14	WHT	6”	Gen Case stud	1/4	Gen/Neu	1/4	Loose wire
P1C20N	20	WHT	14”	GCU CSE STB	1/84	DC GND stud #1	1/2	GN CNT unit loose wire
P2E2/0A	2/)	BLK	33”	TB1(+) TRU	3/8	K2-A1	3/8	TRU output
P2B2	2	WHT	34”	2CB1-B	1/4	K2-A1	3/8	Loose wire
P2C8	8	WHT	36”	2CB2-B	#10	K2-A1	3/8	Loose wire
P2D20	20	WHT	6”	K2-A1	3/8	K2-B1	#10	Loose wire
P2E20	20	WHT	5”	K2-B1	#10	K2-X1	#10	K2 Jumper
P3A4/0	4/)	WHT	4”	K2-A2	3/8	R1(+)	1/2	Loose wire
P3B1/0	1/0	WHT	11”	K2-A2	3/8	K3-A1	3/8	Loose wire
P3C20	20	WHT		J5-52		R1(+)		
P4A2	20	WHT	65”	J8-S		P13-E		
P5A20	20	WHT	65”	J8-T		P13-H		
P6A20	20	WHT	65”	J8-U		P13-J		
P7A20	20	WHT	56”	P12-T		P13-A		
P8A20	20	WHT	56”	P12-V		P13-B		
P9A20	20	WHT	56”	P12-Y		P13-C		

REPAIR OR REPLACEMENT – CONTINUED

Table 5. Main Harness and Loose Wire List, Model 83-360D/E. – Continued

Wire No.	Size	Color	Length	From	Lug	To	Lug	Remarks
P11A20	20	WHT	52”	J8-V		P12-Z		
P12A20	20	WHT	52”	J8-W		P12-X		
P13A20	20	WHT	52”	J8-X		P12-W		
P15A20	20	WHT	54”	J5-57		P12-e		
P16A20	20	WHT	54”	J5-56		P12-f		
P17A20	20	WHT	14”	P12-y		R1(-)	#6	
P17B20	20	WHT	38”	5-54		R1(-)	#8	
P18A20	20	WHT	15”	P12-j		R1(+)	#6	
P18B20	20	WHT	60”	J5-55		R1(+)	#8	
P19A1/0	1/0	WHT	39”	K4-A1	3/8	MG1(+)	1/4	ENG start MTR loose wire
P20A1/0N	1/0	WHT	28.5”	MG1(-)	3/8	DC GND stud #1	1/2	ENG start MTR loose wire
P21A6N	6	WHT	24”	J4(-)	1/4	J3(-)	1/4	BAT CHGR loose wire
P21B2N	2	WHT	32.5”	J4(-)	1/4	DC GND stud	1/2	BAT CHGR loose wire
P21C20N	2	WHT	8”	BAT CHGR case stud	1/4	BAT CHGR 50A	1/2	Loose wire
P21D8N	28	WHT	4”	R2P(-) 5 OHM 225W RES	#10	DC GND stud #2	1/2	Loose wire
P22A2	2	WHT	68”	J4(+)	1/4	2CB1-L	1/4	BAT CHGR loose wire
P23A16	16	WHT	42”	P1-I		2CB2-L	#8	
P23B8	8	WHT	31”	2CBE-L(35A CB)	#10	R2P(+) 5 OHM 225W	#10	Loose wire
P24A16	16	WHT	41.5”	P1-H		2CB2-L	#8	
P25A20	20	WHT/ORG	36”	P1-A		J8-B	#8	4 Conductor shield wire
P26A20	20	WHT/BLU	36”	P1-B		J8-C		4 Conductor shield wire
P27A20	20	WHT/GRN	36”	P1-C		J8-D		4 Conductor shield wire
P28A20	20	WHT	36”	P1-D		J8-E		4 Conductor shield wire
P29A20	20	WHT	40”	P1-G		TB3-8 A	#6	
P29C20	20	WHT	43.5”	J5-7		TB3-10A	#6	R1P, 100 OHM R
P31A18N	18	WHT	34”	P2-B		GND TB-12L	#6	
P32A6	6	WHT	18.5”	R3(-)	1/2	J3(+)	1/4	BAT CHGR loose wire

REPAIR OR REPLACEMENT – CONTINUED

Table 5. Main Harness and Loose Wire List, Model 83-360D/E. – Continued

Wire No.	Size	Color	Length	From	Lug	To	Lug	Remarks
P33A1/0	1/0	WHT	42”	P17(+) BATT CONN	3/8	R2(+)	1/2	Loose wire
P33B1/0	1/0	WHT	53.5”	P17(+)BATT CONN	3/8	J19(+)DC Recept	3/8	EXT DC Recept loose wire
P33C6	6	WHT	21”	R2(+)	1/2	R3(+)	1/2	Loose wire
P33d16	16	WHT	25”	J9-A		R3(-)	#3/8	
P33K20	20	WHT	40”	J8-F		TB3-9A	#6	
P34C20	20	WHT	40”	J5-8		J8-G		
P35F18	18	WHT	40”	J9-C		J7-A		
P38B20	20	WHT	50”	J6-L		K2-X2	#10	
P3C20	20	WHT	61”	J5-52		R1(+)	#8	
P40B20	20	WHT	37.5”	J5-1		K3-X2	#10	
P41A20	20	WHT	16”	K3-A2	3/8	K3-X1	#10	
P41B1/0	1/0	WHT	16”	K3-A2	3/8	R2(+)	1/2	Loose wire
P41C1/0	1/0	WHT	13”	K4-A2	3/8	R2(-)	1/2	Loose wire
P41D20	20	WHT	31.5”	J5-2		R2(-)	#8	
P42A20	20	WHT	33.5”	J5-3		R2(-)	#8	(twisted pair)
P43A20	20	WHT	32”	J5-4		R2(+)	#8	(twisted pair)
P44A1/0N	1/0	WHT	45”	P17(-)BATT CONN	3/8	DC GND Stud #2	1/2	Loose wire
P44B1/0N	1/0	WHT	580”	P17(-) BATT CONN	3/8	J-19(-) DC Recept	3/8	Loose wire
P46A20	20	WHT	54”	J5-53		K2-B2	#10	DC contactor
P47A20	20	WHT	35.5”	J5-6		R3(-)	#10	Shunt meter (-)
P48A20	20	WHT	39”	J5-5		R3(+)	#8	Shunt meter (+)
P49C20N	20	WHT	32”	J8-A		GND TB	#6	
P50A12N	12	WHT	43”	PS1P(+)	BW	R1(-) Shunt	1/2	Loose wire
P53B20NA	20	WHT	9”	DS21(-)	#4	M11(-)	1/4	
P53E20	20	WHT	30”	DS19(-)	#4	TB1-16C	#6	
P53E20A	20	WHT	7”	TB1-16C	#6	TB1-11C	#6	
P53H20N	20	WHT	38”	J5-51		GNDTB-13L	#6	
P54A10	10	WHT	43”	PS1P(+)	BW	R1(-) Shunt	1/2	Loose wire

REPAIR OR REPLACEMENT – CONTINUED

Table 5. Main Harness and Loose Wire List, Model 83-360D/E. – Continued

Wire No.	Size	Color	Length	From	Lug	To	Lug	Remarks
P55A10N	10	WHT	46.5”	PS1P(-)	BW	DC GND Stud #1	1/2	Loose wire
Q1D20	20	WHT	35”	J5-48		TB1-15A	#6	RI1 Resistor
Q2A20	20	WHT	41”	J5-49		TB1-14C	#6	Diode zener
Q3A20N	20	WHT	29”	TB1-14A	#6	GND TB-13R	#6	CRIQ
Q4B20	20	WHT	57”	J5-47		S1Q	BW	Fuel level SW
Q5B20	20	WHT	77”	J5-46		S2Q	#8	SW Pressure
Q6B20	20	WHT	82”	J5-50		MT1Q(+)	#10	SND FL SW
Q7A20N	20	WHT	71”	S1Q	BW	GND TB-14L	#6	Fuel level SW
Q7B20N	20	WHT	74”	S2Q-(NO)	#8	GND TB-14R	#6	Fuel Pres. SW
Q7C20N	20	WHT	54”	MT1Q-FLG	BW	GND TB-15L	#6	
R-W			156”	TB4-7	#6	HS1G-7	#6	M27500-20-TE-10-U-14 Loose wire
R-W-BN			156”	TB4-1	#6	HS1G-6	#6	M27500-20-TE-10-U-14 Loose wire
Shield GND			A/R	Wire shields		P1-E		4 Cond. shield wire
X1A4A	4	WHT	40”	G1-T1	1/4	K1-A1	3/8	
X1B20	20	WHT	21.5”	P12-A		K1-A1	3/8	
X1X16	16	WHT	20”	J20-D Neutral		DC GND stud #1	1/2	TRU input loose wire
X2A4A	4	WHT	48”	G1-T2	1/4	K1-B1	3/8	
X2B20B	20	WHT	20.5”	P12-B		K1-B1	3/8	
X2X12	12	WHT	48”	J20-F		K1-A1	3/8	TRU input loose wire
X3A4A	4	WHT	54”	G1-T3	1/4	K1-C1	3/8	Loose wire
X3B20C	20	WHT	19”	P12-C		K1-C1	3/8	
X3X12	12	WHT	48”	J20-I		K1-B1	3/8	TRU input
X4X12	12	WHT	48”	J20-B		K1-C1	3/8	TRU input
X5A20	20	WHT	56”	P12-D		P13-D		
X5X16	16	WHT	92”	J20-G		J7-F		TRU overtemp
X6A20	20	WHT	56”	P12-F		P13-F		
X7A20	20	WHT	56”	P12-g		P13-K		
X8A20	20	WHT	56”	P12-h		P13-L		
X9B14N	14	WHT	6”	J3(-)	#8	J2(-)	#8	AC outlet, loose wire

REPAIR OR REPLACEMENT – CONTINUED

Table 5. Main Harness and Loose Wire List, Model 83-360D/E. – Continued

Wire No.	Size	Color	Length	From	Lug	To	Lug	Remarks
X9E20N	20	WHT	55”	J-6u		J1(-)	BW	AC outlet, loose wire
X9D8N	8	WHT	66”	J4(-)	#10	G1X-N(T5)	1/4	AC outlet, loose wire
X9J20N	20	WHT	36”	J6-x		J8-a		
X9N20N	20	WHT	39”	J6-v		J8-Y		
X9S20N	20	WHT	50”	J6-Z		P12-N		
X9U4N	4	WHT	32”	AC GEN GIX-N(T4)		DC GND Stud #2	1/2	Loose wire
X10A20	20	WHT	36”	P12-J		T1-T1	#4	
X11A20	20	WHT	36”	P12-K		T1-T2	#4	
X12A20	20	WHT	36”	P12-L		T1-T2	#4	
X13A20	20	WHT	36”	P12-G		T1-N	#4	
X18A20	20	WHT	28”	P11-A		P12-Q		
X19A20	20	WHT	50”	J6-M		P12-R		
X20A20	20	WHT	50”	J6-N		P12-S		
X21A20	20	WHT	50”	J6-Y		P12-b		
X22A20	20	WHT	50”	J6-X		P12-a		
X23A20	20	WHT	50”	J6-W		P12-d		
X24A20	20	WHT	50”	J6-V		P12-c		
X25A20	20	WHT	53”	J6-d		T2(+)	BW	
X26A20	20	WHT	53”	J6-g		T2(-)	BW	
X27A20	20	WHT	57”	J6-e		T3(+)	BW	
X28A20	20	WHT	57”	J6-h		T3(-)	BW	
X29A20	20	WHT	60”	J6-f		T4(+)	BW	
X30A20	20	WHT	60”	J6-i		T4(-)	BW	
X31B20A	20	WHT	50”	J6-a		K1-A2	3/8	
X31D14A	14	WHT	63”	K1-A2	3/8	3CB6-B	#10	Loose wire
X32B20B	20	WHT	49”	J6-b		K1-B2	3/8	
X32D14B	14	WHT	63”	K1-B2	3/8	3CB3-B	#10	Loose wire
X33B20C	20	WHT	48”	J6-c		K1-C2	3/8	
X33D14C	14	WHT	63”	K1-C2	3/8	3CB4-B	#10	Loose wire
X33E14C	14	WHT	3”	3CB3-B	#10	3CB4-B	#10	Loose wire
X34A20	20	WHT	52”	J6-k		P11-F		
X35A20N	20	WHT	34”	P11-D		GND TB-15R	#6	

REPAIR OR REPLACEMENT – CONTINUED

Table 5. Main Harness and Loose Wire List, Model 83-360D/E. – Continued

Wire No.	Size	Color	Length	From	Lug	To	Lug	Remarks
X36A20	20	WHT	52”	J6-n		P11-B		
X37A20	20	WHT	52”	J6-j		P11-E		
X38A20	20	WHT	52”	J6-m		P11-C		
X41C20	20	WHT	36”	J6-w		J8-Z		
X42A14	20	WHT	43”	3CB6-L	#10	J4(+)	#8	AC outlet loose wire
X43A14	20	WHT	44.5”	3CB5-L	#10	J3(+)	#8	AC outlet loose wire
X44A14	20	WHT	48”	3CB4-L	#10	J2(+)	#8	AC outlet lose wire
X45A14	20	WHT	58.5”	3CB3-L	#10	J1(+)	#8	AC outlet loose wire
X46A20	20	WHT	50”	J6-U		P12-z		
X47A20	20	WHT	50”	J6-p		P12-P		
X47E20	20	WHT	15”	DS20(+)	#4	DS19(+)	#4	
X48A20	20	WHT	50”	J6-q		P12-E		
X48F20	20	WHT	2”	S11-A-1	BW	S11-A-COM	BW	S11 jumper loose wire
X49A20	20	WHT	50”	J6-P		P12-v		
X50A20	20	WHT	50”	J6-R		P12-u		
X51A20	20	WHT	50”	J6-S		P12-t		
X53A20	20	WHT	50”	J6-T		P12-w		
P53E20	20	WHT	50”	J6-BB		TB1-16 C	#6	Loose wire
X56A20	20	WHT	50”	J6-r		P12-q		
X57A20	20	WHT	50”	J6-s		P12-r		
X58A20	20	WHT	50”	J6-t		P12-s		
X59B20	20	WHT	36”	J6-y		J8-b		
Y-W			156”	TB4-6	#6	HS1G-8	#6	M27500-20-TE-10-U-14

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

SPEED SENSOR (GTE)

INITIAL SETUP:

Tools and Special Tools

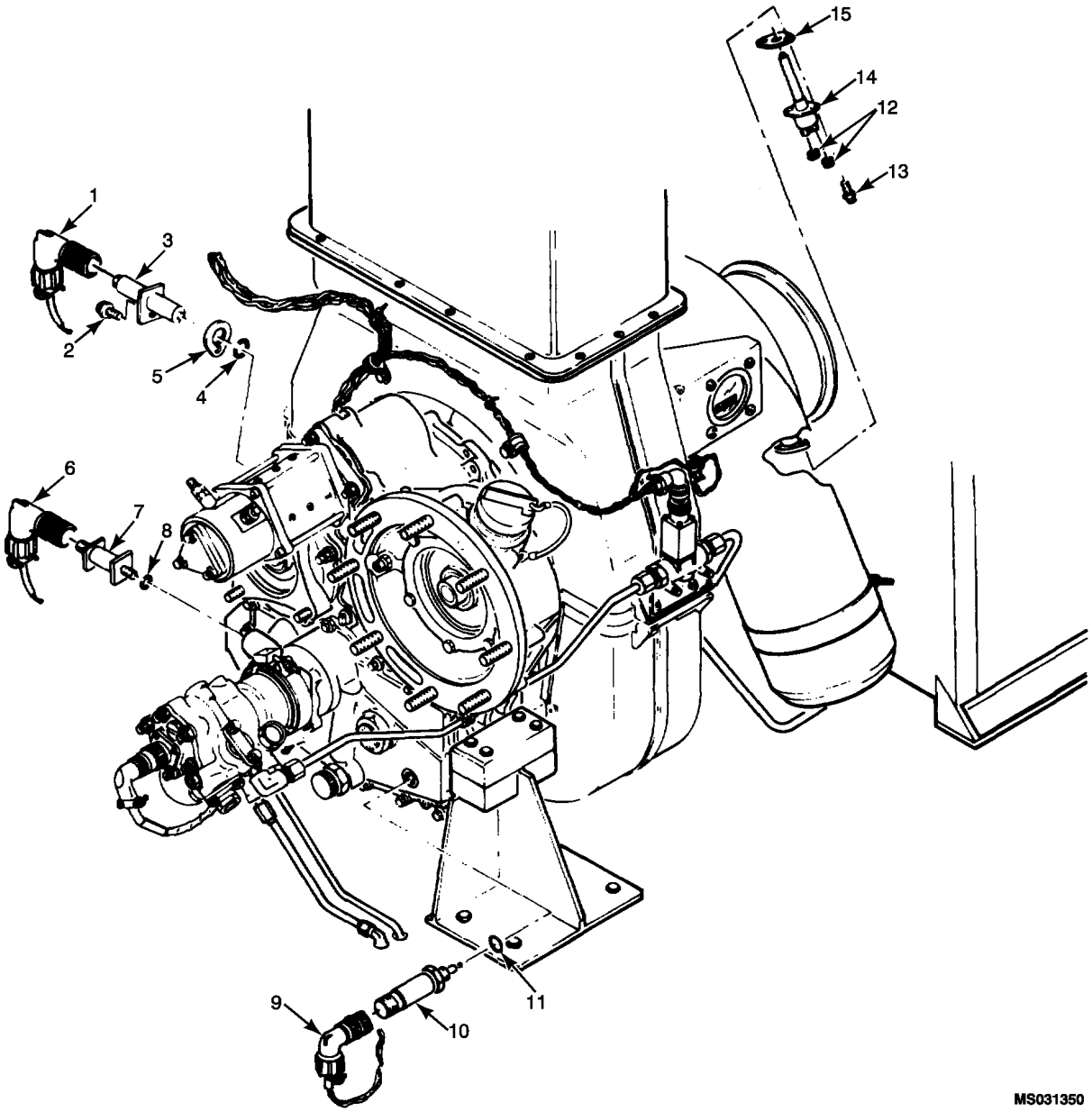
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Wire, Nonelectrical (WP 0170 00, Item 60)

References

WP 0012 00
WP 0021 00
WP 0034 00



1. Electrical Connector	6. Electrical Connector	11. Packing
2. Bolt	7. Low Oil Pressure Switch	12. Lock Nuts
3. Speed Sensor	8. Packing	13. Bolts
4. Packing	9. Electrical Connector	14. Thermocouple
5. Shim Set	10. High Oil Temperature Switch	15. Gasket

Figure 1. Engine DC Control Components.

REMOVAL

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

Refer to WP 0012 00, trouble shooting procedure 114. SPEED SENSOR MALFUNCTION for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Remove Hydraulic Access Panel and Engine Access Panel (WP 0021 00).
3. Cut and remove lock wire from speed sensor electrical connector (Figure 1, Item 1).
4. Disconnect electrical connector from speed sensor (Figure 1, Item 3).

CAUTION

Use care when removing speed sensor since shim is reusable if not damaged.

5. Remove bolt (Figure 1, Item 2), then remove speed sensor (Figure 1, Item 3) with packing (Figure 1, Item 4) and shim set (Figure 1, Item 5). Retain shim set to install speed sensor.

TEST AND INSPECTION

1. Inspect sensor housing for dents and cracks. No dents or cracks are allowed.
2. Inspect connector for bent or damaged pins. No bent or damaged pins are allowed.
3. Inspect mounting flange for cracks and distorted mounting holes. No cracks or distortion is allowed.
4. Inspect shim set (Figure 1, Item 5) for heavily marred surfaces and/or separated laminations. If shim is damaged, discard and proceed to step 1 of the installation process. If shim is usable, proceed to step 2 of the installation process.

INSTALLATION

1. If a new shim set is required, reorder shim set. If shim set passes inspection in step 4 of the inspection process, proceed to step 2.

CAUTION

Improper shim thickness could result in damage to speed sensor and/or gear teeth.

2. Install shim set (Figure 1, Item 5) removed in step 3 of the removal process, and packing (Figure 1, Item 4) on speed sensor (Figure 1, Item 3).
3. Install speed sensor (Figure 1, Item 3) with assembled items into gearbox and secure with bolt (Figure 1, Item 2). Tighten bolt to a torque value of 35 inch-pounds.
4. Connect electrical connector to speed sensor (Figure 1, Item 3) and lock wire connector.
5. Install engine access cover.

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

LOW OIL PRESSURE SWITCH

INITIAL SETUP:

Tools and Special Tools

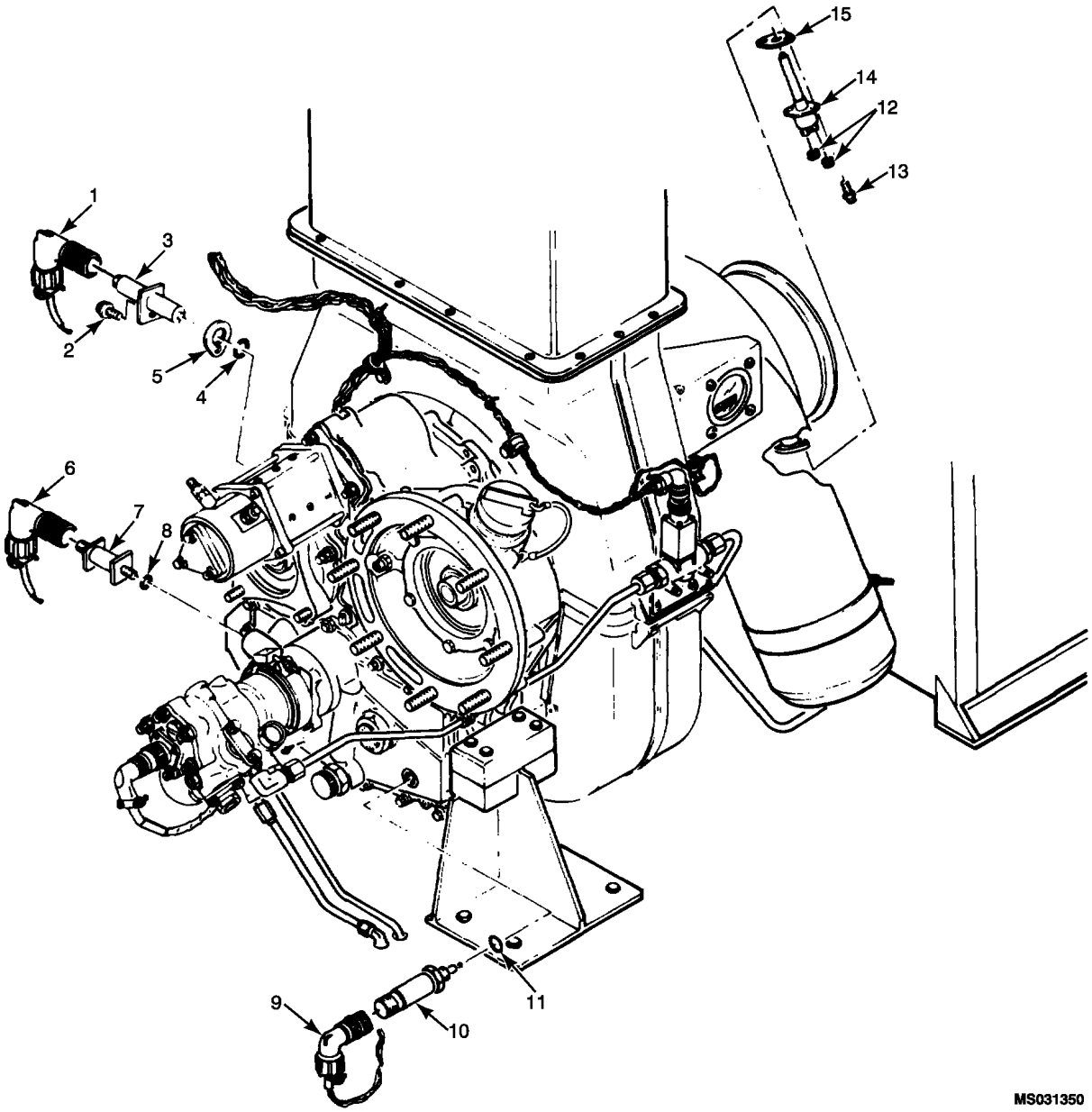
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK
(WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Wire, Nonelectrical (WP 0170 00, Item 60)

References

WP 0012 00
WP 0021 00
WP 0034 00



1. Electrical Connector	6. Electrical Connector	11. Packing
2. Bolt	7. Low Oil Pressure Switch	12. Lock Nuts
3. Speed Sensor	8. Packing	13. Bolts
4. Packing	9. Electrical Connector	14. Thermocouple
5. Shim Set	10. High Oil Temperature Switch	15. Gasket

Figure 1. Engine DC Control Components .

TEST AND INSPECTION

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

Refer to WP 0012 00, trouble shooting procedure 115. LOW OIL PRESSURE SWITCH MAL FUNCTION for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Remove engine and hydraulic access covers (WP 0021 00).
3. Inspect switch (Figure 1, Item 7) for damage.
4. Check that switch is securely mounted to engine.
5. Check that electrical connector (Figure 1, Item 6) is securely attached to switch.

REMOVAL

1. Cut and remove lockwire from low oil pressure electrical connector (Figure 1, Item 6).
2. Disconnect electrical connector (Figure 1, Item 6) from low oil pressure switch (Figure 1, Item 7).
3. Remove switch (Figure 1, Item 7) with packing (Figure 1, Item 8) by turning switch counterclockwise. Discard packing.

INSTALLATION

1. Install low oil pressure switch (Figure 1, Item 7) with new packing (Figure 1, Item 8). Lock wire low oil pressure switch (Figure 1, Item 7).
2. Connect electrical connector (Figure 1, Item 6) to switch (Figure 1, Item 7). Lock wire electrical connector (Figure 1, Item 6).
3. Install engine and hydraulic access covers (WP 0021 00).

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

HIGH OIL TEMPERATURE SWITCH

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

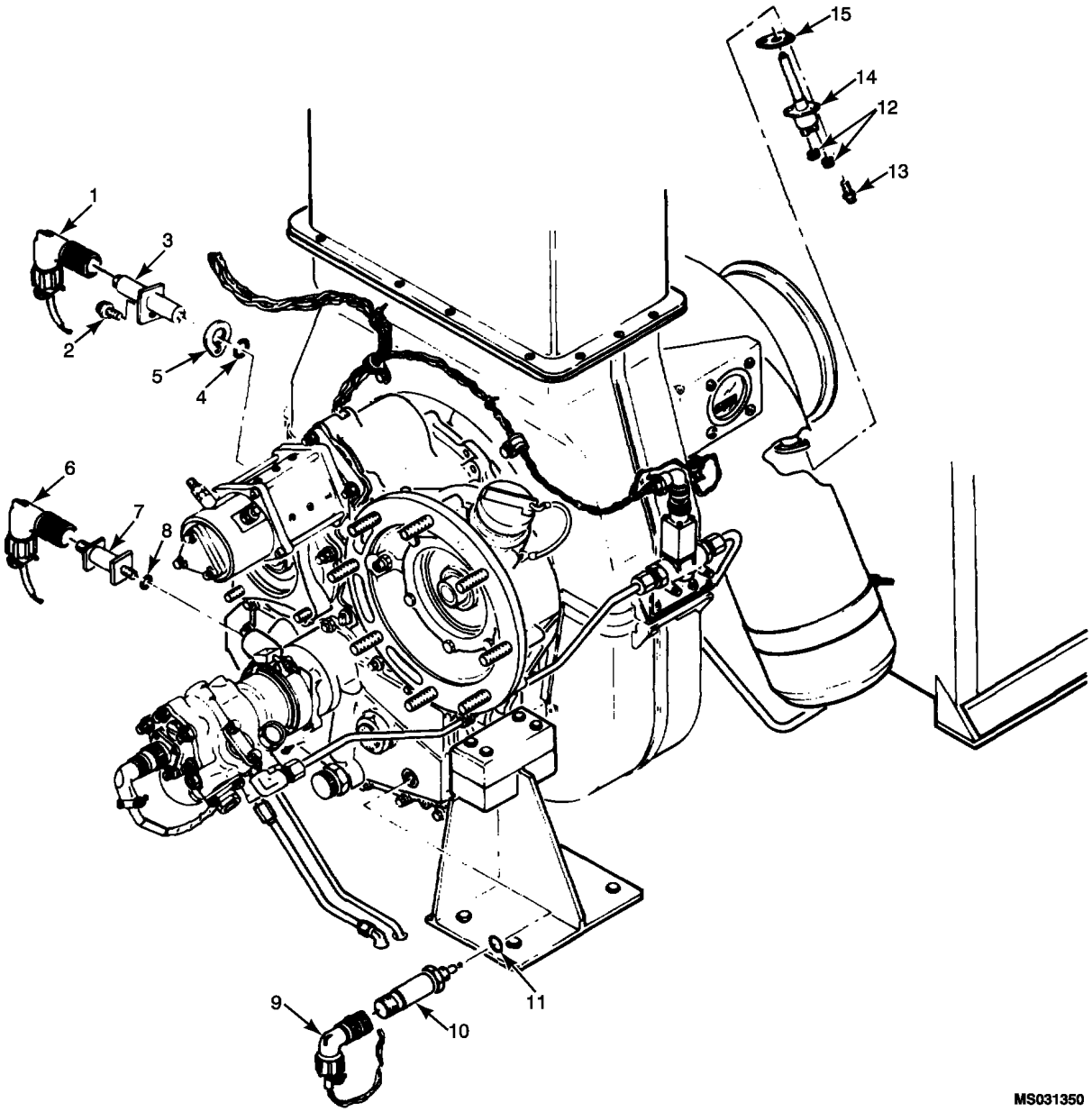
Lubricating Oil, Aircraft Turbine (WP 0170 00, Item 32)
Lubricating Oil, Aircraft Turbine (WP 0170 00, Item 33)

Materials/Parts (cont.)

Wire, Nonelectrical (WP 0170 00, Item 60)

References

WP 0012 00
WP 0015 00
WP 0034 00



1. Electrical Connector	6. Electrical Connector	11. Packing
2. Bolt	7. Low Oil Pressure Switch	12. Lock Nuts
3. Speed Sensor	8. Packing	13. Bolts
4. Packing	9. Electrical Connector	14. Thermocouple
5. Shim Set	10. High Oil Temperature Switch	15. Gasket

Figure 1. Engine DC Control Components.

TEST AND INSPECTION

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

Refer to WP 0012 00, trouble shooting procedure 116. HIGH OIL TEMPERATURE SWITCH MALFUNCTION for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Inspect high oil temperature switch (Figure 1, Item 10) for damage.
3. Check that switch is securely mounted to engine.
4. Check that electrical connector (Figure 1, Item 9) is securely attached to switch, and that lockwire is intact.

REMOVAL

1. Drain oil from gearcase before removing high oil temperature switch (WP 0015 00, Lubrication, Steps 2 through 6).
2. Cut and remove lockwire from high oil temperature switch electrical connector.
3. Disconnect electrical connector (Figure 1, Item 9) from switch (Figure 1, Item 10).
4. Cut and remove lockwire from high oil temperature switch.
5. Remove high oil temperature switch (Figure 1, Item 10) with packing (Figure 1, Item 11). Discard packing.

INSTALLATION

1. Install high oil temperature switch (Figure 1, Item 10) with new packing (Figure 1, Item 11).
2. Lock wire high oil temperature switch.
3. Connect electrical connector (Figure 1, Item 9) to switch.
4. Lock wire electrical connector.
5. Add oil to gearcase assembly (WP 0015 00, Lubrication, Steps 7 through 10).

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

THERMOCOUPLE

INITIAL SETUP:

Tools and Special Tools

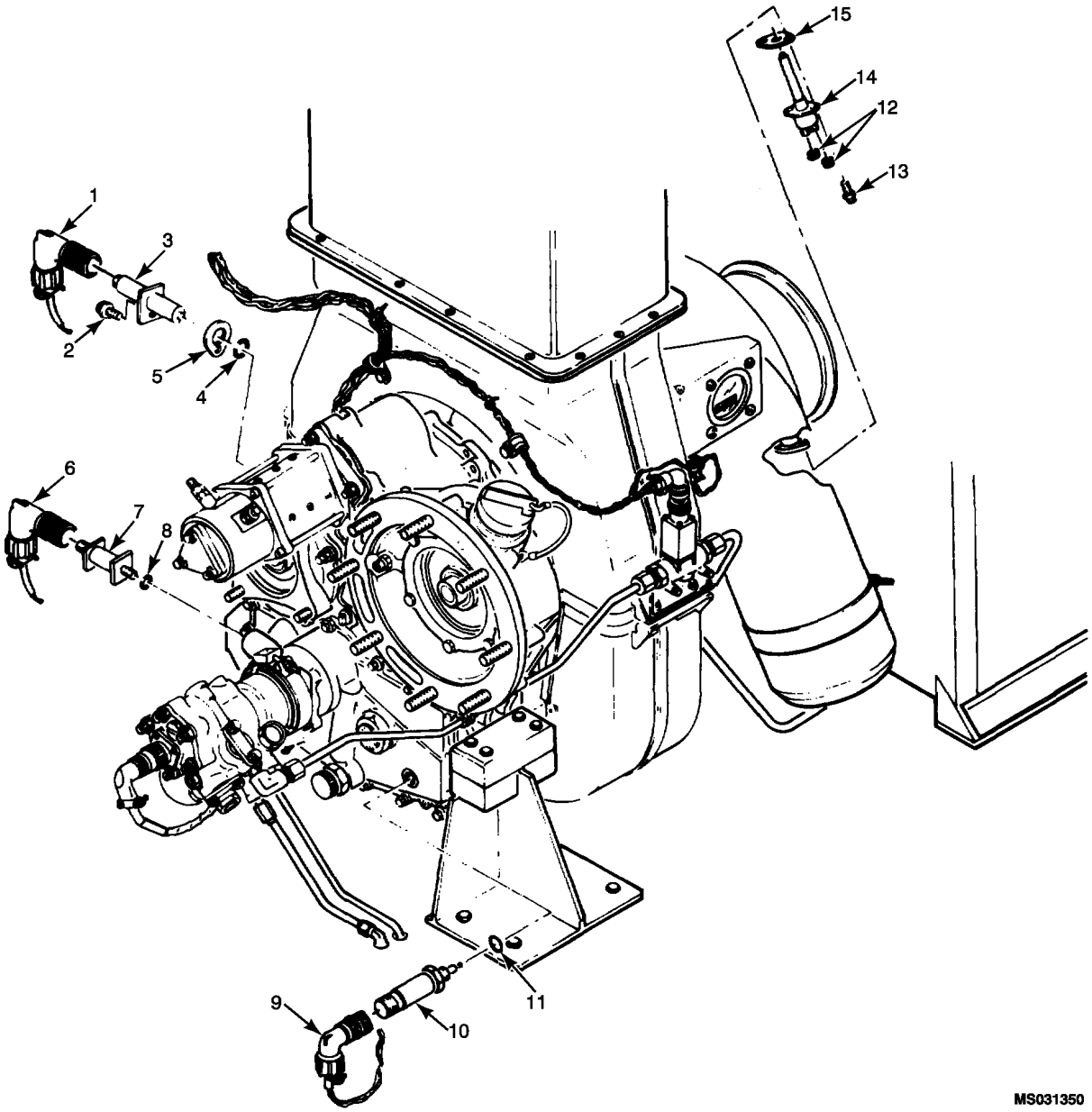
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Anti-Seize Compound (WP 0170 00, Item 3)

References

WP 0012 00
WP 0034 00



1. Electrical Connector	6. Electrical Connector	11. Packing
2. Bolt	7. Low Oil Pressure Switch	12. Lock Nuts
3. Speed Sensor	8. Packing	13. Bolts
4. Packing	9. Electrical Connector	14. Thermocouple
5. Shim Set	10. High Oil Temperature Switch	15. Gasket

Figure 1. Engine DC Control Components.

REMOVAL

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

Refer to WP 0012 00, trouble shooting procedure 117. THERMOCOUPLE MALFUNCTION for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Remove lock nuts (Figure 1, Item 12) and tag and disconnect electrical leads from thermocouple (Figure 1, Item 14).
3. Remove bolts (Figure 1, Item 13), and remove thermocouple (Figure 1, Item 14) and gasket (Figure 1, Item 15). Discard gasket.

TEST AND INSPECTION

1. Inspect thermocouple for damaged or worn threads on terminal posts. No damaged or worn threads are allowed.
2. Inspect thermocouple for distorted flange tube or tube holes. No distortion is allowed.

INSTALLATION

1. Apply a light coat of anti-seize compound to threads of bolts (Figure 1, Item 13).
2. Install gasket (Figure 1, Item 15) and thermocouple (Figure 1, Item 14) and secure using bolts (Figure 1, Item 13). Tighten bolts to a torque value of 35 inch-pounds.
3. Connect electrical leads to thermocouple (Figure 1, Item 14) and secure with lock nuts (Figure 1, Item 12).

END OF WORK PACKAGE

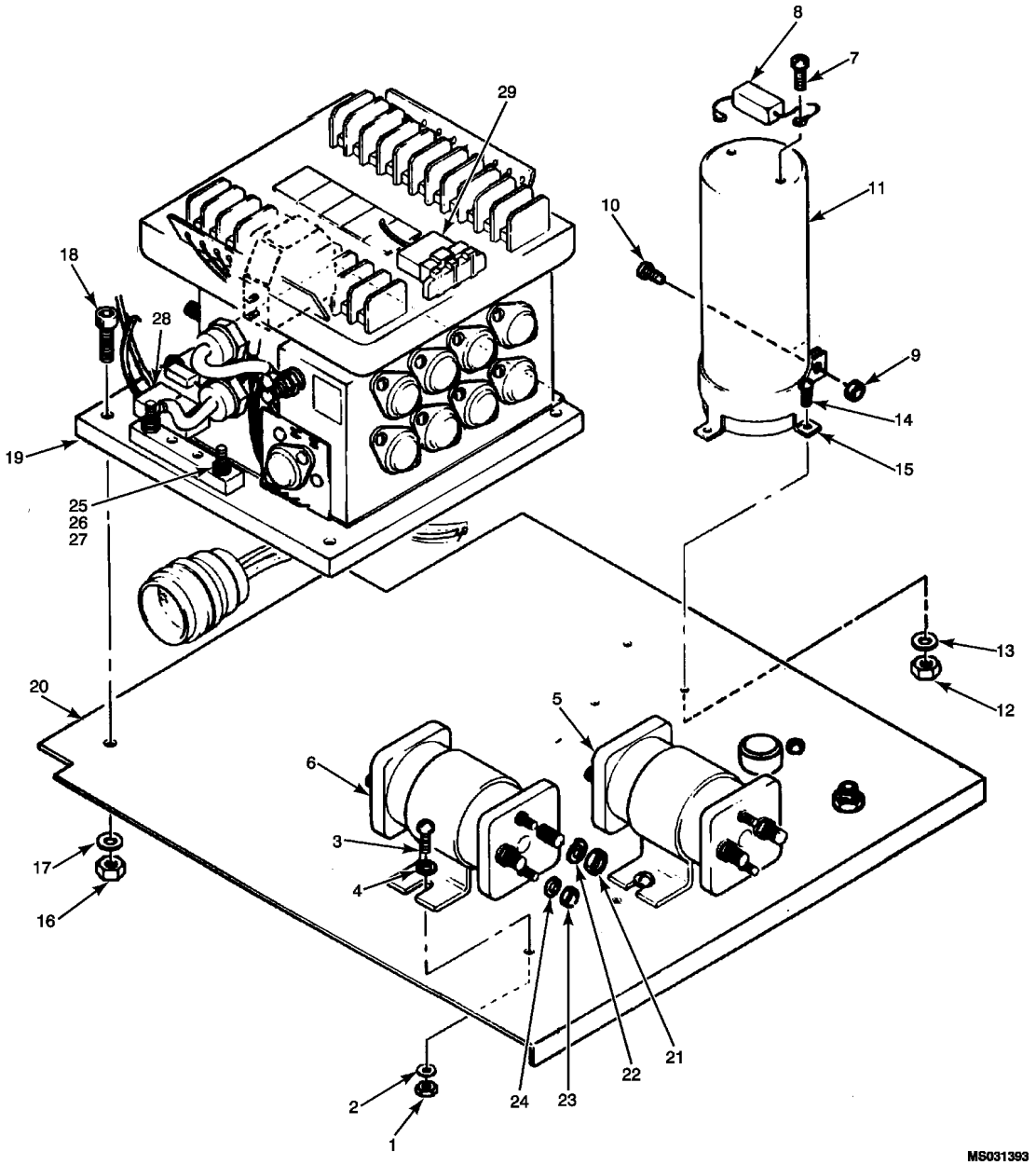
POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

CONTROL RELAYS (K1-K2), MOTOR CONTROLLER

INITIAL SETUP:

Tools and Special Tools	References
Aviation Foot Locker, AFL (WP 0171 00, Item 3)	WP 0002 00
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)	WP 0022 00
Tool Set, Aviation Unit (WP 0171 00, Item 42)	WP 0034 00
	WP 0035 00

REMOVAL



1. Nut	9. Nut	17. Washer	25. Nut
2. Lock Washer	10. Screw	18. Bolt	26. Lock Washer
3. Bolt	11. Capacitor	19. Motor Controller	27. Flat Washer
4. Flat Washer	12. Nut	20. Electrical Upper Tray Assembly	28. 28V Key Switch Input
5. Forward Relay (2K1)	13. Washer	21. Nut	29. Electrical Connector
6. Reverse Relay (2K2)	14. Screw	22. Lock Washer	30. Upper Tray
7. Screw	15. Mounting Clamp	23. Nut	
8. Resistor	16. Nut	24. Lock Washer	

Figure 1. Upper Electrical Tray Components.

REMOVAL – CONTINUED

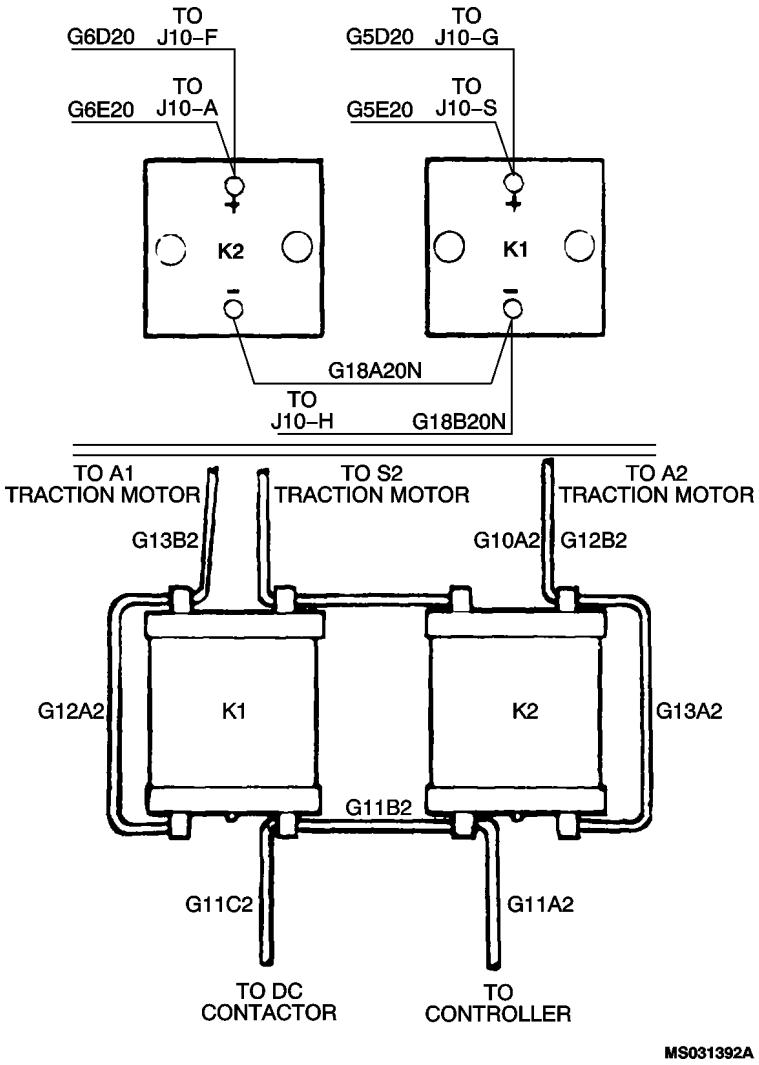


Figure 2. Control Relays K1 and K2 Connections.

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

J-1 and P-1 is **ONLY** on MEP 83-360E.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Remove roof (WP 0022 00).
3. Open electrical trays access door (WP 0002 00, Figure 1, Item 9).
4. K1 and K2 control relays (Figure 1, Item 5 and Item 6) are located on front of upper tray assembly (Figure 1, Item 20).

REMOVAL – CONTINUED

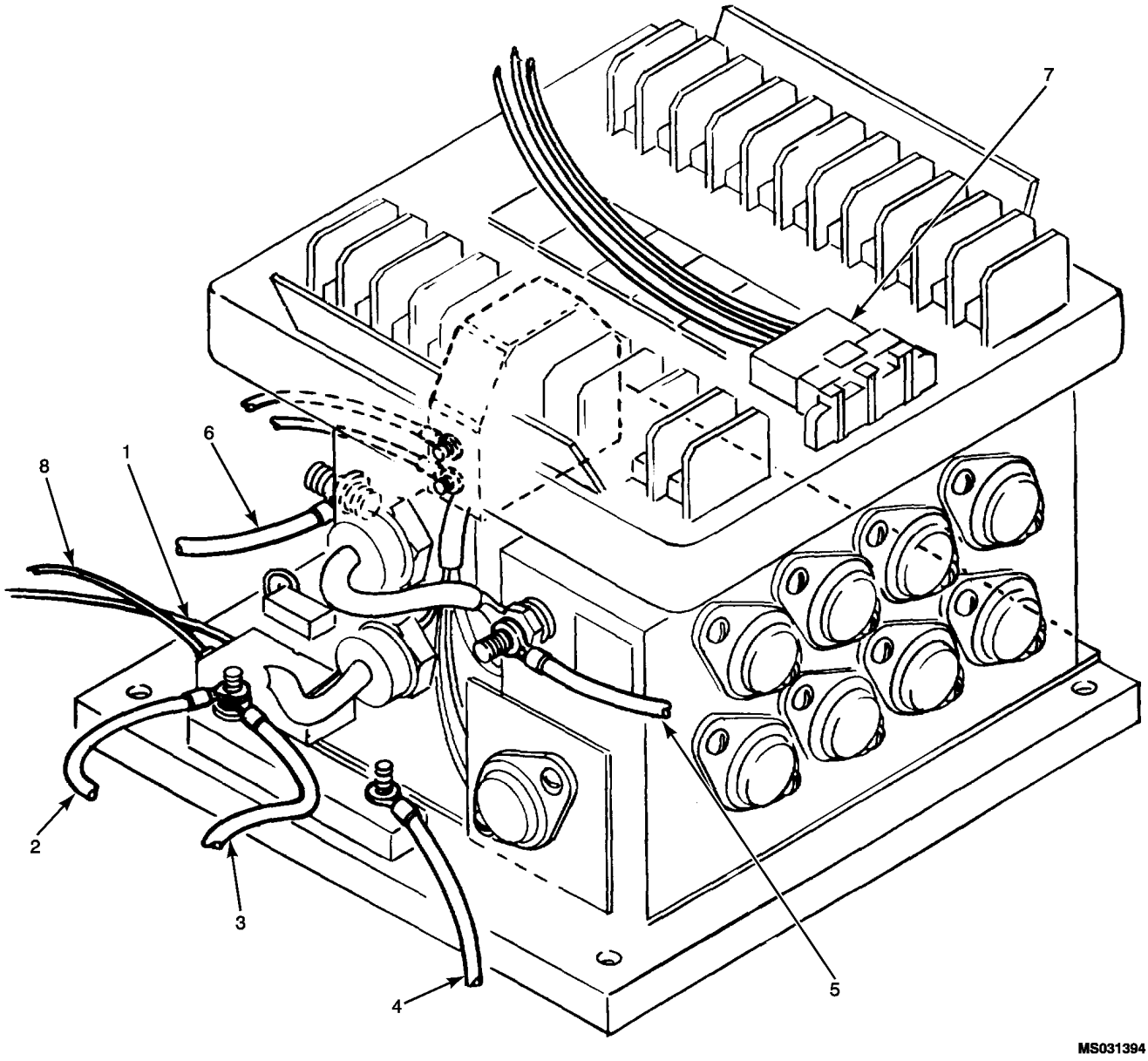
5. Remove four nuts (Figure 1, Item 21) and lock washers (Figure 1, Item 22), and four nuts (Figure 1, Item 23) and lock washers (Figure 1, Item 24) from front of K1 and K2 control relays. Tag and remove wires.
6. Remove corresponding nuts and lock washers from rear of K1 and K2 control relays.
7. Remove nuts (Figure 1, Item 1), lock washers (Figure 1, Item 2), screws (Figure 1, Item 3), and flat washers (Figure 1, Item 4), securing K1 and K2 control relays (Figure 1, Item 5 and Item 6) from electrical upper tray assembly (Figure 1, Item 20).

INSTALLATION

1. Position K1 and K2 control relays (Figure 1, Item 5 and Item 6) on electrical upper tray assembly (Figure 1, Item 20). Ensure relays are properly positioned (front and rear).
2. Install flat washers (Figure 1, Item 4) on screws (Figure 1, Item 3) and install screws through holes in electrical upper tray (Figure 1, Item 20). Install lock washers (Figure 1, Item 2) and nuts (Figure 1, Item 1) on screws (Figure 1, Item 3).
3. Connect external wires to front of forward control relay K1 (Figure 1, Item 5) and reverse control relay K2 (Figure 1, Item 6). Refer to Figure 2 for proper connections.
4. Install lock washers (Figure 1, Item 24), nuts (Figure 1, Item 23), lock washers (Figure 1, Item 22) and nuts (Figure 1, Item 21) on front of K1 and K2 control relays (Figure 1, Item 5 and Item 6).
5. Connect external wires to rear of K1 and K2 control relays. Refer to Figure 2 for proper connections.
6. Install corresponding lock washers and nuts to rear of K1 and K2 control relays.

REMOVAL

MOTOR CONTROLLER



1. Wire No. G3G20 to J10-B
2. Wire No. G15A2 to S2 of Traction Motor
3. Wire No. G10A2 to 3K-2
4. Wire No. G21A2N to 3K-2 to GND Stud
5. Wire No. G14A2 to S1 of Traction Motor
6. Wire No. G11A2 to 3K2
7. Connector (Wire Nos. G7A20, G8A20, and G9A20) to Speed/Direction Control Assembly
8. Wire No. G30A20 to TB2-16

Figure 3. Motor Controller Connections.

REMOVAL – CONTINUED

MOTOR CONTROLLER – CONTINUED

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Remove roof (WP 0022 00).
3. Open electrical trays access door (WP 0032 00, Figure 2, Item 1).
4. Remove nuts (Figure 1, Item 25), lock washers (Figure 1, Item 26) and flat washers (Figure 1, Item 27) from terminals.
5. Tag and remove wires from terminals S-1, S-2, POS, and NEG.
6. Tag and remove slide in wires from 28V key switch input terminal (Figure 1, Item 28).
7. Tag and remove electrical connector (Figure 1, Item 29) from top of connector.

CAUTION

It is necessary to push wires and cables toward front of AGPU to allow space for motor controller to be removed. Do not pick up motor controller by small component parts or breakage may occur.

8. Remove nuts (Figure 1, Item 16), lock washers (Figure 1, Item 17), screws (Figure 1, Item 18). Remove motor controller (Figure 1, Item 19) from upper tray (Figure 1, Item 30).

INSTALLATION

1. Place motor controller (Figure 1, Item 19) in proper position on upper tray (Figure 1, Item 30). Insert screws (Figure 1, Item 18) through mounting holes in motor controller and upper tray. Install lock washers (Figure 1, Item 17) and nuts (Figure 1, Item 16) on screws. Tighten nuts securely.
2. Install electrical connector (Figure 3, Item 7) to top of controller (refer to Figure 3 for proper connections).
3. Install slide in wire No. G3G20 (Figure 3, Item 1) and G30A20 (Figure 3, Item 8) to 28 V key switch terminal.
4. Connect wires to terminals S-1, S-2, POS and NEG.
5. Install flat washers (Figure 1, Item 27), lock washers (Figure 1, Item 26) and nuts (Figure 1, Item 25) to terminals S-1, S-2, POS and NEG.
6. Adjust motor controller as follows:
    a. Insure the AGPU switches and traction motor are set to the alternate (battery) propulsion mode, refer to TM 1-1730-229-13, Operators Instructions.

INSTALLATION – CONTINUED

CAUTION

During this operation and test, AGPU will be moving.

NOTE

Removal of the roof (WP 0022 00) will allow easy access to the motor controller for the adjustments.

NOTE

Two people are required for the motor controller adjustments. One person to operate the speed/direction hand grip assembly and one to make adjustments at the motor controller.

b. Set MASTER switch to ON.

c. Set BATTERY OUTPUT switch to ON and observe that battery voltage meter reads in green range.

d. Set the drive switch to ON and check that the drive lamp is illuminated. If drive lamp is not illuminated ensure drive gear is engaged.

e. Release the tow bar and lower it to the operating position.

f. Press down and hold the dead-man switch.

g. Slowly rotate the speed/directional hand grip assembly in the forward direction only enough to engage the forward relay (3K1) on the upper tray. Do not rotate the speed/directional hand grip assembly after engaging the relay. Hold the speed/directional hand grip assembly at this position until the volts adjustment is completed.

CAUTION

Perform all trim pot adjustments in the order shown. Adjustments are made to the trim pots located on the top of the motor controller.

h. Volts adjust: With the speed/direction hand grip assembly set per step (e), adjust the volts adjust trim pot in the direction of the arrow until you hear the propulsion motor start to whine. The motor should whine and attempt to crawl the AGPU forward. Do not adjust further.

NOTE

The speed/direction hand grip assembly must be released to perform the remaining adjustments.

i. Current limiter: Turn the current limiter trim pot the full direction of the arrow.

j. Accelerator: Turn the accelerator trim pot in the full direction of the arrow and then approximately 1/2 turn in the reverse direction.

INSTALLATION – CONTINUED

k. Max brake: Turn the max brake trim pot in the full direction of the arrow and then 1/2 turn in the reverse direction.

NOTE

The trim pots are very sensitive, so make your adjustments accordingly.

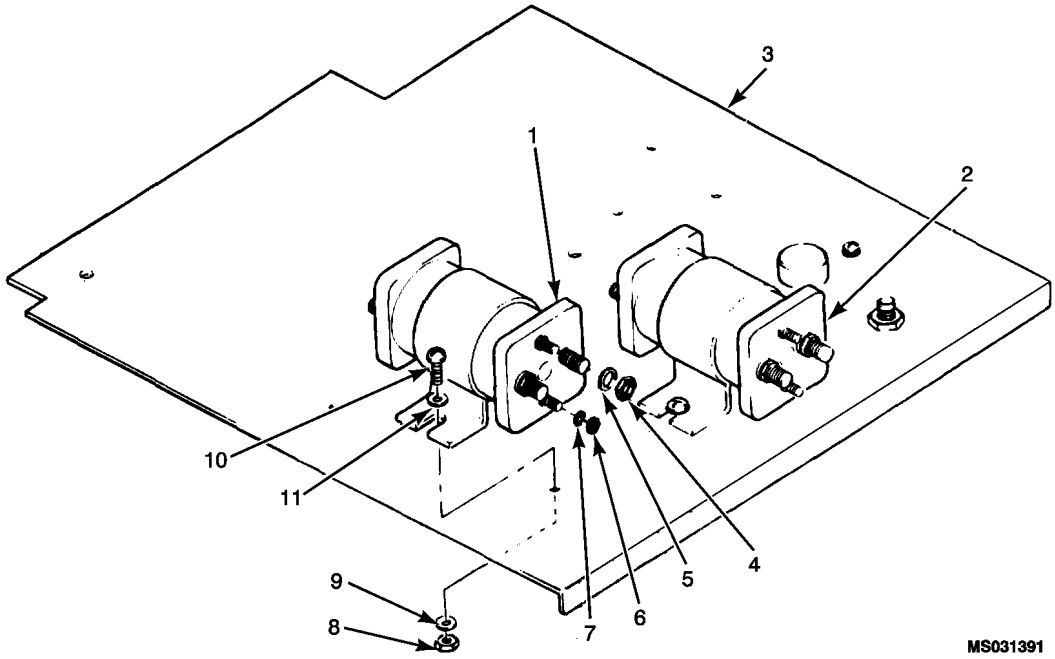
l. Brake: Turn the brake trim pot approximately 1/2 to 1/4 turn in the direction of the arrow. The operator at the speed/direction hand grip assembly should attempt to engage the propulsion motor at this time. The AGPU should propel in a slow, smooth manner. The operator should verify the AGPU will brake properly by turning the speed/direction hand grip assembly and then releasing the hand grip momentarily and then reversing the hand grip assembly. The AGPU, if adjusted properly, will slow, stop, and reverse without violent movement. Should the AGPU fail to slow, stop, and reverse smoothly, adjust the brake trim pot in the direction of the arrow until the unit brakes smoothly. If the movement is violent (e.g., the motor squeals while trying to reverse), turn the brake trim pot in the opposite direction of the arrow.

7. Perform a full MOC (WP 0016 00) and ensure proper operation.
8. To secure the AGPU, perform the following steps:
   a. Raise the tow bar to the vertical locked position.
   b. Pull the parking brake lever down to a horizontal position to set the rear brakes.
   c. Set the BATTERY and DRIVE switches to the OFF position.
   d. Set MASTER SWITCH to OFF position.
   e. Remove the quick release pin and push in the clutch lever at the rear of the AGPU to disengage the drive mechanism; reinstall the quick release pin.
   f. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.

Securing AGPU After Operation

Perform After (A) PMCS steps in WP 0016 00.

REMOVAL



1. Relay K-1 (Reverse)	5. Lockwasher	9. Lockwasher
2. Relay K-2 (Forward)	6. Nut	10. Screw
3. Upper Tray	7. Lockwasher	11. Washer, Flat
4. Nut	8. Nut	

Figure 4. Control Relays K1 and K2.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Remove roof (WP 0022 00).
3. Open electrical trays access door (WP 0032 00).
4. K-1 and K-2 control relays (Figure 4, Item 1 and 2) are located on front of upper tray assembly (Figure 4, Item 3).
5. Remove nuts (Figure 4, Item 4), lock washers (Figure 4, Item 5), nuts (Figure 4, Item 6), and lock washers (Figure 4, Item 7) from front of K-1 and K-2 control relays (Figure 4, Item 1 and 2).
6. Tag and remove wires from front of K-1 and K-2 control relays (Figure 4, Item 1 and 2).
7. Remove nuts (Figure 4, Item 4), lock washers (Figure 4, Item 5) from rear of K-1 and K-2 control relays (Figure 4, Item 1 and 2).
8. Tag and remove wires from rear of K-1 and K-2 control relays (Figure 4, Item 1 and 2).
9. Remove nuts (Figure 4, Item 8), lock washers (Figure 4, Item 9), screws (Figure 4, Item 10), and flat washers (Figure 4, Item 11), securing K-1 and K-2 control relays (Figure 4, Item 1 and 2) from electrical compartment upper tray (Figure 4, Item 3).

INSTALLATION

1. Position K-1 and K-2 control relays (Figure 4, Item 1 and 2) on upper tray (Figure 4, Item 3). Ensure relays are properly positioned (front and rear).
2. Install flat washers (Figure 4, Item 11) on screws (Figure 4, Item 10) and install screws through holes in upper tray (Figure 4, Item 3). Install lock washers (Figure 4, Item 9) and nuts (Figure 4, Item 8) on screw (Figure 4, Item 10).

INSTALLATION – CONTINUED

3. Connect external wires to rear of K-1 (Figure 4, Item 1) and K-2 (Figure 4, Item 2) control relays. Refer to Figure 2 for proper connections.
4. Install lock washers (Figure 4, Item 5) and nuts (Figure 4, Item 4).
5. Connect external wires to front of K-1 and K-2 control relays (Figure 4, Item 1 and 2).
6. Install lock washers (Figure 4, Item 5 and 7), nuts (Figure 4, Item 4 and 6).
7. Perform MOC and adjust motor controller if needed (TM 1-1730-229-13, Operator Instructions and WP 0143 00).

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

CONTROL RELAYS (3K1-3K3)

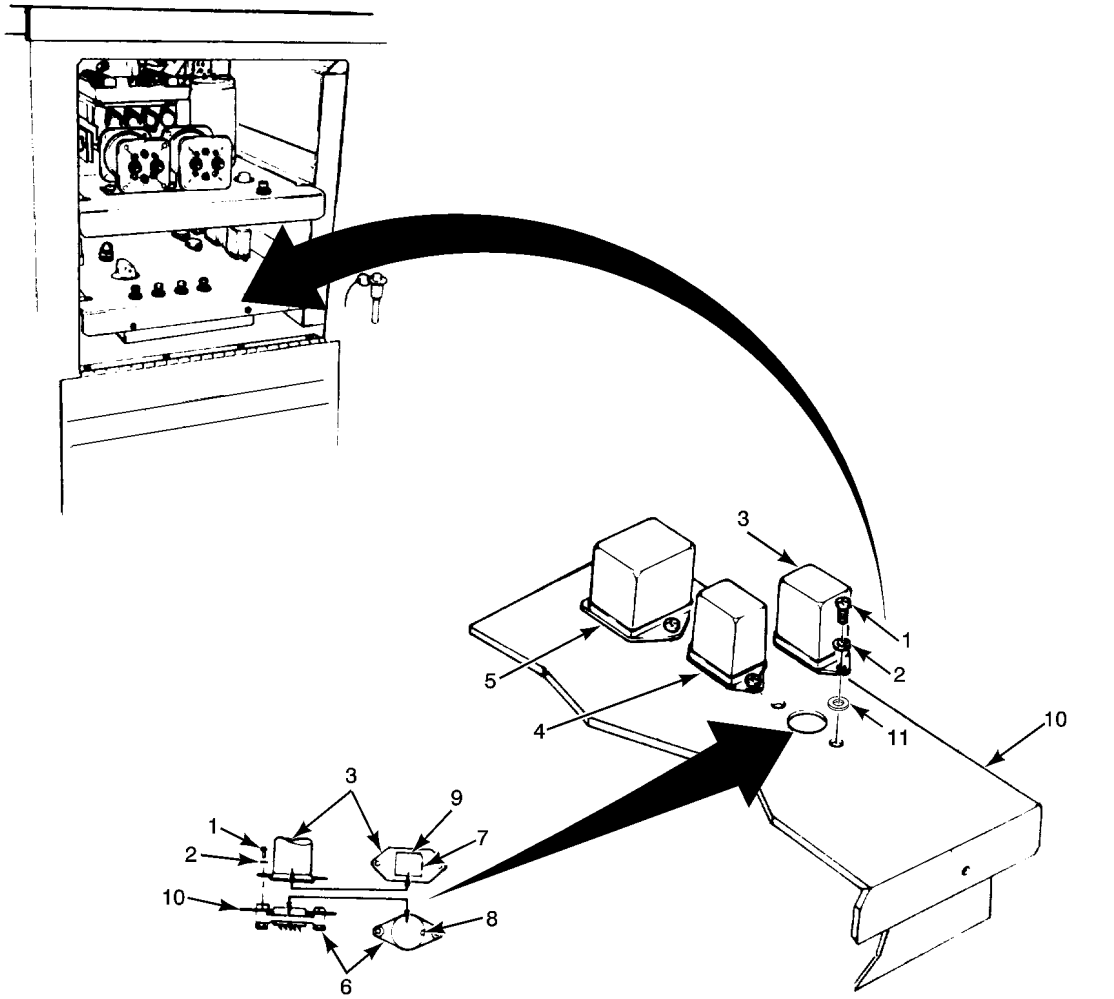
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0012 00
WP 0032 00
WP 0034 00



1. Screw
2. Lock Washer
3. 95% Enable Relay 3K1
4. Starter Latching Relay 3K2
5. Battery/Charger Transfer Relay 3K3
6. Relay Socket
7. Relay Locating Pin
8. Socket Locating Pin
9. Seal
10. Lower Electrical Tray

Figure 1. Control Relay.

TEST AND INSPECTION

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.

NOTE

Refer to WP 0012 00, trouble shooting procedure 109. 95% ENABLE RELAY 3K1 MALFUNC TION, 110. STARTER LATCH RELAY 3K2 MALFUNCTION, and 111. BATTERY/CHARGER TRANSFER RELAY AND POWER DIODE MALFUNCTIONS for test.

2. Extend lower electrical tray (WP 0032 00).
3. Inspect relays (Figure 1, Items 3, 4, and 5) for dents or punctures. Replace damaged relays.
4. Check that relays are securely mounted. Tighten mounting screws (Figure 1, Item 1) as required.
5. Check that solder connections to relay sockets (Figure 1, Item 6) are secure. Make sure that no bare wires are touching ground.

NOTE

Removal and installation procedures are the same for control relays 3K1 through 3K3. 3K1 is illustrated.

REMOVAL

REMOVE CONTROL RELAYS (3K1 - 3K3)

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and extend lower electrical tray (WP 0032 00).
2. Remove mounting screws (Figure 1, Item 1) and lock washers (Figure 1, Item 2). Pull relay 3K1 (Figure 1, Item 3) straight up from relay socket (Figure 1, Item 6).

INSTALLATION

INSTALL CONTROL RELAYS (3K1- 3K3)

1. Check that seal (Figure 1, Item 9) on replacement relay is not damaged.
2. Hold replacement relay 3K1 (Figure 1, Item 3) so that relay locating pin (Figure 1, Item 7) is aligned with socket locating pin hole (Figure 1, Item 8). Insert relay into relay socket and push firmly into place.
3. Secure relay to socket with lock washers (Figure 1, Item 2) and mounting screws (Figure 1, Item 1).
4. Push lower electrical tray in and secure with quick release pins.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

ELECTRONIC CONTROL UNIT (ECU)

INITIAL SETUP:

Tools and Special Tools

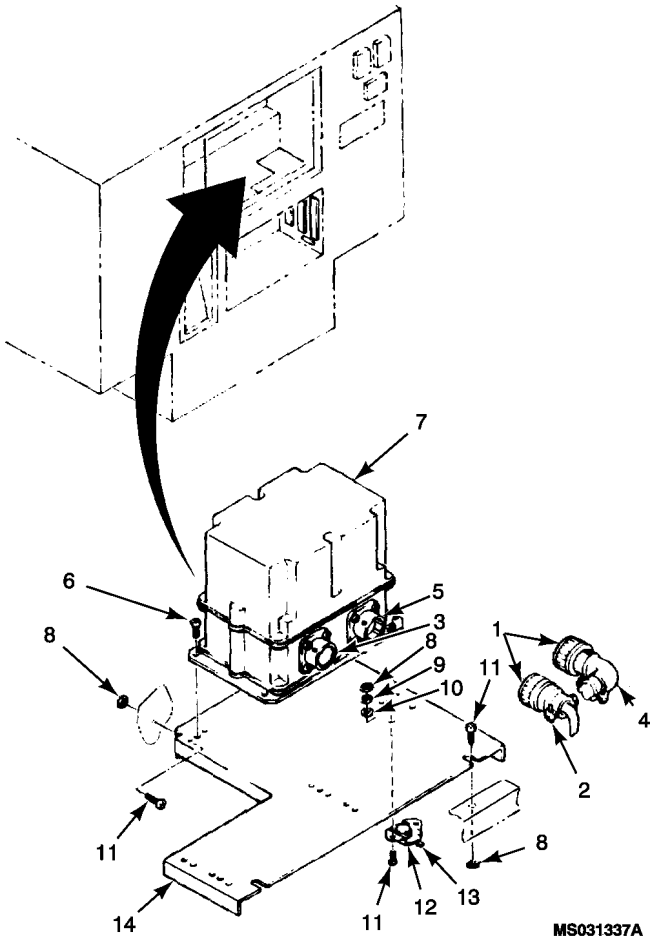
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Electronic Control Unit ()

References

WP 0009 00
WP 0012 00
WP 0013 00
WP 0032 00
WP 0034 00



1. Locking Collar	6. Screw	11. Screw
2. Connector P2	7. Electronic Control Unit (ECU)	12. Compartment Temperature Switch
3. Connector J2	8. Nut	13. Solder Lug
4. Connector P4	9. Lock Washer Nut	14. Tray
5. Connector J1	10. Washer	

Figure 1. Electronic Control Unit and Compartment Temperature Switch.

TEST AND INSPECTION

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

Ensure battery is disconnected before performing this WP.

NOTE

Refer to WP 0009 00, trouble shooting procedures 9. ENGINE MOTORS ABOVE 10% RPM BUT NO LIGHT OFF, 15. ENGINE ACCELERATES TO 100% RPM BUT RPM AND EGT FLUCTUATE (PNEUMATIC POWER OFF), 17. ENGINE SHUTS DOWN DURING NORMAL OPERATION, 18. ENGINE DOES NOT SHUT DOWN WHEN EMERG STOP SWITCH IS PRESSED, faultproc_020_title, 21. GTE CONTROL SHORT INDICATOR LIT - ENGINE SHUT DOWN, 23. GTE OVER SPEED INDICATOR LIT - ENGINE SHUT DOWN, 25. GTE WARNING INDICATOR (CONTROL SHORT, HIGH EGT, OVER SPEED, HI OIL TEMP OR LOW OIL PRESS) - ENGINE CONTINUES TO RUN, 26. GTE EGT METER READS IN RED BAND AND ENGINE CONTINUES TO RUN ABOVE 95% RPM, 27. GTE % RPM METER READS IN RED BAND, WP 0012 00, 65. GTE LOW OIL PRESS INDICATOR NOT LIT - MASTER SWITCH ON AND ENGINE NOT RUNNING, 67. ENGINE DOES NOT MOTOR WITH ENGINE CONTROL SWITCH HELD IN START POSITION (MASTER SWITCH ON AND ALL OTHER SWITCHES OFF), 70. GTE % RPM METER INDICATION DEFECTIVE, 73. DC POWER ON INDICATOR OFF (ENGINE UP TO SPEED AND DC POWER SWITCH ON), and WP 0013 00, 154. PSIG PNEUMATIC METER READS 0 OR LOW (PNEUMATIC POWER SWITCH ON, ENGINE UP TO SPEED, AND EGT LESS THAN 1200 °F) for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Lower the control panel (WP 0032 00).
3. Inspect ECU (Figure 1, Item 7) for cracks. Replace if cracked.
4. Check that unit is tightly sealed. Tighten any loose screws.
5. Check for security of installation. Tighten three mounting screws (Figure 1, Item 6) as required.
6. Check that harness connector P2 (Figure 1, Item 2) and harness connector P4 (Figure 1, Item 4) are securely connected to the ECU. Tighten locking collars (Figure 1, Item 1).

REMOVAL

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Lower the control panel (WP 0032 00). Disconnect control panel support cable and lower control panel onto access door.
3. Turn locking collar (Figure 1, Item 1) counterclockwise and disconnect harness connectors P4 (Figure 1, Item 4) from ECU connector J1 (Figure 1, Item 5).
4. Disconnect wiring harness connector P2 (Figure 1, Item 2) from ECU connector J2 (Figure 1, Item 3).
5. Remove three screws (Figure 1, Item 6). Lift ECU (Figure 1, Item 7) from electrical bay subfloor.

INSTALLATION

1. Inspect nutplates on electrical bay subfloor. If any of the three nutplates are missing or damaged, notify maintenance supervisor.
2. Set ECU (Figure 1, Item 7) on electrical bay subfloor so that connectors J1 (Figure 1, Item 5) and J2 (Figure 1, Item 3) are accessible. Fasten ECU to subfloor with three screws (Figure 1, Item 6).
3. Install harness connector P4 (Figure 1, Item 4) on ECU J1 (Figure 1, Item 5). Turn locking collar (Figure 1, Item 1) clockwise.
4. Install harness connector P2 (Figure 1, Item 2) on ECU J2 (Figure 1, Item 3). Turn locking collar (Figure 1, Item 1) clockwise.

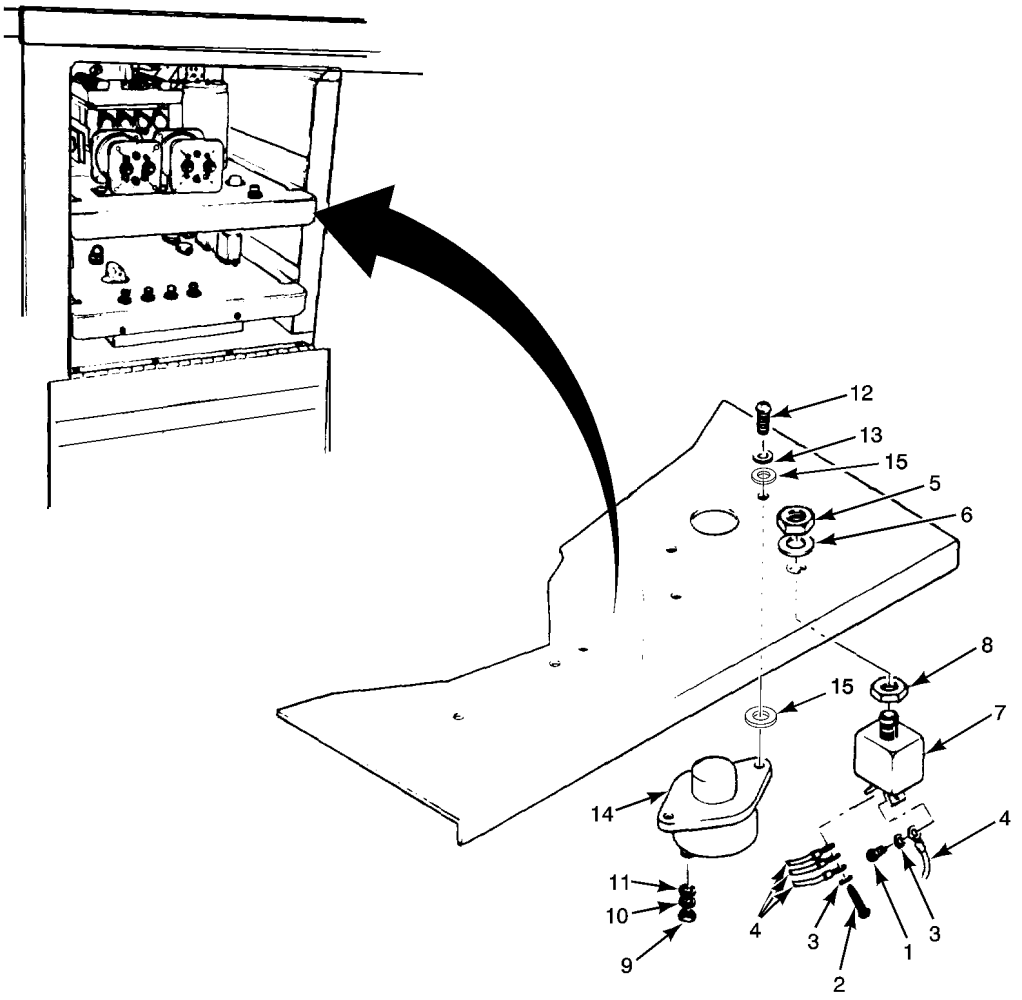
END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

BATTERY CHARGER CIRCUIT BREAKERS (2CB1-2CB2)

INITIAL SETUP:

Tools and Special Tools	References
Aviation Foot Locker, AFL (WP 0171 00, Item 3)	WP 0002 00
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)	WP 0012 00
Tool Set, Aviation Unit (WP 0171 00, Item 42)	WP 0032 00
	WP 0034 00



MS031345A

1. Terminal Screw	5. Nut	9. Nut	13. Lock Washer
2. Screw (Long)	6. Lock Washer	10. Lock Washer	14. 70 Amp Circuit Breaker
3. Lock Washer	7. 35 Amp Circuit Breaker	11. Washer	15. Flat Washer
4. Wire	8. Height Adjustment Nut	12. Screw	

Figure 1. Battery Charger Circuit Breaker.

TEST AND INSPECTION

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Open electrical trays access door (WP 0002 00, Figure 1, Item 9).

TEST AND INSPECTION – CONTINUED

3. Inspect circuit breakers (Figure 1, Item 7 and 14) on upper electrical tray for obvious damage. Replace any circuit breakers with broken or bent parts.
4. Check that circuit breaker is securely mounted to tray. Tighten height adjustment nut (Figure 1, Item 8) or screws (Figure 1, Item 12) as required.
5. Check that wires are securely connected to the circuit breaker. Tighten terminal screws (Figure 1, Item 1 and 2) and nuts (Figure 1, Item 9) as required.

REMOVAL

Removal of 35 AMP Circuit Breaker

NOTE

Refer to WP 0012 00, trouble shooting procedure 107. CHARGER CIRCUIT MALFUNCTION (Step 6.) for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and extend lower electrical tray (WP 0032 00). Carefully pull tray all the way out of slides and let tray hang down out of way, supported by cables.
2. Remove terminal screws (Figure 1, Item 1 and Item 2) and lock washers.
3. Tag and remove all wires from circuit breaker (Figure 1, Item 7). Keep Terminal screw (long) (Figure 1, Item 2) for reinstallation.
4. Remove nut (Figure 1, Item 5), lock washer (Figure 1, Item 6), and circuit breaker (Figure 1, Item 7).
5. Note position of height adjustment nut (Figure 1, Item 8) on threaded shaft of circuit breaker.

INSTALLATION

Installation of 35 AMP Circuit Breaker

1. Remove nut (Figure 1, Item 5), lock washer (Figure 1, Item 6), and key washer (not shown) from replacement circuit breaker (Figure 1, Item 7). The key washer is not used for circuit breaker installation.
2. Set height adjustment nut (Figure 1, Item 8) on replacement circuit breaker shaft to same position as adjustment nut on old circuit breaker.
3. Install replacement circuit breaker (Figure 1, Item 7) from underside of tray and secure with lock washer (Figure 1, Item 6) and nut (Figure 1, Item 5). One or two threads on shaft of circuit breaker should be visible from top of tray. If not, loosen retaining nut (Figure 1, Item 5), reset adjustment nut (Figure 1, Item 8) as required, and tighten retaining nut.
4. Remove terminal screws (Figure 1, Item 1) and lock washers (Figure 1, Item 3) from circuit breaker. Using ID tags, install wires (Figure 1, Item 4) on circuit breaker. Fasten single wire to circuit breaker with lock washer (Figure 1, Item 3) and screw (Figure 1, Item 1) supplied with circuit breaker. Use lock washer (Figure 1, Item 3) and terminal screw (long) (Figure 1, Item 2) removed from old circuit breaker on the terminal with three wires. Install the three wires with larger wire closest to circuit breaker body.
5. If no other maintenance is required on upper tray, replace lower tray and secure with quick release pins.

REMOVAL

Removal of 70 AMP Circuit Breaker (2CB1)

NOTE

Refer to WP 0012 00, trouble shooting procedure 107. CHARGER CIRCUIT MALFUNCTION (Step 5.) for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector and extend lower tray (WP 0032 00). Carefully pull tray all the way out of slides and let tray hang down, out of the way, supported by cables.
2. Remove terminal nuts (Figure 1, Item 9) lock washer (Figure 1, Item 10) and washer (Figure 1, Item 11). Tag and remove wires from circuit breaker (Figure 1, Item 14).
3. Remove two screws (Figure 1, Item 12), two flat washers (Figure 1, Item 15) with two lock washers (Figure 1, Item 13) and flat washers between circuit breaker (Figure 1, Item 14) bottom of panel.

INSTALLATION

Installation of 70 AMP Circuit Breaker

1. Install replacement circuit breaker (Figure 1, Item 14) from underside of tray and secure with two lock washers (Figure 1, Item 13) four flat washers (Figure 1, Item 15) and screws (Figure 1, Item 12).
2. Remove nuts (Figure 1, Item 9) and washers (Figure 1, Item 10 and 11) from circuit breaker terminal screws. Using ID tags, install wires on circuit breaker. Fasten wires with washers (Figure 1, Item 11), lock washers (Figure 1, Item 10), and nuts (Figure 1, Item 9).
3. If no other maintenance is required on upper tray, replace lower tray and secure with quick release pins.

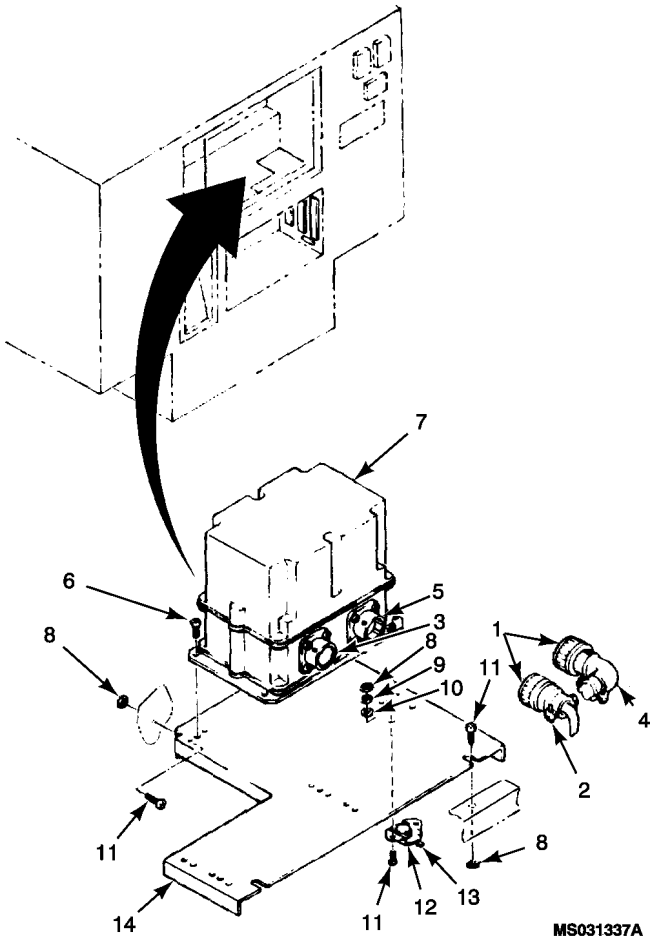
END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

COMPARTMENT TEMPERATURE SWITCH

INITIAL SETUP:

Tools and Special Tools	References
Aviation Foot Locker, AFL (WP 0171 00, Item 3)	WP 0009 00
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)	WP 0002 00
Tool Set, Aviation Unit (WP 0171 00, Item 42)	WP 0032 00
	WP 0034 00



1. Locking Collar	6. Screw	11. Screw
2. Connector P2	7. Electronic Control Unit	12. Compartment Temperature Switch
3. Connector J2	8. Nut	13. Switch Terminal Lugs
4. Connector P4	9. Lock Washer	14. Tray
5. Connector J1	10. Washer	

Figure 1. Electronic Control Unit and Compartment Temperature Switch.

TEST AND INSPECTION

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

Refer to WP 0009 00, trouble shooting procedure 29. GTE COMPT/GEN HI TEMP INDICATOR LIT (AC POWER SWITCH OFF) for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.

TEST AND INSPECTION – CONTINUED

2. Remove battery charger access cover (WP 0002 00, Figure 1, Item 6).
3. Inspect compartment temperature switch (Figure 1, Item 12) for obvious damage. Replace switch if damaged.
4. Check that wires are securely attached (soldered) to switch terminal lugs (Figure 1, Item 13).
5. Check switch for security of installation. Tighten screws (Figure 1, Item 11) as required.

REMOVAL

1. Disconnect battery. (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Close the control panel (WP 0032 00).
3. Remove battery charger access panel (WP 0002 00, Figure 1, Item 6).
4. Remove two nuts (Figure 1, Item 8), lock washers (Figure 1, Item 9), washers (Figure 1, Item 10), screws (Figure 1, Item 11) and compartment temperature switch (Figure 1, Item 12).
5. Unsolder wires from switch terminal lugs (Figure 1, Item 13).
6. Discard switch.

INSTALLATION

1. Solder wires removed during the removal step to switch terminal lugs (Figure 1, Item 13) of new compartment temperature switch (Figure 1, Item 12). Either wire may be connected to either terminal.
2. Install compartment temperature switch (Figure 1, Item 12) on underside of electrical bay subfloor. Use two screws (Figure 1, Item 11), washers (Figure 1, Item 10), lock washers (Figure 1, Item 9) and nuts (Figure 1, Item 8) to fasten switch to subfloor.
3. Replace battery charger access panel and control panel.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

BATTERY CHARGER OUTPUT SWITCH (3S1)

INITIAL SETUP:

Tools and Special Tools

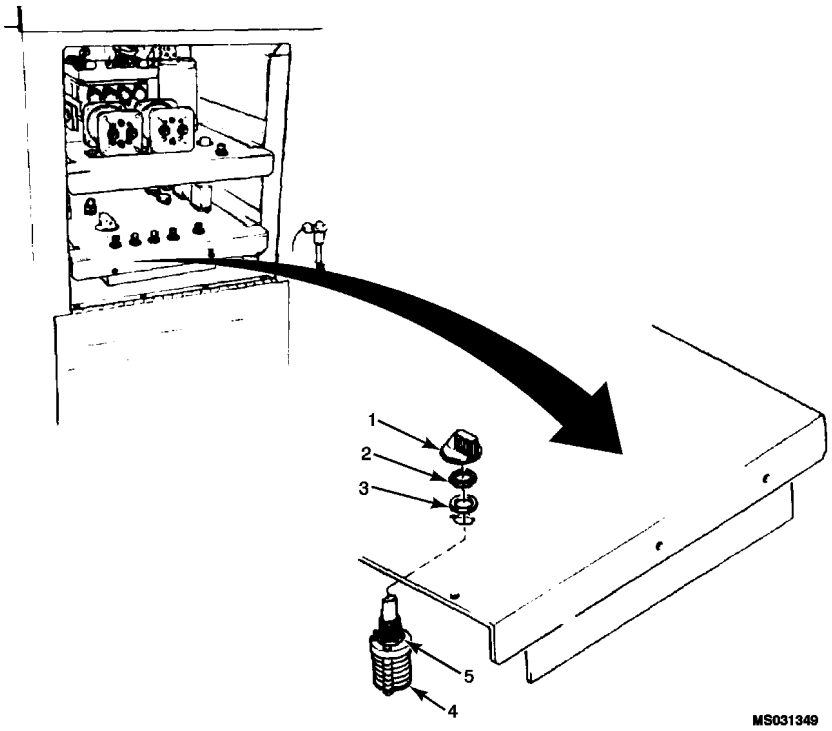
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Solder, Tin Alloy (WP 0170 00, Item 53)

References

WP 0012 00
WP 0032 00
WP 0034 00



1. Knob
2. Nut
3. Lock Washer
4. Switch
5. Switch Assembly Nut

Figure 1. Battery Charger Output Switch.

TEST AND INSPECTION

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

Refer to WP 0012 00, trouble shooting procedure 107. CHARGER CIRCUIT MALFUNCTION (Step 5.) for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Extend lower electrical tray (WP 0032 00).
3. Inspect switch (Figure 1, Item 4) and knob (Figure 1, Item 1) for obvious damage. Replace broken knob or switch.
4. Check that switch (Figure 1, Item 4) is securely mounted to tray. If not, remove knob (Figure 1, Item 1) and tighten retaining nut (Figure 1, Item 2). Replace knob.
5. Turn knob (Figure 1, Item 1) to full counterclockwise position. If knob is loose, tighten setscrews in knob. Replace missing setscrews.
6. Check that knob points to 28.5 VDC position when turned to full counterclockwise position. If not, loosen setscrews, turn knob to 28.5 VDC position, and tighten setscrews. Tighten setscrew opposite to knob pointer first.
7. Check that wire connections to switch solder lugs are secure.

REMOVAL

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Extend lower electrical tray (WP 0032 00).
3. Loosen two setscrews in switch knob (Figure 1, Item 1) and remove knob.
4. Tag and unsolder all wires from terminal lugs on switch (Figure 1, Item 4).
5. Remove nut (Figure 1, Item 2), lock washer (Figure 1, Item 3), and switch (Figure 1, Item 4).

INSTALLATION

CAUTION

The switch assembly nut (Figure 1, Item 5) against the switch body is the switch assembly nut. Do not remove this nut.

1. Remove nut (Figure 1, Item 2) and lock washer (Figure 1, Item 3) from replacement switch (Figure 1, Item 4). If two nuts remain on switch, remove outer nut. Do not remove switch assembly nut (Figure 1, Item 5).
2. Install replacement switch (Figure 1, Item 4) from underside of tray, and secure with lock washer (Figure 1, Item 3) and nut (Figure 1, Item 2).
3. Use ID tags and solder wires to solder lugs on switch.
4. Position knob (Figure 1, Item 1) on shaft of switch (Figure 1, Item 4) so that the setscrew opposite knob pointer can be tightened against the flat of switch shaft. Tighten the setscrew opposite knob pointer first, then tighten other setscrew.
5. Install lower electrical tray (WP 0032 00).

INSTALLATION – CONTINUED

6. Reconnect battery.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

EMERGENCY STOP SWITCH

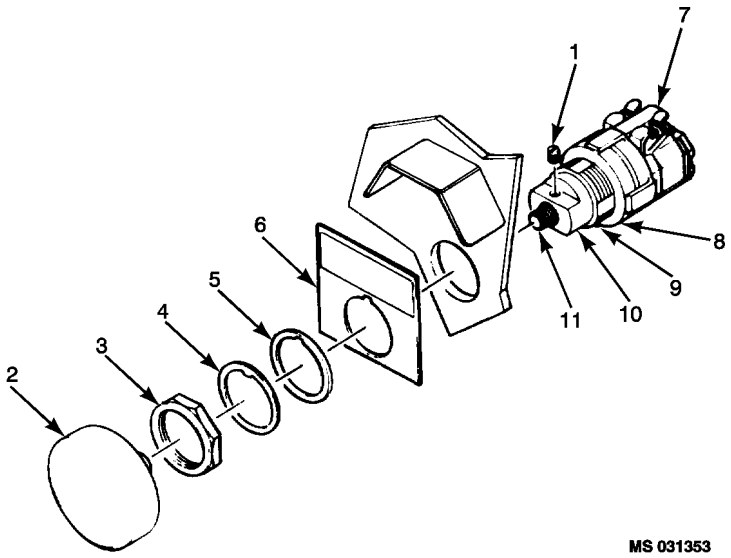
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0012 00
WP 0032 00
WP 0034 00



1. Setscrew
2. Knob
3. Nut
4. Key Washer
5. Washer
6. Nameplate
7. Switch
8. Spacer Washer
9. Mounting Shaft
10. Plunger
11. Threaded Stud

Figure 1. Emergency Stop Switch.

REMOVAL

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

Refer to WP 0012 00, trouble shooting procedure 91. EMERGENCY STOP SWITCH MAL FUNCTION for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.

NOTE

For MEP 83-360E you do not need to remove the roof.

2. Remove AGPU roof (WP 0022 00).
3. Remove setscrew (Figure 1, Item 1).
4. Hold flat of switch plunger (Figure 1, Item 10) with wrench and remove knob (Figure 1, Item 2) by turning counterclockwise.
5. Hold switch (Figure 1, Item 7) by hand, and loosen nut (Figure 1, Item 3). Remove nut, key washer (Figure 1, Item 4), washer (Figure 1, Item 5), and nameplate (Figure 1, Item 6).
6. Lift switch (Figure 1, Item 7) to top of AGPU. Tag and disconnect wires from switch terminals.

INSTALLATION

Wire Number	Switch Terminal
E2C18	NC2
E6A20	NC5
E25D18	NC1
E29B20	NC6

1. Connect wires to switch terminals as indicated in table above.
2. If switch knob and hardware is assembled, disassemble as follows:
    a. Remove setscrew (Figure 1, Item 1).
    b. Hold flat of switch plunger (Figure 1, Item 10) with wrench and remove knob (Figure 1, Item 2) by turning counterclockwise.
    c. Hold switch (Figure 1, Item 7) by hand and loosen nut (Figure 1, Item 3). Remove nut, key washer (Figure 1, Item 4), washer (Figure 1, Item 5), and nameplate (Figure 1, Item 6).
3. Check spacer washers (Figure 1, Item 8). Five washers are provided with new switch. Remove any washers in excess of four.
4. Insert switch mounting shaft (Figure 1, Item 9) through panel from behind.
5. Place nameplate (Figure 1, Item 6), washer (Figure 1, Item 5), and key washer (Figure 1, Item 4) on mounting shaft from front of panel. Position switch, nameplate, and washer with keyway up. Position key washer so that key tab fits into keyway of washer, nameplate, and switch mounting shaft.

INSTALLATION – CONTINUED

6. Install nut (Figure 1, Item 3) on switch mounting shaft (Figure 1, Item 9). Hold switch by hand and tighten nut.
7. Thread knob (Figure 1, Item 2) into threaded stud (Figure 1, Item 11) on switch plunger.
8. Install setscrew (Figure 1, Item 1).
9. Install roof (WP 0022 00).

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

INLET FILTER BLOCKED SWITCH (S3)

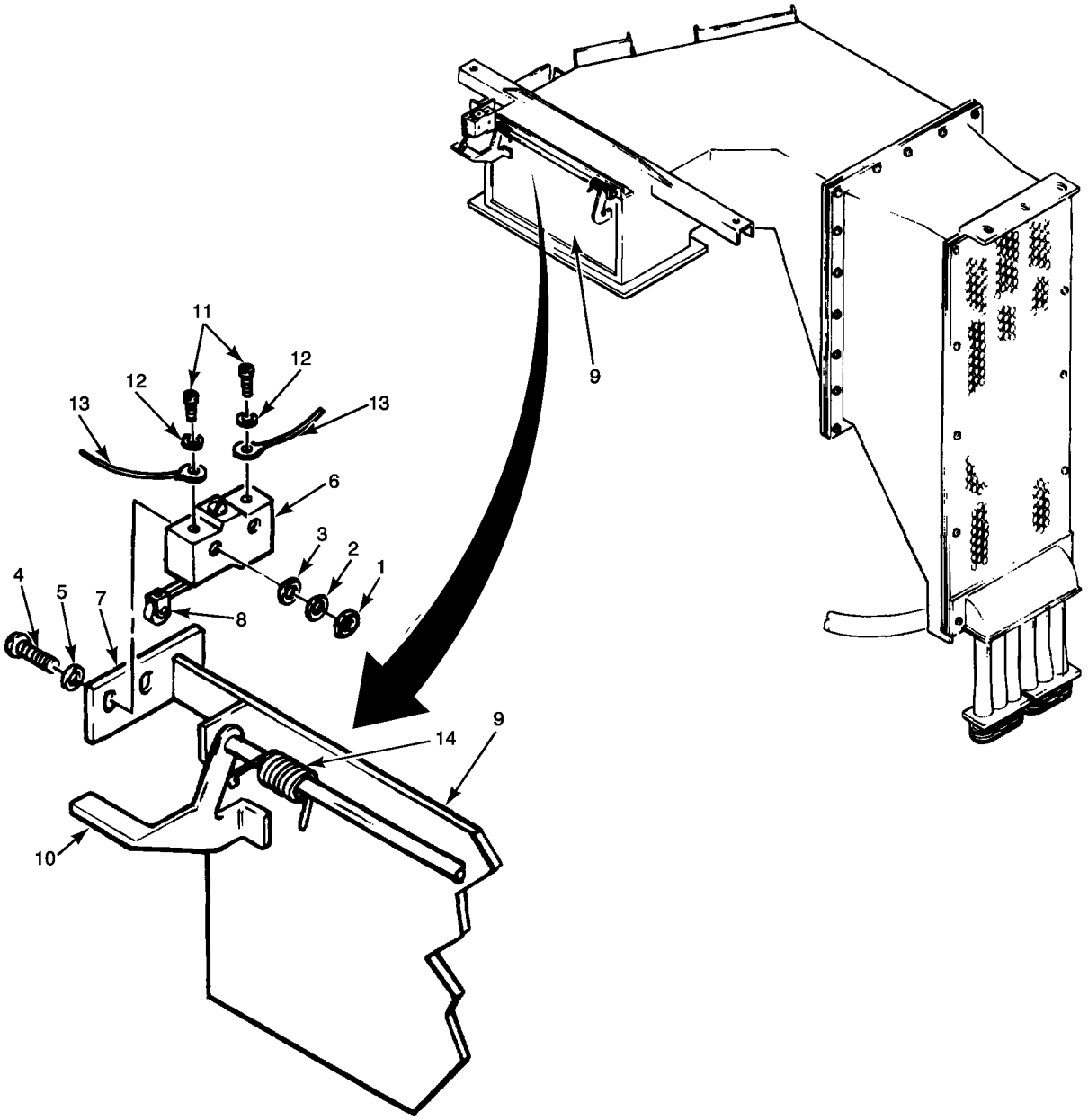
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0022 00
WP 0034 00



1. Nut
2. Lock Washer
3. Washer
4. Screw
5. Washer
6. Inlet Filter Switch
7. Mounting Bracket
8. Switch Actuating Lever
9. Bypass Door
10. Control Arm
11. Screw
12. Washer
13. Wire
14. Enclosure Spring

Figure 1. Inlet Filter Blocked Switch.

TEST AND INSPECTION

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

CAUTION

Ensure AGPU is not in operation while performing this procedure.

NOTE

Refer to WP 0012 00, trouble shooting procedure 118. INLET FILTER BLOCKED SWITCH MALFUNCTION for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Remove roof (WP 0022 00).
3. Inspect inlet filter switch (Figure 1, Item 6) for obvious damage. Replace switch if case is cracked.
4. Check that switch actuating lever (Figure 1, Item 8) is present and loaded against bypass door control arm (Figure 1, Item 10).
5. Check that switch mounting hardware is secure. Tighten screws (Figure 1, Item 4) if necessary.
6. Check that wire connections to switch terminal screws are secure. Tighten terminal screws if necessary.
7. Ensure bypass door enclosure spring (Figure 1, Item 14) has tension on bypass door (Figure 1, Item 9).

REMOVAL

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Tag and disconnect wires (Figure 1, Item 13) from switch terminals by removing two screws (Figure 1, Item 11) and washers (Figure 1, Item 12).
3. Remove two screws (Figure 1, Item 4), washers (Figure 1, Item 5), washers (Figure 1, Item 3), lock washers (Figure 1, Item 2), and nuts (Figure 1, Item 1) and remove inlet filter switch (Figure 1, Item 6) from mounting bracket (Figure 1, Item 7).

INSTALLATION

1. Attach switch to mounting bracket (Figure 1, Item 7) with two screws (Figure 1, Item 4), washers (Figure 1, Item 5), washers (Figure 1, Item 3), lock washers (Figure 1, Item 2), and nuts (Figure 1, Item 1).
2. Center switch vertically on mounting bracket (Figure 1, Item 7) and tighten nuts (Figure 1, Item 1).
3. Connect wires (Figure 1, Item 13) to switch terminals using two screws (Figure 1, Item 11) and washers (Figure 1, Item 12).
4. Open bypass door (Figure 1, Item 9) and check that switch actuates (indicated by click) when door is open (at bottom) between 1/4 and 1/2 inch. If necessary, adjust switch position. To adjust, loosen nuts (Figure 1, Item 1), slide inlet filter switch (Figure 1, Item 6) up or down on mounting bracket (Figure 1, Item 7), and tighten nuts. Move switch down if switch actuation occurs when bypass door opening is less than 1/4 inch. Move switch up until actuation occurs when bypass door opening is greater than 1/2 inch.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

PANEL AND UTILITY LAMPS

INITIAL SETUP:

Tools and Special Tools

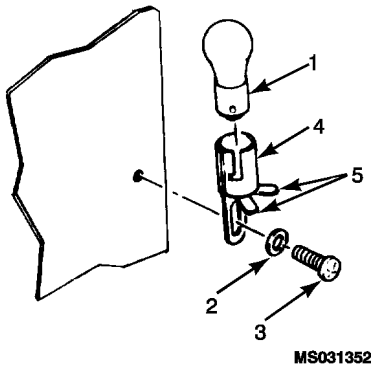
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Heat Shrink Insulator

References

WP 0012 00
WP 0034 00



1. Lamp
2. Washer
3. Screw
4. Socket
5. Solder Lugs

Figure 1. Panel or Utility Lamp (Typical).

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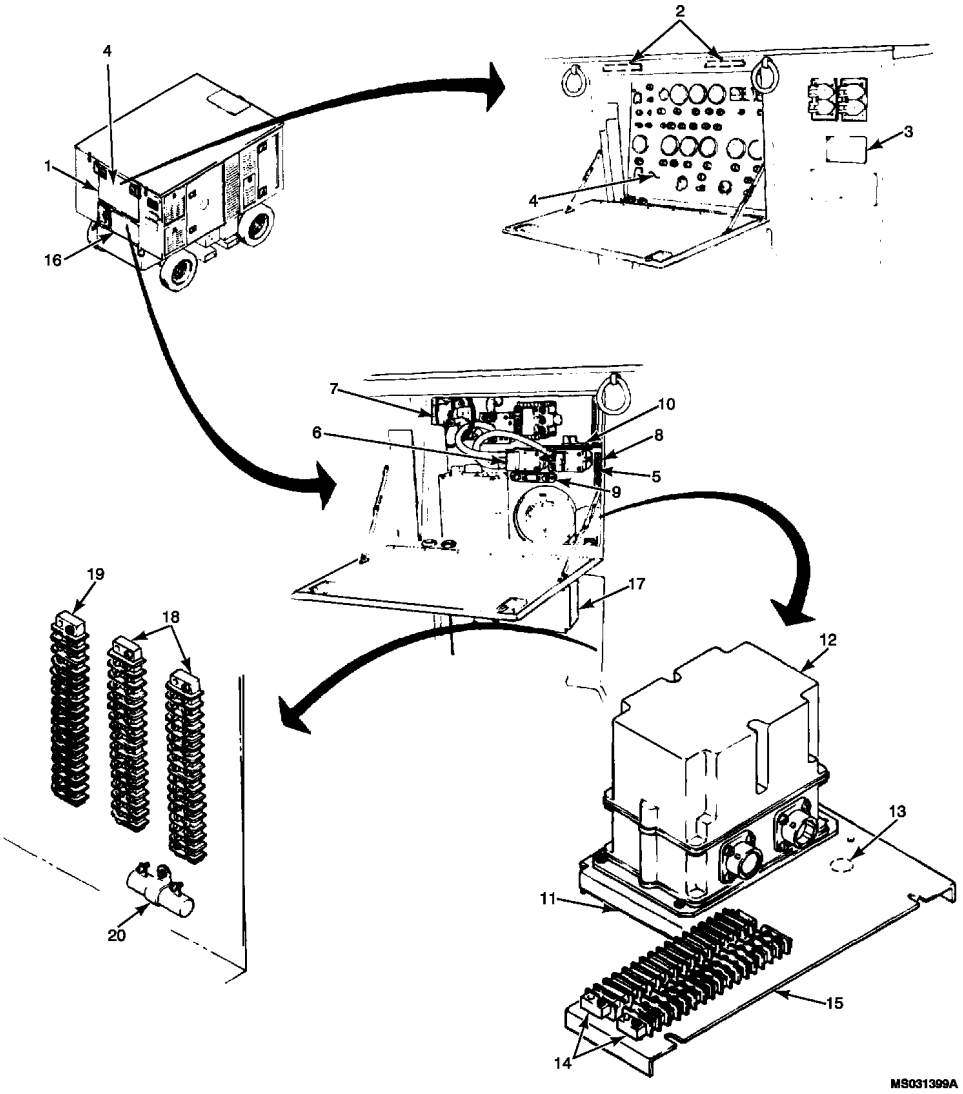

Figure 2. Panel or Utility Lamp Location (Sheet 1 of 3).

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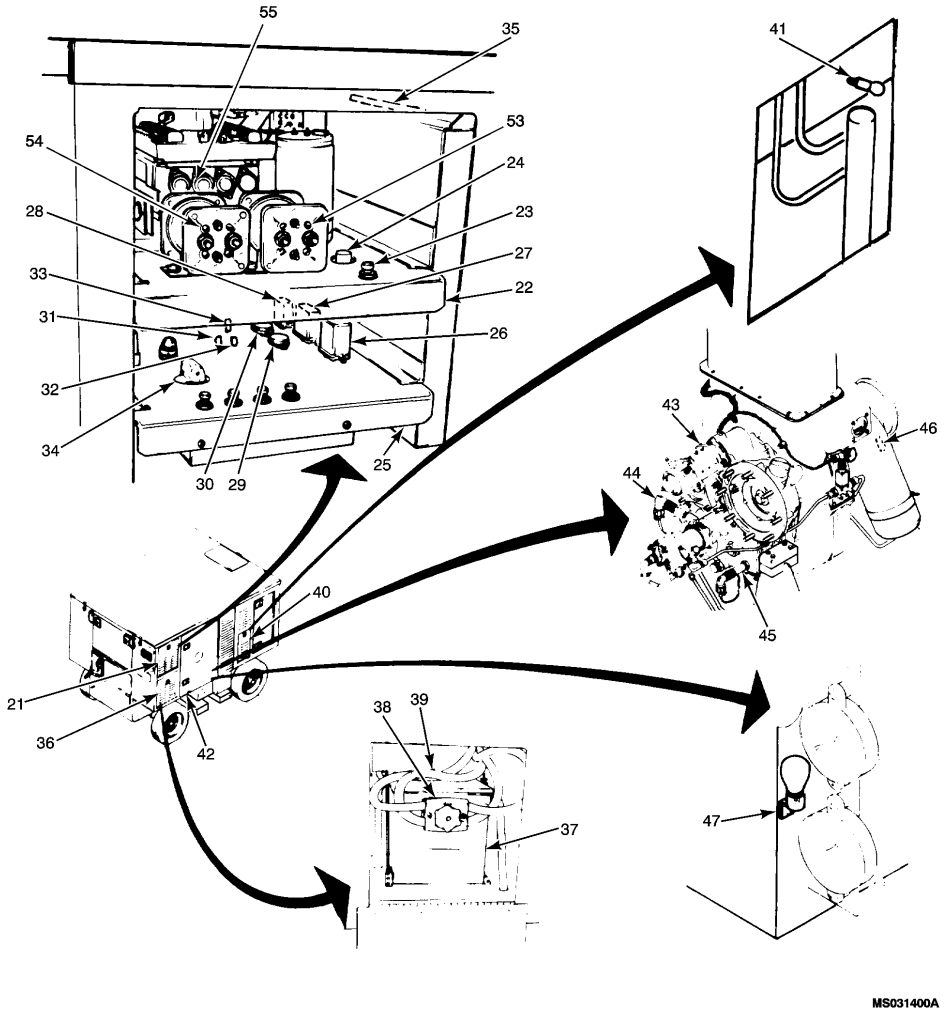

Figure 2. Panel or Utility Lamp Location (Sheet 2 of 3).

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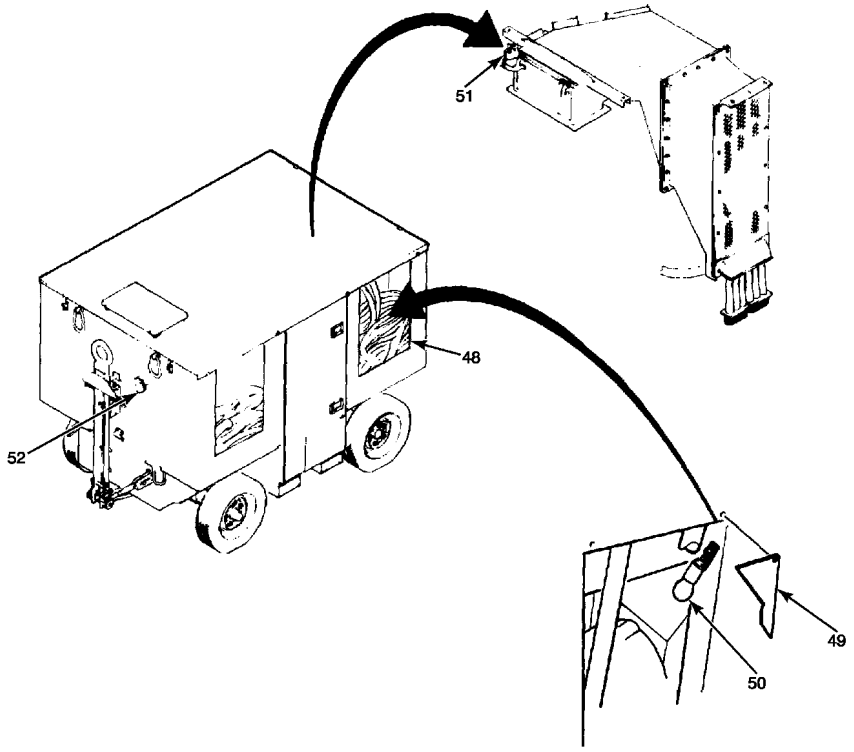


MS03140

1. Control Panel Access Door
2. Control Panel Lamps
3. Slave Receptacle (J19)
4. Control Panel
5. GTE Starter Contactor (K4)
6. Battery Output/Traction Motor Contactor (K4)
7. DC Output Shunt (R1)
8. Starter Shunt (R2)
9. Battery Shunt (R3)
10. Ground Terminal Board
11. Electrical Bay Subfloor
12. Electronic Control Unit
13. Electrical Compartment Temperature Switch
14. Terminal Board TB1
15. Terminal Board TB2
16. Battery Charger Access Cover
17. Battery Charger
18. Terminal Board TB3
19. Terminal Board TB4
20. Resistor R6
21. Electrical Trays Access Door
22. Upper Tray
23. Battery Charger Circuit-breaker (35 amp) (3CB2)
24. Battery Charger Circuit-breaker (70 amp) (3CB1)
25. Lower Tray
26. 95% Enable Relay (3K1)
27. Starter Latching Relay (3K2)
28. Battery/Charger Transfer Relay (3K3)
29. Panel Lamp Voltage Regulator (3VR1)
30. Utility Lamp Voltage Regulator (3VR2)
31. Power Diode (3CR7P)
32. Power Diode (3CR8P)
33. Power Diode (3CR9P)
34. Battery Charger Output Select Switch (3S1)
35. Generator dc Load Resistor (R4)
36. Battery Access Door
37. Battery (BT1)
38. Battery Terminal Adapter (P17)
39. Battery Cables
40. Hydraulic Filter Access Door
41. Hydraulic Utility Lamp
42. Engine Access Door
43. GTE Speed Sensor
44. Low Oil Pressure Switch
45. High Oil Pressure Switch
46. Thermocouple
47. Engine Utility Lamp
48. DC Cable Compartment
49. Fuel Access Cover
50. Fuel Utility Lamp
51. Inlet Filter Blocked Switch (S3)
52. Emergency Stop Switch (S2)
53. Forward Solenoid
54. Reverse Solenoid
55. Propulsion Controller

– Continued

Figure 2. Panel or Utility Lamp Location (Sheet 3 of 3).

REMOVAL

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

Refer to WP 0012 00, trouble shooting procedures 63. PANEL LIGHT OPERATION DEFEC TIVE (Step 12.) and WP 0012 00, 64. UTILITY LIGHT OPERATION DEFECTIVE (Step 10.) for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Open control panel access door (Figure 1, Item 1) to reach control panel lamps (Figure 1, Item 2).
3. Open hydraulic filters access door (Figure 2. Sheet 2 of 3, Item 40) to reach hydraulic utility lamp (Figure 2. Sheet 2 of 3, Item 41).
4. Open engine access door (Figure 2. Sheet 2 of 3, Item 42) to reach engine utility lamp (Figure 2. Sheet 2 of 3, Item 47).
5. Remove DC cable from storage compartment (Figure 2. Sheet 2 of 3, Item 48) and remove fuel access cover (Figure 2. Sheet 2 of 3, Item 49) to reach fuel utility lamp (Figure 2. Sheet 2 of 3, Item 50).
6. Remove lamp (Figure 1, Item 1) from socket (Figure 1, Item 4) by pressing in on lamp and turning counter-clockwise.

INSTALLATION

1. Install heat shrink insulator on wires and solder wires to solder lugs (Figure 1, Item 5). Use heat gun to shrink insulator.
2. Attach socket (Figure 1, Item 4) to frame with washer (Figure 1, Item 2) and screw (Figure 1, Item 3).
3. Place lamp (Figure 1, Item 1) in socket (Figure 1, Item 4). Press lamp and turn clockwise to lock in place.
4. Install fuel access cover (Figure 2. Sheet 2 of 3, Item 49).
5. Store DC cable in storage compartment (Figure 2. Sheet 2 of 3, Item 48).

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

PANEL AND UTILITY LAMP SOCKETS

INITIAL SETUP:

Tools and Special Tools

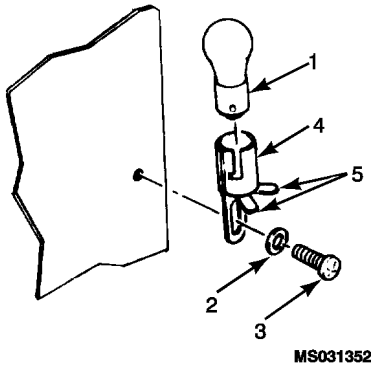
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Solder, Tin Alloy (WP 0170 00, Item 53)

References

WP 0012 00
WP 0034 00
WP 0055 00



1. Lamp
2. Washer
3. Screw
4. Socket
5. Solder Lugs

Figure 1. Panel or Utility Lamp (Typical).

REMOVAL

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

Refer to WP 0012 00, trouble shooting procedures 63. PANEL LIGHT OPERATION DEFEC TIVE (Step 13.) and WP 0012 00, 64. UTILITY LIGHT OPERATION DEFECTIVE (Step 11.) for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Remove lamp (WP 0055 00).
3. Remove screw (Figure 1, Item 3), washer (Figure 1, Item 2) and socket (Figure 1, Item 4).
4. Remove heat shrink insulator from wires connected to lamp socket. Unsolder wires from solder lugs (Figure 1, Item 5).

INSTALLATION

1. Install heat shrink insulator on wires and solder wires to solder lugs (Figure 1, Item 5). Use heat gun to shrink insulator.
2. Attach socket (Figure 1, Item 4) to frame with washer (Figure 1, Item 2) and screw (Figure 1, Item 3).
3. Place lamp (Figure 1, Item 1) in socket (Figure 1, Item 4). Press lamp and turn clockwise to lock in place. Replace access panel or close access door.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

POWER DIODES (3CR7P-3CR9P)

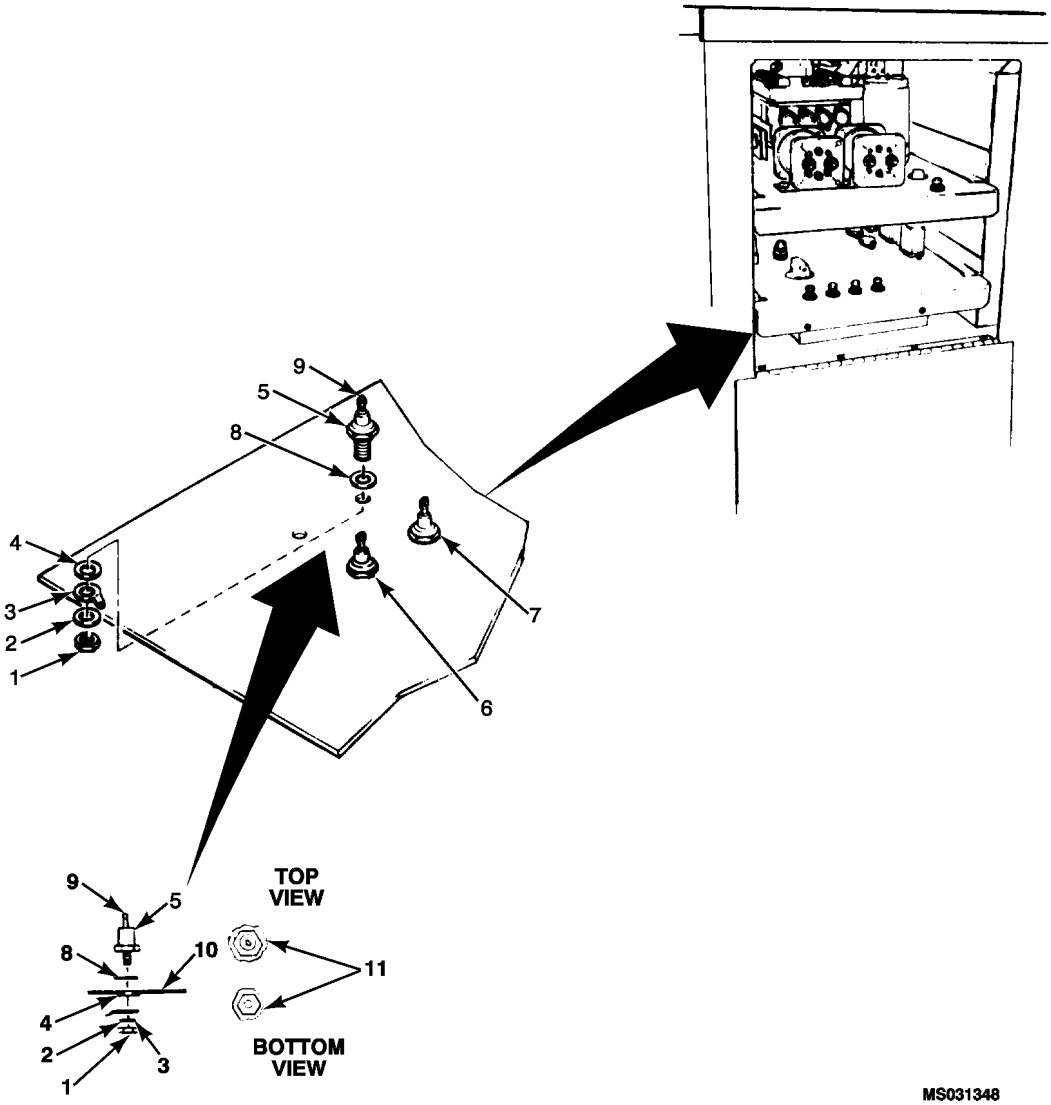
INITIAL SETUP:

Tools and Special Tools
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts
Compound, Sealing (WP 0170 00, Item 11)

Materials/Parts (cont.)
Solder, Tin Alloy (WP 0170 00, Item 53)

References
WP 0012 00
WP 0032 00
WP 0034 00



1. Nut
2. Flat Washer
3. Wire Terminal Lug
4. Flat Washer
5. Diode 3CR9P
6. Zener Diode 3CR8P
7. Diode 3CR7P
8. Insulator
9. Diode Terminal Lug
10. Lower Electrical Tray
11. Silicon Rubber Sealant

Figure 1. Power Diode.

TEST AND INSPECTION

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

Refer to WP 0012 00, trouble shooting procedure 111. BATTERY/CHARGER TRANSFER RELAY AND POWER DIODE MALFUNCTIONS for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Extend lower electrical tray (WP 0032 00).
3. Inspect diodes (Figure 1, Item 5, 6 and 7) for obvious damage. Replace damaged diodes.
4. Check that diodes are securely mounted. Tighten nuts (Figure 1, Item 1) as required.
5. Check that wire connections to diode terminal lug (Figure 1, Item 9) and wire terminal lug (Figure 1, Item 3) are secure.

REMOVAL

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Extend lower tray (WP 0032 00).
3. Remove insulation from diode terminal lug (Figure 1, Item 9).
4. Unsolder wire from diode terminal lug (Figure 1, Item 9).
5. Remove nut (Figure 1, Item 1), flat washer (Figure 1, Item 2), wire terminal lug (Figure 1, Item 3), and flat washer (Figure 1, Item 4) from underside of tray. Remove diode (Figure 1, Item 5) and insulator (Figure 1, Item 8) from top of tray.

INSTALLATION

CAUTION

The diode case and mounting hardware must be insulated from tray. Make sure the insulator and shoulder washers are properly installed.

NOTE

Removal and installation procedures are the same for power diodes 3CR7P through 3CR9P. 3CR9P is illustrated.

NOTE

(Figure 1, Item 1, 2, 3, 4, and 8) are provided in mounting kit.

1. Install insulator (Figure 1, Item 8) on mounting stud of diode (Figure 1, Item 5).
2. Insert diode mounting stud through hole in tray.
3. Install flat washer (Figure 1, Item 4) on diode mounting stud with small end of washer toward tray. Slide washer up on stud and fit small end of washer into hole in tray. Make sure that diode mounting stud is not touching tray.

INSTALLATION – CONTINUED

4. Install flat washer (Figure 1, Item 4), wire terminal lug (Figure 1, Item 3), flat washer (Figure 1, Item 1) and nut (Figure 1, Item 1) on diode mounting stud. Tighten nut securely.
5. Slide shrink tube over wire.
6. Resolder wire to diode terminal lug (Figure 1, Item 9).
7. Install shrink tube over diode terminal lug (Figure 1, Item 9). Apply heat to shrink.
8. Push lower electrical tray in and secure with quick release pins.
9. Perform MOC.

END OF WORK PACKAGE

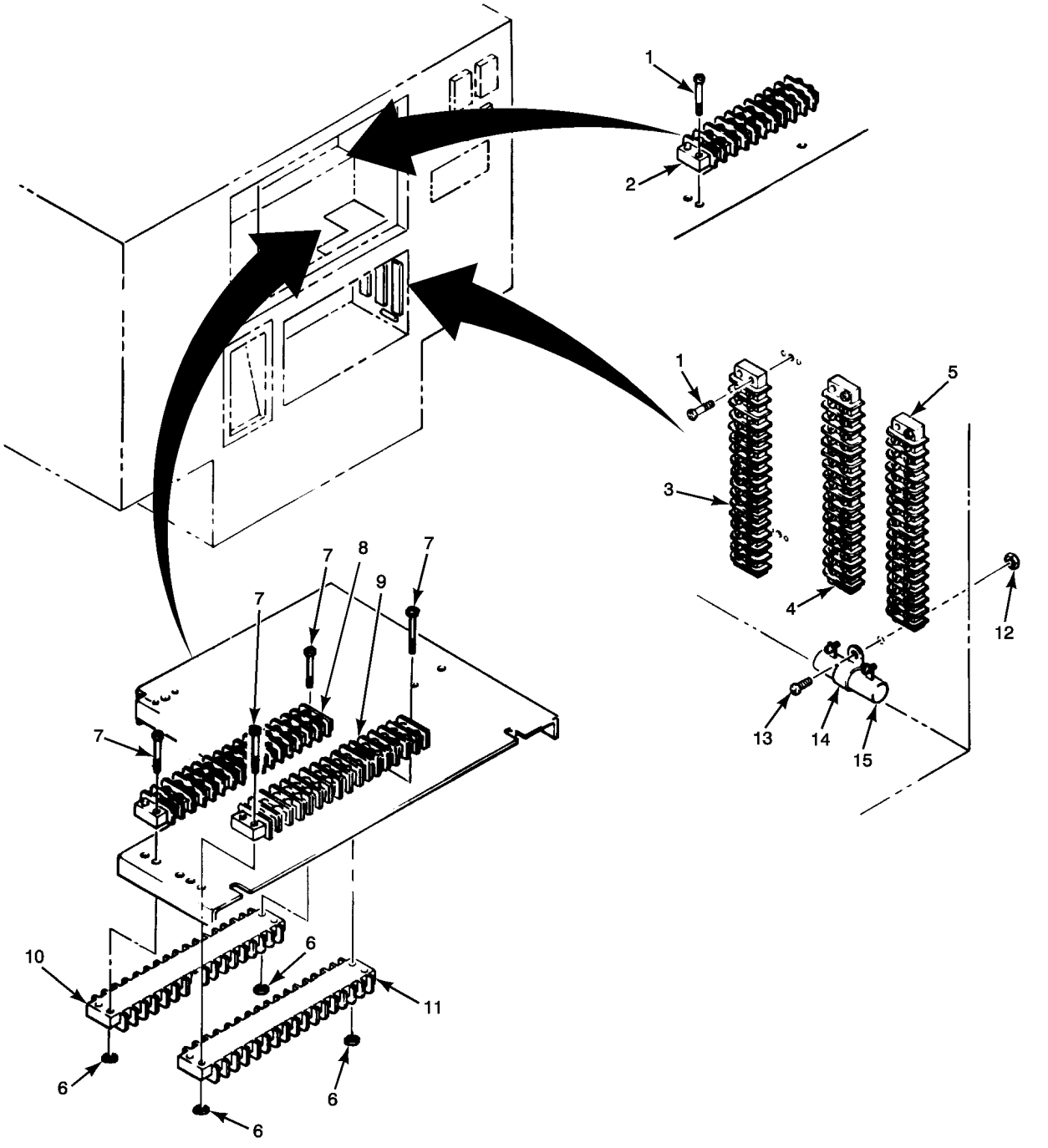
POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

TERMINAL BOARDS (TB) AND COMPONENTS

INITIAL SETUP:

Tools and Special Tools	References
Aviation Foot Locker, AFL (WP 0171 00, Item 3)	WP 0012 00
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)	WP 0013 00
Tool Set, Aviation Unit (WP 0171 00, Item 42)	WP 0032 00
	WP 0034 00

TEST AND INSPECTION

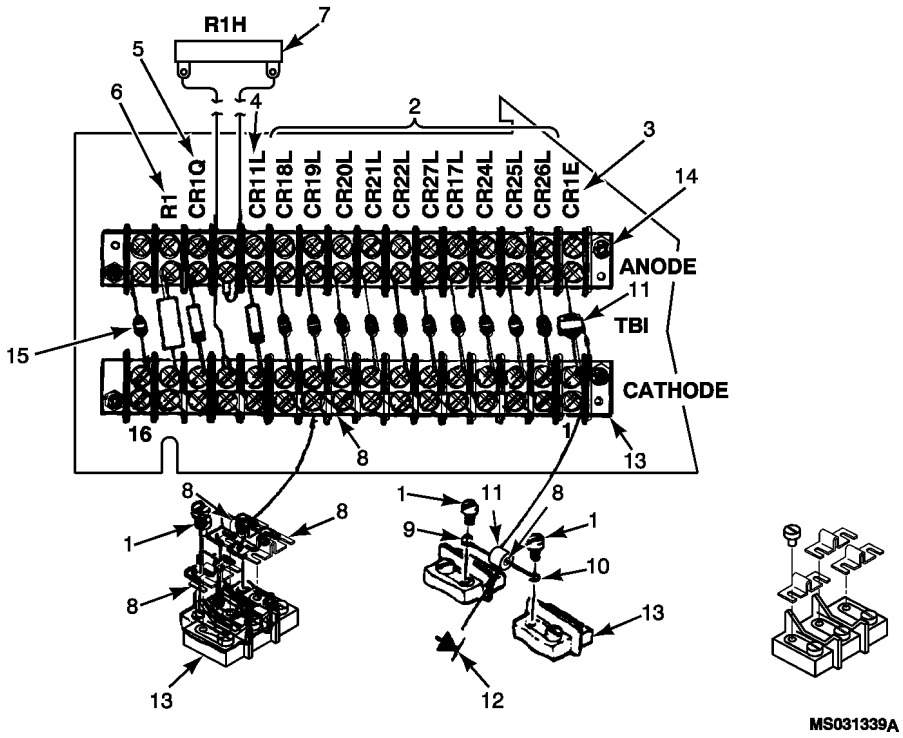


MS031338A

1. Mounting Screw	4. TB3 (Anode)	7. Mounting Screw	10. TB2 (Cathode)	13. Screw
2. Ground TB	5. TB3 (Cathode)	8. TB1 (Anode)	11. TB2 (Anode)	14. Clamp
3. TB4	6. Nut	9. TB1 (Cathode)	12. Nut	15. Resistor R6

Figure 1. Terminal Boards.

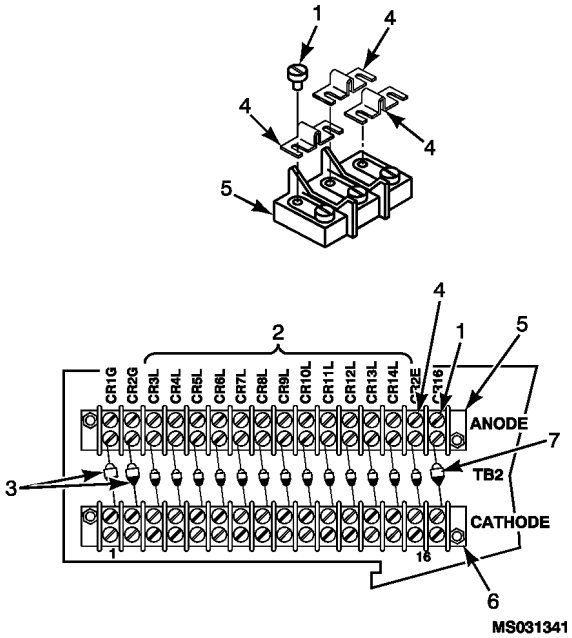
TEST AND INSPECTION – CONTINUED



1. Terminal Screw
2. Diode 1N5061
3. Diode MR756
4. Zener Diode 1N5349, 12V
5. Zener Diode 1N5338A, 5.1V
6. Resistor, 25 OHM, 5W
7. Resistor, 25 OHM, 25W (located on battery compartment wall)
8. Jumper
9. Anode Lead
10. Cathode Lead
11. Cathode Band
12. Cathode Symbol
13. Cathode Terminal Board
14. Anode Terminal Board
15. Diode 1N5061 (83-360D Only)

Figure 2. Terminal Board TB1 Components.

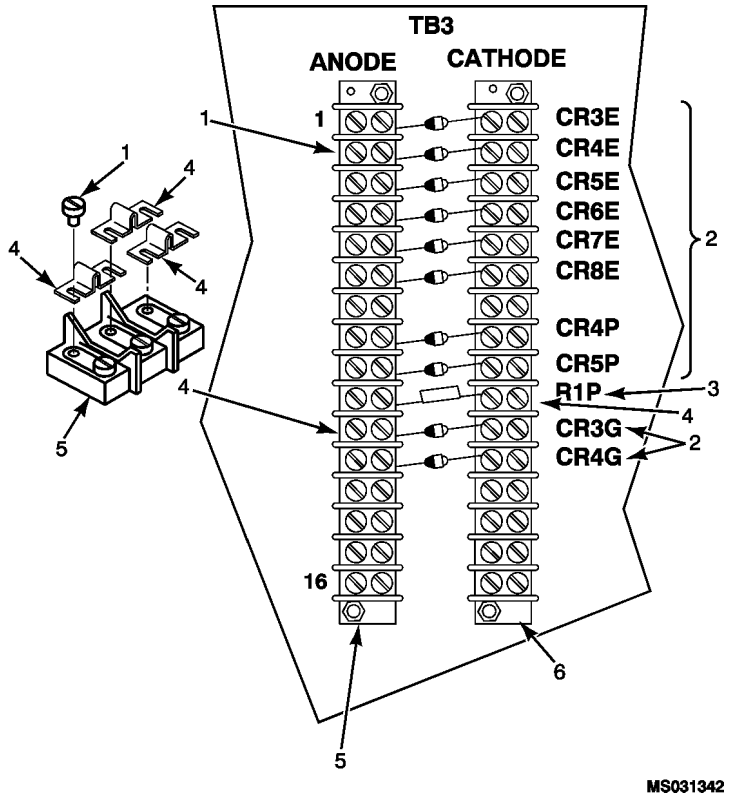
TEST AND INSPECTION – CONTINUED



1. Terminal Screw
2. Diode 1N5061
3. Diode Mr756
4. Jumper
5. Anode Terminal Board
6. Cathode Terminal Board
7. Diode Mr752

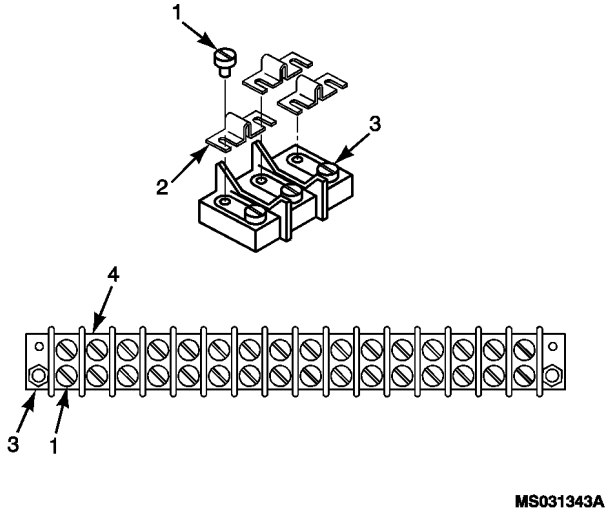
Figure 3. Terminal Board TB2 Components.

TEST AND INSPECTION – CONTINUED



1. Terminal Screw
2. Diode 1N5061
3. Resistor, 100 Ohm, 1/2 W
4. Jumper
5. Anode Terminal Board
6. Cathode Terminal Board

Figure 4. Terminal Board TB3 Components.



1. Terminal Screw
2. Jumper
3. Terminal Board
4. Position

Figure 5. Ground Terminal Board Components.

TEST AND INSPECTION – CONTINUED

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

Refer to WP 0012 00, trouble shooting procedures 54. CHRG/BAT FAULT INDICATOR NOT LIT (MASTER SWITCH ON, ENGINE NOT RUNNING) (Step 3.), WP 0012 00, 60. FUEL METER READING INACCURATE (Step 4.and Step 5., WP 0013 00, 157. ENGINE SPEED DROPS WHEN PNEUMATIC POWER IS TURNED ON, and WP 0012 00, 108. TERMINAL BOARD DIODE MALFUNCTIONS for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Lower control panel (WP 0032 00) and remove battery charger access cover (WP 0021 00, Figure 1, Item 5).
3. Inspect all terminal boards (Figure 1, Item 2, 3, 4, 5, 8, 9, 10, and 11) for obvious damage.
4. Replace any cracked or broken terminal boards.
5. Inspect terminal boards for security of installation. Tighten mounting screws (Figure 1, Item 1 and 7) as required.
6. Check that all terminal board components are installed (Figure 2 through Figure 5) and are clean from rust and corrosion on terminals.

REMOVAL

Removal of Terminal Board Electrical Components

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. If component to be removed is on TB1 (Figure 1, Item 8 and 9), lower the control panel (WP 0032 00). Disconnect control panel support cable and lower control panel onto access door.
3. If component to be replaced is on TB2 (Figure 1, Item 10 and 11) or TB3 (Figure 1, Item 4 and 5), remove battery charger access panel (WP 0002 00, Figure 1, Item 6).

NOTE

Removal and installation procedures are the same for all electrical components installed on terminal boards. Diode TB1-CR1 (Figure 2, Item 3) is illustrated.

4. Remove two terminal screws (Figure 2, Item 1) and diode (Figure 2, Item 3).

INSTALLATION

Installation of Terminal Board Electrical Components

1. Shape leads of replacement component to match removed component.

INSTALLATION – CONTINUED

2. Install replacement component on terminal board and attach with two terminal screws (Figure 2, Item 1). Diodes must be installed with cathode toward terminal board identified as cathode.

NOTE

The cathode of the diodes may be identified by a black cathode band (Figure 2, Item 11) or a cathode symbol (Figure 2, Item 12) at the end of an arrow. If markings are missing or are not legible, measure resistance between diode leads in both directions before installation. The diode resistance is near "0" when the multimeter (negative lead is on the **diode cathode**).

REMOVAL

Removal of Resistor R6

NOTE

Refer to WP 0013 00, Step 12., for test.

1. If necessary for access to nut (Figure 1, Item 12), remove battery (WP 0036 00).
2. Remove battery charger access cover (WP 0021 00, Figure 1, Item 5).
3. Tag and unsolder wires from solder terminals on resistor R6 (Figure 1, Item 15).
4. Remove nut (Figure 1, Item 12), screw (Figure 1, Item 13), clamp (Figure 1, Item 14), and resistor R6 (Figure 1, Item 15).

INSTALLATION

Installation of Resistor R6

1. Install clamp (Figure 1, Item 14) on resistor R6 (Figure 1, Item 15).
2. Position resistor/clamp assembly with resistor solder lugs up. Attach clamp to battery compartment wall with screw (Figure 1, Item 13) and nut (Figure 1, Item 12).
3. Use ID tags and solder wires to solder lugs on resistor.
4. If removed, install battery (WP 0036 00).

REMOVAL

Removal of Terminal Boards

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Lower the control panel (WP 0032 00) if ground TB (Figure 1, Item 2), TB1 (Figure 1, Item 8 or 9), or TB2 (Figure 1, Item 10 or 11) is to be removed.
3. Disconnect control panel support cable and lower control panel onto access door if TB1 (Figure 1, Item 8 or 9) or TB2 (Figure 1, Item 10 or 11) is to be removed.
4. If TB1 (Figure 1, Item 8 or 9), TB2 (Figure 1, Item 10 or 11), TB3 (Figure 1, Item 4 or 5), or TB4 (Figure 1, Item 3) is to be removed, remove battery charger access cover (WP 0021 00, Figure 1, Item 5).
5. Removing ground TB, TB3 anode, TB3 cathode, or TB4.
    a. Tag and remove all wires from ground TB (Figure 1, Item 2), TB4 (Figure 1, Item 3), TB3 anode (Figure 1, Item 4), or TB3 cathode (Figure 1, Item 5).
    b. If removing TB3 anode (Figure 1, Item 4) or cathode (Figure 1, Item 5), tag and disconnect all components from TB.
    c. Remove mounting screws (Figure 1, Item 1) and TB (Figure 1, Item 2, 3, 4, or 5).
6. Removing TB1 anode, TB1 cathode, TB2 anode, or TB2 cathode:

REMOVAL – CONTINUED

a. Tag and remove all wires from TB1 anode (Figure 1, Item 8), TB1 cathode (Figure 1, Item 9), TB2 cathode (Figure 1, Item 10), or TB2 anode (Figure 1, Item 11).

b. Remove nuts (Figure 1, Item 6), screws (Figure 1, Item 7), and TB (Figure 1, Item 8, 9, 10, or 11).

INSTALLATION

Installation of Terminal Boards

1. Installing ground TB, TB3 anode, TB3 cathode, or TB4:

   a. Check nutplates on panel. If any nutplate is missing, notify maintenance supervisor.

   b. If installing TB3 anode (Figure 1, Item 4) or TB3 cathode (Figure 1, Item 5), install jumpers (Figure 4, Item 4) at indicated positions (Figure 5, Item 4).

   c. If installing ground TB (Figure 1, Item 2), install jumpers (Figure 4, Item 4) at indicated positions (Figure 5, Item 4).

   d. Attach terminal board (Figure 1, Item 2, 3, 4 or 5) to panel with two mounting screws (Figure 1, Item 1).

   e. If installing TB3 (Figure 1, Item 4 or Item 5), install electrical components to TB. Use ID tags and Figure 4 for reference.

   f. Use ID tags and install wires to TB.

2. Installing TB1 anode, TB1 cathode, TB2 anode, TB2 cathode:

   a. If installing TB1 cathode (Figure 1, Item 9), install jumpers (Figure 5, Item 2) at indicated positions (Figure 5, Item 4).

   b. If installing TB2 anode (Figure 1, Item 11), install jumpers (Figure 5, Item 2) at indicated positions (Figure 3, Item 4).

   c. Install terminal board (Figure 1, Item 8, 9, 10 or 11) with two mounting screws (Figure 1, Item 7) and nuts (Figure 1, Item 6).

   d. Install electrical components on TBs. Use ID tags and Figure 2 (TB1) or Figure 3 (TB2) for reference.

   e. Use ID tags and install wires to TB.

   f. Perform MOC.

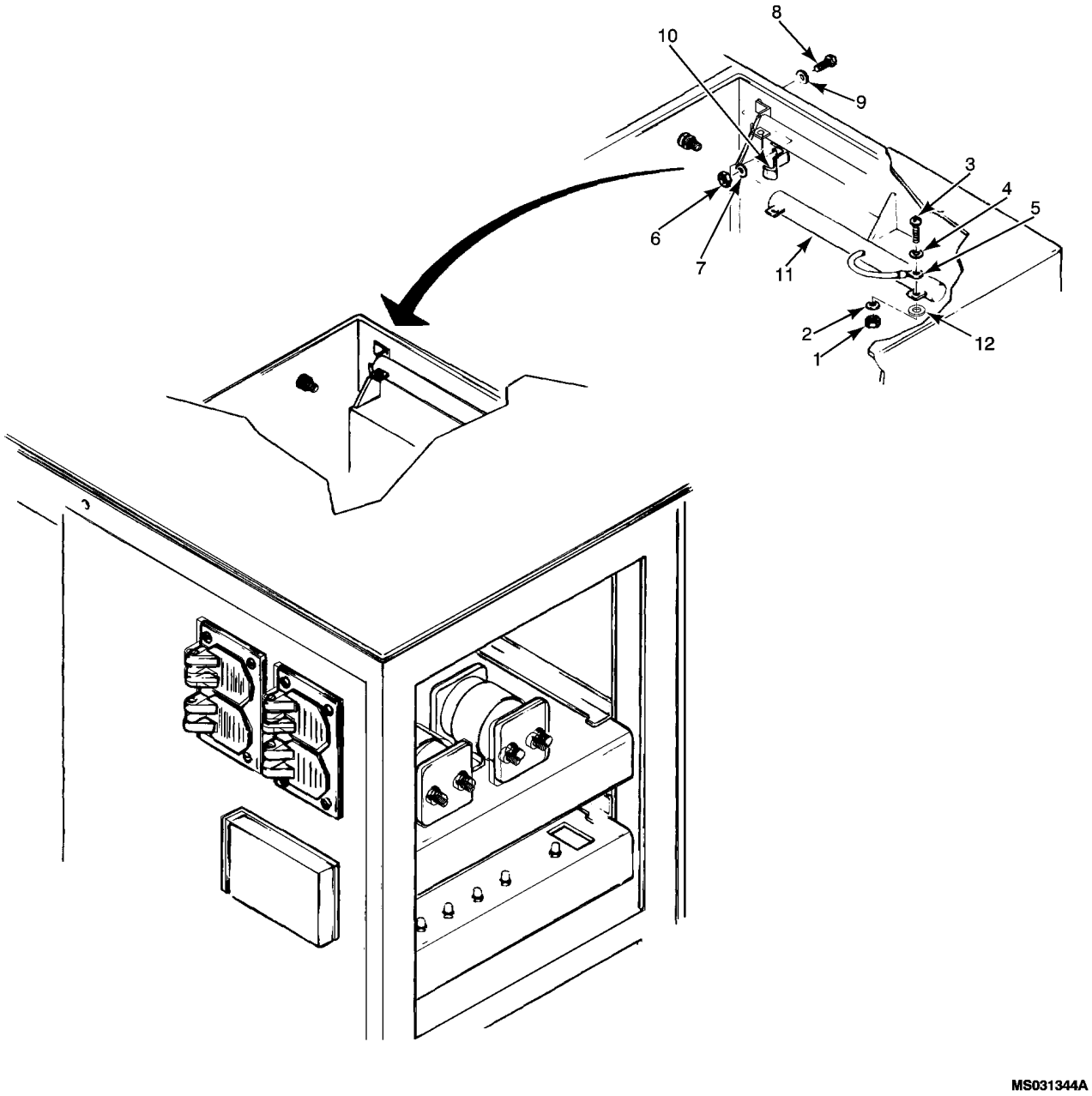
END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

GENERATOR DC LOAD RESISTOR (R4)

INITIAL SETUP:

Tools and Special Tools	References
Aviation Foot Locker, AFL (WP 0171 00, Item 3)	WP 0002 00
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)	WP 0012 00
Tool Set, Aviation Unit (WP 0171 00, Item 42)	WP 0022 00
	WP 0034 00



1. Terminal Nut	5. Wire	9. Washer
2. Lock Washer	6. Nut	10. Bracket
3. Screw	7. Lock Washer	11. Generator DC Load Resistor
4. Washer	8. Mounting Screw	12. Flat Washer

Figure 1. Generator DC Load Resistor.

TEST AND INSPECTION

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

Refer to WP 0012 00, trouble shooting procedure 74. DC VOLTAGE FAULT INDICATOR LIT (Step 11.) for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Open electrical trays access door (WP 0002 00, Figure 1, Item 9).
3. Inspect resistor (Figure 1, Item 11) on step above upper electrical tray for obvious damage. Replace resistor if cracked.
4. Check resistor for security of installation. Tighten mounting screws (Figure 1, Item 8) as required.
5. Check that wires (Figure 1, Item 5) are securely connected to resistor terminals. Tighten terminal nuts (Figure 1, Item 1) as required. Ensure that connections are clean and free of corrosion.

REMOVAL

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Remove roof (refer to WP 0022 00).
3. Disconnect wires from resistor by removing two terminal nuts (Figure 1, Item 1), lock washers (Figure 1, Item 2), screws (Figure 1, Item 3), and washers (Figure 1, Item 4).
4. Remove two nuts (Figure 1, Item 6), lock washers (Figure 1, Item 7), mounting screws (Figure 1, Item 8), washers (Figure 1, Item 9), brackets (Figure 1, Item 10), and resistor (Figure 1, Item 11).

INSTALLATION

1. Insert brackets (Figure 1, Item 10) into ends of resistor (Figure 1, Item 11).
2. Attach brackets to tray compartment wall using two washers (Figure 1, Item 9), mounting screws (Figure 1, Item 8), lock washers (Figure 1, Item 7), and nuts (Figure 1, Item 6).
3. Install wires (Figure 1, Item 5) disconnected during removal to resistor terminals using screws (Figure 1, Item 3), washers (Figure 1, Item 4), lock washers (Figure 1, Item 2), and terminal nuts (Figure 1, Item 1).
4. Install roof (WP 0022 00).
5. Perform MOC.

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

VOLTAGE REGULATORS (3VR1 AND 3VR2)

INITIAL SETUP:

Tools and Special Tools

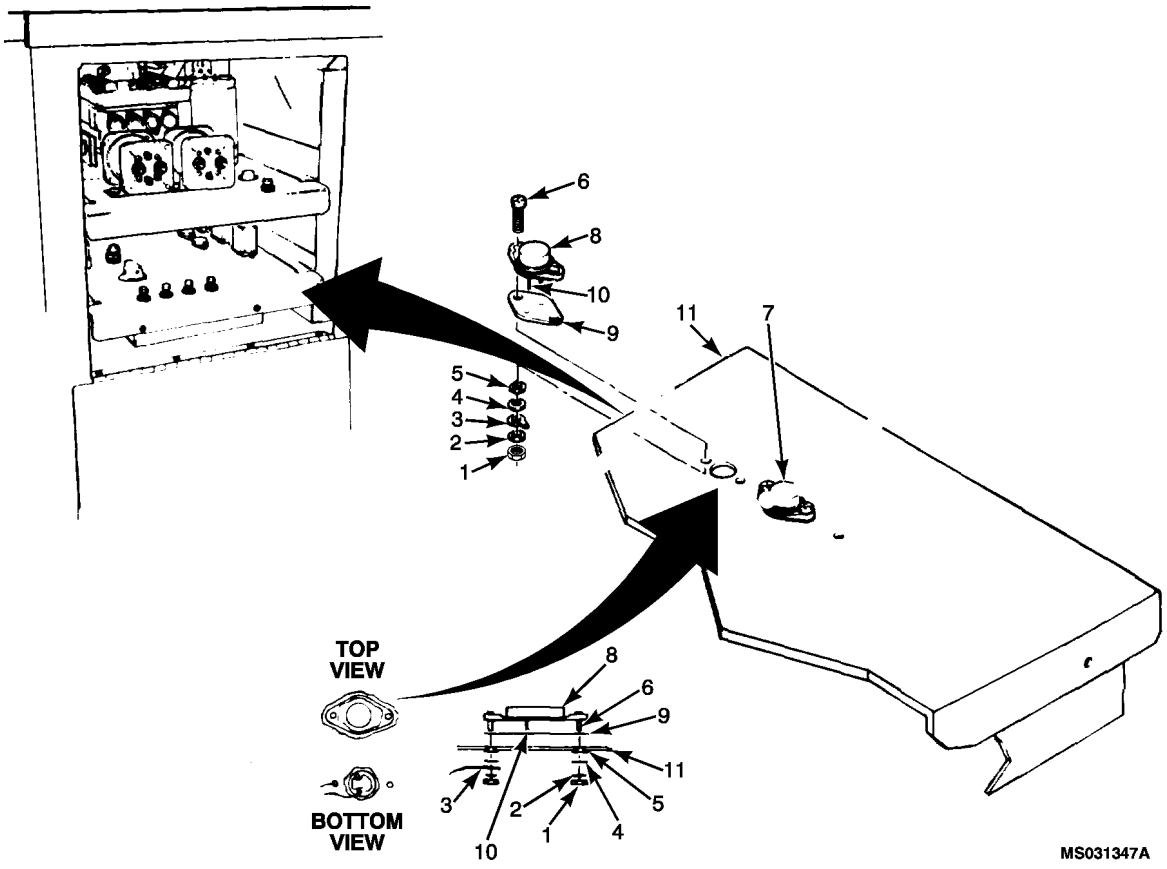
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK
(WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Solder, Tin Alloy (WP 0170 00, Item 53)

References

WP 0012 00
WP 0032 00
WP 0034 00



1. Nut
2. Lock Washer
3. Wire Terminal Lug
4. Washer
5. Shoulder Washer
6. Mounting Screw
7. Panel Lamp Voltage Regulator 3VR1
8. Utility Lamp Voltage Regulator 3VR2
9. Insulator
10. Pin (Cathode)
11. Lower Electrical Tray

Figure 1. Voltage Regulator.

TEST AND INSPECTION

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

Refer to WP 0012 00, trouble shooting procedure 63. PANEL LIGHT OPERATION DEFECTIVE 11 (Step 9.) and 64. UTILITY LIGHT OPERATION DEFECTIVE12 (Step 11.) for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Extend lower electrical tray (WP 0032 00).

TEST AND INSPECTION – CONTINUED

3. Inspect voltage regulators (Figure 1, Item 7 and 8) for dents or punctures. Replace damaged regulators.
4. Check that regulators are securely mounted. Tighten mounting screws (Figure 1, Item 6) as required.
5. Check that wire connections to regulators are secure.

REMOVAL

NOTE

Removal and installation procedures are the same for voltage regulators 3VR1 and 3VR2. 3VR1 is illustrated.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Extend lower electrical tray (WP 0032 00).
3. Remove insulation from solder joint.
4. Unsolder wire from pin (Figure 1, Item 10) on underside of regulator.
5. Remove two nuts (Figure 1, Item 1), lock washers (Figure 1, Item 2), wire terminal lug (Figure 1, Item 3), washers (Figure 1, Item 4), and shoulder washers (Figure 1, Item 5) from underside of tray. Remove screws (Figure 1, Item 6), regulator (Figure 1, Item 7), and insulator (Figure 1, Item 9) from top of tray.

INSTALLATION

CAUTION

The regulator case and mounting hardware must be insulated from tray. Make sure the insulator and shoulder washers are properly installed.

NOTE

Figure 1, Item 1 through 6 and Figure 1, Item 9 are provided in a mounting kit.

1. Set insulator (Figure 1, Item 9) in place on top of tray. Set replacement panel lamp voltage regulator 3VR1 (Figure 1, Item 7) in place of top insulator. Make sure regulator is not touching the tray.
2. Insert two mounting screws (Figure 1, Item 6) through holes in regulator (Figure 1, Item 7), insulator (Figure 1, Item 9), and tray (Figure 1, Item 11). Install a shoulder washer (Figure 1, Item 5) on each screw with small end of washer toward tray. Slide washers up on screws and fit small ends of washers into holes in tray. Make sure that screws are not touching tray.
3. Install on screws (Figure 1, Item 6), washer (Figure 1, Item 4), wire terminal lug (Figure 1, Item 3) (on one screw only), lock washer (Figure 1, Item 2), and nut (Figure 1, Item 1). Tighten nuts.
4. Slide short length of shrink tubing over wire.
5. Solder wire to either pin (Figure 1, Item 10) on regulator.
6. Slide shrink tube over solder joint. Apply heat to shrink.
7. Push lower electrical tray in and secure with quick release pins.
8. Perform MOC.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

AC/DC GENERATOR (G1)

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0002 00
WP 0012 00
WP 0034 00

TEST AND INSPECTION

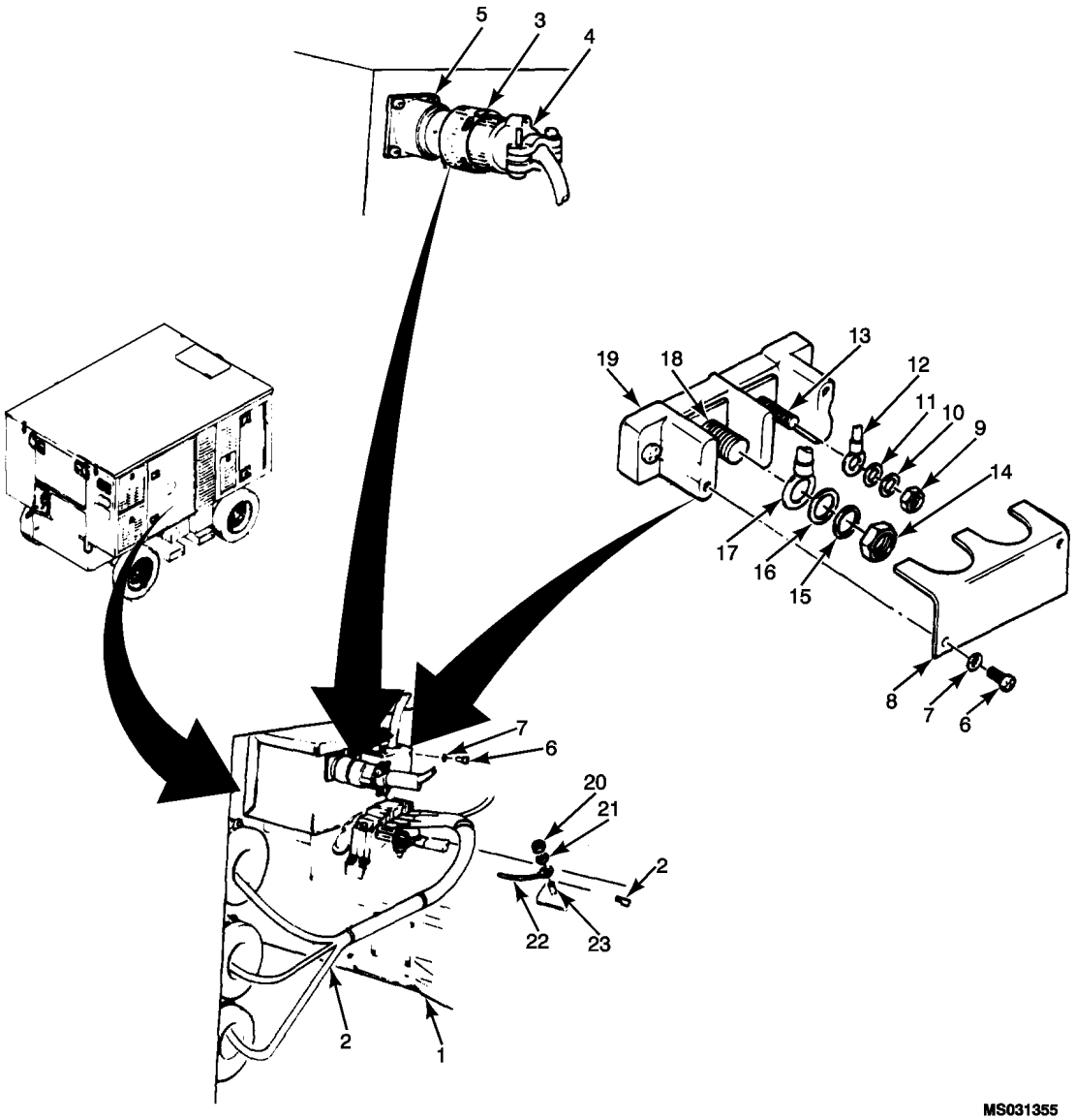
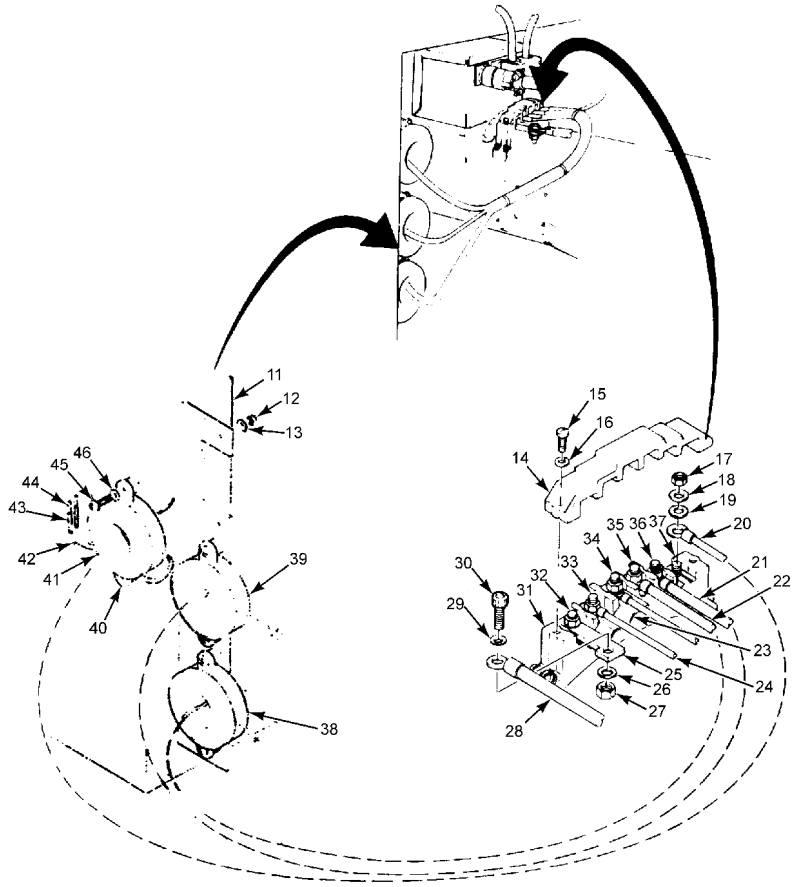


Figure 1. AC/DC Generator and AC Output Current Transformers, 83-360A Only (Sheet 1 of 2).

TEST AND INSPECTION – CONTINUED



1. AC/DC generator G1
2. Grease Fitting
3. Locking Collar
4. Harness Connector P13
5. Generator Connector J1
6. Screw
7. Lock Washer
8. DC Terminal Cover
9. Nut
10. Lock Washer
11. Washer
12. DC Output Cable (-)
13. DC Terminal Stud (-)
14. Nut
15. Lock Washer
16. Washer
17. DC Output Cable (+)
18. DC Terminal Stud (+)
19. DC Terminal Block
20. Nut
21. Lock Washer
22. Ground Wire
23. Case Ground Stud
24. Screw
25. Lock Washer
26. AC Terminal Cover
27. Nut
28. Lock Washer
29. Washer
30. ACϕA Cable X1A4A
31. AC ϕA Terminal Stud T1
32. AC ϕB Cable X2A4B
33. AC ϕB Terminal Stud T2
34. AC ϕC Cable X3A4C
35. AC ϕC Terminal Stud T3
36. AC ϕN Cables
37. AC ϕN Terminal Stud T4
38. AC ϕN Terminal Stud T5
39. AC ϕN Terminal Stud T6
40. Nut
41. Lock Washer
42. Bolt
43. Washer
44. Terminal T6 Extension Bar
45. AC ϕN Terminal Jumper
46. AC Terminal Block
47. Splice
48. Transformer Leads
49. Main Harness Wires
50. Nut
51. Lock Washer
52. Screw
53. Washer
54. Transformer T2
55. Transformer T3
56. Transformer T4
57. Mounting Lug
58. Mounting Bracket

Figure 1. AC/DC Generator and AC Output Current Transformers, 83-360A Only (Sheet 2 of 2).

TEST AND INSPECTION – CONTINUED

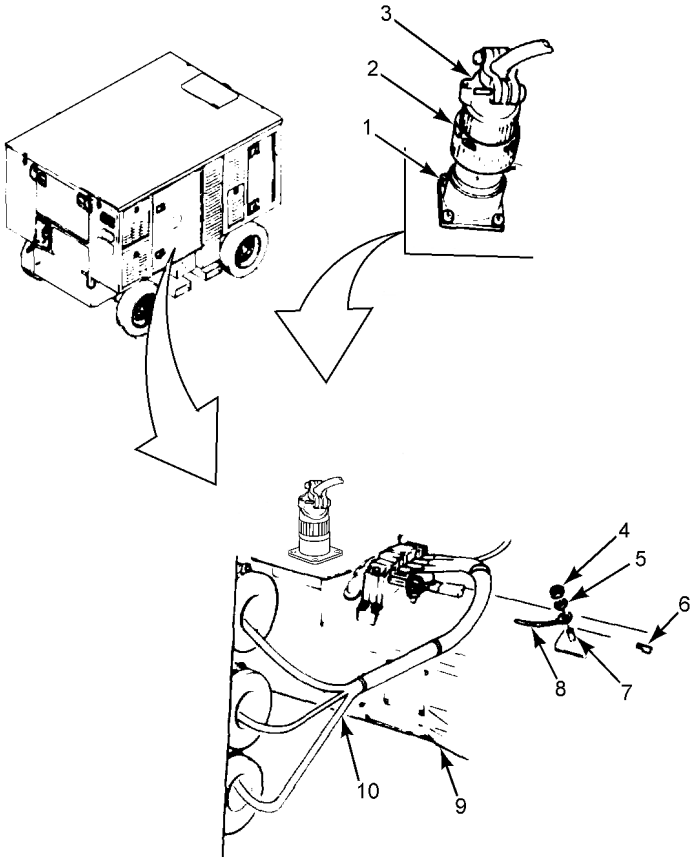
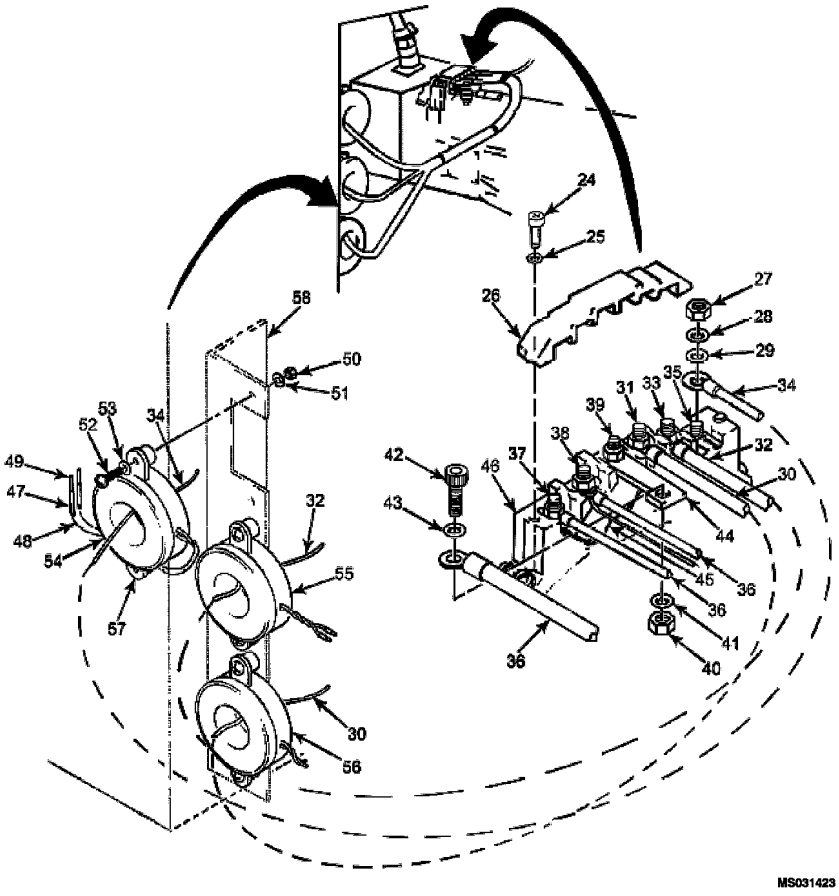


Figure 2. AC/DC Generator and AC Output Current Transformers, 83-360D/E Only (Sheet 1 of 2).

TEST AND INSPECTION – CONTINUED



1. Generator Connector J1
2. Locking Collar
3. Harness Connector P13
4. Nut
5. Lock Washer
6. ?
7. Case Ground Stud
8. Ground Wire
9. AC/DC generator G1
10. ACϕA, B,& C Cables
11. Mounting Bracket
12. Nut
13. Lock Washer
14. AC Terminal Cover
15. Screw
16. Lock Washer
17. Nut
18. Lock Washer
19. Washer
20. ACϕA Cable X1A4A
21. AC ϕB Cable X2A4B
22. AC ϕC Cable X3A4C
23. AC ϕN Terminal Jumper
24. AC ϕN Cables
25. Terminal T6 Extension Bar
26. Lock Washer
27. Nut
28. AC ϕN Cables
29. Washer
30. Bolt
31. AC Terminal Block
32. AC ϕN Terminal Stud T4
33. AC ϕN Terminal Stud T5
34. AC ϕN Terminal Stud T6
35. AC ϕC Terminal Stud T3
36. AC ϕB Terminal Stud T2
37. AC ϕA Terminal Stud T1
38. Transformer T4
39. Transformer T3
40. Mounting Lug
41. Transformer T2
42. Transformer Leads
43. Splice
44. Main Harness Wires
45. Screw
46. Washer

Figure 2. AC/DC Generator and AC Output Current Transformers, 83-360D/E Only (Sheet 2 of 2).

TEST AND INSPECTION – CONTINUED

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

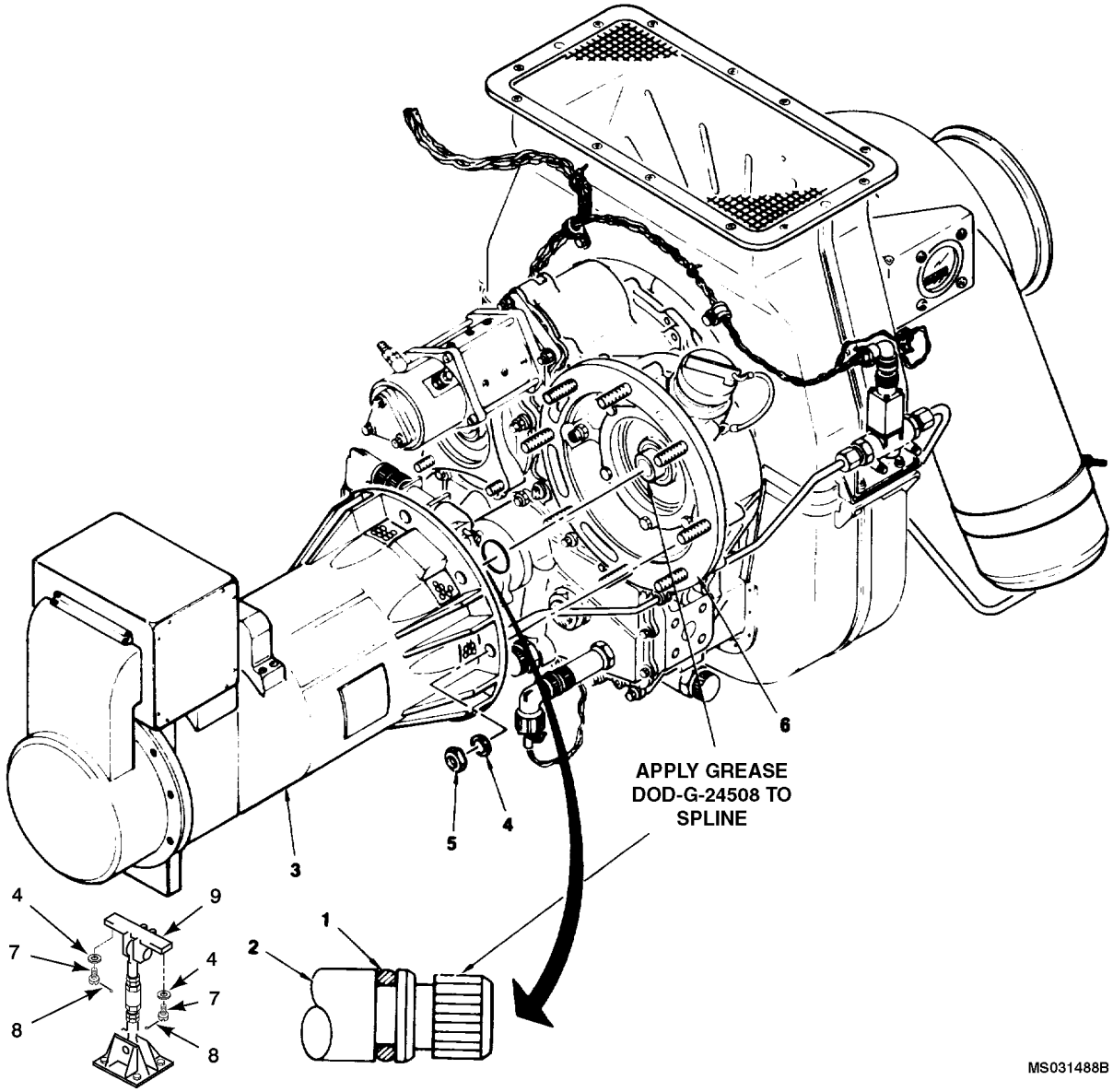
NOTE

Refer to WP 0012 00, trouble shooting procedure 73. DC POWER ON INDICATOR OFF (ENGINE UP TO SPEED AND DC POWER SWITCH ON) (Step 11.) , 74. DC VOLTAGE FAULT INDICATOR LIT (Step 8.and Step 12.), and 82. AC OVER VOLTAGE, OR AC UNDER FREQUENCY INDICATOR LIT (Step 1.) for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Open engine access door (WP 0002 00).
3. Inspect generator (Figure 1, Item 1) for obvious damage, or loose or missing parts.
4. Check that harness connector P13 (Figure 1, Item 4) is securely connected to generator connector J1 (Figure 1, Item 5). Tighten locking collar (Figure 1, Item 3) if required.
5. Perform this step for the **MEP 83-360A only**. Remove two screws (Figure 1, Item 6), lock washers (Figure 1, Item 7) and DC terminal cover (Figure 1, Item 8).
6. Check that cable connections to the DC output terminal stud (-) (Figure 1, Item 13) and DC terminal stud (+) (Figure 1, Item 18) are secure. Tighten terminal nuts (Figure 1, Item 9) and (Figure 1, Item 14) if required. Inspect DC output cable (-) (Figure 1, Item 12) and DC output Cable (+) (Figure 1, Item 17) and terminals for signs of burning. Replace cover (Figure 1, Item 8), lock washer (Figure 1, Item 7) and screw (Figure 1, Item 6).
7. Remove two screws (Figure 1, Item 24), lock washers (Figure 1, Item 25) and AC output terminal cover (Figure 1, Item 26). Check that cable connections to the AC output terminal studs (Figure 1, Item 31, 33, 35, 37, 38, and 39) are secure. Tighten terminal nuts (Figure 1, Item 27 and 40) if required. Inspect cables (Figure 1, Item 30, 32, 34, and 36) and terminals for signs of burning. Replace cover (Figure 1, Item 26), lock washers (Figure 1, Item 25) and screws (Figure 1, Item 24).
8. Check that ground wire (Figure 1, Item 22) connection to generator case ground stud (Figure 1, Item 23) is tight. Tighten nut (Figure 1, Item 20) if necessary.
9. Check that grease fittings (Figure 1, Item 2) are secure, undamaged, and not contaminated.

REMOVAL

Generator Removal/Installation



1. Packing (MS28775-210)
2. Shaft, Generator Drive
3. Generator
4. Washer
5. Nut, Self-Locking
6. Gearcase Generator Pad
7. Bolt
8. Safety Wire .032
9. Support Fitting

Figure 3. Generator Removal/Installation.

NOTE

This procedure is with the GTE and Generator/Alternator removed from AGPU (all models).

1. Support rear of generator (Figure 3, Item 3).

REMOVAL – CONTINUED

2. Remove eight nuts (Figure 3, Item 5) and eight washers (Figure 3, Item 4) and two bolts (Figure 3, Item 7) and two washers (Figure 3, Item 4) from support fitting.
3. Remove generator from engine gearcase generator pad (Figure 3, Item 6).

REMOVAL

Grease Fittings

Replace damaged or clogged grease fittings as follows:

1. Clean area around grease fitting (Figure 1, Item 2).
2. Note alignment of fitting.
3. Remove damaged fitting.
4. Wrap threads on new fitting with teflon tape (WP 0170 00, Item 54).
5. Install new fitting and note alignment.

INSTALLATION

Generator Grease Fitting

Install replacement grease fitting (Figure 1, Item 2) and position for easy access with grease gun.

1. Install generator/alternator to engine gearcase generator pad (Figure 3, Item 6).
2. Install eight nuts (Figure 3, Item 5), eight washers (Figure 3, Item 4), two bolts (Figure 3, Item 7) and two washers (Figure 3, Item 4) to support fitting (Figure 3, Item 9) and generator/alternator.
3. Support rear of generator/alternator (Figure 3, Item 3) with generator/alternator support assembly.

END OF WORK PACKAGE

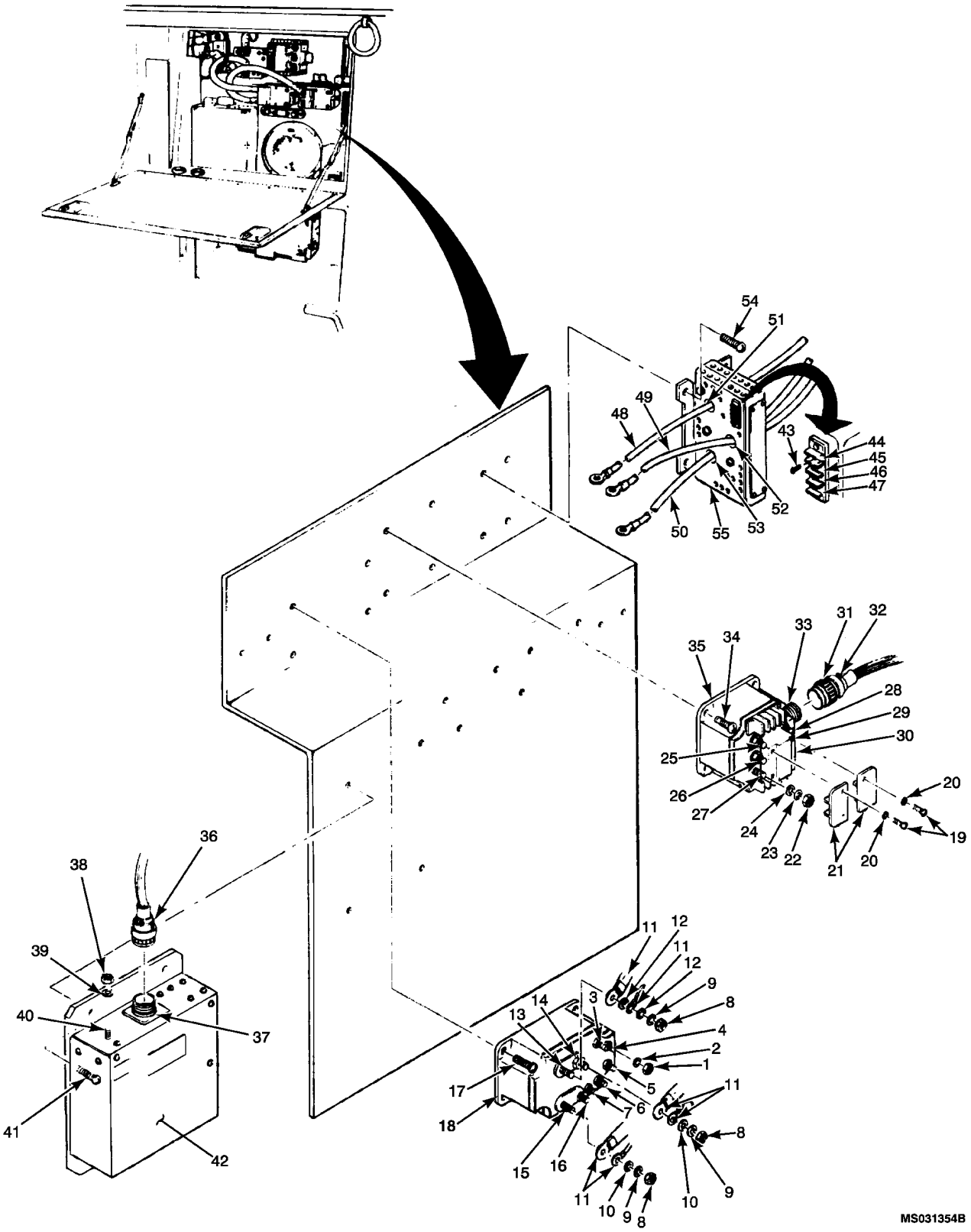
POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

GENERATOR CONTROL UNIT (GCU)

INITIAL SETUP:

Tools and Special Tools	References
Aviation Foot Locker, AFL (WP 0171 00, Item 3)	WP 0002 00
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)	WP 0012 00
Tool Set, Aviation Unit (WP 0171 00, Item 42)	WP 0032 00
	WP 0034 00

TEST AND INSPECTION



TEST AND INSPECTION – CONTINUED

Figure 1. Output Contactors, GCU, and GCU Input Current Transformer.

1. Nut	12. Spacer Washer	23. Lock Washer	34. Screw	45. Meter Terminal T1
2. Lock Washer	13. Terminal A1-left (K2)	24. Washer	35. Contactor K1	46. Meter Terminal T2
3. Terminal B1 (K2)	14. Terminal A1-right (K2)	25. Terminal A2 (K1)	36. Connector P12	47. Meter Terminal T3
4. Terminal X1 (K2)	15. Terminal A2-left (K2)	26. Terminal B2 (K1)	37. Connector J1	48. Cable X1A4A
5. Terminal X2 (K2)	16. Terminal A2-right (K2) (not used)	27. Terminal C2 (K1)	38. Nut	49. Cable X2A4B
6. Terminal B2 (K2)	17. Screw	28. Terminal A1	39. Lock Washer	50. Cable X3A4C
7. Terminal B3 (K2) (Not Used)	18. DC Output Contactor K2	29. Terminal B1	40. Ground Screw	51. Load T1
8. Nut	19. Screw	30. Terminal C1	41. Mounting Screw	52. Load T2
9. Lock Washer	20. Lock Washer	31. Locking Collar	42. Generator Control Unit	53. Load T3
10. Washer	21. Terminal Shield	32. Connector P11	43. Screw	54. Screw
11. Wire	22. Nut	33. Connector J1	44. Meter Terminal N	55. Transformer T1

TEST AND INSPECTION – CONTINUED

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

CAUTION

GCU CSV3370-2 can **ONLY** be used on AGPU, MEP 83-360A.

CAUTION

GCU CSV3370-3 can **ONLY** be used on AGPU, MEP 83-360D/E.

NOTE

Refer to WP 0012 00, trouble shooting procedures 74. DC VOLTAGE FAULT INDICATOR LIT, 77. DC OVER CURRENT INDICATOR DOES NOT LIGHT WHEN DC AMPS METER READS MORE THAN 1070 AMPS, 78. DC VOLTAGE FAULT INDICATOR DOES NOT LIGHT FOLLOWING A DC OVER CURRENT FAULT, 79. DC VOLTAGE FAULT INDICATOR DOES NOT LIGHT WHEN DC AMPS METER READING EXCEEDS MAXIMUM ALLOWABLE FOR THE CURRENT SELECTOR SWITCH SETTING, 81. AC POWER ON INDICATOR OFF (ENGINE UP TO SPEED AND AC POWER SWITCH ON), 82. AC OVER VOLTAGE, OR AC UNDER FREQUENCY INDICATOR LIT, 83. AC UNDER VOLTAGE INDICATOR LIT, 87. AC UNDER VOLTAGE INDICATOR DOES NOT LIGHT FOLLOWING AN AC OVER CURRENT FAULT, 88. AC UNDER VOLTAGE INDICATOR DOES NOT LIGHT WHEN % LOAD METER EXCEEDS MAXIMUM ALLOWABLE FOR THE CURRENT SELECTOR SWITCH SETTING, 89. AC OVER VOLTAGE INDICATOR DOES NOT LIGHT WHEN AC VOLTS METER READS MORE THAN 118 VOLTS, and 90. AC UNDER FREQUENCY INDICATOR DOES NOT LIGHT WHEN AC HERTZ METER READS LESS THAN 375 HZ for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Lower control panel (WP 0032 00).
3. Remove battery charger cover panel (WP 0002 00, Figure 1, Item 6).
4. Inspect GCU (Figure 1, Item 42) for signs of overheating or corrosion.
5. Check that harness connector P12 (Figure 1, Item 36) is securely connected to GCU connector J1 (Figure 1, Item 37).
6. Check GCU for security of installation. Tighten mounting screws (Figure 1, Item 41) as required.

REMOVAL

1. Disconnect battery. (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Lower control panel (WP 0032 00).
3. Remove battery charger access cover (WP 0002 00, Figure 1, Item 6).
4. Turn locking collar connector P-12 (Figure 1, Item 36) counterclockwise and remove harness connector P12 (Figure 1, Item 36) from GCU connector J1 (Figure 1, Item 37).
5. Remove nut (Figure 1, Item 38) and lock washer (Figure 1, Item 39), and remove ground wire from ground screw (Figure 1, Item 40).
6. Support GCU. Remove four mounting screws (Figure 1, Item 41) and GCU (Figure 1, Item 42).

INSTALLATION

1. Check nutplates on panel. If any of the four nutplates is missing or damaged, notify supervisor.
2. Hold GCU (Figure 1, Item 42) in place against panel with electrical connector (Figure 1, Item 37) up. Fasten GCU to nutplates with four mounting screws (Figure 1, Item 41), four lock washers (Figure 1, Item 39) and four nuts (Figure 1, Item 38).
3. Install ground wire on GCU case ground screws (Figure 1, Item 40). Install lock washer (Figure 1, Item 39) and nut (Figure 1, Item 38) on screw.
4. Install harness connector P12 (Figure 1, Item 36) on GCU connector J1 (Figure 1, Item 37). Turn locking collar (Figure 1, Item 31) clockwise.
5. Replace control panel and close control panel access door.
6. Replace battery charger access door.
7. Perform MOC.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

CURRENT TRANSFORMER (T1) (GCU INPUT)

INITIAL SETUP:

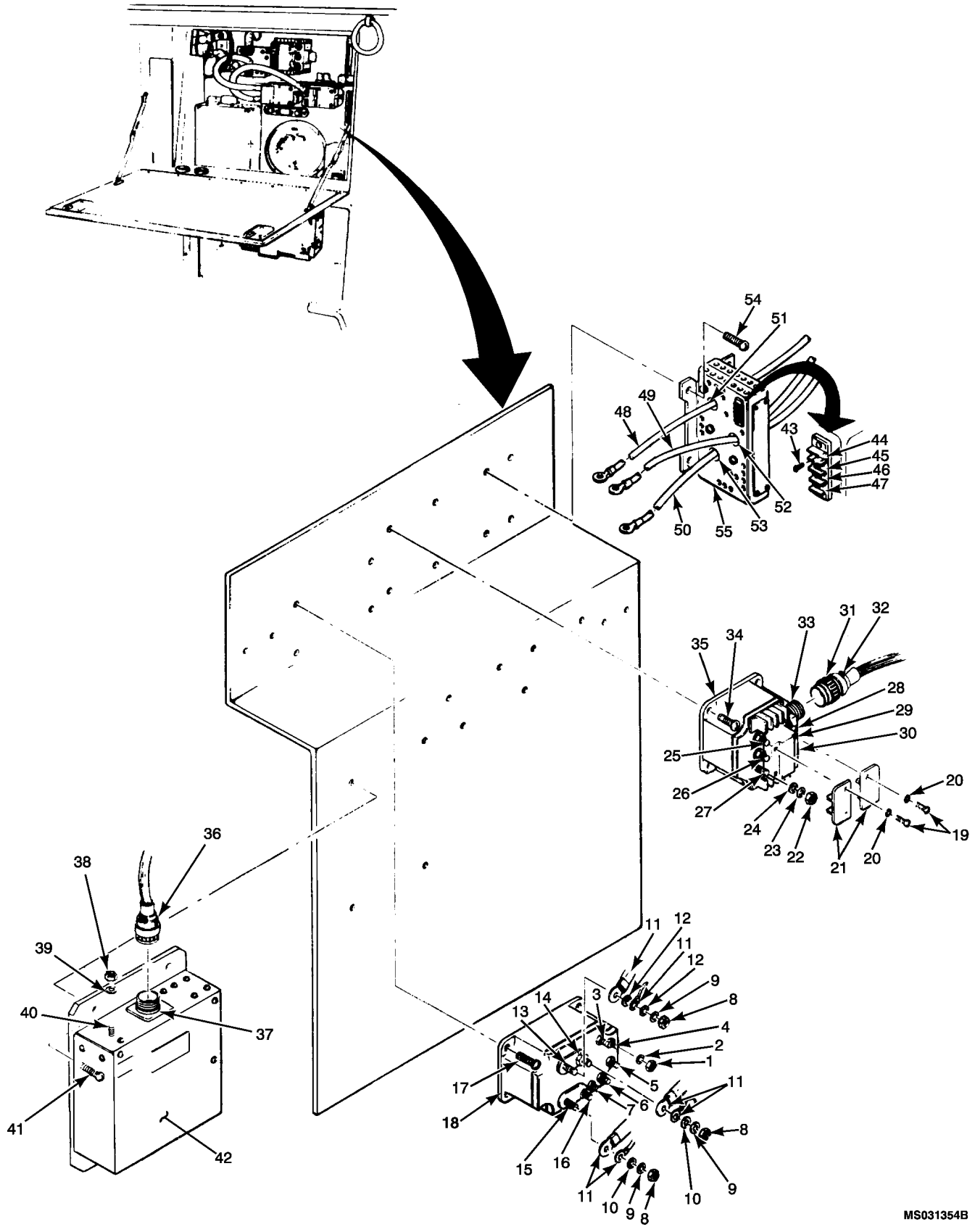
Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0012 00
WP 0032 00
WP 0034 00

TEST AND INSPECTION



TEST AND INSPECTION – CONTINUED

Figure 1. Output Contactors, GCU, and GCU Input Current Transformer.

1. Nut
2. Lock Washer
3. Terminal B1 (K2)
4. Terminal X1 (K2)
5. Terminal X2 (K2)
6. Terminal B2 (K2)
7. Terminal B3 (K2) (Not Used)
8. Nut
9. Lock washer
10. Washer
11. Wire
12. Spacer Washer
13. Terminal A1-left (K2)
14. Terminal A1-right (K2)
15. Terminal A2 - Left (K2)
16. Terminal A2 - Right (K2) (Not Used)
17. Screw
18. DC Output Contactor K2
19. Screw
20. Lock Washer
21. Terminal Shield
22. Nut
23. Lock Washer
24. Washer
25. Terminal A2 (K1)
26. Terminal B2 (K1)
27. Terminal B2 (K1)
28. Terminal KA1
29. Terminal KB1
30. Terminal KC1
31. Locking Collar
32. Connector P11
33. Connector J1
34. Screw
35. Contactor K1
36. Connector P12
37. Connector J1
38. Nut
39. Washer
40. Ground screw
41. Screw
42. Generator Control Unit
43. Screw
44. Meter Terminal N
45. Meter Terminal T1
46. Meter Terminal T2
47. Meter Terminal T3
48. Cable X1A4A
49. Cable X2A4A
50. Cable X3A4A
51. Load T1
52. Load T2
53. Load T3
54. Screw
55. Transformer T1

WARNING

Remove all rings watches and other jewelry when performing maintenance on this equipment.

NOTE

Refer to WP 0012 00, trouble shooting procedure 88. AC UNDER VOLTAGE INDICATOR DOES NOT LIGHT WHEN % LOAD METER EXCEEDS MAXIMUM ALLOWABLE FOR THE CURRENT SELECTOR SWITCH SETTING (Step 5.) for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Lower control panel (WP 0032 00).
3. Inspect transformer (Figure 1, Item 55) for signs of overheating or corrosion.
4. Check that all transformer wire connections are secure.

REMOVAL

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Lower control panel (WP 0032 00).
3. Tag and disconnect all wires from transformer meter terminals (Figure 1, Item 44 through Item 47).
4. Remove terminal shield (Figure 1, Item 21) by removing screws (Figure 1, Item 19) and lock washer (Figure 1, Item 20). Mark wire locations from right side of AC output contactor K1 (Figure 1, Item 35).
5. Disconnect cables (Figure 1, Items 48, 49 and 50) from contactor K1 terminals (Figure 1, Items 28, 29 and 30).
6. Remove four screws (Figure 1, Item 54) and slide transformer T1 (Figure 1, Item 55) off cables.

INSTALLATION

1. Check nutplates on panel. If any of the four nutplates is missing or damaged, notify maintenance supervisor.
2. Hold replacement transformer T1 (Figure 1, Item 55) with meter terminals (Figure 1, Item 44 through Item 47) at top left. Insert cable X1A4A (Figure 1, Item 48) through transformer hole marked T1 (Figure 1, Item 51), cable X2A4A (Figure 1, Item 49) through hole marked T2 (Figure 1, Item 52) and cable X3A4A (Figure 1, Item 50) through hole marked Load T3 (Figure 1, Item 53).
3. Fasten transformer to panel nutplates with four screws (Figure 1, Item 54).
4. Use ID tags and install wires (large wire first) on contactor K1 terminals (Figure 1, Items 28, 29 and 30). Install washer (Figure 1, Item 24), lock washer (Figure 1, Item 23) and nut (Figure 1, Item 22) on each terminal.
5. Install terminal shield (Figure 1, Item 21), lock washers (Figure 1, Item 20) and screws (Figure 1, Item 19).
6. Use ID tags and connect wires to meter terminals (Figure 1, Items 44 through 47) on transformer T1 (Figure 1, Item 55). Attach each wire with screw (Figure 1, Item 43).
7. Replace control panel and close control panel access door.
8. Reconnect battery.
9. Perform MOC.

END OF WORK PACKAGE

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EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

CURRENT TRANSFORMERS (T2-T4) (AC OUTPUT)

INITIAL SETUP:

Tools and Special Tools
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts
Transformer, T2 ()

Materials/Parts (cont.)
Heat Shrink Tubing ()

References
WP 0012 00
WP 0002 00
WP 0034 00

TEST AND INSPECTION

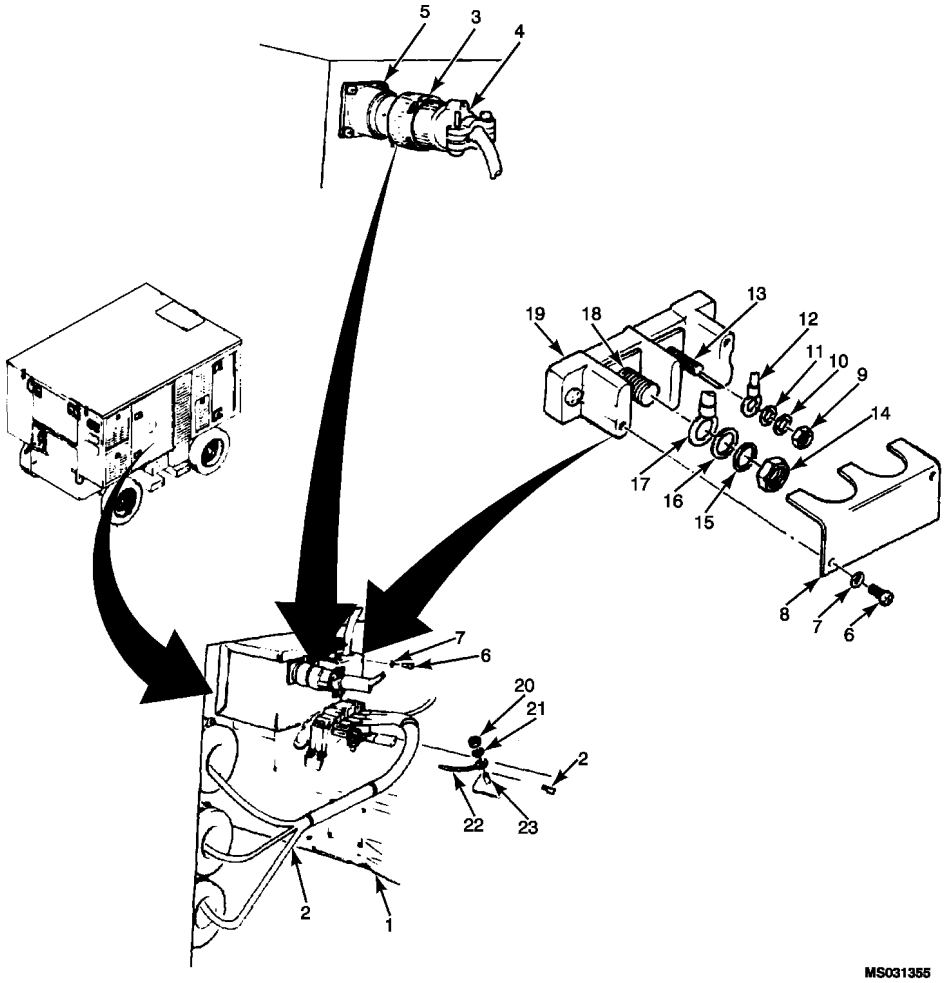
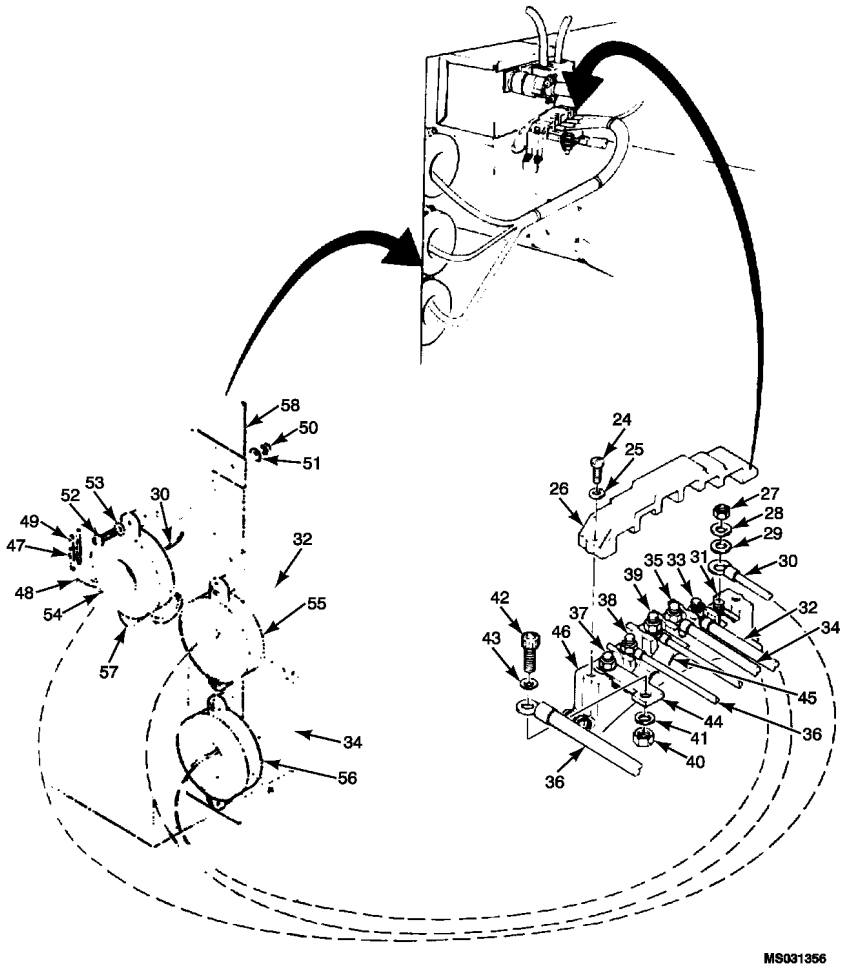


Figure 1. AC/DC Generator and AC Output Current Transformers, 83-360A Only (Sheet 1 of 2).

TEST AND INSPECTION – CONTINUED



1. AC/DC Generator G1
2. Grease Fitting
3. Locking Collar
4. Harness Connector P13
5. Generator Connector J1
6. Screw
7. Lock Washer
8. DC Terminal Cover
9. Nut
10. Lock Washer
11. Washer
12. DC Output Cable
13. DC Terminal Stud (-)
14. Nut
15. Lock Washer
16. Washer
17. DC Output Cable (+)
18. DC Terminal Stud (+)
19. DC Terminal Block
20. Nut
21. Lock Washer
22. Ground Wire
23. Case Ground Stud
24. Screw
25. Lock Washer
26. AC Terminal Cover
27. Nut
28. Lock Washer
29. Washer
30. ACϕA Cable X1A4A
31. AC ϕA Terminal Stud T1
32. AC ϕB Cable X2A4B
33. AC ϕB Terminal Stud T2
34. AC ϕC Cable X3A4C
35. AC ϕC Terminal Stud T3
36. AC ϕN Cables
37. AC ϕN Terminal Stud T4
38. AC ϕN Terminal Stud T5
39. AC ϕN Terminal Stud T6
40. Nut
41. Lock Washer
42. Screw
43. Washer
44. Terminal T6 Extension Bar
45. AC ϕN Terminal Jumper
46. AC Terminal Block
47. Splice
48. Transformer Leads
49. Main Harness Wires
50. Nut
51. Lock Washer
52. Screw
53. Washer
54. Transformer T2
55. Transformer T3
56. Transformer T4
57. Mounting Lug
58. Mounting Bracket

Figure 1. AC/DC Generator and AC Output Current Transformers, 83-360A Only (Sheet 2 of 2).

TEST AND INSPECTION – CONTINUED

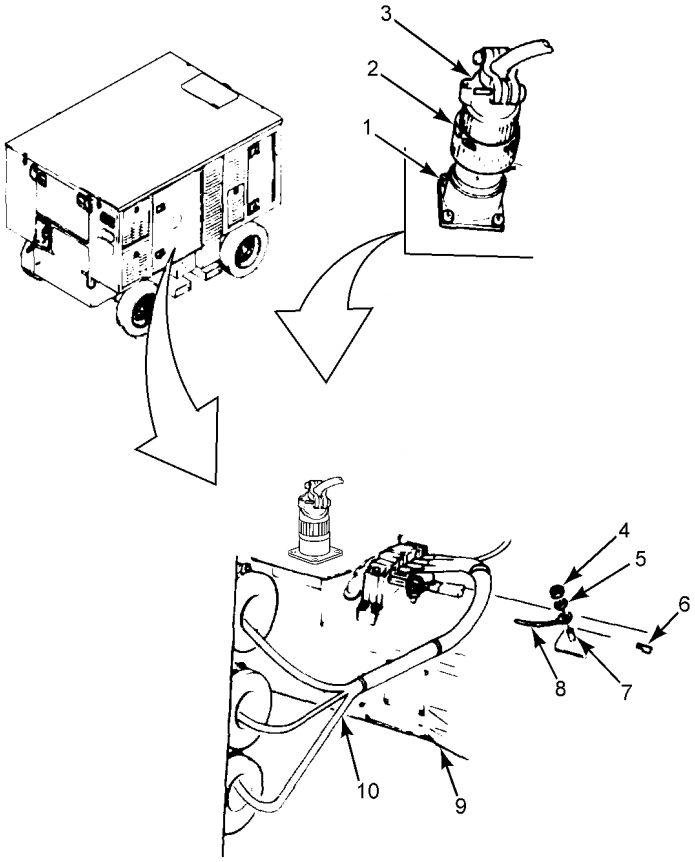
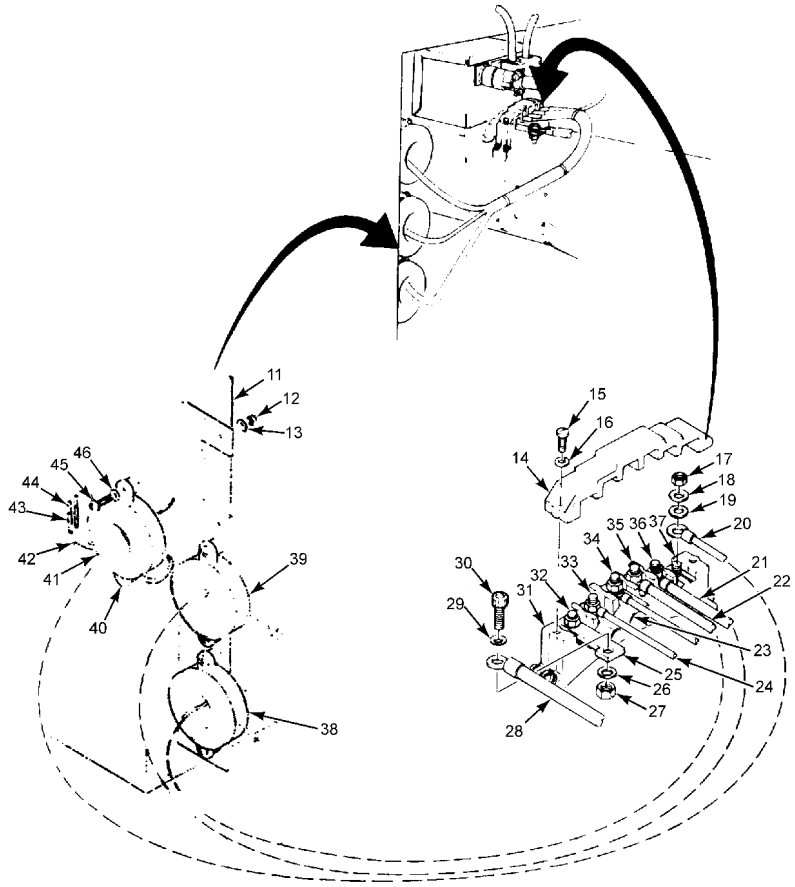


Figure 2. AC/DC Generator and AC Output Current Transformers, 83-360D/E Only (Sheet 1 of 2).

TEST AND INSPECTION – CONTINUED



1. Generator Connector J1
2. Locking Collar
3. Harness Connector P13
4. Nut
5. Lock Washer
6. Grease Fitting
7. Case Ground Stud
8. Ground Wire
9. AC/DC generator G1
10. ACϕA, B,& C Cables
11. Mounting Bracket
12. Nut
13. Lock Washer
14. AC Terminal Cover
15. Screw
16. Lock Washer
17. Nut
18. Lock Washer
19. Washer
20. ACϕA Cable X1A4A
21. AC ϕB Cable X2A4B
22. AC ϕC Cable X3A4C
23. AC ϕN Terminal Jumper
24. AC ϕN Cables
25. Terminal T6 Extension Bar
26. Lock Washer
27. Nut
28. AC ϕN Cables
29. Washer
30. Bolt
31. AC Terminal Block
32. AC ϕN Terminal Stud T4
33. AC ϕN Terminal Stud T5
34. AC ϕN Terminal Stud T6
35. AC ϕC Terminal Stud T3
36. AC ϕB Terminal Stud T2
37. AC ϕA Terminal Stud T1
38. Transformer T4
39. Transformer T3
40. Mounting Lug
41. Transformer T2
42. Transformer Leads
43. Splice
44. Main Harness Wires
45. Screw
46. Washer

Figure 2. AC/DC Generator and AC Output Current Transformers, 83-360D/E Only (Sheet 2 of 2).

TEST AND INSPECTION – CONTINUED

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

Refer to WP 0012 00, trouble shooting procedure 86. AC % LOAD METER READS 0 (AC POWER ON INDICATOR LIT AND AC POWER CABLE CONNECTED TO LOAD) (Step 7.) for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Open engine access door (WP 0002 00).
3. Check that transformers (Figure 2. Sheet 2 of 2, Item 54, 55 and 56) are not punctured or otherwise damaged.
4. Check that transformer covering is in place.
5. Inspect transformers for security of installation. Tighten mounting screws (Figure 2, Item 52) as required.

NOTE

Removal and installation procedures are the same for current transformers T2 through T4. T2 is illustrated.

REMOVAL

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Open engine access door (WP 0002 00).
3. Remove screws (Figure 2. Sheet 2 of 2, Item 24), lock washer (Figure 2. Sheet 2 of 2, Item 25) and AC terminal cover (Figure 2. Sheet 2 of 2, Item 26).
4. Disconnect cable X1A4A (Figure 2. Sheet 2 of 2, Item 30) running through transformer T2 (Figure 2. Sheet 2 of 2, Item 54) from generator AC output terminal T1 (Figure 2. Sheet 2 of 2, Item 31).
5. Locate splices (Figure 2. Sheet 2 of 2, Item 47) between transformer leads (Figure 2. Sheet 2 of 2, Item 48) and main harness wires (Figure 2. Sheet 2 of 2, Item 49). Tag wires and disconnect transformer leads from main harness by removing splice.
6. Remove nuts (Figure 2. Sheet 2 of 2, Item 50), lock washers (Figure 2. Sheet 2 of 2, Item 51), screws (Figure 2. Sheet 2 of 2, Item 52), and washers (Figure 2. Sheet 2 of 2, Item 53), and slide transformer (Figure 2. Sheet 2 of 2, Item 54) off cable.

INSTALLATION

1. Insert generator output cable X1A4A (Figure 2. Sheet 2 of 2, Item 30) through center of replacement transformer T2 (Figure 2. Sheet 2 of 2, Item 54).
2. Wrap transformer leads (Figure 2. Sheet 2 of 2, Item 48) around transformer body, between body and mounting lugs (Figure 2. Sheet 2 of 2, Item 57).
3. Install transformer on mounting bracket using washers (Figure 2. Sheet 2 of 2, Item 53), screws (Figure 2. Sheet 2 of 2, Item 52), lock washers (Figure 2. Sheet 2 of 2, Item 51), and nuts (Figure 2. Sheet 2 of 2, Item 50).
4. Insert heat shrink tubing over transformer leads (Figure 2. Sheet 2 of 2, Item 48). Use ID tags and splice (Figure 2. Sheet 2 of 2, Item 47), connect transformer leads (Figure 2. Sheet 2 of 2, Item 48) to main harness wiring (Figure 2. Sheet 2 of 2, Item 49). Slide heat shrink tubing over splice and apply heat to tubing.

INSTALLATION – CONTINUED

5. Install cable X1A4A (Figure 2. Sheet 2 of 2, Item 30) to generator AC output terminal T1 (Figure 2. Sheet 2 of 2, Item 31). Secure cable with washer (Figure 2. Sheet 2 of 2, Item 29), lock washer (Figure 2. Sheet 2 of 2, Item 28) and nut (Figure 2. Sheet 2 of 2, Item 27).
6. Install AC terminal cover (Figure 2. Sheet 2 of 2, Item 26), two lock washers (Figure 2. Sheet 2 of 2, Item 25) and screws (Figure 2. Sheet 2 of 2, Item 24).
7. Close engine access door.
8. Reconnect Battery.
9. Perform MOC.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

TRANSFORMER RECTIFIER UNIT (TRU)

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0016 00
WP 0021 00
WP 0034 00

TEST AND INSPECTION

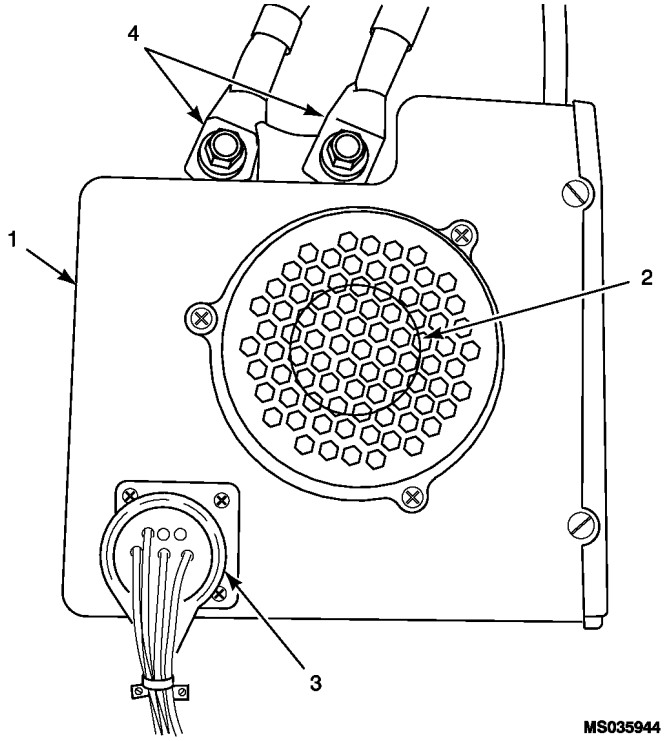
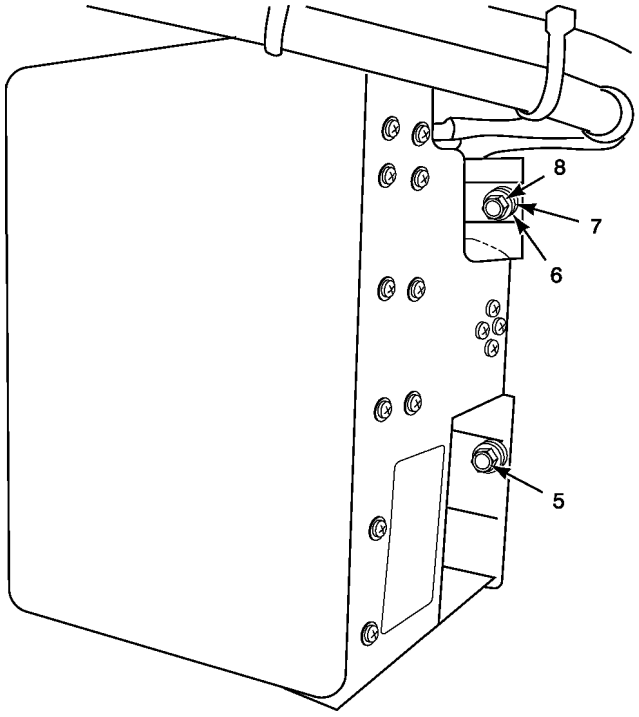


Figure 1. Transformer Rectifier Unit (Sheet 1 of 2).

TEST AND INSPECTION – CONTINUED



1. TRU
2. TRU Cooling Fan
3. AC Input Connector (P-20)
4. DC Output Cable Connections
5. Mounting Bolts
6. Flat Washer
7. Lock Washer
8. Nuts

Figure 1. Transformer Rectifier Unit (Sheet 2 of 2).

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Slide AGPU roof panel back to get clear access to the DC cable bay (WP 0016 00).
3. Check to see that cooling air inlet to the TRU cooling fan (Figure 1, Item 2) is clear.
4. Check that AC input connector (P20). (Figure 1, Item 3) is secured.
5. Check to see DC output cable connections (Figure 1, Item 4) are secure and not corroded.

REMOVAL

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Slide AGPU roof panel back to get clear access to the DC cable bay (WP 0021 00).
3. Remove AC input connector (P20) (Figure 1, Item 3).
4. Remove DC output cable connections (Figure 1, Item 4) from positive and negative lug of the TRU. (Figure 1, Item 1)

REMOVAL – CONTINUED

5. Support the TRU and remove the four mounting bolts (Figure 1, Item 5), eight flat washers (Figure 1, Item 6), four lock washers (Figure 1, Item 7) and four nuts (Figure 1, Item 8) securing the TRU to the side wall of the DC cable bay.
6. Remove the TRU (Figure 1, Item 1).

INSTALLATION

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Slide AGPU roof panel back to get clear access to the DC cable bay (WP 0016 00).
3. Secure the TRU to the sidewall of the DC cable bay using the four mounting bolts (Figure 1, Item 5), eight flat washers (Figure 1, Item 6), four lock washers (Figure 1, Item 7), and four nuts (Figure 1, Item 8).
4. Install AC input connector (P20) (Figure 1, Item 3).
5. Install DC output cable connections (Figure 1, Item 4) to positive and negative lug of the TRU (Figure 1, Item 1).
6. Secure AGPU roof (WP 0016 00).
7. Perform MOC.

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

AC AND DC OUTPUT CONTACTOR (K1, K2, K3 AND K4)

INITIAL SETUP:

Tools and Special Tools

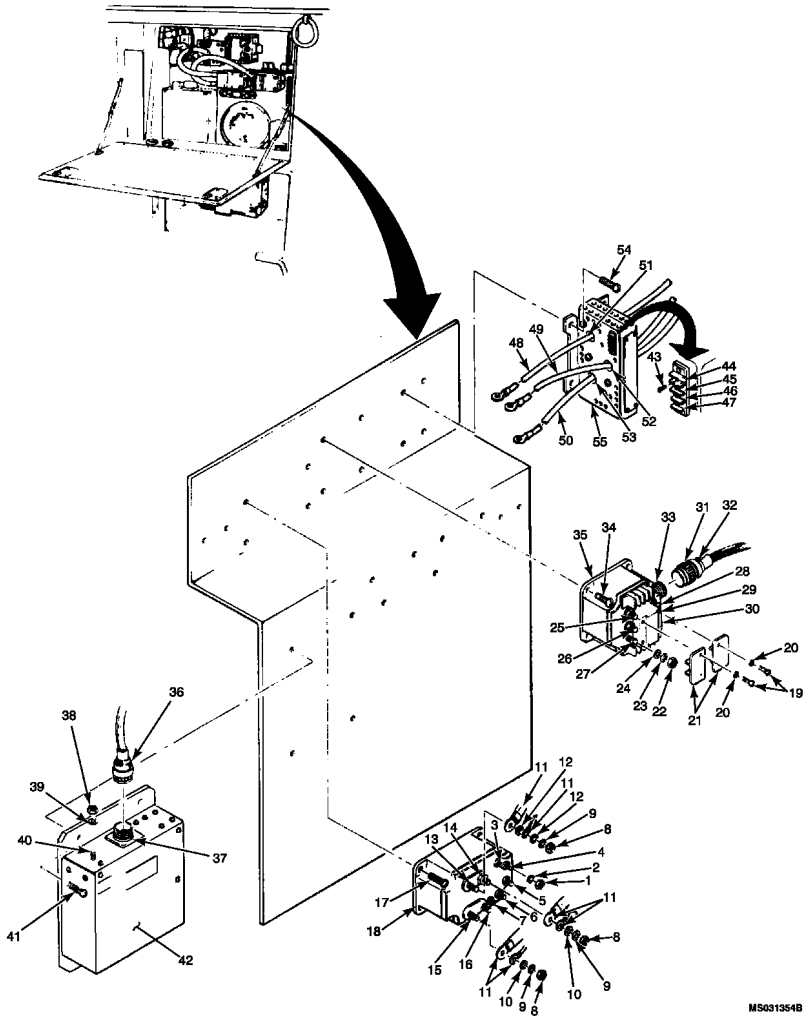
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0032 00
WP 0034 00

TEST AND INSPECTION

K1 CONTACTOR



1. Nut	12. Spacer Washer	23. Lock Washer	34. Screw	45. Meter Terminal T1
2. Lock Washer	13. Terminal A1-Left (K2)	24. Washer	35. Contactor K1	46. Meter Terminal T2
3. Terminal B1 (K2)	14. Terminal A1-Right (K2)	25. Terminal A2 (K1)	36. Connector P12	47. Meter Terminal T3
4. Terminal X1 (K2)	15. Terminal A2 - Left (K2)	26. Terminal B2 (K1)	37. Connector J1	48. Cable X1A4A
5. Terminal X2 (K2)	16. Terminal A2 - Right (K2) (Not Used)	27. Terminal C2 (K1)	38. Nut	49. Cable X2A4B
6. Terminal B2 (K2)	17. Screw	28. Terminal A1	39. Washer	50. Cable X3A4C
7. Terminal B3 (K2) (Not Used)	18. DC Output Contactor K2	29. Terminal B1	40. Ground screw	51. Load T1
8. Nut	19. Screw	30. Terminal C1	41. Screw	52. Load T2
9. Lock washer	20. Lock Washer	31. Locking Collar	42. Generator Control Unit	53. Load T3
10. Washer	21. Terminal Shield	32. Connector P11	43. Screw	54. Screw
11. Wire	22. Nut	33. Connector J1	44. Meter Terminal N	55. Transformer T1

Figure 1. Output Contactors, GCU, and GCU Input Current Transformer.

TEST AND INSPECTION – CONTINUED

K1 CONTACTOR – CONTINUED

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

Refer to WP 0012 00, trouble shooting procedure 93. AC CONTACTOR K1 MALFUNCTION for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Lower control panel (WP 0032 00).
3. Inspect AC output contactor K1 (Figure 1, Item 35) for signs of overheating or corrosion.
4. Check that all contactor cable and wire connections are tight.

REMOVAL

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

Refer to WP 0012 00, trouble shooting procedure 93. AC CONTACTOR K1 MALFUNCTION for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Lower control panel (WP 0032 00).
3. Remove screws (Figure 1, Item 19), lock washers (Figure 1, Item 20) and terminal shields (Figure 1, Item 21).
4. Tag and remove all wires and cables from contactor.
5. Turn locking collar (Figure 1, Item 31) counterclockwise and remove harness connector P11 (Figure 1, Item 32) from contactor connector J1 (Figure 1, Item 33).
6. Support contactor. Remove screws (Figure 1, Item 34) and contactor K1 (Figure 1, Item 35).

INSTALLATION

1. Check nutplates on panel. If any of the four nutplates is damaged or missing, notify maintenance supervisor.
2. Remove four screws (Figure 1, Item 19), lock washers (Figure 1, Item 20) and terminal shields (Figure 1, Item 21) from replacement contactor.
3. Hold contactor K1 (Figure 1, Item 35) in position against panel with electrical connector J1 (Figure 1, Item 33) to right. Fasten contactor to nutplates with four screws (Figure 1, Item 34).
4. Install harness connector P11 (Figure 1, Item 32) to contactor connector J1 (Figure 1, Item 33).
5. Use ID tags and install wires (large wires first) on contactor terminals (Figure 1, Items 25, 26, 27, 28, 29 and 30). Install washer (Figure 1, Item 24), lock washer (Figure 1, Item 23), and nut (Figure 1, Item 22) on each terminal.

INSTALLATION – CONTINUED

6. Install terminal shields (Figure 1, Item 21), lock washers (Figure 1, Item 20) and screws (Figure 1, Item 19).
7. Replace control panel and close control panel access door.
8. Perform MOC.

TEST AND INSPECTION

K2 CONTACTOR

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

Refer to WP 0012 00, trouble shooting procedure 92. DC CONTRACTOR K2 MALFUNCTION for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Lower control panel (WP 0032 00).
3. Inspect DC output contactor K2 (Figure 1, Item 18) for signs of overheating or corrosion.
4. Check that all contactor cable and wire connections are tight.

REMOVAL

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Lower control panel (WP 0032 00).
3. Remove two screws (Figure 1, Item 19), washers (Figure 1, Item 20) and terminal shield (Figure 1, Item 21) from left side of AC contactor K1 (Figure 1, Item 35). Tag and remove cables and wires from terminals A2 (Figure 1, Item 25), B2 (Figure 1, Item 26), and C2 (Figure 1, Item 27). Removing these cables is necessary for access to DC output contactor K2.
4. Tag and remove all wires and cables from contactor terminals (Figure 1, Item 3, 4, 5, 6, 13, 14, 15 and 16). Save spacer washers (Figure 1, Item 12) on terminal A1-Left (Figure 1, Item 13) for reinstallation.
5. Support contactor K2 (Figure 1, Item 18), and remove four screws (Figure 1, Item 17) and contactor.

INSTALLATION

1. Check nutplates on panel. If any of the four nutplates is missing or damaged, notify maintenance supervisor.
2. Hold contactor K2 (Figure 1, Item 18) in position against panel with small terminals (Figure 1, Items 3 through 7) to right. Fasten contactor to nut plates with four screws (Figure 1, Item 17).

INSTALLATION – CONTINUED

3. Remove nuts (Figure 1, Item 1) and lock washers (Figure 1, Item 2) from contactor terminals B1 (Figure 1, Item 3), X1 (Figure 1, Item 4), X2 (Figure 1, Item 5) and B2 (Figure 1, Item 6). Use ID tags and install wires on terminals B1, X1, X2, and B2. Secure wires with lock washers and nuts.

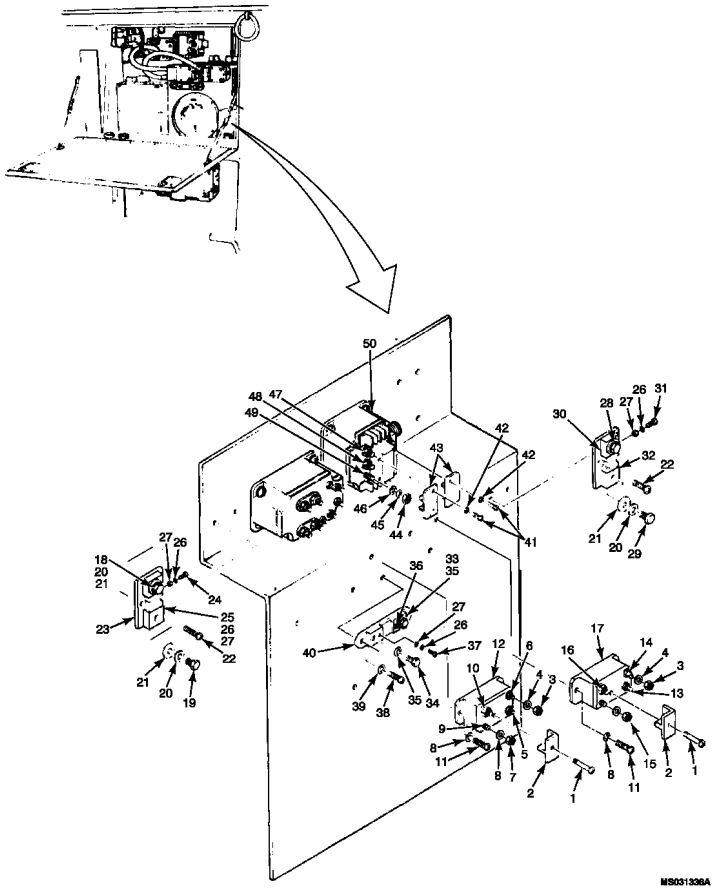
NOTE

On the 83-360D and 83-360E only, install jumper wire P2D20 connects A1 right to B1. Jumper wire P2E20A connect between B1 to X1. On all models terminal X1 connects to wires P38B20 and G25A20 and terminal B2 connect wire P46A20.

4. Remove nuts (Figure 1, Item 8), lock washers (Figure 1, Item 9) and washers (Figure 1, Item 10) from contactor terminals A1-Left (Figure 1, Item 13), A1-Right (Figure 1, Item 14), and A2-Left (Figure 1, Item 15). Use ID tags, install wires and hardware (in order) on contactor terminals as follows:
    a. On terminal A1-Left (Figure 1, Item 13), install large wire, spacer washer (Figure 1, Item 12), small wire, spacer washer (Figure 1, Item 12), lock washer (Figure 1, Item 9) and nut (Figure 1, Item 8).
    b. On terminal A1-Right (Figure 1, Item 14), install large wire, small wire, washer (Figure 1, Item 10) lock washer (Figure 1, Item 9) and nut (Figure 1, Item 8).
    c. On terminal A2-Left (Figure 1, Item 15), install large wire, smaller wire, washer (Figure 1, Item 10), lock washer (Figure 1, Item 9), and nut (Figure 1, Item 8).
5. Using ID tags, install wires (large wires first) on terminals A2 (Figure 1, Item 25), B2 (Figure 1, Item 26), and C2 (Figure 1, Item 27) of AC contactor K1. Install washer (Figure 1, Item 24), lock washer (Figure 1, Item 23) and nut (Figure 1, Item 22) on each terminal.
6. Install terminal shield (Figure 1, Item 21), lock washers (Figure 1, Item 20) and screws (Figure 1, Item 19).
7. Replace control panel and close control panel access door.
8. Reconnect Battery.
9. Perform MOC.

TEST AND INSPECTION

K3 AND K4 CONTACTORS



1. Screw	11. Screw	21. Washer	31. Meter Terminal (R2+)	41. Screw
2. Terminal shield	12. Battery output/traction motor contactor K4	22. Screw	32. Meter Terminal (R2-)	42. Lock Washer
3. Nut	13. Terminal X1 (K4)	23. Output shunt R1	33. Load Terminal (R3-)	43. Terminal Shield
4. Washer	14. Terminal X2 (K4)	24. Meter Terminal (R1+)	34. Load Terminal (R3+)	44. Nut
5. Terminal X1 (K3)	15. Terminal A1 (K4)	25. Meter Terminal (R1-)	35. Washer	45. Lock Washer
6. Terminal X2 (K3)	16. Terminal A2 (K4)	26. Lock Washer	36. Meter Terminal (R3-)	46. Washer
7. Nut	17. GTE starter contactor K3	27. Washer	37. Meter Terminal (R3+)	47. Terminal A2 (K1)
8. Washer	18. Load Terminal (R1+)	28. Load Terminal (R2+)	38. Screw	48. Terminal B2 (K1)
9. Terminal A1 (K3)	19. Load Terminal (R1-)	29. Load Terminal (R1-)	39. Washer	49. Terminal C2 (K1)
10. Terminal A2 (K3)	20. Lock Washer	30. Starter shunt R2	40. Shunt r3	50. AC contactor K1

Figure 2. Starter Contactors and Shunts.

TEST AND INSPECTION – CONTINUED

K3 AND K4 CONTACTORS – CONTINUED

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

WARNING

Disconnect battery. (MEP 83-360E only) Disconnect J-1 and P-1 connector.

NOTE

Refer to WP 0012 00, trouble shooting procedure 85. AC HERTZ METER READS 0 (AC VOLTS METER READS NORMAL) for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Lower the control panel (WP 0032 00).
3. Inspect contactor K3 (Figure 2, Item 12) and contactor K4 (Figure 2, Item 17) for signs of overheating or corrosion.
4. Check that all cable and wire connections at contactor terminals' screws (Figure 2, Item 5, 6, 9, 10, 13, 14, 15 and 16) are tight.

REMOVAL

NOTE

Removal and installation procedures are the same for contactors K3 and K4. (K3 is illustrated).

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Lower control panel (WP 0032 00).
3. Remove screw (Figure 2, Item 1) and terminal shield (Figure 2, Item 2).
4. Tag and remove all wires and cables from contactor terminals (Figure 2, Item 5, 6, 9, and 10).
5. Remove two screws (Figure 2, Item 11) and contactor K3 (Figure 2, Item 12).

INSTALLATION

1. Check nutplates on bulkhead panel. If either nutplate is missing or damaged, notify supervisor.
2. Remove screw (Figure 2, Item 1) and terminal shield (Figure 2, Item 2) from replacement contactor (Figure 2, Item 12).
3. Hold contactor (Figure 2, Item 12) in position with X1 (Figure 2, Item 5) and X2 (Figure 2, Item 6) terminals to right. Fasten contactor to nutplates with two screws (Figure 2, Item 11).
4. Remove nuts (Figure 2, Item 3) and washers (Figure 2, Item 4) from contactor terminals X1 (Figure 2, Item 5) and X2 (Figure 2, Item 6). Use ID tags and install wires on terminals X1 and X2. Secure washers with washers and nuts.

INSTALLATION – CONTINUED

5. Remove nuts (Figure 2, Item 7) and washers (Figure 2, Item 8) from contactor terminals A1 (Figure 2, Item 9) and A2 (Figure 2, Item 10). Use ID tags and install cables and wires on terminals A1 and A2. If a cable and wire is installed on same terminal, install cable first. Secure wires and cables with washers and nuts.
6. Replace terminal shield (Figure 2, Item 2) and screw (Figure 2, Item 1).
7. Replace control panel.
8. Reconnect battery.
9. Perform MOC.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

AC CONVENIENCE RECEPTACLES AND CIRCUIT BREAKERS (J1 - J4)

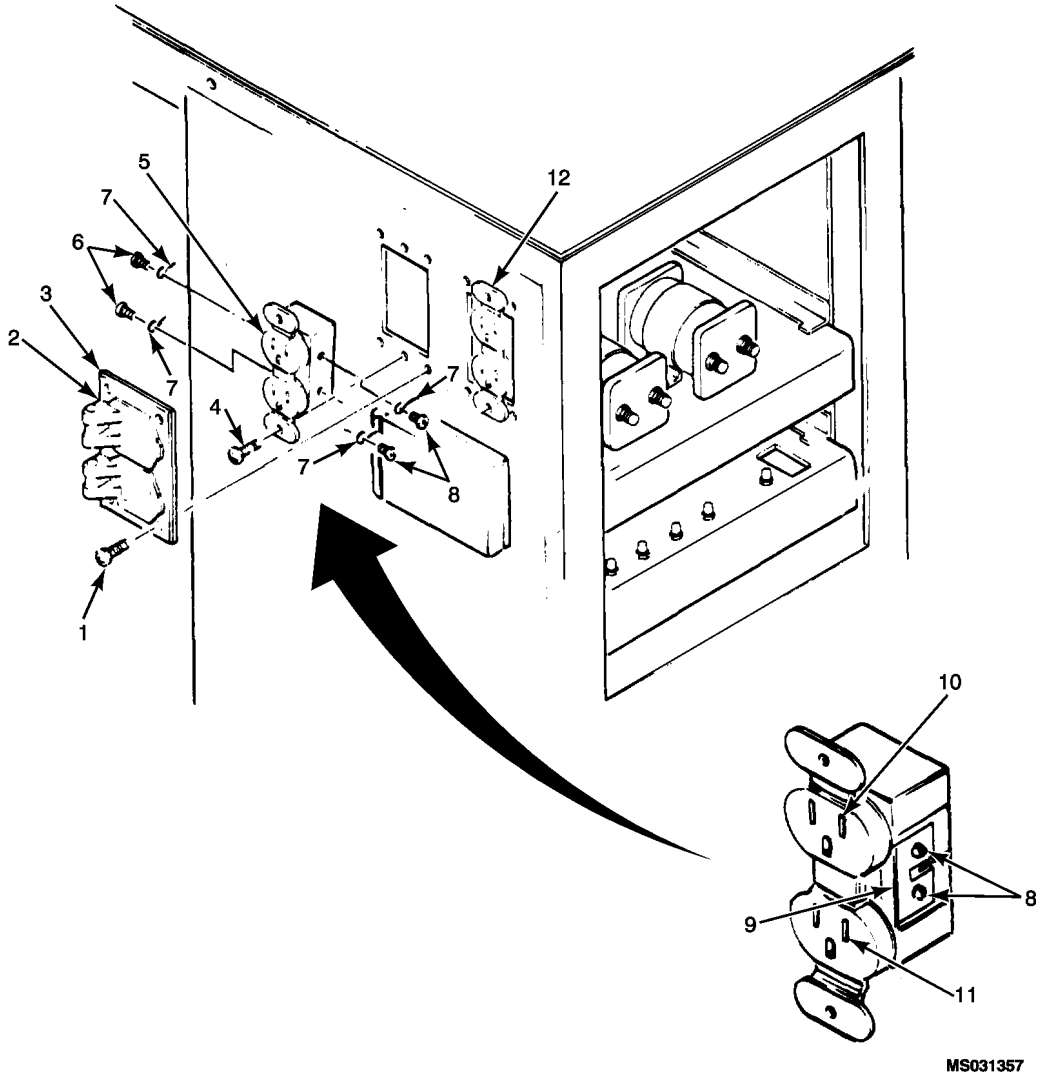
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

TM 1-1730-229-13
WP 0012 00
WP 0034 00
WP 0035 00



1. Screw	5. Receptacle J3/J4 (J3 Top)	9. Terminal Strip
2. Cover Plate	6. Neutral (Silver) Terminal Screws	10. J3 Hot Slot
3. Gasket	7. Wire	11. J4 Hot Slot
4. Screw	8. Hot (Brass) Terminal Screws	12. Receptacle J1/J2 (J1 Top)

Figure 1. AC Convenience Receptacle.

REMOVAL

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

The AC convenience receptacles are common dual units. J1 and J2 are one unit, and J3 and J4 are one unit. Removal and installation instructions are the same for the J1/J2 and J3/J4 units. The J3/J4 unit is illustrated.

NOTE

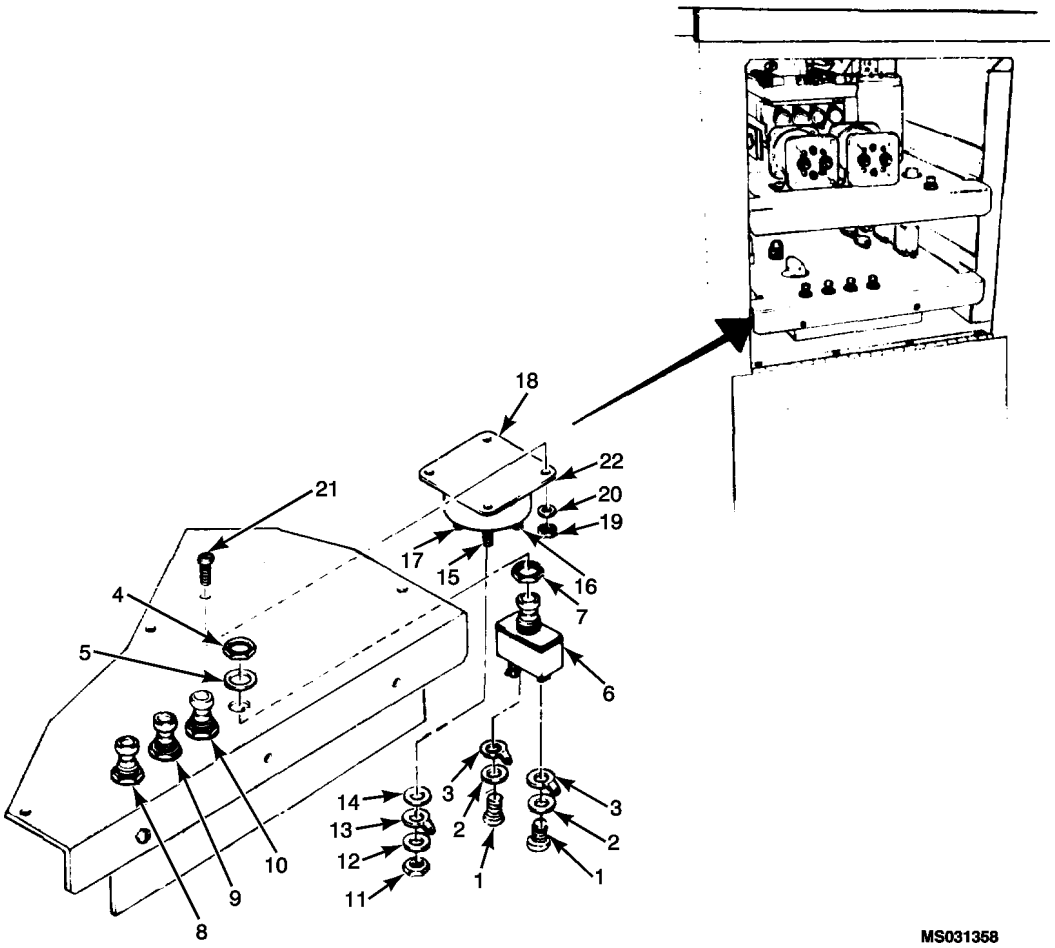
Refer to WP 0012 00, trouble shooting procedure 103. AC POWER NOT AVAILABLE AT CONVENIENCE RECEPTACLES (ENGINE RUNNING AND AC POWER SWITCH ON) for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Remove four screws (Figure 1, Item 1), cover plate (Figure 1, Item 2), and gasket (Figure 1, Item 3).
3. Remove two screws (Figure 1, Item 4), and retract receptacle J3/J4 (J3 Top) (Figure 1, Item 5) far enough to reach wires.
4. Tag and remove four wires (Figure 1, Item 7) by removing screws (Figure 1, Item 6 and 8).

INSTALLATION

1. If installing a new receptacle, cut the terminal strip (Figure 1, Item 9) between the two brass (hot) terminal screws (Figure 1, Item 8). After cutting terminal strip, verify open circuit between the two short J3 and J4 (hot) slots (Figure 1, Item 10 and 11).
2. Use ID tags and connect wires to replacement receptacle terminal screws (Figure 1, Item 6 and 8).
3. Inspect nut plates on panel. There should be two nut plates for receptacle mounting screws, and four nut plates for cover plate screws. If any nut plate is damaged or missing, notify maintenance supervisor.
4. Attach receptacle J3/J4 (J3 Top) (Figure 1, Item 5) to panel with two screws.
5. Inspect gasket (Figure 1, Item 3) and cover plate (Figure 1, Item 2). Replace gasket and cover plate if damaged.
6. Install gasket (Figure 1, Item 3) and cover plate (Figure 1, Item 2) over receptacle. Secure cover plate with four screws.
7. Reconnect batteries.
8. Perform MOC.

REMOVAL



1. Screw
2. Lock Washer
3. Wire
4. Nut
5. Lock Washer
6. 15 AMP Circuit Breaker 3CB3
7. Height Adjustment Nut
8. 15 AMP Circuit Breaker 3CB4
9. 15 AMP Circuit Breaker 3CB5
10. 15 AMP Circuit Breaker 3CB6
11. Nut
12. Washer
13. Wire
14. Washer
15. MTR (+) Terminal Hertz
16. MTR (-) Terminal Hertz
17. 115V (+) Terminal Hertz Transducer
18. 115V(-) Terminal Hertz Transducer
19. Nut
20. Lock Washer
21. Screw
22. Frequency Transducer

Figure 2. AC Convenience Receptacle Circuit Breakers and Frequency Transducer.

REMOVAL – CONTINUED

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

Removal and installation procedures are the same for circuit breakers 3CB3 through 3CB6. 3CB3 is illustrated.

NOTE

Refer to WP 0012 00, trouble shooting procedure 103. AC POWER NOT AVAILABLE AT CONVENIENCE RECEPTACLES (ENGINE RUNNING AND AC POWER SWITCH ON) for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Extend lower electrical tray (WP 0035 00).
3. Tag wires (Figure 2, Item 3). Remove screws (Figure 2, Item 1) and lock washers (Figure 2, Item 2), and disconnect wires from 15 amp circuit breaker 3CB3 (Figure 2, Item 6).
4. Remove nut (Figure 2, Item 4), lock washer (Figure 2, Item 5) and 15 amp circuit breaker 3CB3 (Figure 2, Item 6).
5. Note position of height adjustment nut (Figure 2, Item 7) on threaded shaft of circuit breaker.

INSTALLATION

1. Remove nut (Figure 2, Item 4), lock washer (Figure 2, Item 5), and key washer (not shown) from replacement 15 amp circuit breaker 3CB3 (Figure 2, Item 6).
2. Set height adjustment nut (Figure 2, Item 7) on replacement circuit breaker shaft to same position as adjustment on old circuit breaker.
3. Install replacement 15 amp circuit breaker 3CB3 (Figure 2, Item 6) from underside of tray and secure with lock washer (Figure 2, Item 5) and nut (Figure 2, Item 4). One or two threads on shaft of circuit breaker should be visible from top of tray. If not, loosen retaining nut (Figure 2, Item 4), reset height adjustment nut (Figure 2, Item 7) as required, and tighten retaining nut.
4. Use ID tags and install wires (Figure 2, Item 3), lock washers (Figure 2, Item 2) and screws (Figure 2, Item 1) on circuit breaker.
5. Replace lower tray and close electrical tray access door.
6. Reconnect batteries.
7. Perform MOC.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

FREQUENCY TRANSDUCER

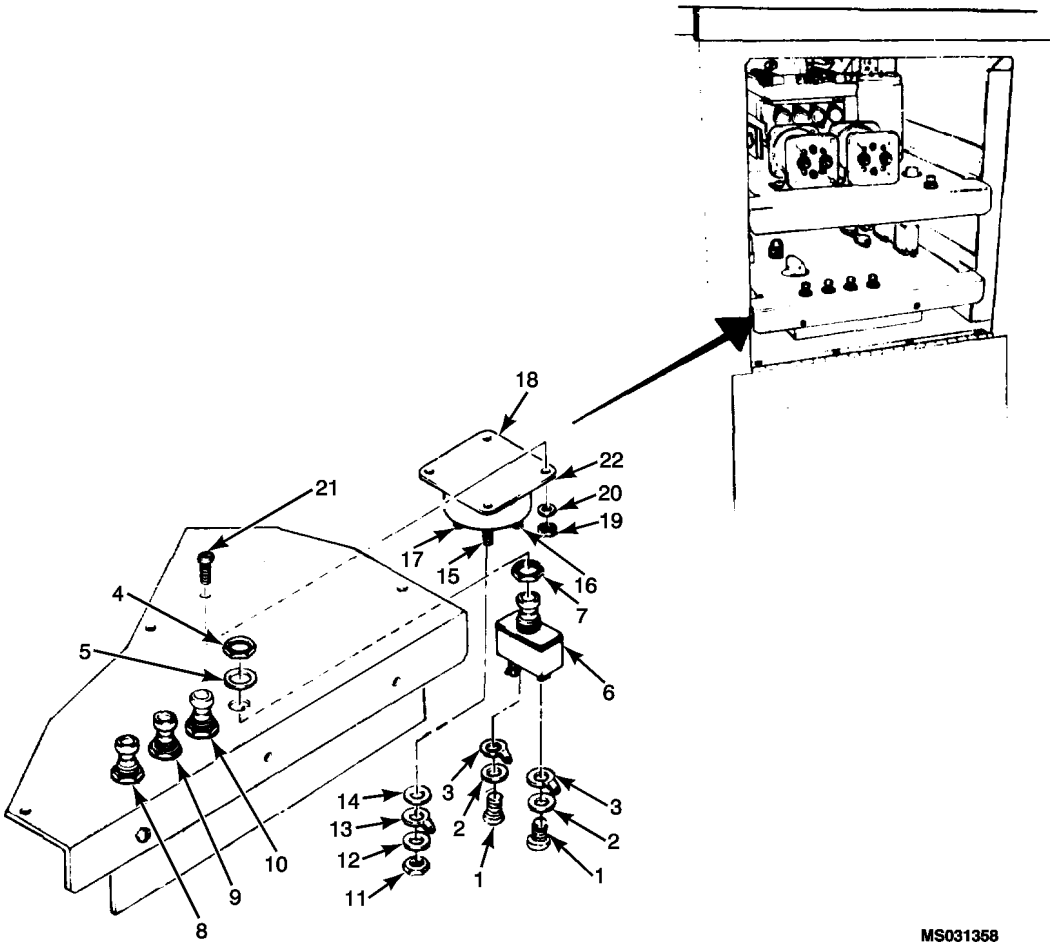
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0012 00
WP 0032 00
WP 0034 00



1. Screw
2. Lock Washer
3. Wire
4. Nut
5. Lock Washer
6. 15 AMP Circuit Breaker 3CB3
7. Height Adjustment Nut
8. 15 AMP Circuit Breaker 3CB4
9. 15 AMP Circuit Breaker 3CB5
10. 15 AMP Circuit Breaker 3CB6
11. Nut
12. Washer
13. Wire
14. Washer
15. MTR (+) Terminal Hertz
16. MTR (-) Terminal Hertz
17. 115V (+) Terminal Transducer
18. 115V(-) Terminal Transducer
19. Nut
20. Lock Washer
21. Mounting Screw
22. Frequency Transducer

Figure 1. AC Convenience Receptacle Circuit Breakers and Frequency Transducer.

TEST AND INSPECTION

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

Refer to WP 0012 00, trouble shooting procedure 85. AC HERTZ METER READS 0 (AC VOLTS METER READS NORMAL) for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Inspect frequency transducer (Figure 1, Item 22) for punctures or dents.
3. Check that transducer is securely mounted. Tighten mounting screws (Figure 1, Item 21) as required.
4. Check that wire connections to transducer are secure. Tighten nuts (Figure 1, Item 19) as required.

REMOVAL

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Extend lower electrical tray (WP 0032 00).
3. Tag and disconnect wires (Figure 1, Item 13) from terminals (Figure 1, Item 15 through Item 18) on underside of frequency transducer (Figure 1, Item 22).
4. Remove four nuts (Figure 1, Item 19), lock washers (Figure 1, Item 2), mounting screws (Figure 1, Item 21) and frequency transducer (Figure 1, Item 22).

INSTALLATION

1. Position frequency transducer (Figure 1, Item 22) under tray with electrical terminals (Figure 1, Item 15 and 16) marked MTR toward front of tray.
2. Attach transducer to tray with four mounting screws (Figure 1, Item 21), lock washers (Figure 1, Item 20), and nuts (Figure 1, Item 19).
3. Use ID tags and install wires to frequency transducer terminals (Figure 1, Item 15 through 18). On each terminal, install washer (Figure 1, Item 14), wire (Figure 1, Item 13), washer (Figure 1, Item 12) and nut (Figure 1, Item 11).
4. Reconnect batteries.
5. Perform MOC.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

AC POWER CABLE

INITIAL SETUP:

Tools and Special Tools	References
Aviation Foot Locker, AFL (WP 0171 00, Item 3)	WP 0002 00
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)	WP 0012 00
Tool Set, Aviation Unit (WP 0171 00, Item 42)	WP 0022 00
	WP 0032 00
	WP 0034 00

REMOVAL

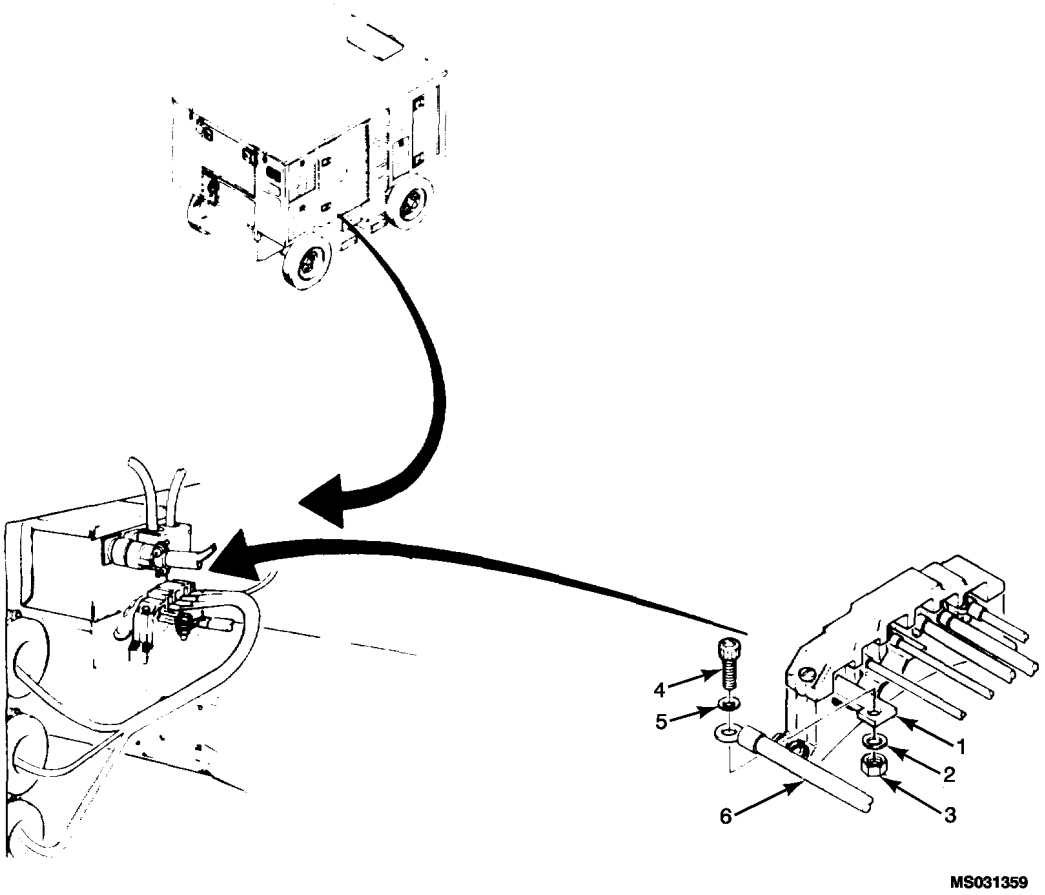


Figure 1. AC and DC Power Cables (Sheet 1 of 3).

REMOVAL – CONTINUED

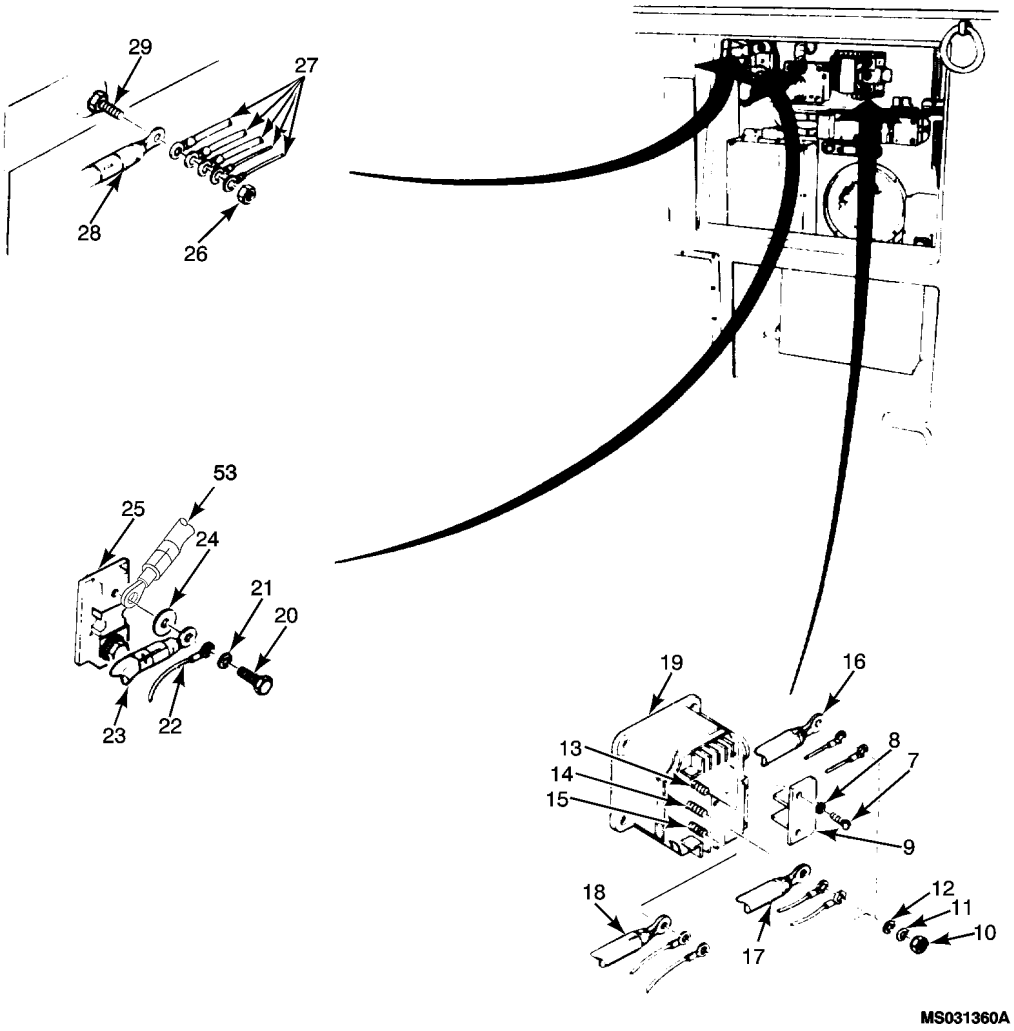
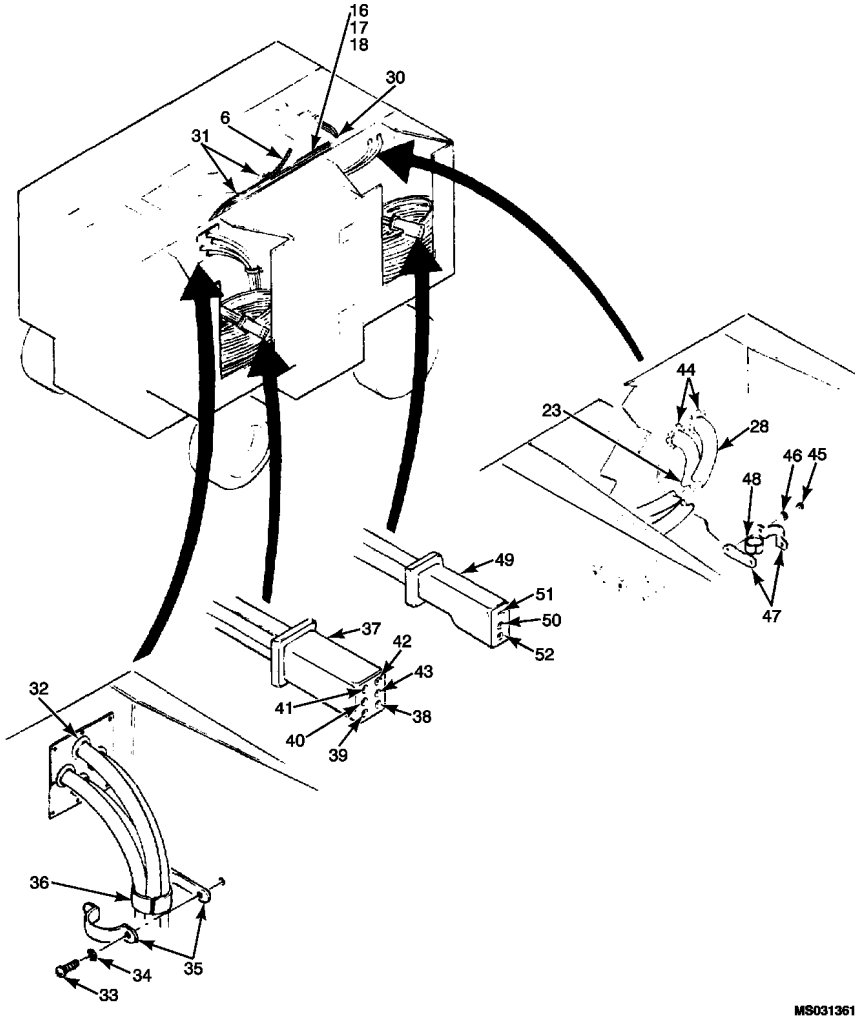


Figure 1. AC and DC Power Cables (Sheet 2 of 3).

REMOVAL – CONTINUED



1. Terminal T6 Extension Bar
2. Nut
3. Lock Washer
4. Screw
5. Washer
6. AC neutral (N) Cable
7. Screw
8. Lock Washer
9. Terminal Shield
10. Nut
11. Lock Washer
12. Washer
13. Terminal A2
14. Terminal B2
15. Terminal C2
16. AC ϕA Cable
17. AC ϕB Cable
18. AC ϕC Cable
19. AC contactor k1
20. Terminal Screw
21. Lock Washer
22. Wire
23. DC Positive (+) Cable
24. Washer
25. DC Output Shunt R1
26. Nut
27. Ground Wires
28. DC Negative (-) Cable
29. Ground Stud
30. AC Cable Grommet
31. Cable Tray on Intake Shroud
32. AC Cable Grommets
33. Screw
34. Washer
35. Clamp
36. Cushion
37. AC Cable Connector
38. Pin A
39. Pin B
40. Pin C
41. Pin N
42. Pin E
43. Pin F
44. DC Cable Grommet
45. Screw
46. Washer
47. Clamp
48. Cushion
49. DC Cable Connector
50. DC Cable Connector
51. Pin (-)
52. Pin R
53. Power Wire G11C2

Figure 1. AC and DC Power Cables (Sheet 3 of 3).

REMOVAL – CONTINUED

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

Refer to WP 0012 00, trouble shooting procedure 86. AC % LOAD METER READS 0 (AC POWER ON INDICATOR LIT AND AC POWER CABLE CONNECTED TO LOAD) for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Remove roof (WP 0022 00).
3. Lower control panel (WP 0032 00).
4. Open engine access door (WP 0002 00, Figure 1).
5. Disconnect neutral cable from generator AC output terminal T6 extension bar (Figure 1, Item 1).
6. Remove screw (Figure 1, Item 7), lock washer (Figure 1, Item 8) and terminal shield (Figure 1, Item 9) from left side of AC contactor K1 (Figure 1, Item 19).
7. Tag and remove cables and wires from contactor terminals A2 (Figure 1, Item 13), B2 (Figure 1, Item 14), and C2 (Figure 1, Item 15).
8. Remove screws (Figure 1, Item 33), washers (Figure 1, Item 34), clamp (Figure 1, Item 35) and cushion (Figure 1, Item 36) from AC cables.
9. Note location of any plastic cable ties, and remove ties.
10. Carefully pull cables through grommets (Figure 1, Item 30 and 32) in electrical bay bulkhead panel and cable compartment panel.

INSTALLATION

1. Inspect grommets (Figure 1, Item 30 and 32) in AC power cable compartment panel, and in electrical bay bulkhead panel. Replace grommets if damaged.
2. Route AC cables through grommets (Figure 1, Item 32) in cable compartment panel, and through tray (Figure 1, Item 31). Further route the ϕA, ϕB, and ϕC cables through grommet (Figure 1, Item 30) in electrical bay bulkhead panel.
3. Connect the ϕA, ϕB, and ϕC cables to contactor K1 terminals A2 (1, Figure 13), B2 (Figure 1, Item 14), and C2 (Figure 1, Item 15), respectively. Use ID tags and connect other wires to contactor terminals (Figure 1, Item 13 through Item 15). Install washer (Figure 1, Item 12), lock washer (Figure 1, Item 11), and nut (Figure 1, Item 10) on each terminal.
4. Install terminal shield (Figure 1, Item 9), lock washers (Figure 1, Item 8), and screws (Figure 1, Item 7) on contactor.
5. Connect AC neutral cable (Figure 1, Item 6) to terminal T6 extension bar (Figure 1, Item 1) generator. Attach cable to bar using washer (Figure 1, Item 5), screw (Figure 1, Item 4), lock washer (Figure 1, Item 3) and nut (Figure 1, Item 2).
6. Pull cables back through grommets as necessary to remove excess slack.
7. Replace any cable ties removed in the previous steps.
8. Install cushion (Figure 1, Item 36) and clamp (Figure 1, Item 35) around the four AC cables. Secure clamp to cable compartment wall with washers (Figure 1, Item 34) and screws (Figure 1, Item 33).
9. Install control panel.

INSTALLATION – CONTINUED

10. Close engine access door.
11. Install roof (WP 0022 00).
12. Reconnect batteries.
13. Perform MOC.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

DC POWER CABLE

INITIAL SETUP:

Tools and Special Tools	References
Aviation Foot Locker, AFL (WP 0171 00, Item 3)	WP 0012 00
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)	WP 0022 00
Tool Set, Aviation Unit (WP 0171 00, Item 42)	WP 0032 00
	WP 0034 00

REMOVAL

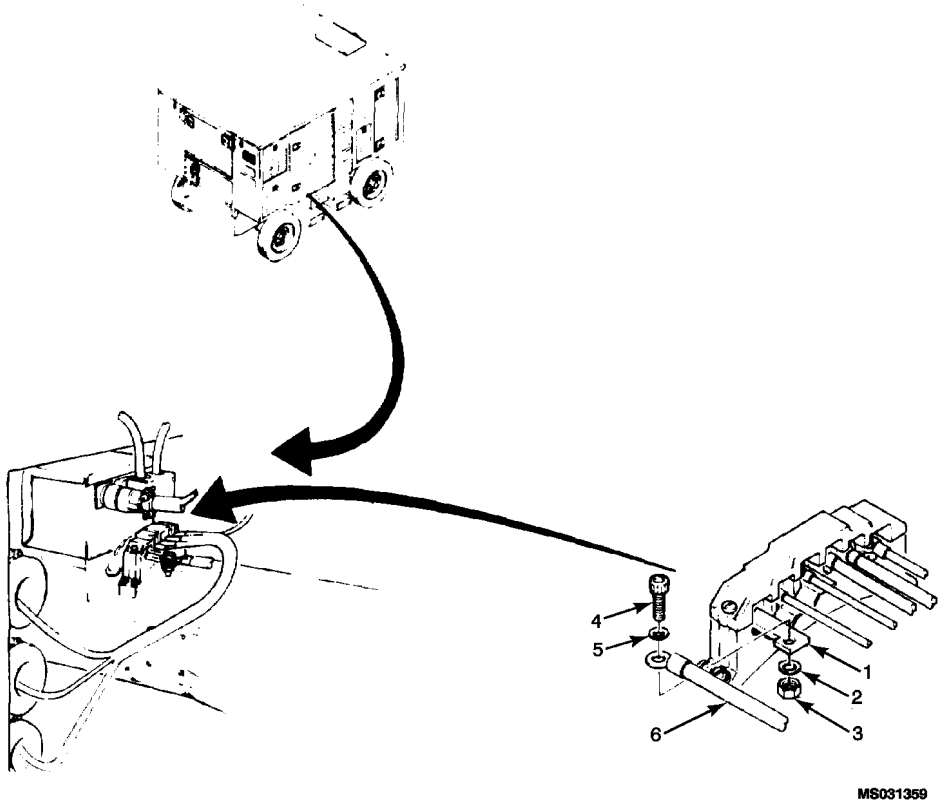


Figure 1. AC and DC Power Cable (Sheet 1 of 3).

REMOVAL – CONTINUED

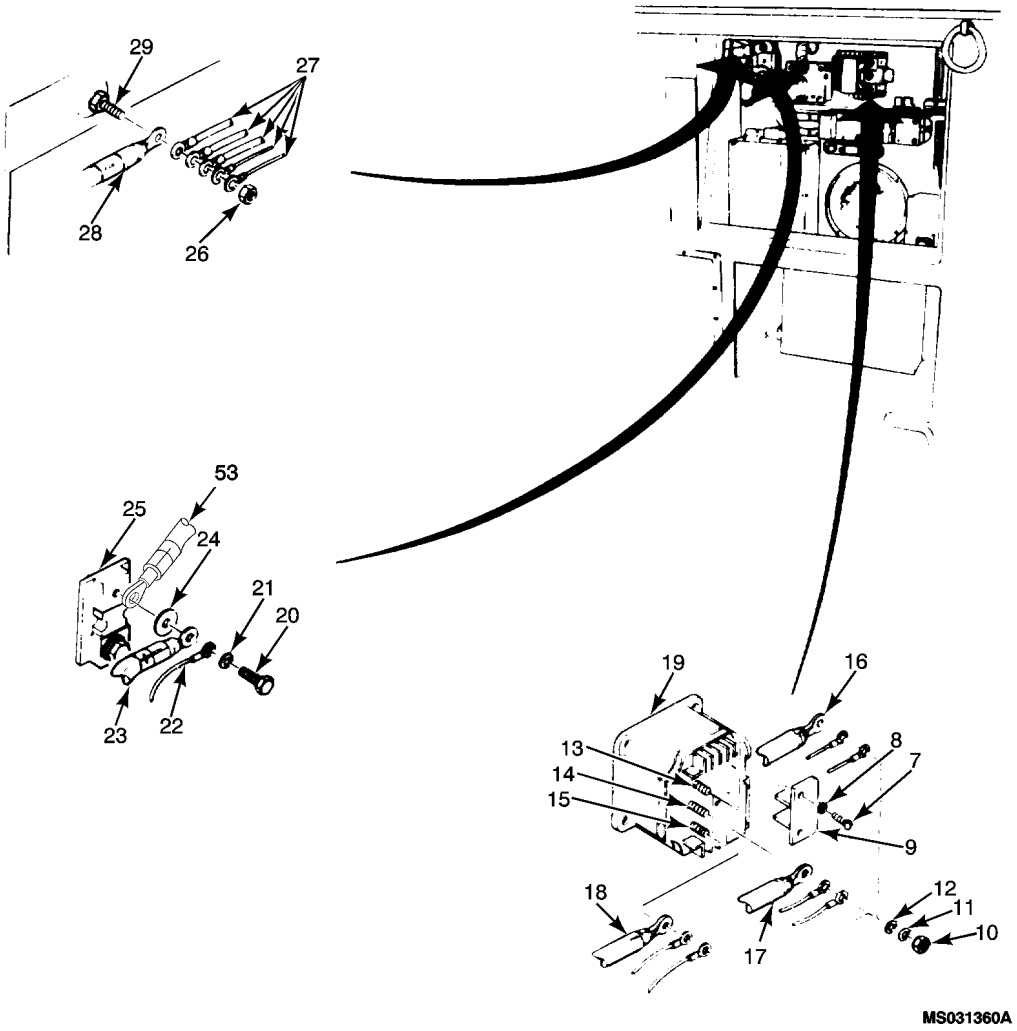
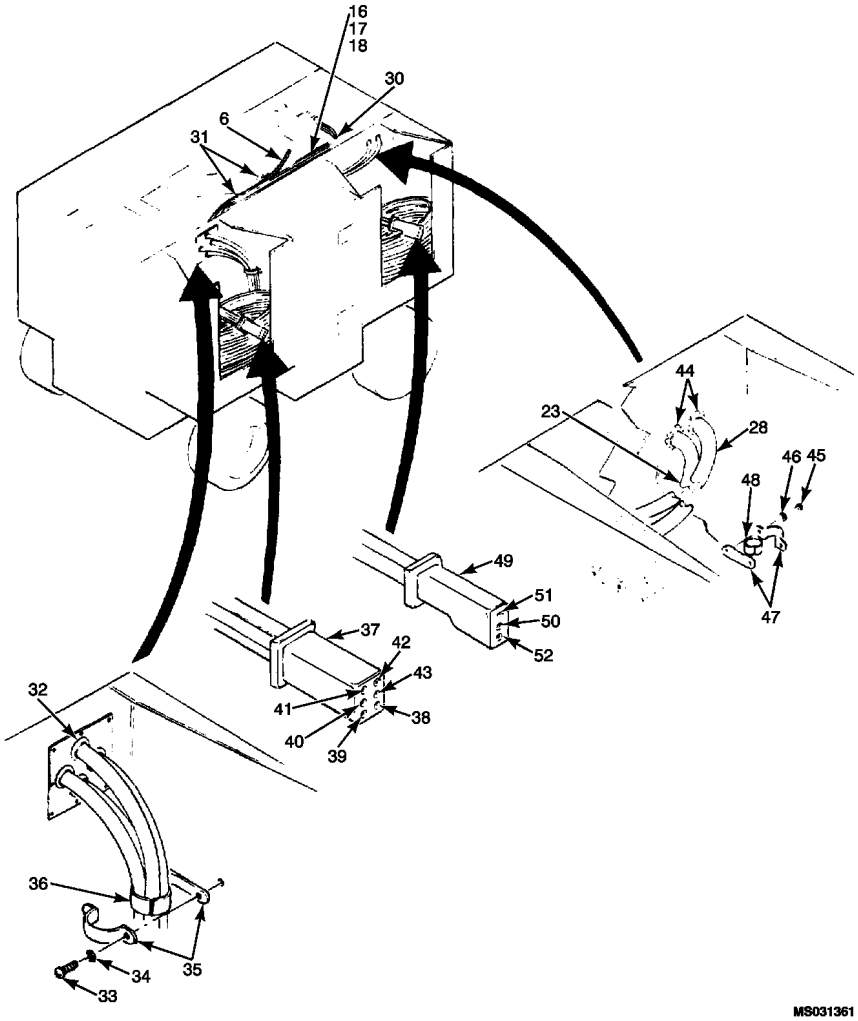


Figure 1. AC and DC Power Cable (Sheet 2 of 3).

REMOVAL – CONTINUED



1. Terminal T6 Extension Bar
2. Nut
3. Lock Washer
4. Screw
5. Washer
6. AC neutral (N) Cable
7. Screw
8. Lock Washer
9. Terminal Shield
10. Nut
11. Lock Washer
12. Washer
13. Terminal A2
14. Terminal B2
15. Terminal C2
16. AC ϕA Cable
17. AC ϕB Cable
18. AC ϕC Cable
19. AC Contactor K1
20. Terminal Screw
21. Lock Washer
22. Wire
23. DC Positive (+) Cable
24. Washer
25. DC Output Shunt R1
26. Nut
27. Ground Wires
28. DC Negative (-) Cable
29. Ground Stud
30. AC Cable Grommet
31. Cable Tray on Intake Shroud
32. AC Cable Grommets
33. Screw
34. Washer
35. Clamp
36. Cushion
37. AC Cable Connector
38. Pin A
39. Pin B
40. Pin C
41. Pin N
42. Pin E
43. Pin F
44. DC Cable Grommet
45. Screw
46. Washer
47. Clamp
48. Cushion
49. DC Cable Connector
50. DC Cable Connector
51. Pin Negative (-)
52. Pin R
53. Power Wire G11C2

Figure 1. AC and DC Power Cable (Sheet 3 of 3).

REMOVAL – CONTINUED

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

Refer to WP 0012 00, trouble shooting procedure 76. DC AMPS METER READS 0 (DC POWER ON INDICATOR LIT AND DC POWER CABLE CONNECTED TO LOAD) for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Lower control panel (WP 0032 00).
3. Remove roof (WP 0022 00).
4. Tag and disconnect wires from lower terminal screw (Figure 1, Item 20) on shunt R1.
5. Tag and disconnect wires from AGPU ground stud (Figure 1, Item 29).
6. Remove screws (Figure 1, Item 45), washers (Figure 1, Item 46), clamps (Figure 1, Item 47), from DC Negative (-) Cable (Figure 1, Item 28). Spread clamps and remove from cables and cushions (Figure 1, Item 48).
7. Carefully pull DC cables through grommets (Figure 1, Item 44) in cable compartment panel.

INSTALLATION

1. Inspect grommets (Figure 1, Item 44) in DC power cable compartment panel. Replace grommets if damaged.
2. Route DC cables through grommets (Figure 1, Item 44).
3. Install in order on terminal screw (Figure 1, Item 20), lock washer (Figure 1, Item 21), wire (Figure 1, Item 22), insert power wire G11C2 (Figure 1, Item 53), from K1 (Figure 1, Item 19), on tray unit 2, DC (+) cable (Figure 1, Item 23), and washer (Figure 1, Item 24). Thread terminal screw (Figure 1, Item 20) into shunt R1 (Figure 1, Item 25).
4. Install DC negative (-) cable (Figure 1, Item 28) and other wires (larger wires first) on the AGPU ground stud (Figure 1, Item 29).
5. Install cushions (Figure 1, Item 48) and cable clamps (Figure 1, Item 47) around DC cables. Secure clamps to compartment wall with washers (Figure 1, Item 46) and screws (Figure 1, Item 45).
6. Install control panel.
7. Install roof (WP 0022 00).
8. Reconnect batteries.
9. Perform MOC.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

DC TO AC INVERTER (OLD AND NEW TYPE)

INITIAL SETUP:

Tools and Special Tools

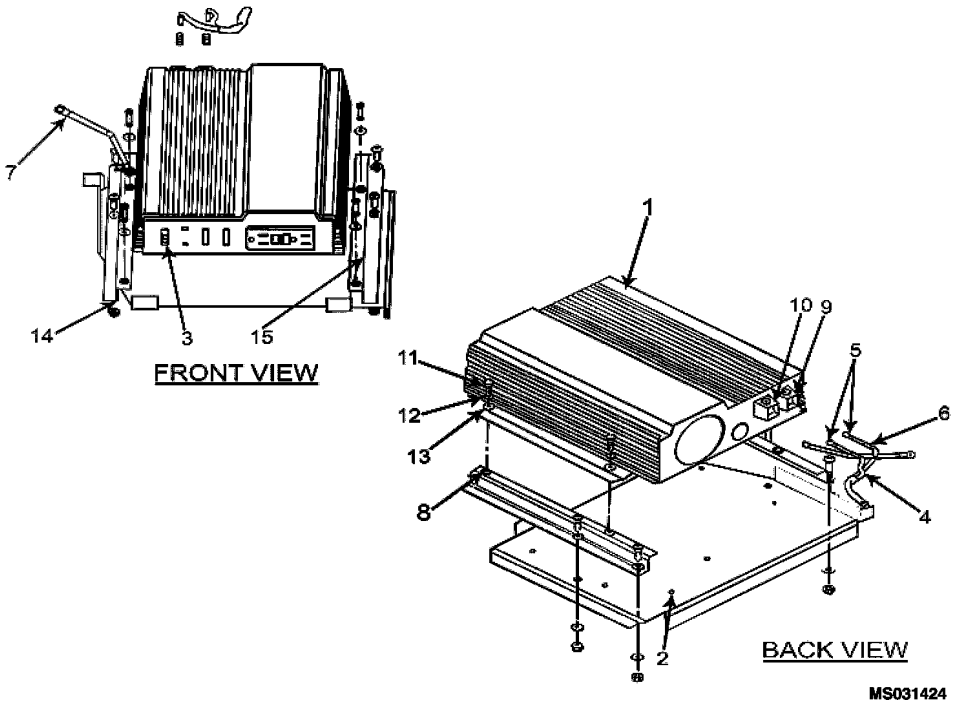
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0002 00
WP 0012 00
WP 0022 00
WP 0034 00

Materials/Parts

Inverter ()



1. Inverter	6. Wire (P55A10N)	11. Machine Screw
2. Mounting Tray	7. Chassis Ground (P56A8N)	12. Lock Washer
3. ON/OFF Switch	8. Rivet Nut	13. Washer, Flat
4. Wire (P54A10)	9. Positive Terminal	14. Left Mounting Angle
5. Parallel Connector	10. Negative Terminal	15. Right Mounting Angle

Figure 1. Inverter Installation (ProWatt 800/24).

REMOVAL

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

Refer to WP 0012 00, trouble shooting procedure 104. AC POWER NOT AVAILABLE AT DC-TO-AC INVERTER RECEPTACLES (ENGINE RUNNING AND DC POWER SWITCH ON) for test.

NOTE

Insure that output switches are in the OFF position.

Removal of the New Type Inverter

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Remove roof (WP 0022 00).

REMOVAL – CONTINUED

3. Open pneumatic access door (WP 0002 00, Figure 4, Item 11).
4. Ensure that the ON/OFF switch (Figure 1, Item 3) on the inverter (Figure 1, Item 1) is in the OFF position.
5. Remove four machine screws (Figure 1, Item 11), lock washers (Figure 1, Item 12), and flat washers (Figure 1, Item 13) from rivet nuts (Figure 1, Item 8) in left mounting angles (Figure 1, Item 14) and right mounting angles (Figure 1, Item 15) and remove chassis ground (P56A8N) (Figure 1, Item 7).
6. Slide inverter forward to get access to wiring.
7. Remove the negative and positive wires (Figure 1, Item 4 and 6) from inverter terminals (Figure 1, Item 9 and 10).
8. Lift inverter (Figure 1, Item 1) from mounting tray (Figure 1, Item 2).

Removal of the Old Type Inverter

NOTE

If old type inverter is known bad, replace with new ProWatt 800/24 (Figure 1).

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Remove roof (WP 0022 00).
3. Open pneumatic access door (WP 0002 00, Figure 4, Item 11).
4. Ensure that the ON/OFF switch on the DC to AC inverter (Figure 2, Item 14) is in the OFF position.
5. Remove four nuts (Figure 2, Item 9), four lock washers (Figure 2, Item 10), from two mounting studs (Figure 2, Item 12) and retaining bar (Figure 2, Item 11).
6. Remove the negative and positive wires (Figure 2, Item 5 and 7) from inverter terminals (Figure 2, Item 6 and 8).
7. Lift DC to AC inverter (Figure 2, Item 14) from mounting tray (Figure 2, Item 15).

INSTALLATION

Installation of the New Type Inverter

1. Ensure that the ON/OFF switch (Figure 1, Item 3) on the DC to AC inverter (Figure 1, Item 1) is in the OFF position.

CAUTION

Damage to inverter and possibly other components can occur if polarity is reversed when connecting wires. It is important to maintain the correct polarity of the wires. Follow the next steps carefully.

2. Connect the positive wire (P54A10) (Figure 1, Item 4) to the red positive terminal (+) (Figure 1, Item 9) on the DC to AC inverter (Figure 1, Item 1). Insert parallel connector on end of the wire into the terminal and tighten the screw to clamp the parallel connector (Figure 1, Item 5) securely.
3. Connect the negative wire (P55A10N) (Figure 1, Item 6) to the white negative terminal (-), (Figure 1, Item 10) on the DC to AC inverter (Figure 1, Item 1). Tighten the screw to clamp the parallel connector (Figure 1, Item 5) securely.

INSTALLATION – CONTINUED

WARNING

Shock hazard exists if inverter is not properly grounded.

CAUTION

Reverse polarity connections will blow a fuse in the inverter and will cause damage.

4. Check that all connections are tight and correct (positive to positive). Loosely secured connectors will result in excessive voltage drop and overheated wires or failure of the ground fault circuit interrupter to detect ground fault situations.
5. Position the DC to AC inverter (Figure 1, Item 1) on inverter mounting tray (Figure 1, Item 2) with attached wiring toward the center of the AGPU and output receptacles facing outward.
6. Insert lock washer (Figure 1, Item 12) and flat washer (Figure 1, Item 13) onto one inverter machine screw (Figure 1, Item 11). Place the ring lug on the end of the ground wire (P56A8N), (Figure 1, Item 7) on the screw followed by a star lock washer. Install this screw into rivet nut (Figure 1, Item 8) at the rear of the left mounting angle (Figure 1, Item 14) nearest the DC power input positive terminals (Figure 1, Item 9) and negative terminals (Figure 1, Item 10) of the inverter (Figure 1, Item 1). This completes the wiring of the inverter.
7. Install three remaining machine screws (Figure 1, Item 11), lock washers (Figure 1, Item 12), and flat washers (Figure 1, Item 13) into rivet nuts (Figure 1, Item 8) in left mounting angles (Figure 1, Item 14) and right mounting angles (Figure 1, Item 15).
8. Verify that the wiring is correct.
9. Verify that the fan grill on the rear of the inverter is not blocked.
10. Install roof (WP 0022 00).
11. Reconnect batteries.
12. Perform MOC.
13. Close pneumatic access door after check out.

Installation of the Old Type Inverter

1. Ensure that the ON/OFF switch on the DC to AC inverter (Figure 2, Item 14) is in the OFF position.

CAUTION

Damage to inverter and possibly other components can occur if polarity is reversed when connecting wires. It is important to maintain the correct polarity of the wires. Follow the next steps carefully.

2. Connect the red positive wire (Figure 2, Item 7) to the positive terminal (+) (Figure 2, Item 8) on the DC to AC inverter (Figure 2, Item 14). Insert lock washer (Figure 2, Item 4) into the positive terminal (Figure 2, Item 8) and tighten the nut (Figure 2, Item 3) securely.
3. Connect the black negative wire (Figure 2, Item 5) to the negative terminal (-) (Figure 2, Item 6) on the DC to AC inverter (Figure 2, Item 14). Insert lock washer (Figure 2, Item 4) into the negative terminal (Figure 2, Item 6) and tighten the nut (Figure 2, Item 3) securely.

INSTALLATION – CONTINUED

WARNING

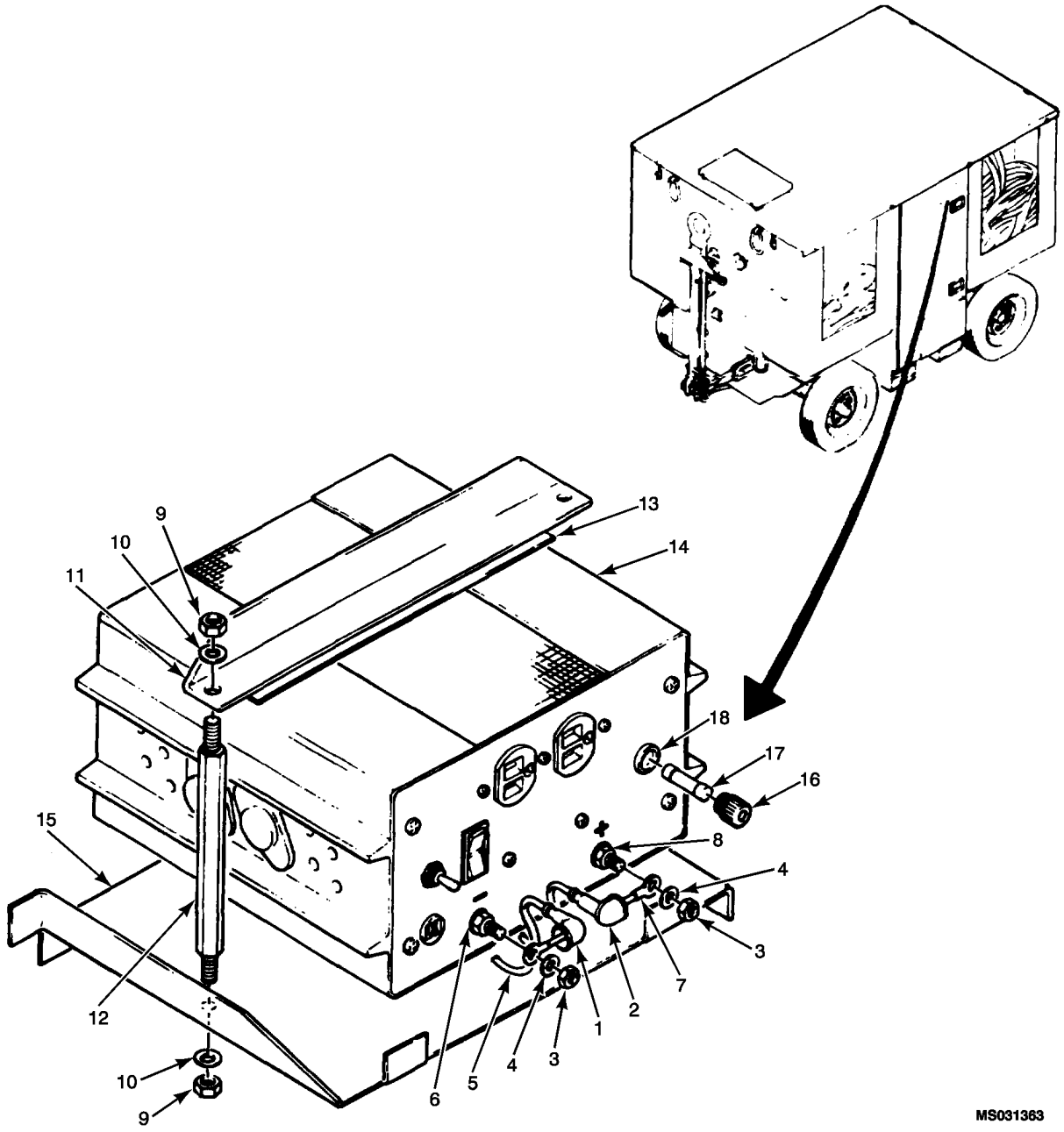
Shock hazard exists if inverter is not properly grounded.

CAUTION

Reverse polarity connections will blow a fuse in the inverter and will cause damage.

4. Check that all connections are tight and correct (positive to positive). Loosely secured connectors will result in excessive voltage drop and overheated wires or failure of the ground fault circuit interrupter to detect ground fault situations.
5. Position the DC to AC inverter (Figure 2, Item 14) on inverter mounting tray (Figure 2, Item 15) with attached wiring toward the center of the AGPU and output receptacles facing outward.
6. Install four nuts (Figure 2, Item 9), four lock washers (Figure 2, Item 10), to two mounting studs (Figure 2, Item 12) and the retaining bar (Figure 2, Item 11). Tighten four nuts as required. This completes the wiring of the inverter.
7. Verify that the wiring is correct.
8. Verify that the fan grill on the rear of the inverter is not blocked.
9. Install roof (WP 0022 00).
10. Reconnect batteries.
11. Perform MOC.
12. Close pneumatic access door after check out.

REMOVAL



1. Black Terminal Cover
2. Red Terminal Cover
3. Nut
4. Lock Washer
5. Negative Wire
6. Negative Terminal
7. Positive Wire
8. Positive Terminal
9. Nut
10. Lock Washer
11. Retaining Bar
12. Mounting Stud
13. Rubber Strip
14. DC to AC Inverter
15. Mounting Tray
16. Fuse Cap
17. Fuse (25 AMP)
18. Fuse Holder

Figure 2. DC to AC Inverter Internal Fuse (Old Type).

REMOVAL – CONTINUED

Remove Inverter Output Fuse

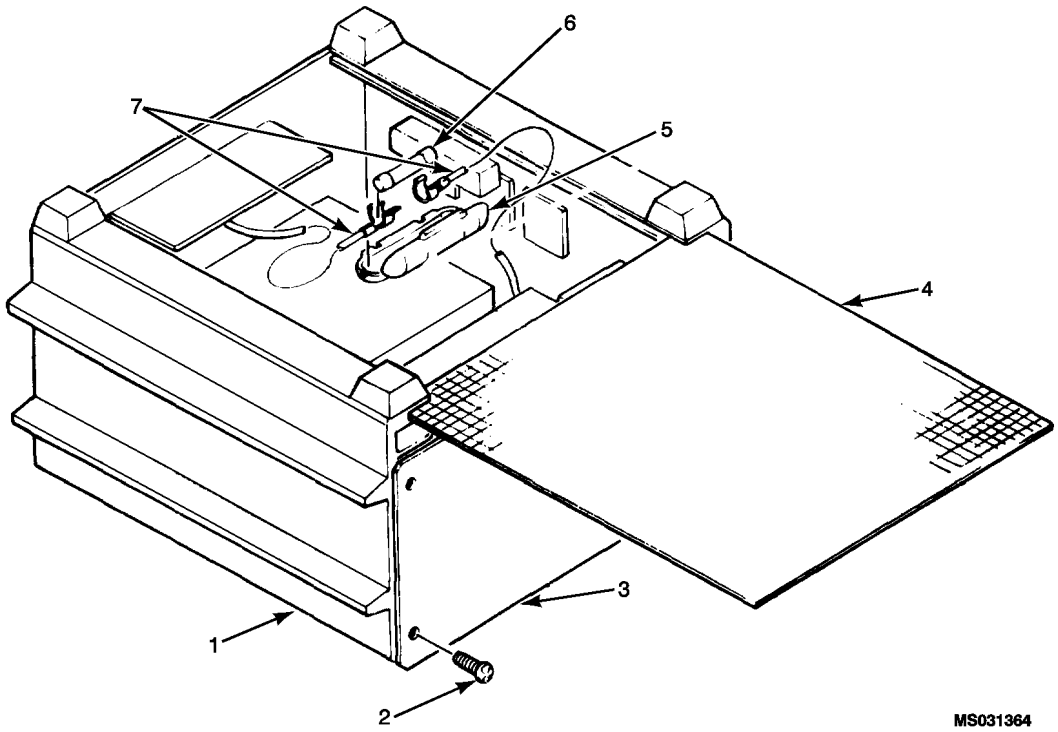
1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Remove roof (WP 0022 00).
3. Open pneumatic access door (WP 0002 00, Figure 4, Item 11).
4. Remove fuse cap (Figure 2, Item 16) by pressing in and turning counterclockwise.
5. Remove fuse (Figure 2, Item 17) from fuse cap (Figure 2, Item 16).

INSTALLATION

Install Inverter Output Fuse

1. Install fuse (Figure 2, Item 17) in fuse cap (Figure 2, Item 16).
2. Insert fuse into fuse holder (Figure 2, Item 18), press fuse cap and turn cap clockwise.
3. Install roof (WP 0022 00).
4. Reconnect batteries.
5. Perform MOC.
6. Close pneumatic access door.

REMOVAL



1. DC to AC Inverter
2. Screw
3. Back Plate
4. Bottom Screen
5. Fuse Cover
6. Fuse (4 AMP)
7. Fuse Clips

Figure 3. DC to AC Inverter Internal Fuse.

REMOVAL – CONTINUED

Remove Inverter Internal Fuse

1. Remove inverter as described in the inverter removal process.
2. Place DC to AC inverter (Figure 3, Item 1) on work surface with top side down.
3. Remove four screws (Figure 3, Item 2) from inverter back plate (Figure 3, Item 3).
4. Slide back plate (Figure 3, Item 3) back just enough to remove bottom screen (Figure 3, Item 4).
5. Remove fuse cover (Figure 3, Item 5) by twisting plastic tabs.
6. Remove fuse (Figure 3, Item 6) from fuse clips (Figure 3, Item 7).

INSTALLATION

Install Inverter Internal Fuse

1. Insert fuse (Figure 3, Item 6) into fuse clips (Figure 3, Item 7).
2. Install fuse cover (Figure 3, Item 5) around fuse and press cover to snap in place.
3. Install bottom screen (Figure 3, Item 4).
4. Position back plate (Figure 3, Item 3) in place and install four screws (Figure 3, Item 2).
5. Install inverter as described in the inverter installation process.
6. Install roof (WP 0022 00).
7. Reconnect batteries.
8. Perform MOC.
9. Close pneumatic door.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

FUEL PUMP, AUXILIARY

INITIAL SETUP:

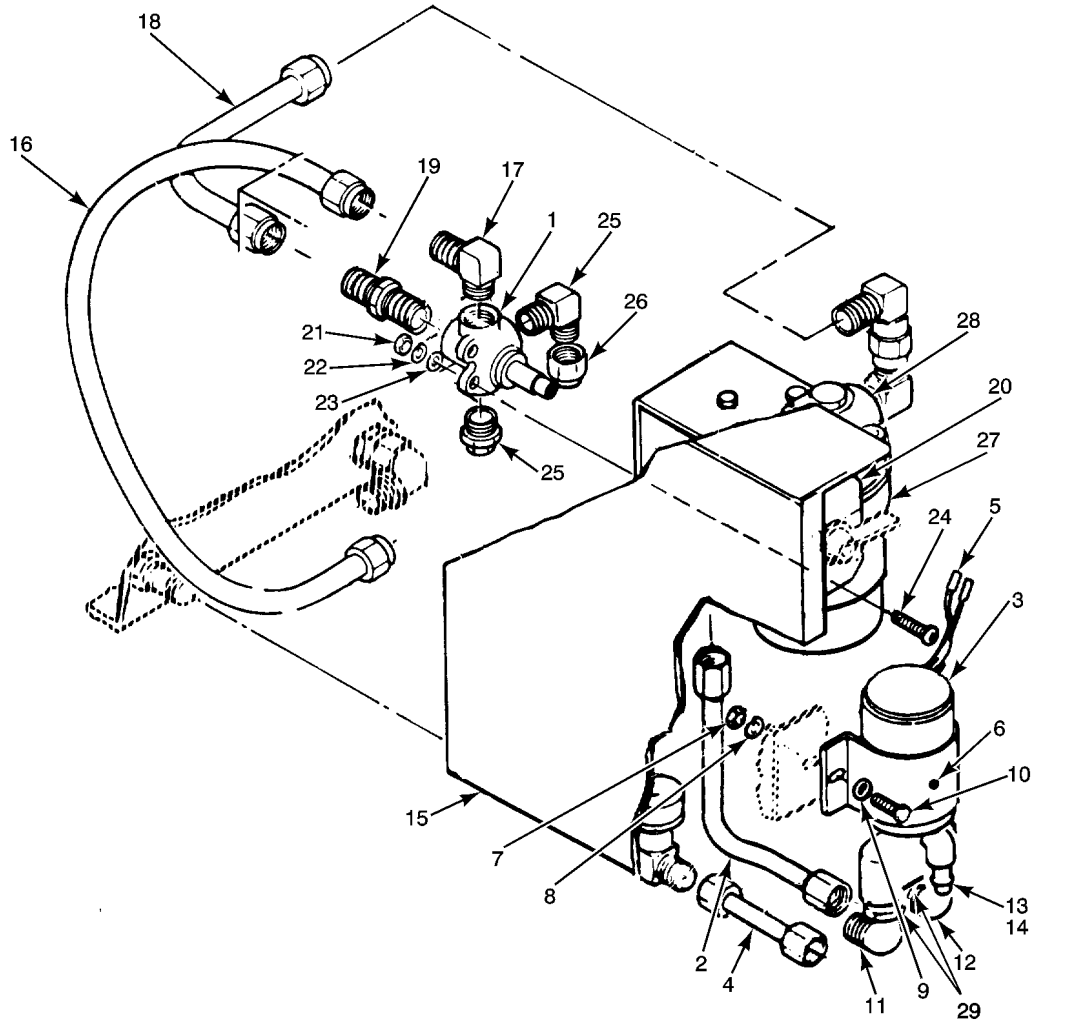
Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0009 00
WP 0014 00
WP 0034 00

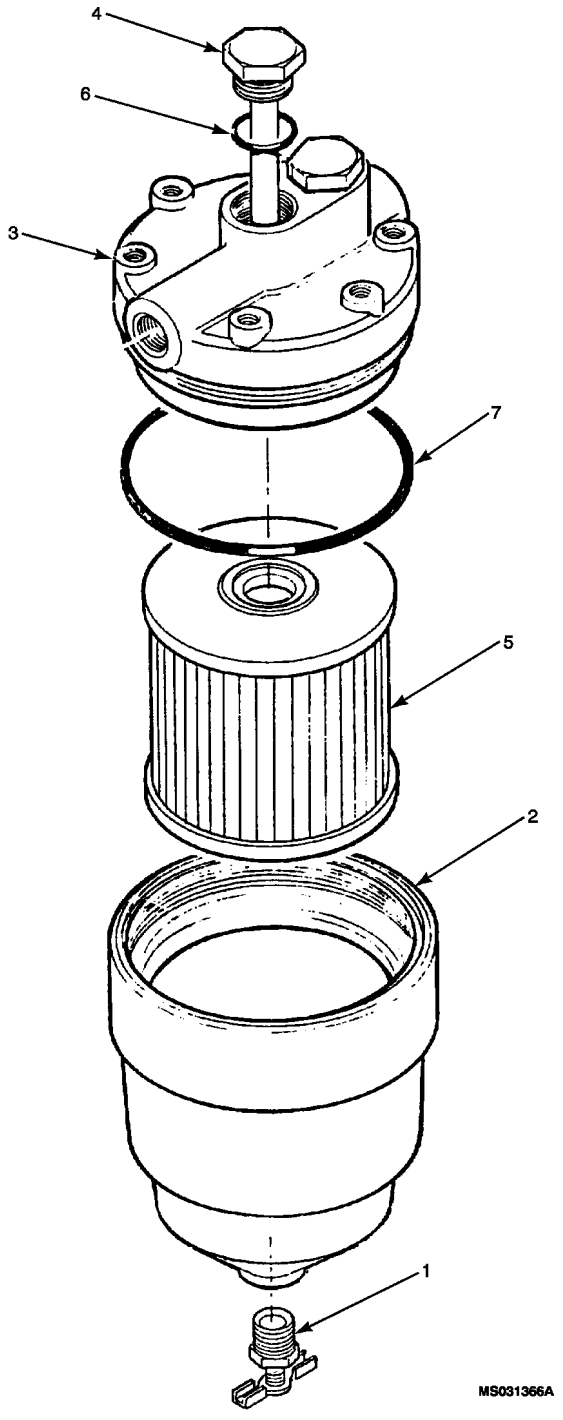
TEST AND INSPECTION



1. Four Way Valve
2. Fuel Tube
3. Fuel Pump
4. Fuel Tube
5. Cable
6. Fuel Pump Support Clamp
7. Nut
8. Lock Washer
9. Washer
10. Cap Screw
11. Elbow
12. Elbow
13. Drain Elbow
14. Adapter
15. Fuel Pump Support Bracket
16. Hose Assembly
17. Tube Adapter
18. Hose Assembly
19. Straight Adapter
20. Valve Support
21. Nut
22. Lock Washer
23. Washer
24. Screw
25. Elbow
26. Cap Nut
27. Plug
28. Fuel Filter Water Separator
29. O-Ring

Figure 1. Fuel Supply System.

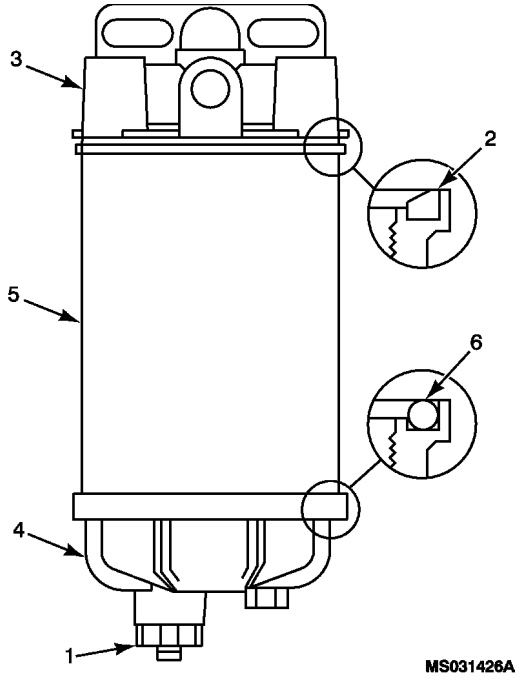
TEST AND INSPECTION – CONTINUED



1. Drain Valve
2. Shell Assembly
3. Head
4. Blind Probe
5. Filter Element
6. O-Ring
7. Gasket

Figure 2. Auxiliary Fuel Filter, Cartridge Replacement.

TEST AND INSPECTION – CONTINUED



1. Drain Valve
2. Gasket
3. Head
4. Sediment Bowl
5. Filter Element
6. O-Ring

Figure 3. Auxiliary Fuel Filter, Cartridge Replacement (New Type).

WARNING

Aviation fuel is flammable and an irritant to skin, eyes and respiratory tract. Avoid repeated or prolonged skin contact. Handle only in well ventilated areas. Keep away from sparks, open flames or other sources of ignition.

NOTE

Refer to WP 0009 00, trouble shooting procedure 10. ENGINE HANGS DURING START - EGT LESS THAN NORMAL (Step 2.) for test.

1. Inspect fuel pump for dents, cracks, or other damage. No dents or cracks are allowed.
2. Inspect fuel pump fittings and lines for leaks. If tightening fitting does not stop leak, replace fitting or line.

REMOVAL

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Set four way valve (Figure 1, Item 1) to OFF position.
3. Open drain valve (Figure 2, Item 1 or Figure 3, Item 1). Catch draining fuel in a suitable container.
4. Disconnect fuel tube (Figure 1, Item 2) from fuel pump (Figure 1, Item 3) inlet and fuel tube (Figure 1, Item 4) from fuel pump outlet.

REMOVAL – CONTINUED

5. Tag two white leads of cable (Figure 1, Item 5) and cut at crimp connection.
6. Remove fuel pump support clamp (Figure 1, Item 6) by removing two nuts (Figure 1, Item 7), lock washers (Figure 1, Item 8), washers (Figure 1, Item 9), and cap screws (Figure 1, Item 10).
7. Remove fuel pump (Figure 1, Item 3).
8. Remove elbows (Figure 1, Item 11 or 12), drain elbow (Figure 1, Item 13) and adapter (Figure 1, Item 14) for installation in replacement fuel pump.

INSTALLATION

1. Install elbows (Figure 1, Item 11 or 12) with O-Ring (Figure 1, Item 29), drain elbow (Figure 1, Item 13) and adapter (Figure 1, Item 14) in replacement fuel pump (Figure 1, Item 3).
2. Position fuel pump (Figure 1, Item 3) in place on fuel pump support bracket (Figure 1, Item 15) and install fuel pump support clamp (Figure 1, Item 6). Secure with two cap screws (Figure 1, Item 10), washers (Figure 1, Item 9), lock washers (Figure 1, Item 8) and nuts (Figure 1, Item 7).
3. Remove tags and connect two white leads of cable (Figure 1, Item 5) to fuel pump (Figure 1, Item 3). Ensure correct size butt splice and crimp.
4. Connect fuel tube (Figure 1, Item 4) to fuel pump (Figure 1, Item 3) outlet and fuel tube (Figure 1, Item 2) to fuel pump inlet. Torque connectors 120 +20 inch-pounds.
5. Close drain valve (Figure 2, Item 1 or Figure 3, Item 1). Set four way valve (Figure 1, Item 1) to INTL position.
6. Reconnect batteries.
7. Bleed the fuel system of air (WP 0014 00, Step 12.). Continue bleeding until an air free flow of fuel is attained.
8. Perform MOC and check for fuel leaks.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

FOUR WAY VALVE

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

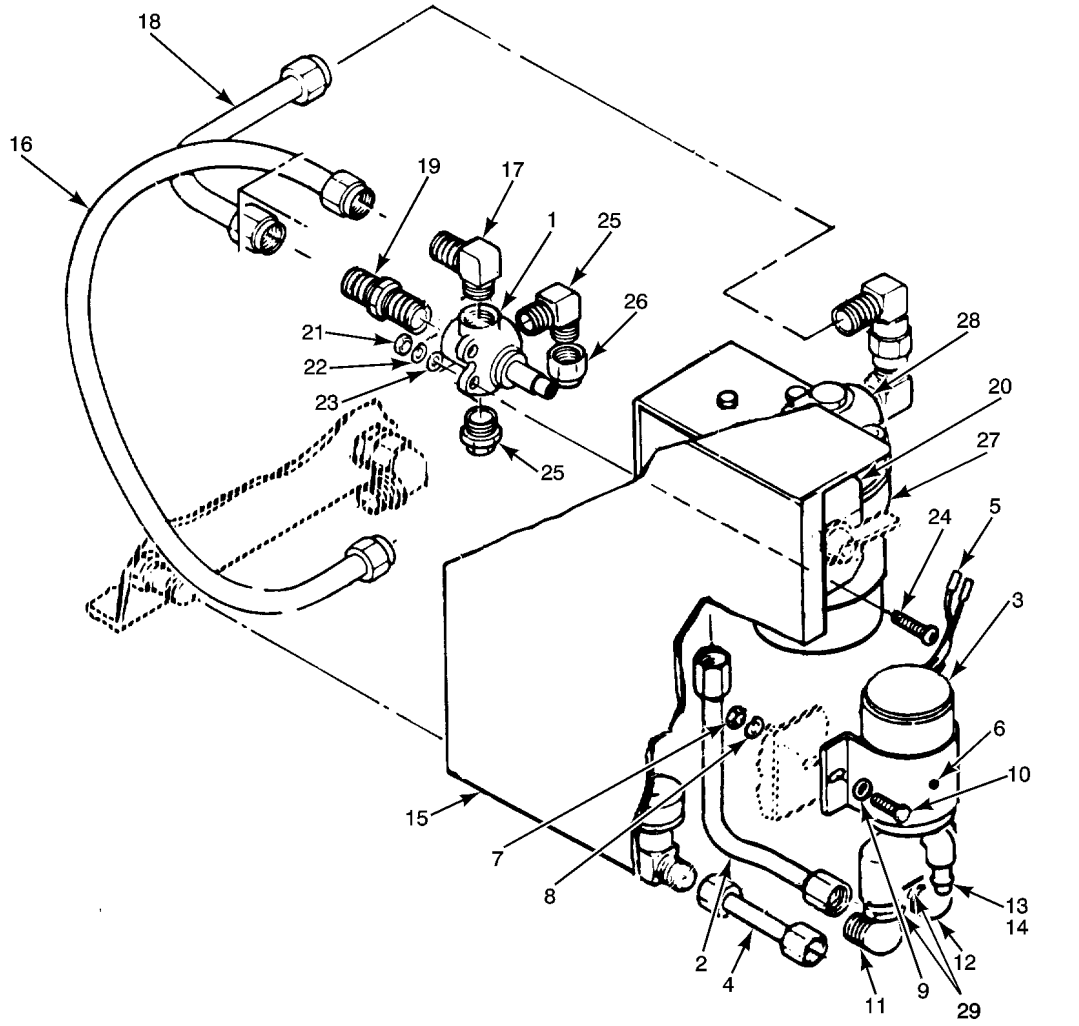
Materials/Parts

Sealing Compound (WP 0170 00, Item 48)
Turbine Fuel, Aviation (WP 0170 00, Item 58)

References

WP 0014 00
WP 0034 00

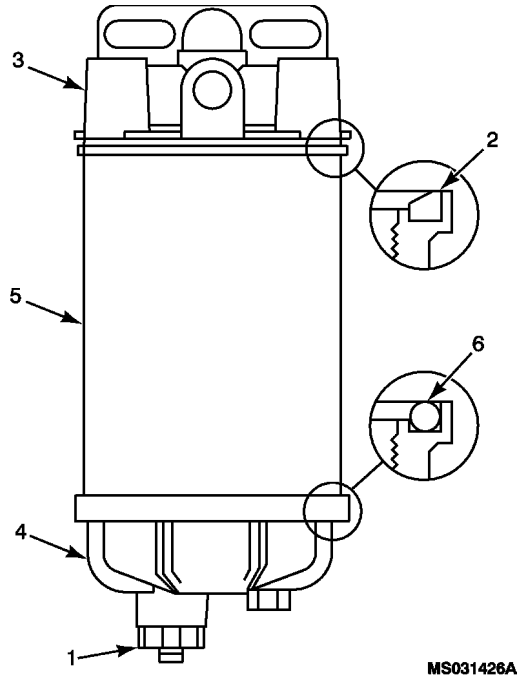
TEST AND INSPECTION



1. Four Way Valve	8. Lock Washer	15. Fuel Pump Support Bracket	22. Lock Washer
2. Fuel Tube	9. Washer	16. Hose Assembly	23. Washer
3. Fuel Pump	10. Cap Screw	17. Tube Adapter	24. Screw
4. Fuel Tube	11. Elbow	18. Hose Assembly	25. Elbow
5. Cable	12. Elbow	19. Straight Adapter	26. Cap Nut
6. Fuel Pump Support Clamp	13. Drain Elbow	20. Valve Support	27. Plug
7. Nut	14. Adapter	21. Nut	28. Fuel Filter Water Separator
			29. O-Ring

Figure 1. Fuel Supply System.

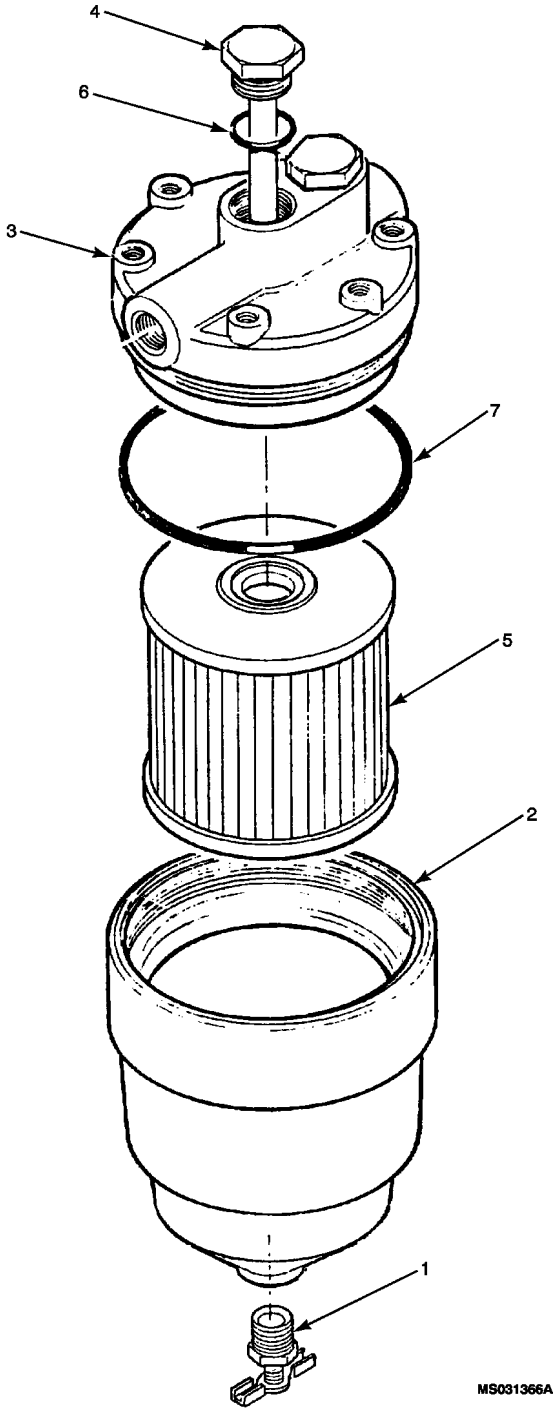
TEST AND INSPECTION – CONTINUED



1. Drain Valve
2. Gasket
3. Head
4. Blind Probe
5. Sediment Bowl
6. O-Ring

Figure 2. Auxiliary Fuel Filter, Cartridge Replacement (New Type).

TEST AND INSPECTION – CONTINUED



1. Drain Valve
2. Shell Assembly
3. Head
4. Blind Probe
5. Filter Element
6. O-Ring
7. Gasket

Figure 3. Auxiliary Fuel Filter, Cartridge Replacement (Old Type).

TEST AND INSPECTION – CONTINUED

WARNING

Aviation fuel is flammable and an irritant to skin, eyes and respiratory tract. Avoid repeated or prolonged skin contact. Handle only in well ventilated areas. Keep away from sparks, open flames or other sources of ignition.

1. Inspect four way valve (Figure 1, Item 1) for cracks, surface damage, corrosion or obvious damage. No cracks, corrosion or damage is permitted.
2. Inspect four way valve fittings, hose assemblies and connections for evidence of fuel leakage. No leaks are permitted. If tightening connections and/or fittings does not stop leakage, replace leaking components.
3. Inspect attaching hardware for security. Tighten loose attaching hardware. Replace missing hardware.

REMOVAL

WARNING

Aviation fuel is flammable and an irritant to skin, eyes and respiratory tract. Avoid repeated or prolonged skin contact. Handle only in well ventilated areas. Keep away from sparks, open flames or other sources of ignition.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Drain fuel tank.
3. Open drain valve (Figure 2, Item 1 or Figure 3, Item 1). Catch draining fuel in a suitable container.
4. Disconnect hose assembly (Figure 1, Item 16) from tube adapter (Figure 1, Item 17).
5. Disconnect hose assembly (Figure 1, Item 18) from straight adapter (Figure 1, Item 19).
6. Remove four way valve (Figure 1, Item 1) from valve support (Figure 1, Item 20) by removing nuts (Figure 1, Item 21), lock washers (Figure 1, Item 22), washers (Figure 1, Item 23) and screws (Figure 1, Item 24).
7. Remove tube adapter (Figure 1, Item 17), straight adapter (Figure 1, Item 19), elbow (Figure 1, Item 25) with cap nut (Figure 1, Item 26) and plug (Figure 1, Item 27) for installation in replacement four way valve. Clean all traces of pipe sealant from adapters, plugs and elbow.

INSTALLATION

1. Apply pipe sealant, part number LH-150, to interface threads of tube adapter (Figure 1, Item 1), straight adapter (Figure 1, Item 19), elbow (Figure 1, Item 25) and plug (Figure 1, Item 27).
2. Install tube adapter (Figure 1, Item 17), straight adapter (Figure 1, Item 19), elbow (Figure 1, Item 25), and plug (Figure 1, Item 27) in four way valve (Figure 1, Item 1).
3. Install cap nut (Figure 1, Item 26) on elbow (Figure 1, Item 25).
4. Install assembled four way valve (Figure 1, Item 1) and secure to valve support (Figure 1, Item 20) by installing screws (Figure 1, Item 24), washers (Figure 1, Item 23), lock washers (Figure 1, Item 22) and nuts (Figure 1, Item 21).
5. Connect hose assembly (Figure 1, Item 16) to tube adapter (Figure 1, Item 17). Torque hose assembly end fitting to 120 ±20 inch-pounds.
6. Connect hose assembly (Figure 1, Item 18) to straight adapter (Figure 1, Item 19). Torque hose assembly end fitting to 120 ±20 inch-pounds.

INSTALLATION – CONTINUED

7. Close drain valve (Figure 2, Item 1 or Figure 3, Item 1).

WARNING

Aviation fuel is flammable and an irritant to skin, eyes and respiratory tract. Avoid repeated or prolonged skin contact. Handle only in well ventilated areas. Keep away from sparks, open flames or other sources of ignition.

8. Fill fuel tank with aviation fuel.
9. Set four way valve (Figure 1, Item 1) to INTL.
10. Reconnect batteries.
11. Bleed fuel system of air (WP 0014 00, Step 12.). Continue bleeding until an air free flow of fuel is attained.
12. Perform MOC and check for fuel leaks.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

FUEL CONTROL UNIT (FCU)

INITIAL SETUP:

Tools and Special Tools

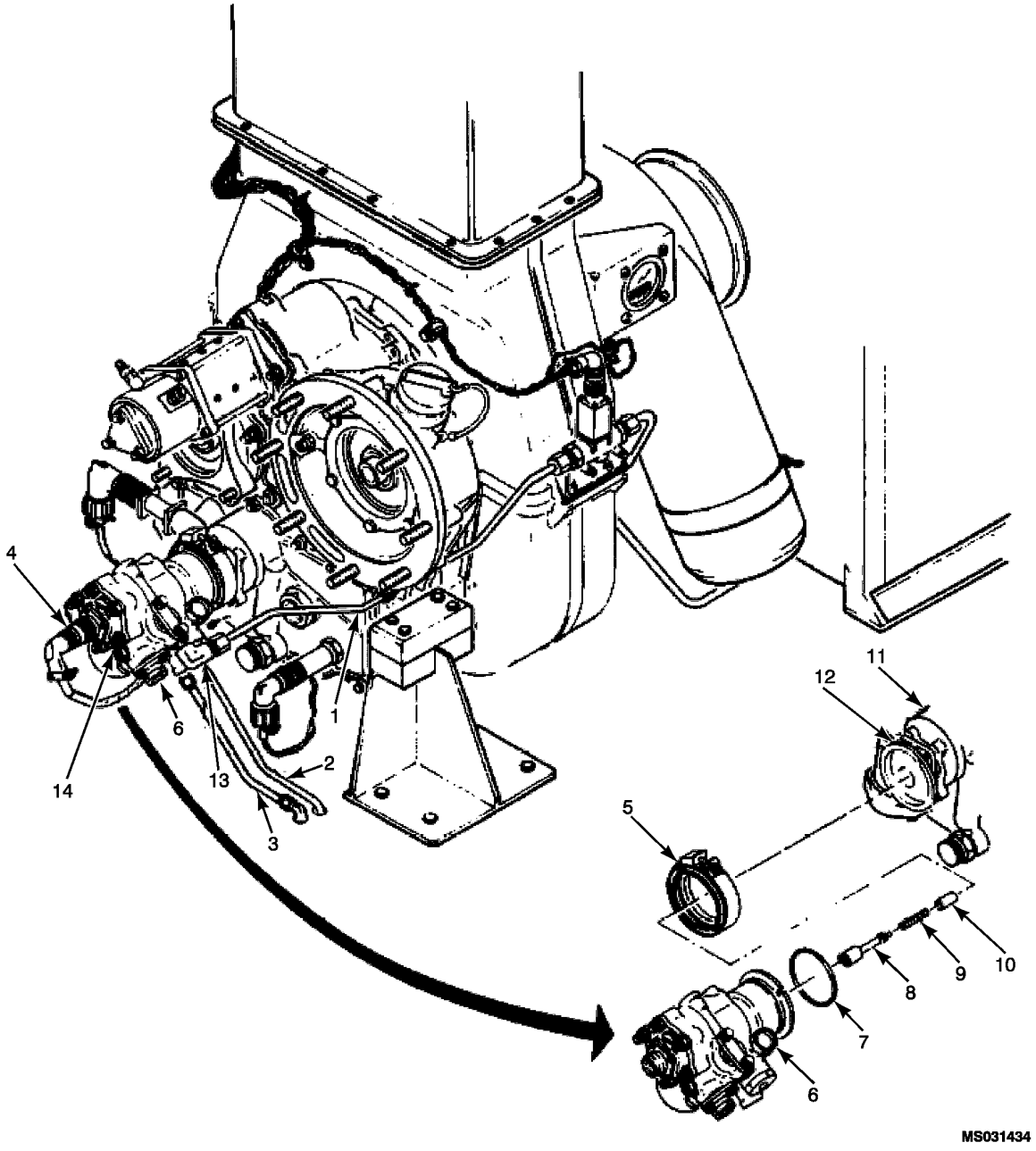
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Wire, Nonelectrical (WP 0170 00, Item 60)

References

WP 0012 00
WP 0014 00
WP 0034 00



1. Fuel Line
2. Drain Tube
3. Fuel Hose Supply
4. Electrical Connector (P9)
5. Clamp
6. Fuel control unit (FCU)
7. Packing
8. Shaft
9. Spring
10. Spacer
11. Oil Pump Housing
12. FCU Adapter
13. Elbow
14. Fuel Filter Canister

Figure 1. Fuel Control Unit (FCU) (MEP 83-360A and MEP 83-360D/E).

TEST AND INSPECTION

NOTE

Refer to WP 0012 00, trouble shooting procedure 120. FUEL CONTROL UNIT MALFUNCTION for test.

1. Open engine access door.
2. Inspect Fuel Control Unit (FCU) for security of installation or loose components. Tighten loose fittings.
3. Inspect FCU for cracks, dents, and leaks. No damage is allowed.

REMOVAL

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Place container under FCU (Figure 1, Item 6) to catch draining fuel.
3. Disconnect fuel line (Figure 1, Item 1) at elbow (Figure 1, Item 13).
4. Disconnect drain tube (Figure 1, Item 2).
5. Disconnect fuel hose (Figure 1, Item 3).
6. Cut safety wire and disconnect electrical connector (Figure 1, Item 4).
7. Loosen clamp (Figure 1, Item 5), and carefully remove FCU (Figure 1, Item 6) in a straight line to avoid damage to shaft (Figure 1, Item 8).
8. Remove and discard packing (Figure 1, Item 7).
9. Remove shaft (Figure 1, Item 8), spring (Figure 1, Item 9), and spacer (Figure 1, Item 10).
10. Inspect shaft (Figure 1, Item 8) and spacer (Figure 1, Item 10) for cracks, nicks, or burrs. No damage is allowed.
11. Inspect spring (Figure 1, Item 9) for deformation. No damage is allowed.

INSTALLATION

1. Install spacer (Figure 1, Item 10) and spring (Figure 1, Item 9) into oil pump housing (Figure 1, Item 11).
2. Install packing (Figure 1, Item 7), shaft (Figure 1, Item 8), and clamp (Figure 1, Item 5) onto FCU (Figure 1, Item 6).
3. Carefully position FCU (Figure 1, Item 6) over alignment pin of FCU adapter (Figure 1, Item 12), and tighten clamp (Figure 1, Item 5) to 20 inch-pounds.
4. Connect electrical connector (Figure 1, Item 4) and lockwire.
5. Connect fuel hose (Figure 1, Item 3).
6. Connect drain tube (Figure 1, Item 2).
7. Connect fuel line (Figure 1, Item 1) to elbow (Figure 1, Item 13).
8. Reconnect batteries.
9. Bleed air from fuel system (WP 0014 00).
10. Perform MOC and check for fuel leaks.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

FCU FUEL FILTER

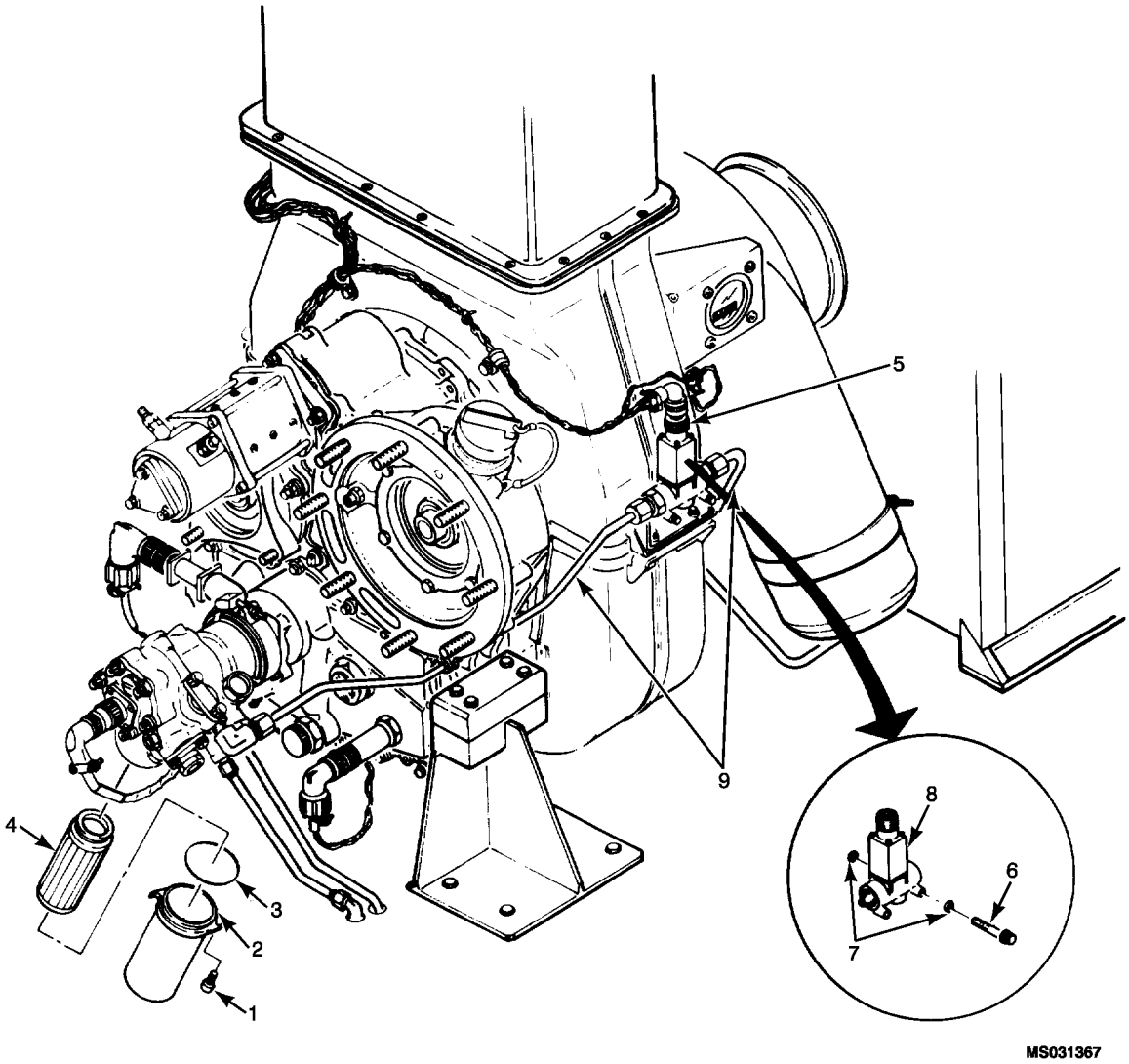
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0014 00
WP 0021 00
WP 0034 00



1. Bolt	4. Filter Assembly	7. Washer
2. Filter Cover	5. Electrical Connector	8. Shutdown Fuel Solenoid
3. Packing	6. Bolt	9. Fuel Lines

Figure 1. Engine FCU Fuel Filter and Shutdown Fuel Solenoid.

TEST AND INSPECTION

1. Remove hydraulic access cover (WP 0021 00).
2. Inspect filter cover (Figure 1, Item 2) for dents, cracks, and other damage. No dents or cracks are allowed.

REMOVAL

NOTE

Place drip pan to catch fuel when filter cover is removed.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Loosen bolts (Figure 1, Item 1) and rotate filter cover (Figure 1, Item 2) to disengage. Remove filter cover (Figure 1, Item 2) with packing (Figure 1, Item 3) and filter assembly (Figure 1, Item 4).

REMOVAL – CONTINUED

3. Remove packing (Figure 1, Item 3) and filter assembly (Figure 1, Item 4) from filter cover (Figure 1, Item 2). Discard packing and filter assembly.

INSTALLATION

1. Clean filter cover (Figure 1, Item 2).
2. Insert new filter assembly (Figure 1, Item 4) into Fuel Control Unit (FCU).
3. Install filter cover (Figure 1, Item 2) with new packing (Figure 1, Item 3) onto FCU, and rotate clockwise to engage cover.
4. Tighten bolts (Figure 1, Item 1) to 20 inch-pounds.
5. Reconnect batteries.
6. Purge fuel system (WP 0014 00). Inspect fuel canister for leaks.
7. Install hydraulic access cover (WP 0021 00).
8. Perform MOC and check for fuel leaks.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

FUEL FILTER, AUXILIARY

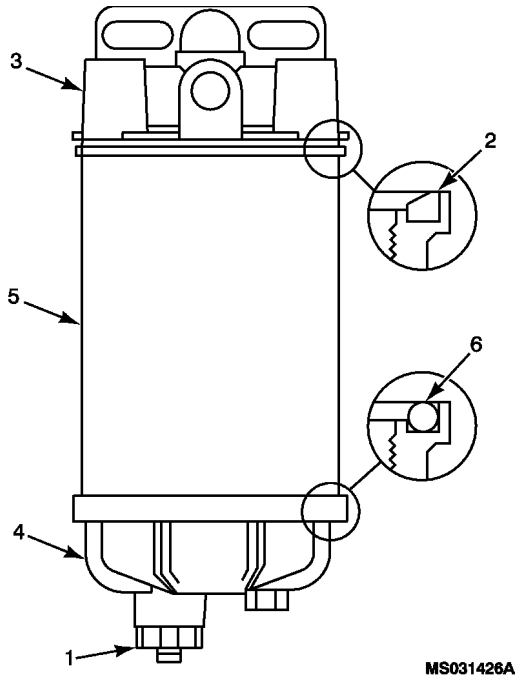
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

TB 1-1730-229-20-1
WP 0014 00
WP 0034 00
WP 0068 00
WP 0073 00



1. Drain Valve
2. Shell Assembly
3. Head, Water Separator
4. Blind Probe
5. Filter Element
6. O-Ring
7. Gasket

Figure 1. Auxiliary Fuel Filter, Cartridge Replacement (Racor) Only (New type).

REPAIR OR REPLACEMENT

Raycor Type

WARNING

Aviation fuel is flammable and an irritant to skin, eyes and respiratory tract. Avoid repeated or prolonged skin contact. Handle only in well ventilated areas. Keep away from sparks, open flames or other sources of ignition.

NOTE

TB 1-1730-229-20-1 replaces fuel filter, Kaydon, P/N SD420056 (Figure 2) with Racor, P/N 660R-10 (Figure 1). This modification has not been applied to all AGPU and replacement filter elements for the Kaydon are still available in the supply system.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Inspect fuel filter water separator (Figure 1, Item 3) for dents, cracks, or other damage. No dents or cracks are allowed.

REPAIR OR REPLACEMENT – CONTINUED

3. Inspect filter fittings and lines for leaks. If tightening fitting does not stop leak, replace fitting or line (WP 0068 00).
4. Set four way valve to OFF (WP 0073 00).

WARNING

Aviation fuel is flammable and an irritant to skin, eyes and respiratory tract. Avoid repeated or prolonged skin contact. Handle only in well ventilated areas. Keep away from sparks, open flames or other sources of ignition.

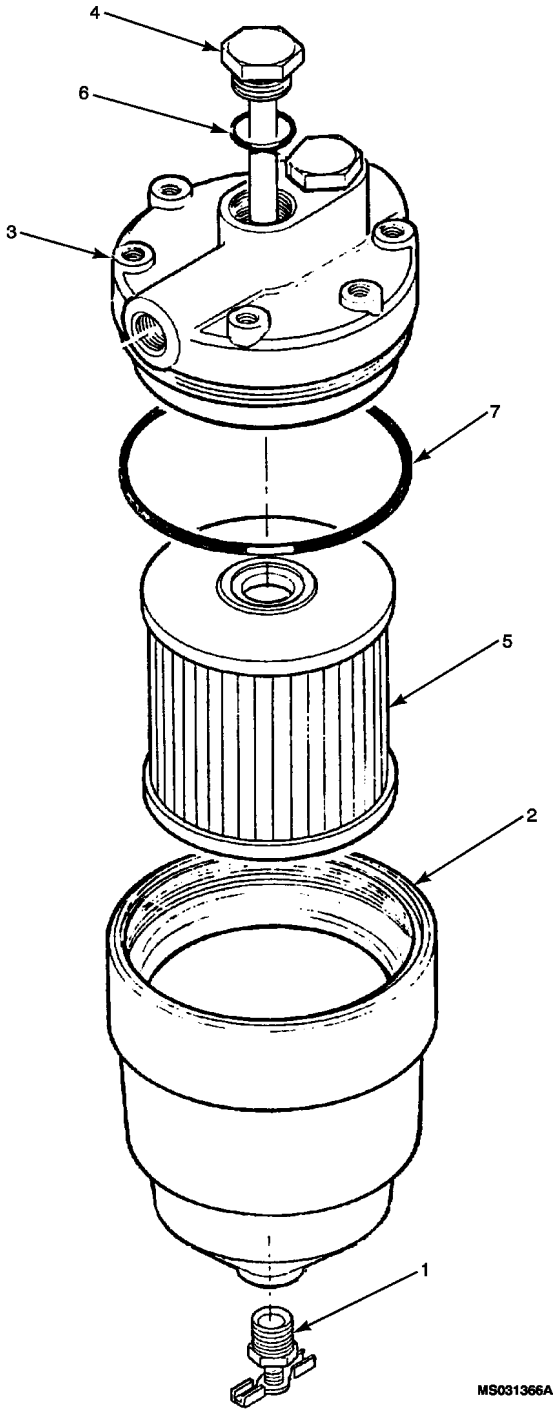
NOTE

A drip pan needs to be placed under the auxiliary fuel filter while performing the following step.

5. Open drain valve (Figure 1, Item 1). Catch draining fuel in a suitable container.
6. Remove shell assembly (Figure 1, Item 2) from head (Figure 1, Item 3) by unscrewing water separator head (Figure 1, Item 3).
7. Remove and discard filter element (Figure 1, Item 5) and gasket (Figure 1, Item 7) in shell assembly (Figure 1, Item 2).
8. Install new filter element (Figure 1, Item 5) and gasket (Figure 1, Item 7) in shell assembly (Figure 1, Item 2).
9. Install assembled shell assembly (Figure 1, Item 2) and screw to water separator head (Figure 1, Item 3).
10. Close drain valve (Figure 1, Item 1). Set four way valve to INTL (WP 0073 00).
11. Reconnect batteries.
12. Bleed fuel system of air (WP 0014 00, Step 12.). Continue bleeding until an air free flow of fuel is attained.
13. Perform MOC and check Fuel System for fuel leakage.

REPAIR OR REPLACEMENT

REPLACE CARTRIDGE (KAYDON)



1. Drain Valve
2. Shell Assembly
3. Head Filter
4. Blind Probe
5. Filter Element
6. O-Ring
7. Gasket

REPAIR OR REPLACEMENT – CONTINUED

REPLACE CARTRIDGE (KAYDON) – CONTINUED

Figure 2. Auxiliary Fuel Filter, Cartridge Replacement (Kaydon).

Kaydon Type

WARNING

Aviation fuel is flammable and an irritant to skin, eyes and respiratory tract. Avoid repeated or prolonged skin contact. Handle only in well ventilated areas. Keep away from sparks, open flames or other sources of ignition.

1. Set four way valve to OFF (WP 0073 00).

NOTE

A drip pan needs to be placed under the auxiliary fuel filter while performing the following step.

2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
3. Open drain valve (Figure 2, Item 1). Catch draining fuel in a suitable container.
4. Spin the shell assembly (Figure 2, Item 2) clockwise off filter head (Figure 2, Item 3). Hold blind probe (Figure 2, Item 4) with wrench.
5. Remove the shell assembly (Figure 2, Item 2) and clean the O-ring gland (Figure 2, Item 6). Discard filter element (Figure 2, Item 5) and gasket (Figure 2, Item 7) and filter element.
6. Apply a coat of clean fuel or grease to the new O-ring (Figure 2, Item 6) and filter element (Figure 2, Item 5).
7. Assemble the filter element (Figure 2, Item 5) to the shell assembly (Figure 2, Item 2) by screwing clockwise. Install the new O-ring (Figure 2, Item 6) onto blind probe (Figure 2, Item 4).
8. Check that the filter element (Figure 2, Item 5) is installed with the flat side against the filter element (Figure 2, Item 5).
9. Install assembled filter element (Figure 2, Item 5) and shell assembly (Figure 2, Item 2) to the filter head (Figure 2, Item 3).
10. Close drain valve (Figure 2, Item 1). Set four way valve to INTL (WP 0073 00)
11. Reconnect batteries.
12. Bleed fuel system of air (WP 0014 00, Step 12.). Continue bleeding until an air free flow of fuel is attained.
13. Perform MOC and check fuel system for fuel leakage.

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

FUEL SOLENOID, SHUTDOWN

INITIAL SETUP:

Tools and Special Tools

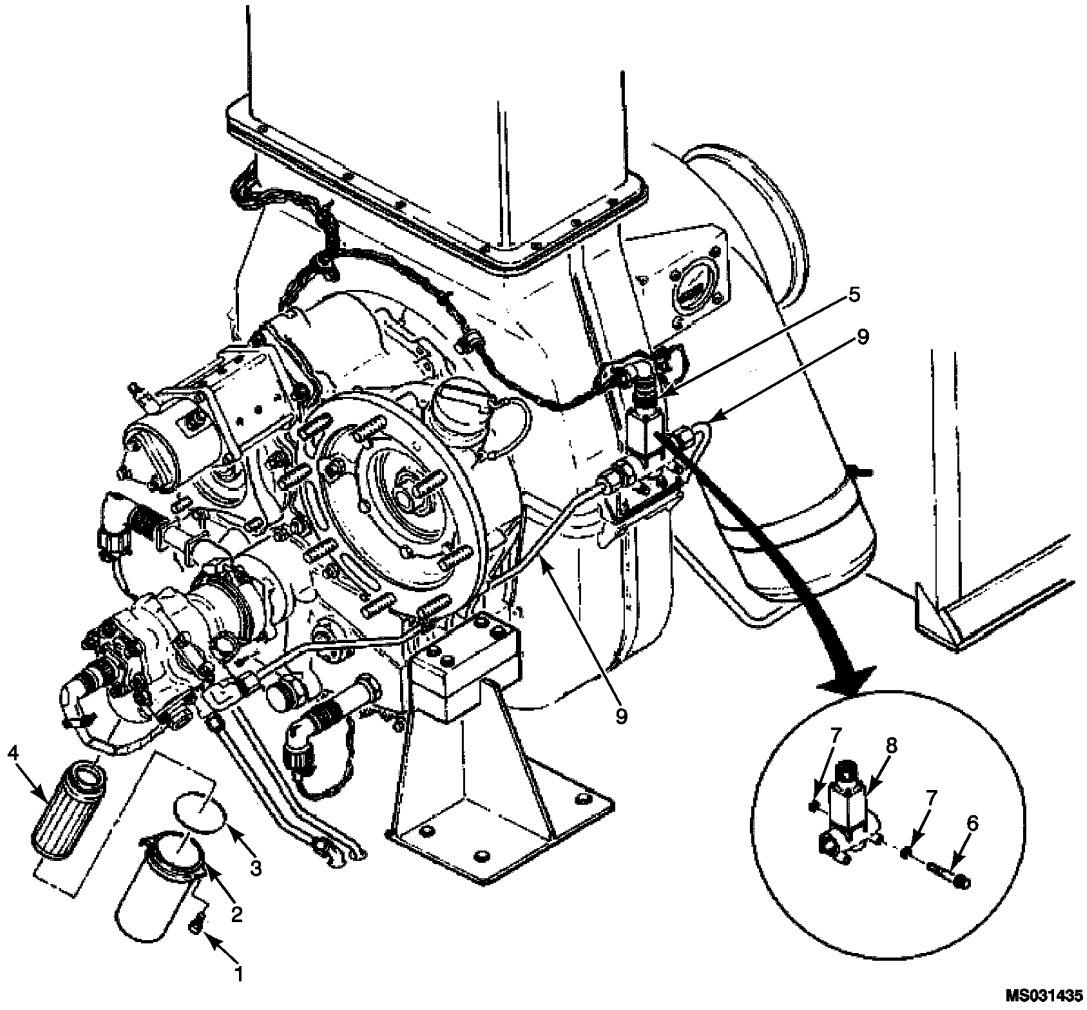
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Lubricating Oil, Molybdenum Disul (WP 0170 00, Item 36)
Wire, Nonelectrical (WP 0170 00, Item 60)

References

WP 0002 00
WP 0012 00
WP 0034 00



1. Bolt	4. Filter Assembly	7. Washer
2. Filter Cover	5. Electrical Connector	8. Shutdown Fuel Solenoid
3. Packing	6. Bolt	9. Fuel Lines

Figure 1. Engine FCU Fuel Filter and Shutdown Solenoid.

TEST AND INSPECTION

NOTE

Refer to WP 0012 00, trouble shooting procedure 121. FUEL SHUTDOWN SOLENOID MAL FUNCTION for test.

1. Open engine access door (WP 0002 00, Figure 1, Item 12).
2. Inspect fuel solenoid (Figure 1, Item 8) and bracket for dents and cracks. No dents or cracks are allowed.
3. Inspect for security of installation. Tighten mounting bolts or fuel line connections if required.

REMOVAL

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.

REMOVAL – CONTINUED

2. Disconnect fuel lines (Figure 1, Item 9), electrical connector (Figure 1, Item 5) and cut lock wire from fuel solenoid (Figure 1, Item 8).
3. Remove bolts (Figure 1, Item 6), washers (Figure 1, Item 7), and fuel solenoid from bracket.

CAUTION

When starting engine for first time after replacement of fuel solenoid, be prepared to shutdown engine by setting control panel MASTER SWITCH to OFF (to remove power from auxiliary pump) should engine overspeed occur or engine fail to shutdown in normal manner.

INSTALLATION

1. Apply a thin coat of lubricating oil to the threads of the bolts (Figure 1, Item 6).
2. Install bolts (Figure 1, Item 6), washers (Figure 1, Item 7), through fuel solenoid body (Figure 1, Item 8), and secure to bracket.
3. Attach fuel lines (Figure 1, Item 9) and electrical connector (Figure 1, Item 5) to fuel solenoid. Lockwire electrical connector.
4. Reconnect batteries.
5. Perform MOC and check for fuel leaks.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

FUEL NOZZLE

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
Brush, Brass (WP 0171 00, Item 4)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

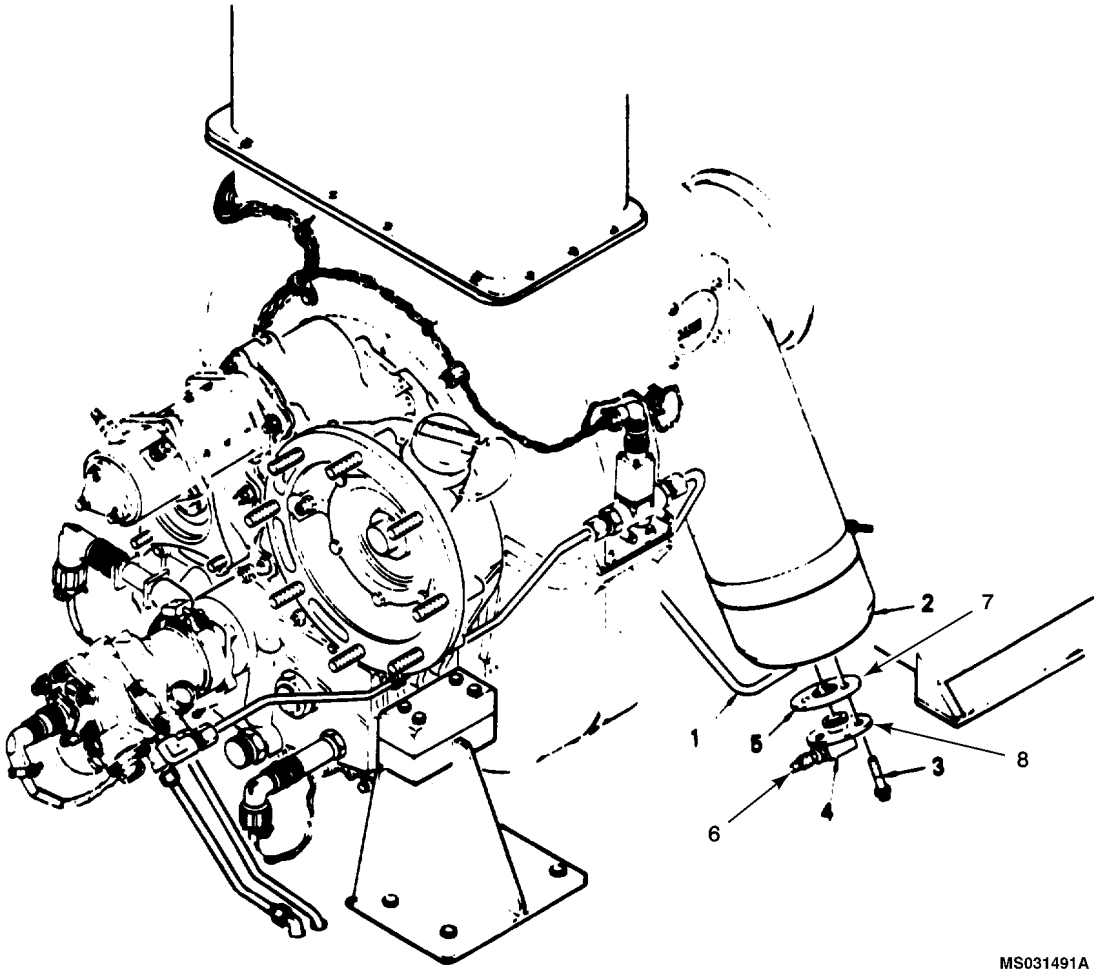
References

TM 1-1730-229-13
WP 0034 00

GENERAL

Refer to TM 1-1730-229-13, Operator Instructions for a description of the fuel system.

GENERAL – Continued



1. Fuel line
2. Combustion chamber cap
3. Bolt
4. Fuel nozzle
5. Gasket
6. Inlet fitting
7. Mounting flange
8. Nozzle face

Figure 1. Fuel Nozzle.

REMOVAL

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
3. Disconnect fuel line (Figure 1, Item 1) from fuel nozzle (Figure 1, Item 4).
4. Remove lock wire and remove three bolts (Figure 1, Item 3), fuel nozzle (Figure 1, Item 4), and gasket (Figure 1, Item 5), from combustion chamber cap (Figure 1, Item 2).
5. Inspect gasket (Figure 1, Item 5) for damage. No damage is allowed.
6. Inspect fuel nozzle inlet fitting (Figure 1, Item 6) for damaged threads, and inspect mounting flange (Figure 1, Item 7) for dents or deformation, No damage is allowed.
7. Inspect nozzle face (Figure 1, Item 8) for burrs, nicks, or cracks. No damage is allowed.

REMOVAL – CONTINUED

8. Inspect nozzle face (Figure 1, Item 8) and fuel passages for carbon deposits or blockage. Clean as outlined in next paragraph, if required.

CLEANING

1. Position fuel nozzle (Figure 1, Item 4) with nozzle pointing downward, and apply low pressure air (approximately 30 psig) to inlet fitting.

CAUTION

Do not use steel brush to clean face of fuel nozzle. Alteration of fuel spray pattern may result.

2. With air flowing through fuel nozzle (Figure 1, Item 4) lightly brush carbon deposits from nozzle with a brass brush.

INSTALLATION

1. Install gasket (Figure 1, Item 5), fuel nozzle (Figure 1, Item 4), and three bolts (Figure 1, Item 3). Tighten bolts to 50 inch-pounds and lockwire.
2. Reconnect fuel line (Figure 1, Item 1) to fuel nozzle (Figure 1, Item 4). Do not cross thread fitting.
3. Reconnect batteries.
4. Perform MOC and start GTE and check for fuel leakage.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

SENSOR, FUEL LEVEL AND LOW FUEL LEVEL

INITIAL SETUP:

Tools and Special Tools

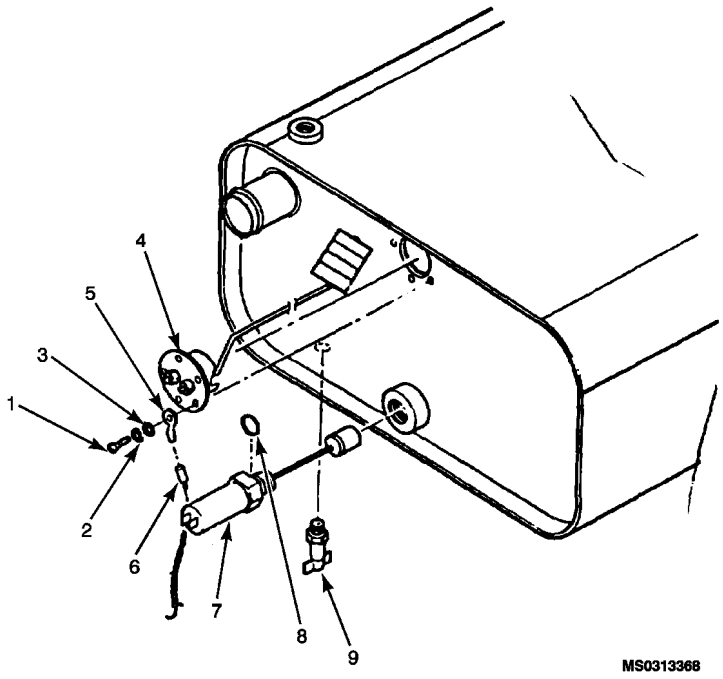
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Turbine Fuel, Aviation (WP 0170 00, Item 58)

References

WP 0012 00
WP 0034 00



1. Screw
2. Lock Washer
3. Flat Washer
4. Fuel Level Sensor with Gasket
5. Wire Lug (2)
6. Wiring
7. Low Level Fuel Sensor with Gasket
8. O-Ring
9. Drain Valve

Figure 1. Fuel Level Sensors.

REMOVAL

SENSOR, FUEL LEVEL

WARNING

Aviation fuel is flammable and an irritant to skin, eyes and respiratory tract. Avoid repeated or prolonged skin contact. Handle only in well ventilated areas. Keep away from sparks, open flames or other sources of ignition.

NOTE

Refer to WP 0012 00, trouble shooting procedure 60. FUEL METER READING INACCURATE, Step 8. for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Ensure parking brake is set and wheels are choked with AGPU on level ground.
3. Ensure that fuel tank is less than 2/3 full. If tank is full, drain fuel into suitable container until tank is less than 2/3 full.
4. Tag and disconnect wire lugs (Figure 1, Item 5) from fuel level sensor with gasket (Figure 1, Item 4).
5. Remove screws (Figure 1, Item 1) and washers (Figure 1, Item 2 and 3).
6. Carefully remove fuel level sensor with gasket (Figure 1, Item 4) from tank. Turn sensor to ensure sensor arm and float clear tank hole.
7. Check that float arm moves freely up and down, and no binding is evident. Replace if damaged or if binding occurs. Check resistance between full and empty position. Resistance should vary smoothly between approximately 35 ohms (full position) and 240 ohms (empty position).

INSTALLATION

1. Clean tank and fuel level sensor with gasket (Figure 1, Item 4) interface joint. Remove all traces of old gasket material.
2. Carefully install fuel level sensor with gasket (Figure 1, Item 4) in tank mounting hole. Rotate fuel level sensor to align bolt mounting pattern. Ensure fuel level sensor is correctly positioned to allow up-and-down movement of the float.
3. Install screws (Figure 1, Item 1) and washers (Figure 1, Item 2 and 3) and tighten screws securely.
4. Reconnect wire lugs (Figure 1, Item 5) to sensor terminals.
5. Check for leaks after tank is refilled.
6. Reconnect batteries.
7. Perform MOC.

REMOVAL

SENSOR, LOW FUEL LEVEL

WARNING

Aviation fuel is flammable and an irritant to skin, eyes and respiratory tract. Avoid repeated or prolonged skin contact. Handle only in well ventilated areas. Keep away from sparks, open flames or other sources of ignition.

NOTE

Refer to WP 0012 00, trouble shooting procedure 66. GTE LOW FUEL PRESS INDICATOR NOT LIT - MASTER SWITCH ON AND ENGINE NOT RUNNING for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Ensure parking brake is set and wheels are choked with AGPU on level ground.
3. Ensure that fuel tank is **empty or near empty**. If tank is not empty, drain remaining fuel into suitable container.
4. Tag and disconnect wiring.
5. Remove low level fuel sensor with gasket (Figure 1, Item 7) from tank.

INSTALLATION

1. Clean low fuel level sensor with gasket (Figure 1, Item 7) to tank interface mounting.
2. Install O-Ring (Figure 1, Item 8) on low fuel level sensor with gasket (Figure 1, Item 7).
3. Install low fuel level sensor with gasket (Figure 1, Item 7) in tank mounting hole. Ensure arrow and UP, NC are pointing up.
4. Connect low fuel level sensor with gasket (Figure 1, Item 7) wiring. Remove tags.
5. Check for leaks after tank is refilled.
6. Reconnect batteries.
7. Perform MOC.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

FUEL TUBE AND HOSE ASSEMBLIES, AND FITTINGS

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

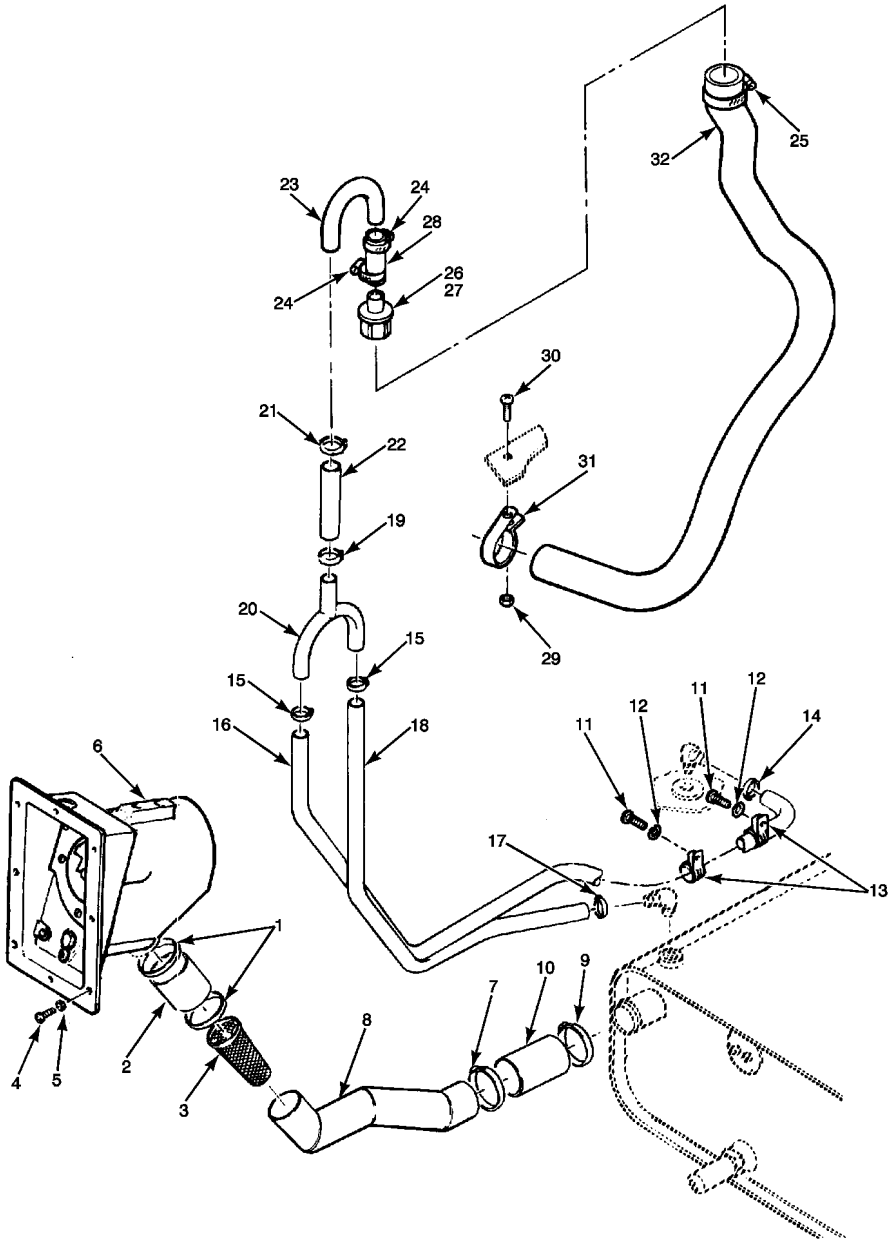
Materials/Parts

RTV Red Gasket Maker (WP 0170 00, Item 47)

References

WP 0021 00
WP 0034 00

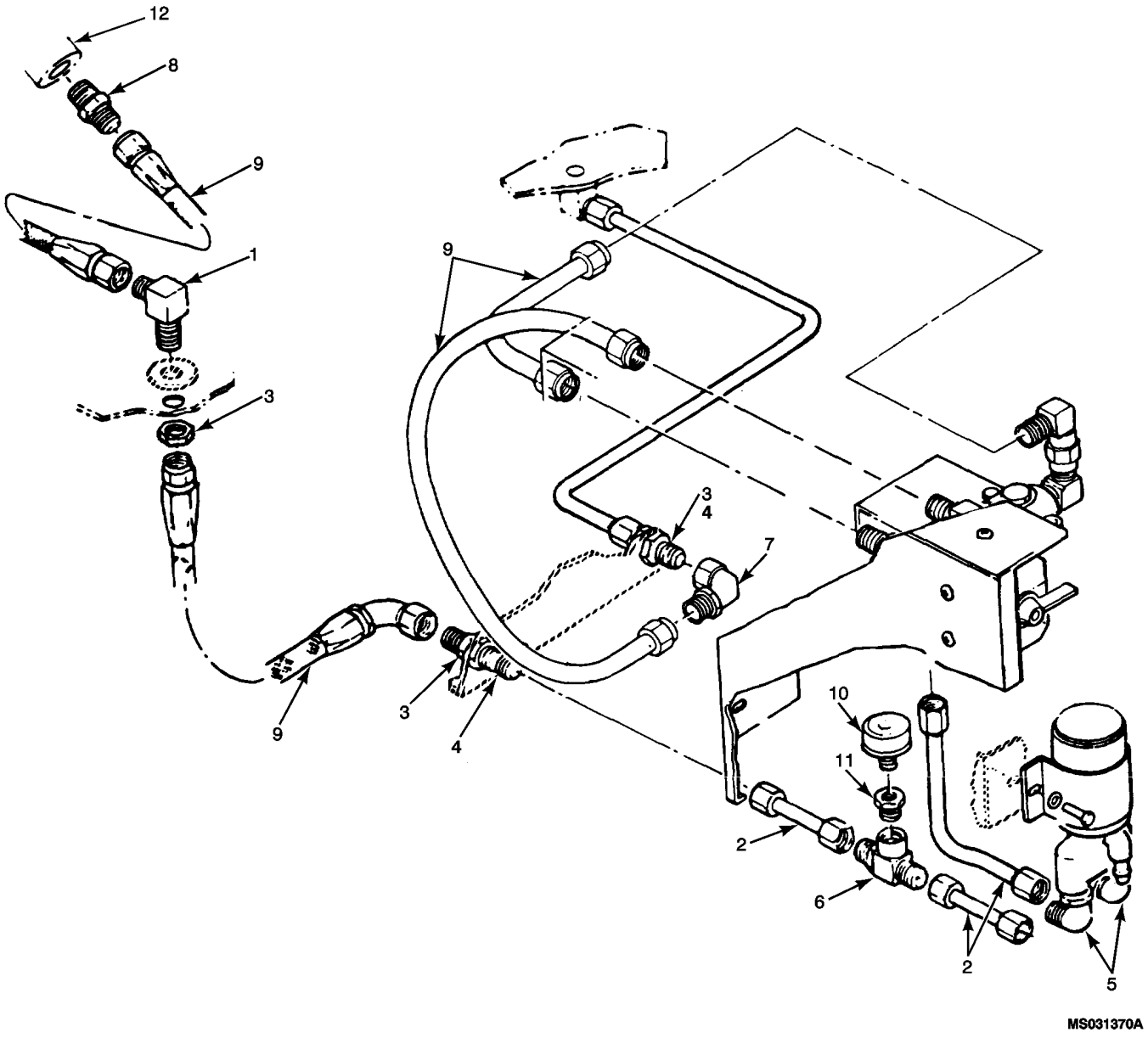
REMOVAL



1. Clamp, Hose	9. Clamp	17. Clamp	25. Clamp
2. Hose (3-inch)	10. Hose (5-inch)	18. Hose (40-inch)	26. Fuel Vent Breather Assembly
3. Screen Strainer	11. Screw	19. Clamp	27. Washer
4. Screw	12. Lockwasher	20. Y-Vent Tube	28. Hose
5. Lockwasher	13. Clamp, Loop Cushioned	21. Clamp	29. Locknut
6. Fuel Fill Plenum	14. Clamp	22. Hose (5-inch)	30. Screw
7. Clamp	15. Clamp	23. Fuel Hose Coupler	31. Clamp
8. Fuel Pipe	16. Hose (123-inch)	24. Clamp	32. Hose

REMOVAL – CONTINUED

Figure 1. Fuel Fill and Vent Hoses and Fittings.



1. Fitting, Fuel Tank (Bottom)	5. Elbow	9. Hose Assembly
2. Tube Assembly	6. Tee	10. Sensor, Pressure
3. Nut, Coupling	7. Elbow, M/F	11. Fitting
4. Union, Bulkhead	8. Union, M/M	12. FCU

Figure 2. Fuel Tube Assemblies, Hose Assemblies, and Fittings.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Ensure parking brake is set and wheels are choked with AGPU on level ground.
3. Ensure that fuel tank is less than 2/3 full. If tank is full, drain fuel into suitable container until tank is less than 2/3 full.

REMOVAL – CONTINUED

4. Remove fuel access cover (WP 0021 00).
5. Loosen clamps (Figure 1, Items 1, 7 and 9) and remove hoses (Figure 1, Item 2 and 10), screen strainer (Figure 1, Item 3) and fuel pipe (Figure 1, Item 8).
6. Remove screws (Figure 1, Item 11) and lock washers (Figure 1, Item 12). Loosen clamps (Figure 1, Items 14, 15, 17, 19, and 21) and remove vent hoses (Figure 1, Items 16, 18, and 22), Y-vent tube (Figure 1, Item 20) and fuel hose coupler (Figure 1, Item 23).
7. Loosen clamps (Figure 1, Item 24 and 25) and remove fuel vent breather assembly (Figure 1, Item 26), flat washer (Figure 1, Item 27) and hose (Figure 1, Item 28). Remove lock nut (Figure 1, Item 29), screw (Figure 1, Item 30) and clamp (Figure 1, Item 31) and remove hose (Figure 1, Item 32).
8. Remove tube assemblies (Figure 2, Item 2) and hose assembly (Figure 2, Item 9) by loosening coupling nuts (Figure 2, Item 3)
9. Remove bulkhead unions (Figure 2, Item 4) and elbow (Figure 2, Item 7) by removing retaining nuts (Figure 2, Item 3).
10. Tag and disconnect wires to pressure sensor (Figure 2, Item 10). Remove pressure sensor (Figure 2, Item 10) by unscrewing from fitting (Figure 2, Item 11).

INSTALLATION

NOTE

Use RTV Red gasket maker (Permatex 26B) when installing hoses (Figure 1, Item 2, 10, 16, 18, 20 and 22)., use a thin coat on inside of hoses only.

1. Install hoses (Figure 1, Item 2 and 10), screen strainer (Figure 1, Item 3) and fuel pipe (Figure 1, Item 8). Secure with clamps (Figure 1, Items 1, 7 and 9).
2. Install vent hoses (Figure 1, Items 16, 18 and 22), Y-vent tube (Figure 1, Item 20) and fuel hose coupler (Figure 1, Item 23). Secure with clamp (Figure 1, Items 14, 15, 17, 19 and 21). Secure loop cushion clamps (Figure 1, Item 13), screws (Figure 1, Item 11) and lock washers (Figure 1, Item 12).
3. Install flat washer (Figure 1, Item 27) on smaller end of fuel breather vent assembly (Figure 1, Item 26). Secure fuel vent breather assembly to hose (Figure 1, Item 28) using clamp (Figure 1, Item 24).
4. Install hose (Figure 1, Item 32) to far side of plenum Ensure hose is fully extended below AGPU. Secure to fuel vent breather assembly (Figure 1, Item 26) with clamp (Figure 1, Item 25).
5. Install loop clamp (Figure 1, Item 31) on hose (Figure 1, Item 33) and secure to AGPU skirt with screw (Figure 1, Item 30) and lock nut (Figure 1, Item 29).
6. Install bulkhead unions (Figure 2, Item 4) and elbow (Figure 2, Item 7). Secure with retaining nuts (Figure 2, Item 3).
7. Install tube assemblies (Figure 2, Item 2) and hose assembly (Figure 2, Item 9). Torque coupling nuts to 100-140 inch-pounds.
8. Install pressure sensor (Figure 2, Item 10) in fitting (Figure 2, Item 11). Remove tags and connect wires to pressure sensor (Figure 2, Item 10).
9. Refill fuel tank and inspect hose connections for fuel leaks.
10. Perform Closed Circuit Refueling (CCR) nozzle refill and check all hoses and connections for fuel leaks (ensure CCR nozzle is closed when refueling)
11. Install fuel access cover (WP 0021 00).
12. Reconnect batteries.

INSTALLATION – CONTINUED

13. Perform MOC.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
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EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

FUEL SUPPLY SYSTEM CHECK VALVES

INITIAL SETUP:

Tools and Special Tools

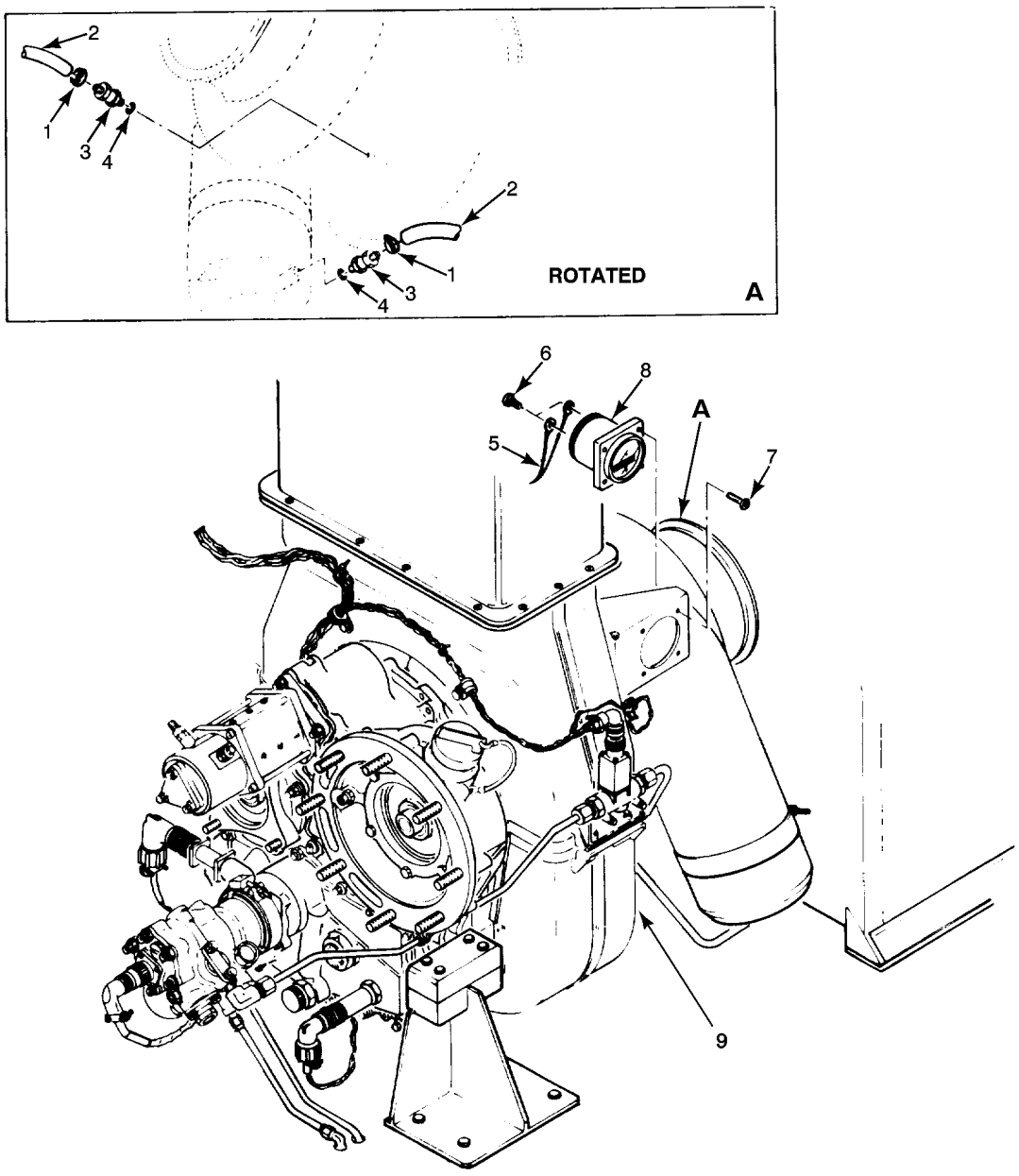
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Cleaning Compound, Solvent (WP 0170 00, Item 5)

References

WP 0034 00



1. Steel Fitting
2. Steel Drain Line
3. Check Valve
4. Packing
5. Electrical Connections
6. Screw
7. Screw
8. Hour Meter
9. Clamp (Not Illustrated)

Figure 1. Engine Drain Line Check Valves.

REMOVAL

NOTE

There are two check valves, as shown in Figure 1, view A.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
3. Loosen steel fittings (Figure 1, Item 1) and disconnect steel drain lines (Figure 1, Item 2) from check valves (Figure 1, Item 3).
4. Remove two check valves (Figure 1, Item 3) with packing (Figure 1, Item 4). Discard packing.

TEST AND INSPECTION

1. Inspect check valve for damage that would prevent internal valve mechanism from operating. No damage is allowed.
2. Inspect threaded fittings on both ends of check valve for damage. No damage is allowed.

SERVICE

WARNING

Degreasing solvent, MIL-PRF-680, is combustible and toxic to eyes, skin, and respiratory tract. Wear protective gloves and goggles/face shield. Avoid repeated or prolonged contact. Use only in well ventilated areas (or use approved respirator as determined by local safety/industrial hygiene personnel). Keep away from open flames or other sources of ignition.

Inspect interior of check valve. If interior appears dirty or contaminated, clean by dipping in degreasing solvent.

INSTALLATION

1. Install check valves (Figure 1, Item 3) with new packing (Figure 1, Item 4). Ensure that arrow on valve body points into drain tube.
2. Connect drain lines (Figure 1, Item 2) to check valves (Figure 1, Item 3) and secure with clamps (Figure 1, Item 9).
3. Reconnect batteries.
4. Perform MOC.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
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HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

FUEL TANK

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0146 00
WP 0147 00
WP 0149 00

REMOVAL

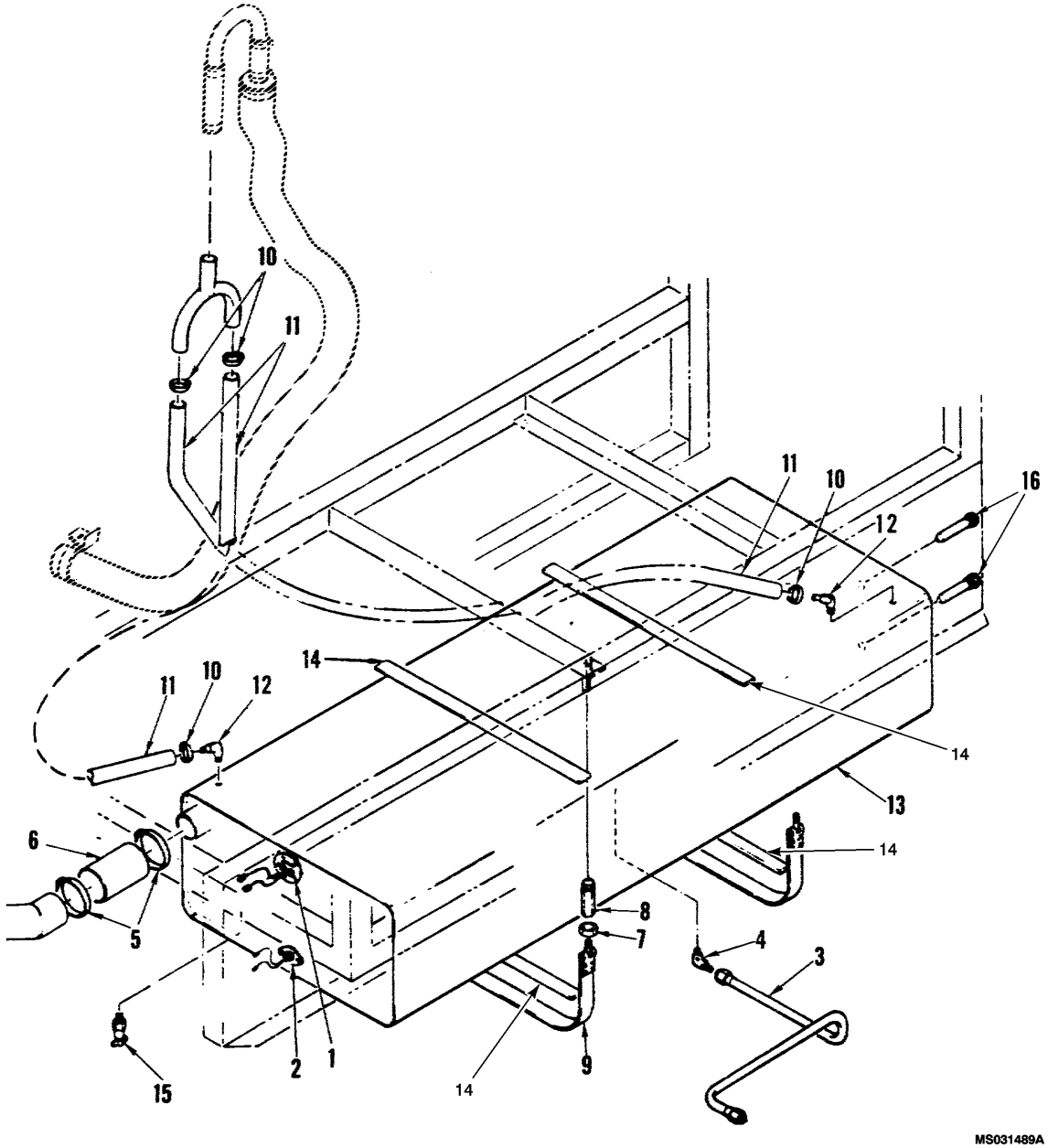
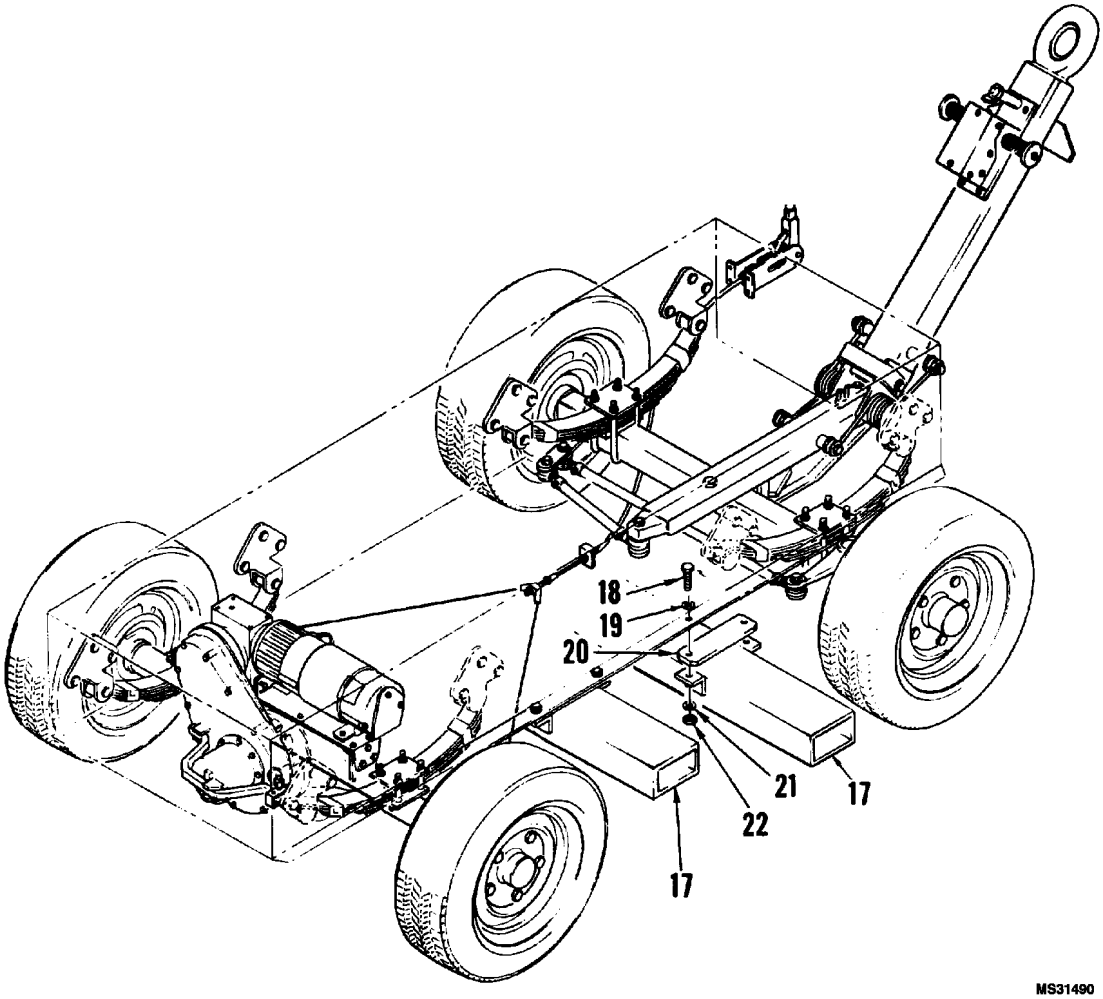


Figure 1. Fuel Tank Removal (Sheet 1 of 2).

REMOVAL – CONTINUED



1. Fuel Level Sensor And Wiring	7. Jam Nut	13. Fuel Tank	19. Washer, Flat
2. Low Fuel Sensor And Wiring	8. Turnbuckle	14. Cushion, Tank, Top or Bottom	20. Spacer
3. Fuel Line	9. Strap, Tank	15. Drain Valve	21. Lockwasher
4. Elbow	10. Hose Clamp	16. Cat Eye Indicator	22. Nut
5. Hose Clamp	11. Vent Hose	17. Forklift Tubes	
6. Hose Section	12. Elbow	18. Bolt	

Figure 1. Fuel Tank Removal (Sheet 2 of 2).

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Drain fuel tank in suitable container.

NOTE

Ensure AGPU is chocked and on level ground prior to performing step 3.

3. Release hand brake.
4. Disconnect front and rear brake cables at brake cable adjustment fitting. Remove front brake cable mounting clamp from front fork lift beam.

REMOVAL – CONTINUED

WARNING

Support forklift tubes with jack stands before removing mounting hardware.

5. Remove forklift tubes (Figure 1, Item 17) by removing eight nuts (Figure 1, Item 22), lockwashers (Figure 1, Item 21), flat washers (Figure 1, Item 19), bolts (Figure 1, Item 18) and two spacers (Figure 1, Item 20).
6. Move the speed/direction (WP 0147 00) control harness to one side of AGPU frame and secure.
7. Support front of AGPU with jack stands under frame.
8. Remove front axle assembly (WP 0149 00).
9. Tag and disconnect wiring from fuel level sensor (Figure 1, Item 1) and low fuel sensor (Figure 1, Item 2).
10. Disconnect fuel line (Figure 1, Item 3) from elbow (Figure 1, Item 4) on bottom of tank. Disconnect fuel line (Figure 1, Item 3) from frame fitting and remove fuel line.
11. Loosen hose clamps (Figure 1, Item 5).

WARNING

Ensure that fuel tank is supported so it does not drop when straps are released.

12. Loosen four jam nuts (Figure 1, Item 7) and unscrew four turn buckles (Figure 1, Item 8) (turn clockwise) from frame stud and tank strap (Figure 1, Item 9) studs. Carefully lower tank until there is clearance to disconnect vent hoses.
13. Loosen hose clamps (Figure 1, Item 10) and disconnect vent hoses (Figure 1, Item 11) from elbows at each top corner of tank.
14. Lower fuel tank and remove hose section (Figure 1, Item 6) from flange on fuel tank. Remove fuel tank (Figure 1, Item 13).
15. Remove two tank cushions (Figure 1, Item 14).

REPAIR OR REPLACEMENT

1. Clean tank to remove all signs of rust or corrosion. Repaint if required.

WARNING

If conditions require fuel tank repairs by welding or other methods involving heat or flame, take care to assure that all fumes are purged from the tank or fill tank with water before commencing the repair. If possible, tank should be filled with water prior to welding after being thoroughly purged of fumes. Applying heat or flame to a fuel tank containing residue, may result in a violent explosion, causing death or injury to maintenance personnel.

2. Repair small leaks by soldering. Large holes, tears, or leaks at seams require welding.
3. Inspect elbows (Figure 1, Item 4 and 12) and drain valve (Figure 1, Item 15). Replace if damaged.
4. Inspect fuel level cat eye indicators (Figure 1, Item 16). Replace if damaged.
5. Inspect two vent hoses (Figure 1, Item 11) remaining on AGPU. Replace if split or torn.

INSTALLATION

1. Position tank under AGPU. Place cushions (Figure 1, Item 14) in position on top of tank. Position two tank straps (Figure 1, Item 9) with cushions under tank.
2. Raise rear of tank approximately ten inches and connect vent hoses (Figure 1, Item 11) to elbows (Figure 1, Item 12) at each top corner of tank. Install hose section (Figure 1, Item 6) and two hose clamps (Figure 1, Item 5). Install fuel hose section (Figure 1, Item 6) on flange of fuel tank (Figure 1, Item 13).
3. Install jam nuts (Figure 1, Item 7) on strap studs. Raise tank and secure to frame studs with four turnbuckles (Figure 1, Item 8).
4. Tighten four turnbuckles (Figure 1, Item 8) securely; turn counterclockwise, and then tighten four jam nuts (Figure 1, Item 7) to bottom of turnbuckles to prevent loosening of turnbuckles.
5. Connect fuel line (Figure 1, Item 3) from elbow to fitting on frame.
6. Connect wiring to fuel level sensor (Figure 1, Item 1) and low fuel sensor (Figure 1, Item 2).
7. Install front axle assembly (WP 0149 00).
8. Reinstall speed control assembly (WP 0147 00).
9. Position forklift tubes (Figure 1, Item 17) on jack stands. Install eight flat washers (Figure 1, Item 19) on bolts (Figure 1, Item 18). Install bolts and flat washers through frame lip, two spacers (Figure 1, Item 20) and forklift tubes (Figure 1, Item 17). Install eight lockwashers (Figure 1, Item 21) and nuts (Figure 1, Item 22). Tighten securely.
10. Connect front rear brake cables and mounting clamp (WP 0146 00).
11. Refill fuel tank and check for leaks. No fuel leaks are permitted.

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

LOAD CONTROL VALVE

INITIAL SETUP:

Tools and Special Tools

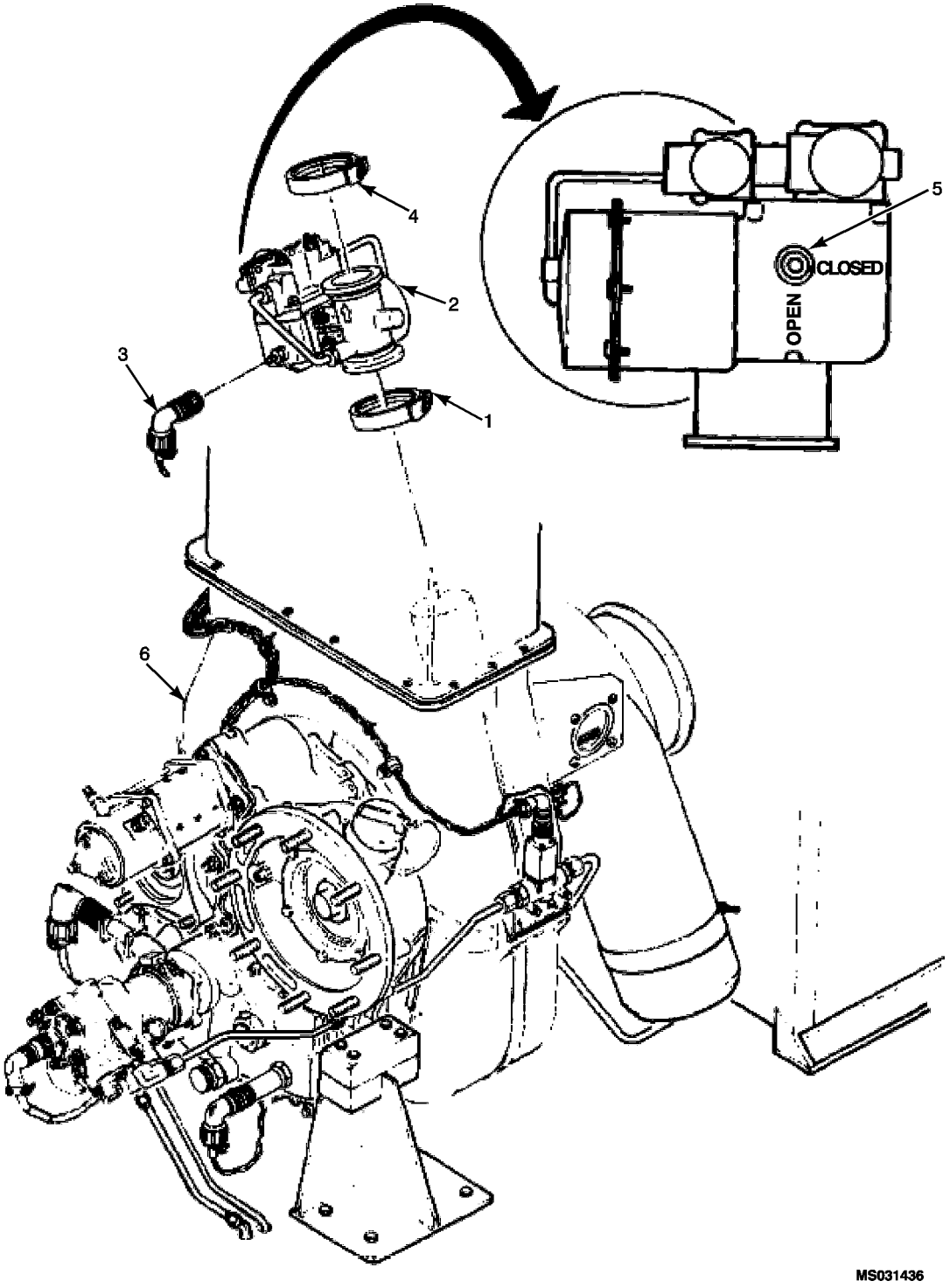
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0013 00
WP 0021 00
WP 0022 00
WP 0034 00

Materials/Parts

Wire, Nonelectrical (WP 0170 00, Item 60)



1. Clamp, Marmon
2. LCV
3. Electrical Connector (P5)
4. Clamp, Marmon
5. Indicator
6. Engine GTE

Figure 1. Load Control Valve (LCV) (MEP 83-360A and MEP 83-360D/E).

TEST AND INSPECTION

WARNING

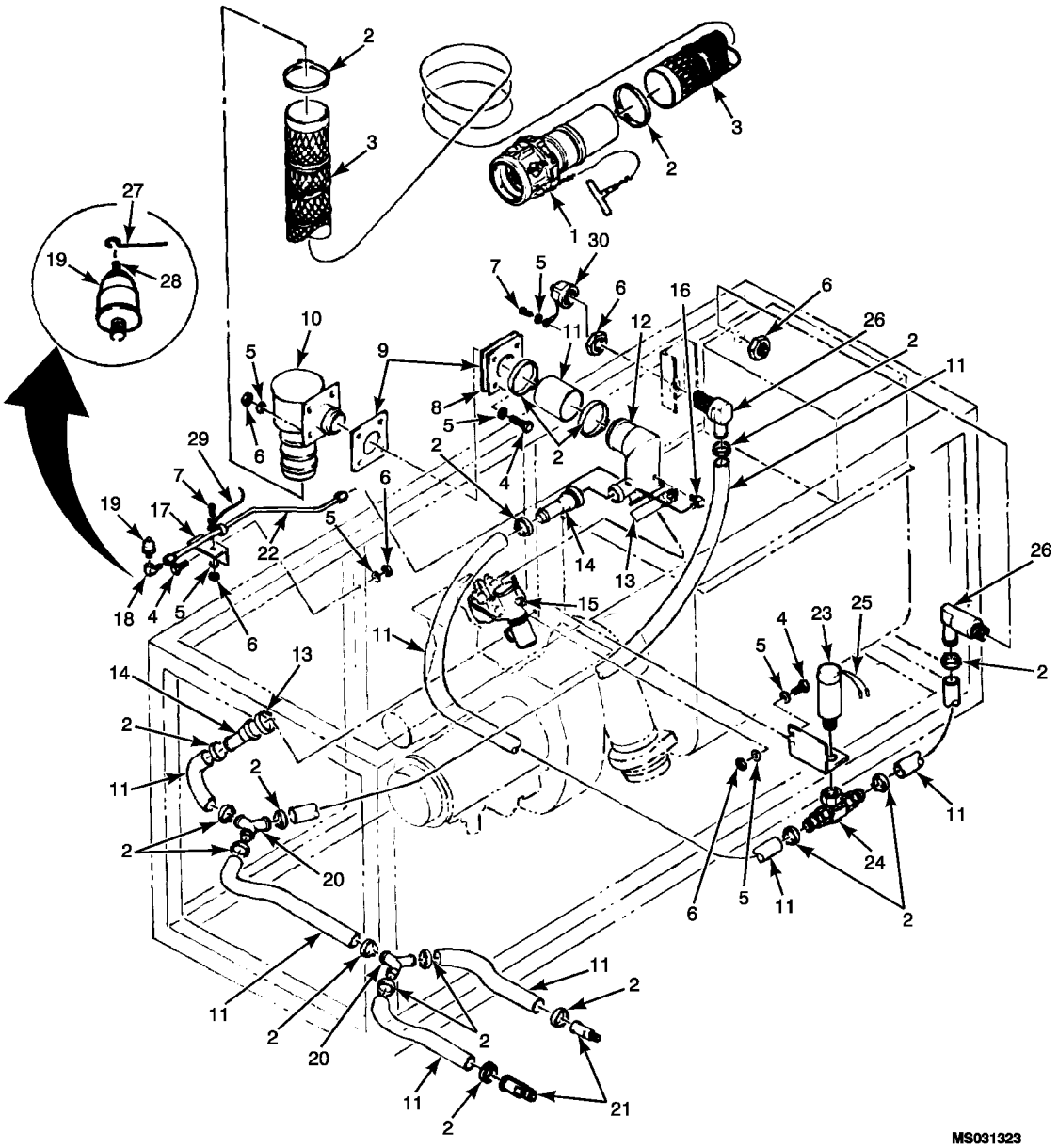
Prior to performing the following procedures, allow AGPU to cool for 1 hour if AGPU has been placed into operation.

NOTE

Refer to WP 0013 00, trouble shooting procedure WP 154. PSIG PNEUMATIC METER READS 0 OR LOW (PNEUMATIC POWER SWITCH ON, ENGINE UP TO SPEED, AND EGT LESS THAN 1200 °F), Step 5., for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Remove roof (WP 0022 00).
3. Inspect Load Control Valve (LCV) (Figure 1, Item 2) for security of installation, loose components and for damage. Replace LCV if cracked or dented.
4. Check visual position indicator on left side of LCV below solenoid (with engine shutdown). Indicator should be in the closed position. Replace LCV if indicator is not in closed position.

REMOVAL



1. Coupling, Aircraft
2. Clamp, Hose
3. Hose Pneumatic Output
4. Bolt
5. Washer
6. Nut
7. Hose, Pneumatic, 2-1/2 ID
8. Flange
9. Gasket, Bulkhead
10. Elbow, Bulkhead
11. Hose, Pneumatic, 1-inch
12. Manifold, LCV Adapter
13. Clamp, Marmon
14. Flange, Adapter
15. Load Control Valve
16. Elbow, Pipe
17. Solenoid, NC
18. Valve, Surge Control
19. Transducer, Pressure
20. Y fitting
21. Fitting, Air Cleaner
22. Tube Assembly
23. Solenoid, N.O.
24. Valve, Pressure Release
25. Electrical Leads
26. Elbow, Bulkhead
27. Wire, Ground
28. Fitting, Pipe
29. Tee, Pipe
30. Cap, De-Icing Port
31. Union, Pipe
32. Plug, Self-Tapping
33. Muffler
34. Inner Hose Clamps

Figure 2. Pneumatic System.

REMOVAL – CONTINUED

1. Open pneumatic hose access door.
2. Remove engine access cover (WP 0021 00, Figure 2).
3. Disconnect two hoses (Figure 2, Item 11) connected to manifold (Figure 2, Item 12).
4. Disconnect tubing assembly (Figure 2, Item 22) from fitting (Figure 2, Item 16) on manifold (Figure 2, Item 12).
5. Cut and remove lockwire, and disconnect electrical connector (Figure 1, Item 3) from LCV.
6. Loosen marmon clamp (Figure 2, Item 13) and remove manifold (Figure 2, Item 12) from LCV (Figure 2, Item 15).
7. Loosen marmon clamp (Figure 1, Item 1) holding LCV.
8. Remove LCV (Figure 1, Item 2).

INSTALLATION

1. Position LCV on engine and install marmon clamps (Figure 1, Item 1). Ensure alignment of all hose connections with LCV prior to tightening marmon clamps. Tighten clamp to 40 inch-pounds of torque.
2. Connect two hoses (Figure 2, Item 11) connected to manifold (Figure 2, Item 12).
3. Connect tubing assembly (Figure 2, Item 22) to fitting (Figure 2, Item 16) on manifold (Figure 2, Item 12).
4. Install lockwire, and connect electrical connector (Figure 1, Item 3) to LCV.
5. Reconnect batteries.
6. Install roof.
7. Perform MOC and check for air leaks

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

SOLENOID VALVE, BLEED AIR

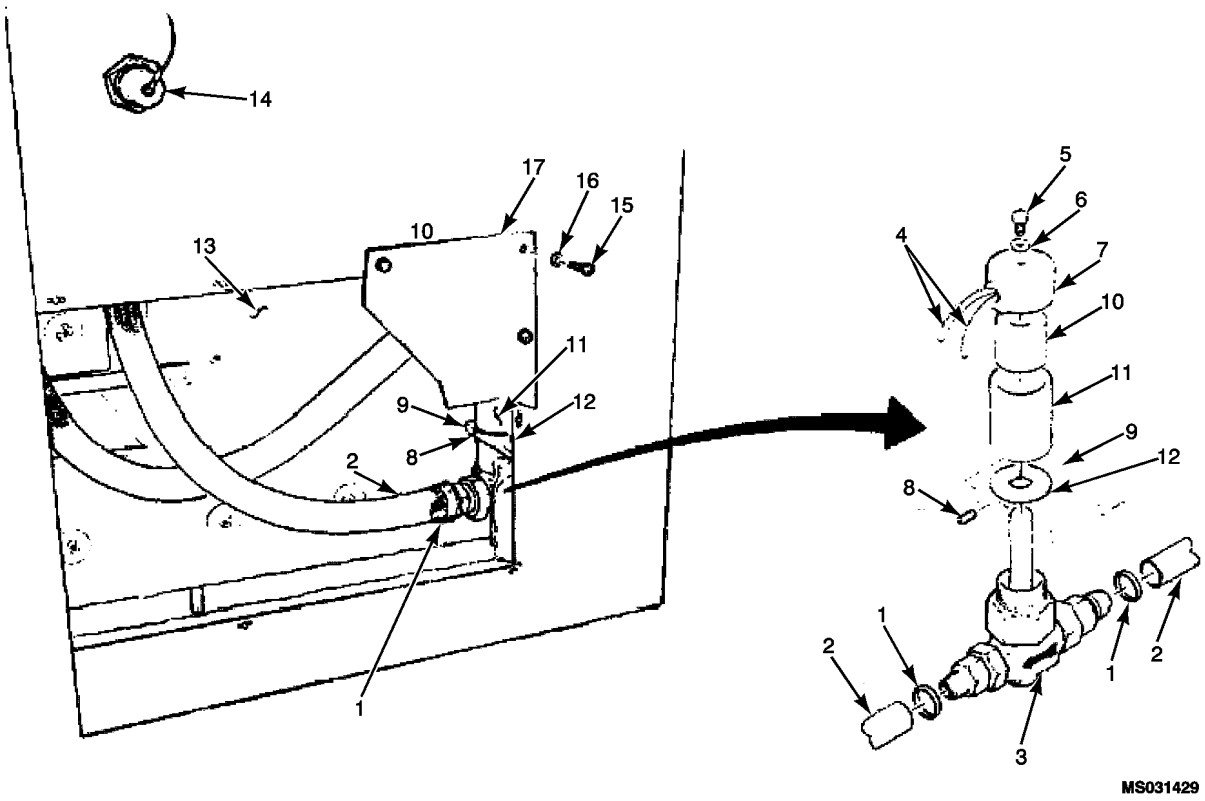
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0013 00
WP 0021 00
WP 0034 00



1. Clamp, Hose	7. Cap	13. Exhaust Ejector
2. Hose	8. Setscrew	14. De-Icer Outlet Cap
3. Valve Body	9. Bracket	15. Screw
4. Wiring	10. Solenoid Winding	16. Washer
5. Screw	11. Case	17. Cover, Access
6. Washer	12. Washer	

Figure 1. Solenoid Valve, Bleed Air.

TEST AND INSPECTION

WARNING

Prior to performing the following procedures, allow AGPU to cool for 1 hour if AGPU has been placed into operation.

NOTE

Refer to WP 0013 00, trouble shooting procedure WP 154. PSIG PNEUMATIC METER READS 0 OR LOW (PNEUMATIC POWER SWITCH ON, ENGINE UP TO SPEED, AND EGT LESS THAN 1200 °F), Step 10. for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Remove exhaust and engine access covers (WP 0021 00, Figure 2).

TEST AND INSPECTION – CONTINUED

3. Inspect hose (Figure 1, Item 2) for cracks or tears. No cracks or tears are allowed. Ensure that hose clamp (Figure 1, Item 1) is tight.
4. Inspect solenoid wiring (Figure 1, Item 4) for cut or abraded insulation. Repair wiring if damaged.
5. Inspect solenoid cap (Figure 1, Item 7), case (Figure 1, Item 11) and valve body (Figure 1, Item 3) for dents or cracks. No dents or cracks are allowed.

REMOVAL

1. Remove exhaust and engine access covers (WP 0021 00, Figure 2).
2. Disconnect two wires (Figure 1, Item 4) by cutting at splice. Mark wire to ensure locations.
3. Loosen hose clamps (Figure 1, Item 1) on hoses (Figure 1, Item 2) connecting to valve body (Figure 1, Item 3) and disconnect hoses from valve body.
4. Remove screw (Figure 1, Item 5) and washer (Figure 1, Item 6) from cap (Figure 1, Item 7).
5. Remove solenoid case (Figure 1, Item 11) and winding (Figure 1, Item 10) from valve body (Figure 1, Item 3), and remove washer (Figure 1, Item 12).
6. Loosen setscrew (Figure 1, Item 8) installed in bracket (Figure 1, Item 9).
7. Remove valve body (Figure 1, Item 3).

INSTALLATION

NOTE

Ensure that arrow on valve body is pointing to the front of the AGPU (tow bar end).

1. Install valve body (Figure 1, Item 3) through bottom of hole on bracket, and install washer (Figure 1, Item 12). Ensure that arrow on valve body is pointing toward front of AGPU (Tow Bar End).
2. Install setscrew (Figure 1, Item 8) through threaded hole in bracket (Figure 1, Item 9) to hold valve.
3. Install solenoid case (Figure 1, Item 11), winding (Figure 1, Item 10), and cap (Figure 1, Item 7) over valve fitting and secure with screw (Figure 1, Item 5) and washer (Figure 1, Item 6). Ensure that wiring out of cap is as shown in Figure 1.
4. Install hoses (Figure 1, Item 2) on valve body (Figure 1, Item 3) fittings and secure with clamps (Figure 1, Item 1). Torque clamps to 65 in/lbs.
5. Reconnect wiring (Figure 1, Item 4).
6. Reconnect batteries.
7. Perform MOC and check for air leaks.
8. Install exhaust and engine access covers (WP 0021 00, Figure 2).

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

PNEUMATIC HOSES AND FITTINGS

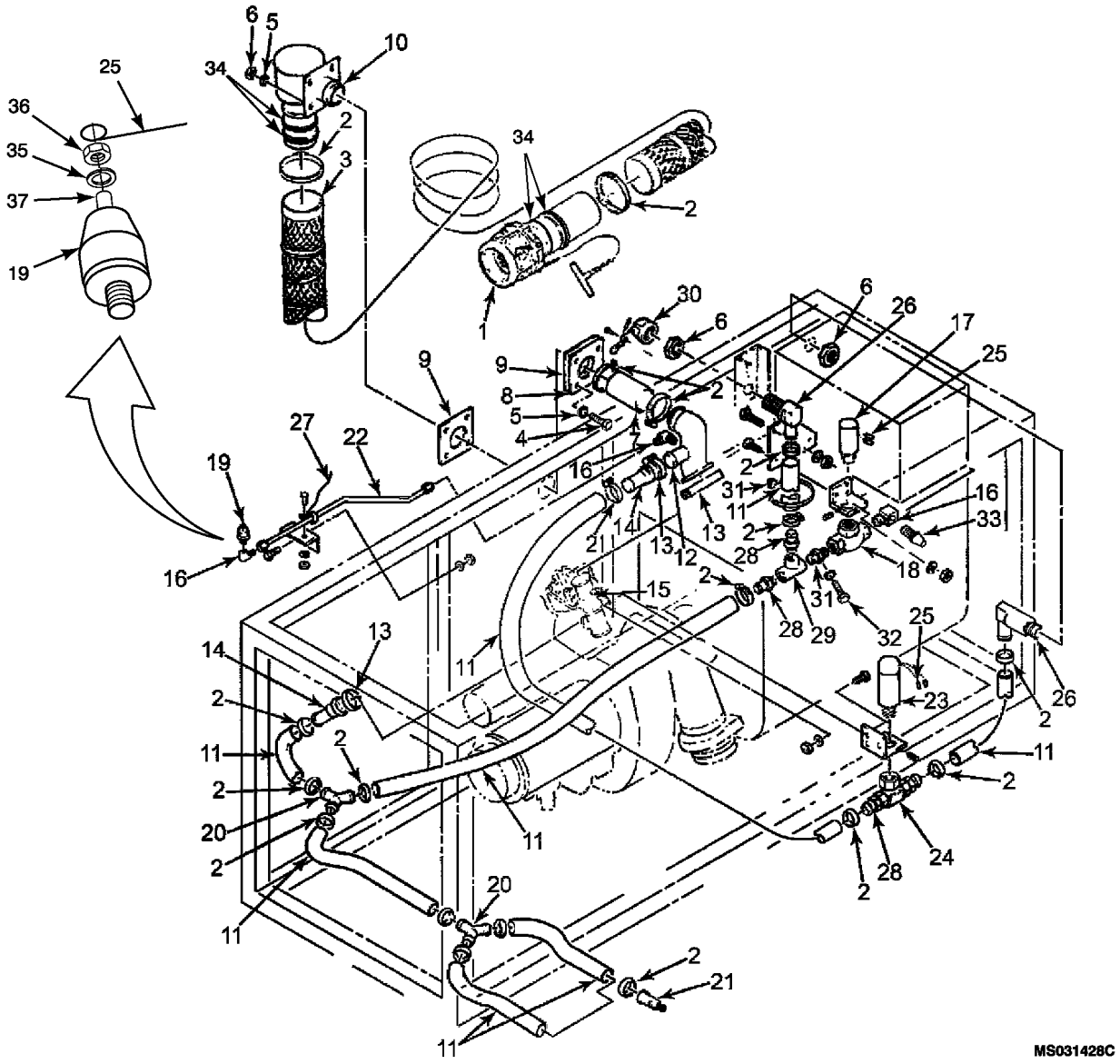
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

TM 1-1730-229-24P
WP 0021 00
WP 0022 00
WP 0034 00



1. Coupling, Aircraft
2. Clamp, Hose
3. Hose Pneumatic Output
4. Bolt
5. Washer
6. Nut
7. Hose, Bolt, 2-1/2 ID
8. Flange
9. Gasket, Bulkhead
10. Elbow, Bulkhead
11. Hose, Pneumatic, 1-inch
12. Manifold, LCV Adapter
13. Clamp, Marmon
14. Flange, Adapter
15. Load Control Valve
16. Elbow, Pipe
17. Bracket
18. Valve, Surge Control
19. Transducer, Pressure
20. Y Fitting
21. Fitting, Air Cleaner
22. Tube Assembly
23. Solenoid, N.O.
24. Valve, Pressure Release
25. Electrical Leads
26. Elbow, Bulkhead
27. Wire, Ground
28. Fitting, Pipe
29. Tee, Pipe
30. Cap, De-Icing Port
31. Union, Pipe
32. Plug, Self-Tapping
33. Muffler
34. Internal Bands

Figure 1. Pneumatic System.

TEST AND INSPECTION

WARNING

Prior to performing the following procedures, allow AGPU to cool for 1 hour if AGPU has been placed into operation.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Ensure parking brake is set and wheels are choked with AGPU on level ground.
3. Remove roof (WP 0022 00), engine and exhaust access cover (WP 0021 00, Figure 2).
4. Inspect hoses (Figure 1, Item 3, 7, and 11) for cracks, splits, evidence of leaks, and/or deterioration. An increase in Exhaust Gas Temperature (EGT) is an indication of leakage in the 1-inch I.D. (Figure 1, Item 11) hoses. Special attention should be given to the red hoses with no white protective sheave. Re-inspection of all red hoses every **10 operating hours** is recommended or whenever there is an unexpected increase in EGT.
5. Check that all hoses (Figure 1, Item 3, 7, and 11) are securely attached to fittings and secured with clamps (Figure 1, Item 2).
6. Ensure that bulkhead elbow (Figure 1, Item 10) flange bolts (Figure 1, Item 4) are tight .
7. Check hose clamps (Qty 18) (Figure 1, Item 2) for 65 ±5 inch pounds of torque.
8. Reinstall roof and panels.
9. Reconnect batteries.
10. Perform MOC and check for air leakage, if EGT at no load condition is higher than 600 ºF recheck hoses.

ASSEMBLY

Make Hoses

Individual 1-inch ID hoses are manufactured by cutting bulk Pneumatic Hose. Bulk hose material can be found in TM 1-1730-229-24P bulk materials listing and cut to required length.

REMOVAL

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Ensure parking brake is set and wheels are choked with AGPU on level ground.
3. Remove roof (WP 0022 00), engine and exhaust access cover (WP 0021 00, Figure 2).
4. To remove hoses (Figure 1, Item 3, 7, and 11) loosen clamp (Figure 1, Item 2) on each end of hose and remove hose. Save clamps for installing replacement hose.
5. To remove bulkhead elbow (Figure 1, Item 10), first loosen hose clamp (Figure 1, Item 2) on each fitting and disconnect hoses (Figure 1, Item 3 , 7 and 11), then remove four bolts (Figure 1, Item 4), washers (Figure 1, Item 5), and nuts (Figure 1, Item 6) to allow removal of bulkhead elbow (Figure 1, Item 10), bulkhead gaskets (Figure 1, Item 9) and flange (Figure 1, Item 8).

INSTALLATION

1. To install hoses (Figure 1, Item 3, 7 and 11) slip loosened clamps (Figure 1, Item 2) on hose and install hose on fittings. Position clamps and torque to 65 ±5 inch pounds.
2. To install bulkhead elbow (Figure 1, Item 10), install bulkhead gaskets (Figure 1, Item 9) and flange (Figure 1, Item 8), and then install bulkhead elbow (Figure 1, Item 10) with four bolts (Figure 1, Item 4), washers (Figure 1, Item 5), and nuts (Figure 1, Item 6).
3. Reinstall roof and panels.
4. Reconnect batteries.

INSTALLATION – CONTINUED

5. Perform MOC and check for air leakage, if EGT at no load condition is higher than 600 ºF recheck hoses.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

PNEUMATIC OUTPUT HOSE AND COUPLER

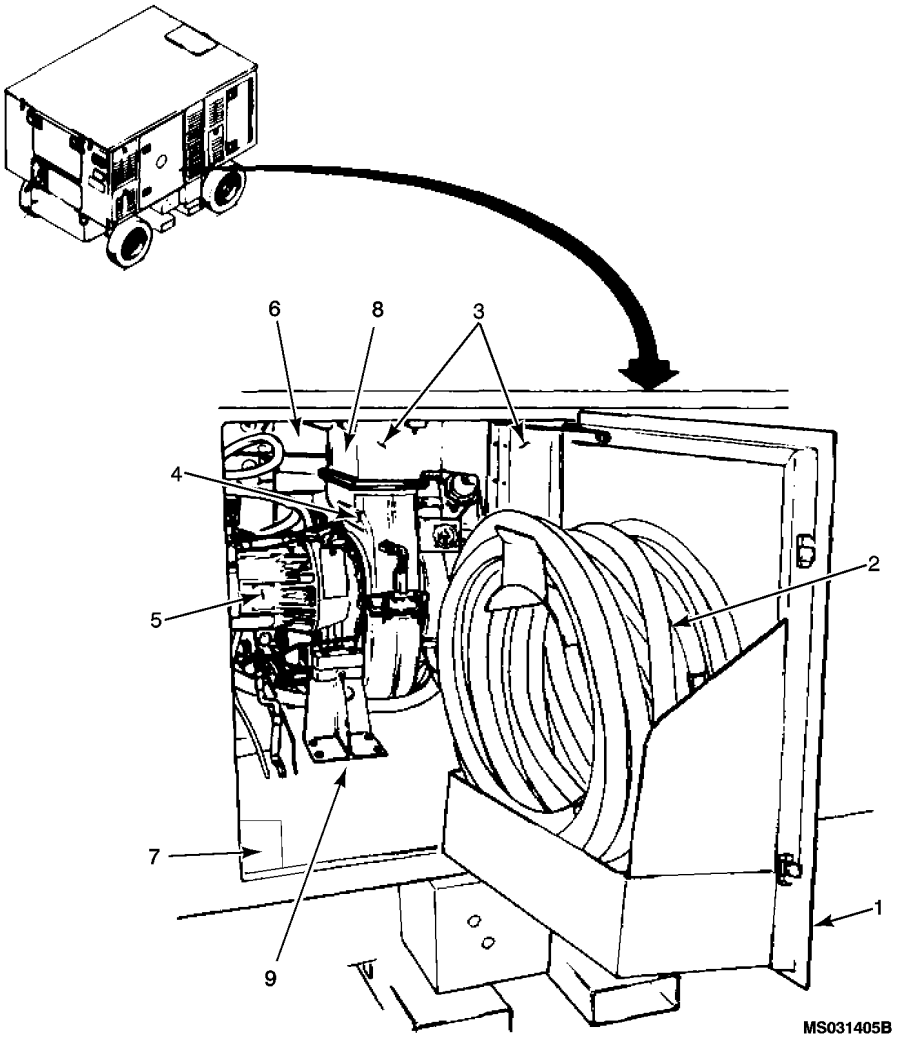
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK
(WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0034 00



1. Coupling, Aircraft
2. Clamp, Outer
3. Hose Pneumatic Output
4. Bolt
5. Washer
6. Nut
7. Hose, Pneumatic, 2-1/2 ID
8. Flange
9. Gasket, Bulkhead
10. Elbow, Bulkhead
11. Hose, Pneumatic, 1-inch
12. Manifold, LCV Adapter
13. Clamp, Marmon
14. Flange, Adapter
15. Load Control Valve
16. Elbow, Pipe
17. Solenoid, NC
18. Valve, Surge Control
19. Transducer, Pressure
20. Y fitting
21. Fitting, Air Cleaner
22. Tube Assembly
23. Solenoid, n.o..
24. Valve, Pressure Release
25. Electrical Leads
26. Elbow, Bulkhead
27. Wire, Ground
28. Fitting, Pipe
29. Tee, Pipe
30. Cap, De-Icing Port
31. Union, Pipe
32. Plug, Self-Tapping
33. Muffler
34. Internal Band Clamps

Figure 1. Pneumatic System.

TEST AND INSPECTION

WARNING

Prior to performing the following procedures, allow AGPU to cool for 1 hour if AGPU has been placed into operation.

1. Open pneumatic door (WP 0002 00, Figure 3, Item 11) and extract pneumatic hose.
2. Inspect pneumatic output hose (Figure 1, Item 3) for missing clamps, cracks, splits, evidence of leaks, and/or deterioration. Special attention should be given to the interior hose for cracks, splits, evidence of leaks. Inspect outer chafe protection liner for rips in cording or large splits, replace chafe protection liner as necessary.
3. Inspect aircraft coupler (Figure 1, Item 1) for movement of internal butterfly valve and missing or damaged parts. If part of aircraft coupler are missing or damaged, replace coupler.

REMOVAL

1. Ensure parking brake is set and wheels are choked with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
3. Open pneumatic door (WP 0002 00, Figure 3, Item 11) and extract pneumatic hose.
4. Loosen outer clamps (Figure 1, Item 2) remove two internal band clamps (Figure 1, Item 34), by cutting clamps with hacksaw to remove aircraft coupling (Figure 1, Item 1). Save outer clamps for installing replacement hose or coupler.
5. Remove pneumatic output hose (Figure 1, Item 3) from bulkhead elbow (Figure 1, Item 10) by loosening outer clamp (Figure 1, Item 2). Save outer clamp for installing replacement hose.

INSTALLATION

NOTE

When installing internal band clamp ensure locking collars are staggered away from each other.

1. To install pneumatic output hose (Figure 1, Item 3), slip internal band clamps (2 ea.) (Figure 1, Item 34) on pneumatic output hose (2 ea.) and install hose on bulkhead elbow (Figure 1, Item 10). Install two internal bands with banding tool. Cut excess banding material and file and slide cover over bands. Install outer clamps (2 ea.) (Figure 1, Item 2) and torque to 65 in/lbs.
2. To install aircraft coupling (Figure 1, Item 1), slip internal band clamps (2 ea.) (Figure 1, Item 34) on pneumatic output hose (Figure 1, Item 34) and install hose on coupler. Install two internal band clamps (Figure 1, Item 34) with banding tool. Cut excess banding material and file ends of banding, slide cover over bands and aircraft coupler. Install outer clamps (Figure 1, Item 2) and torque outer clamps to 65 in/lbs.
3. Reconnect batteries.
4. Perform MOC and check for air leakage, no leakage permitted in any part of the hose or aircraft coupler.
5. Restow pneumatic hose and close pneumatic door.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

SOLENOID VALVE, SURGE CONTROL

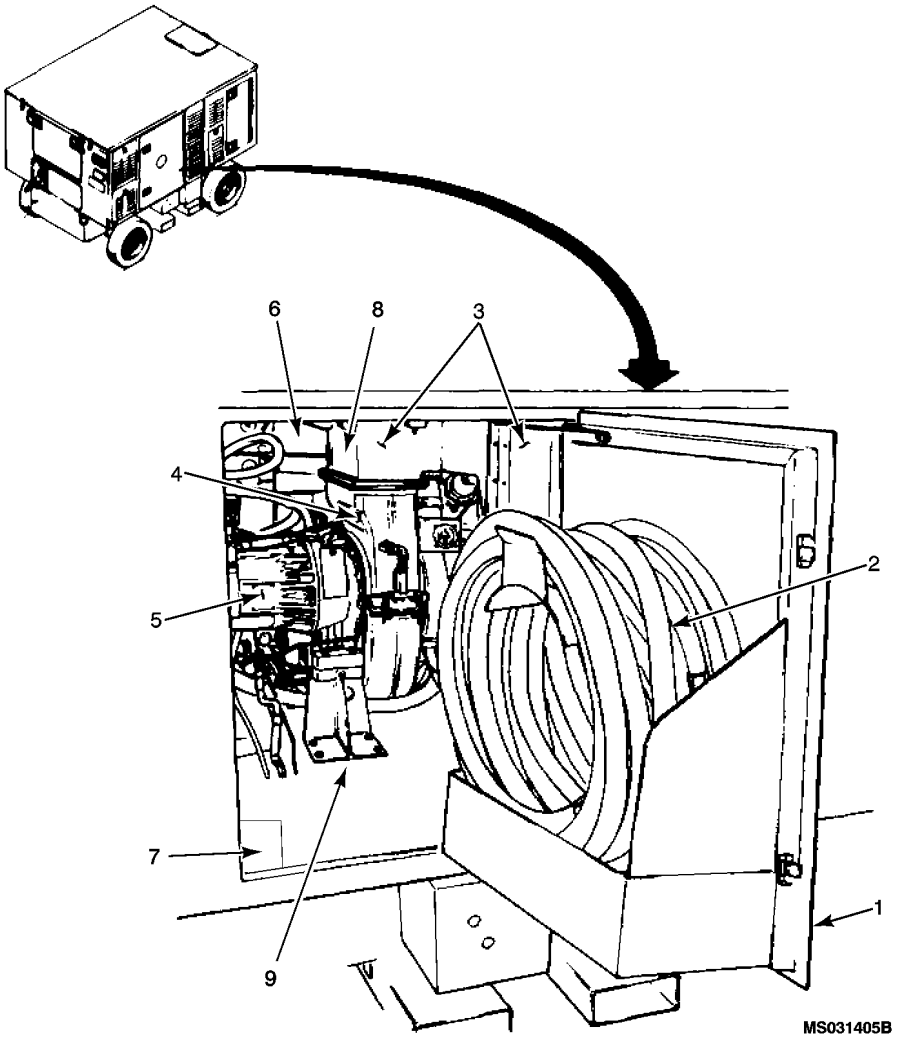
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0021 00
WP 0034 00



1. Coupling, Aircraft	9. Gasket, Bulkhead	17. Solenoid, NC	25. Electrical Leads	33. Muffler
2. Clamp, Hose	10. Elbow, Bulkhead	18. Valve, Surge Control	26. Elbow, Bulkhead	34. Internal Band Clamps
3. Hose Pneumatic Output	11. Hose, Pneumatic, 1-inch	19. Transducer, Pressure	27. Wire, Ground	35. Lockwasher
4. Bolt	12. Manifold, LCV Adapter	20. Y fitting	28. Fitting, Pipe	36. Nut
5. Washer	13. Clamp, Marmon	21. Fitting, Air Cleaner	29. Tee, Pipe	37. Transducer Terminal
6. Nut	14. Flange, Adapter	22. Tube Assembly	30. Cap, De-Icing Port	
7. Hose, Pneumatic, 2-1/2" ID	15. Load Control Valve	23. Solenoid, N.O.	31. Union, Pipe	
8. Flange	16. Elbow, Pipe	24. Valve, Pressure Release	32. Plug, Self-Tapping	

Figure 1. Pneumatic System.

TEST AND INSPECTION

WARNING

Prior to performing the following procedures, allow AGPU to cool for 1 hour if AGPU has been placed into operation.

CAUTION

Incomplete installation of the surge control bleed air screw (5/16”) and exhaust muffler will damage the insulation on the new low pressure exhaust.

1. Ensure parking brake is set and wheels are choked with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
3. Remove exhaust and engine access covers (WP 0021 00, Figure 2).
4. Check to ensure that muffler (Figure 1, Item 33) is installed in elbow pipe (Figure 1, Item 16) at the exhaust of the surge control valve (Figure 1, Item 18).
5. Check to ensure that self-tapping plug (Figure 1, Item 32) is plugging the bleed hole in union pipe (Figure 1, Item 31) at input to surge control valve (Figure 1, Item 18).
6. Inspect solenoid leads (Figure 1, Item 25) for cut or abraded insulation. Repair wiring if damaged.
7. Inspect solenoid cap (Figure 1, Item 17), case (Figure 1, Item 17) and valve body (Figure 1, Item 18) for dents or cracks. No dents or cracks are allowed.

REMOVAL

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
3. Remove exhaust and engine access covers (WP 0021 00, Figure 2).
4. Remove muffler (Figure 1, Item 33) and solenoid surge valve (Figure 1, Item 17) from surge control valve (Figure 1, Item 18).
5. Disconnect surge control valve (Figure 1, Item 18) from union pipe (Figure 1, Item 31).
6. Disconnect two wires from solenoid electrical leads (Figure 1, Item 25) by cutting at splice, mark wires with numbers.
7. Remove screw (Figure 1, Item 17) and washer (Figure 1, Item 17) from cap (Figure 1, Item 17).
8. Remove solenoid case (Figure 1, Item 17) and solenoid winding (Figure 1, Item 17) from valve body (Figure 1, Item 18), and remove washer (Figure 1, Item 17).
9. Loosen setscrew (Figure 1, Item 17) installed valve in mounting bracket .
10. Remove valve body (Figure 1, Item 17).

INSTALLATION

1. Install valve body (Figure 1, Item 17) through bottom of hole in mounting bracket, and install washer (Figure 1, Item 17). Ensure that arrow on valve body is pointing toward front of AGPU (Tow Bar End).
2. Install setscrew (Figure 1, Item 17) through threaded hole in mounting bracket to hold valve.
3. Install solenoid case (Figure 1, Item 17), solenoid winding (Figure 1, Item 17) and cap (Figure 1, Item 17) over valve fitting and secure with screw (Figure 1, Item 17) and washer (Figure 1, Item 17). Connect wiring (Figure 1, Item 25) to valve body (Figure 1, Item 17).
4. Install surge control valve (Figure 1, Item 18) on union pipe (Figure 1, Item 31).

INSTALLATION – CONTINUED

5. Install muffler (Figure 1, Item 33) and solenoid surge valve (Figure 1, Item 17) on surge control valve (Figure 1, Item 17).
6. Reconnect batteries.
7. Install exhaust and engine access covers (WP 0021 00, Figure 2).
8. Perform MOC and check for operation, EGT should raise 200 ºF.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

PRESSURE TRANSDUCER

INITIAL SETUP:

Tools and Special Tools

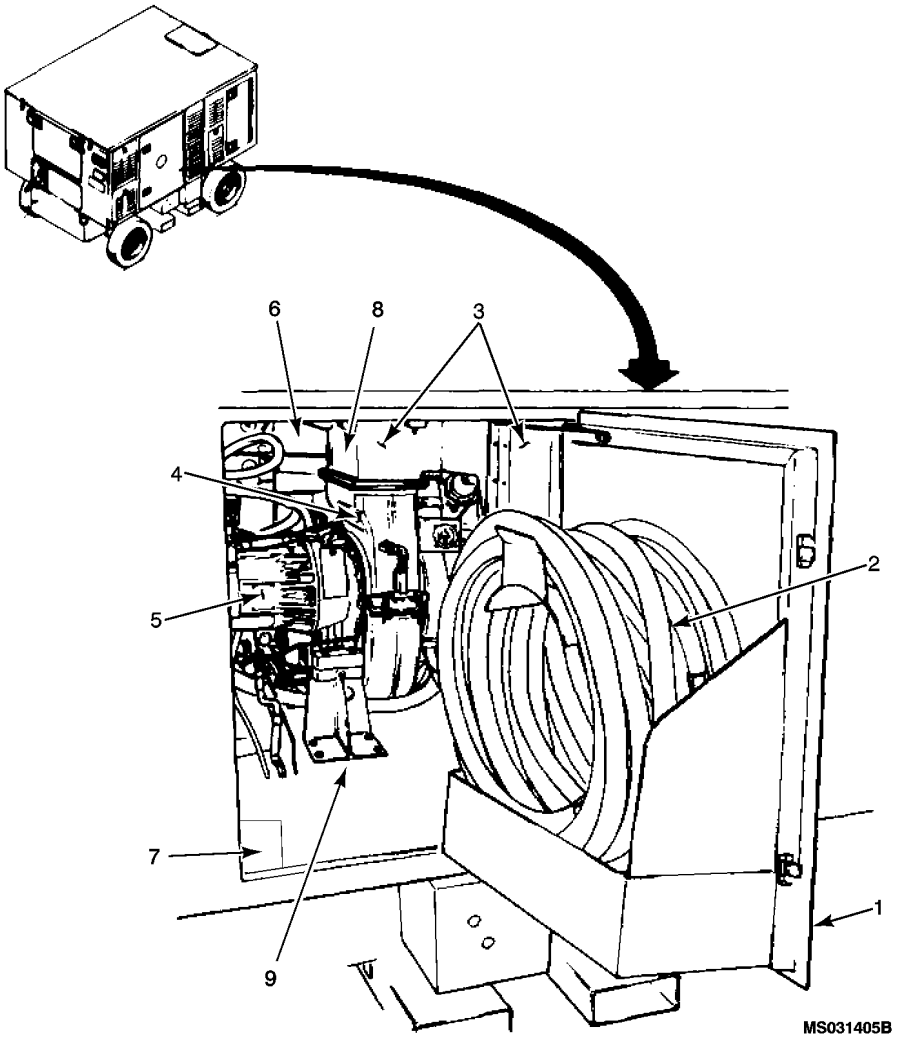
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Solder, Tin Alloy (WP 0170 00, Item 53)

References

WP 0012 00
WP 0022 00
WP 0034 00



1. Coupling, Aircraft
2. Clamp, Hose
3. Hose Pneumatic Output
4. Bolt
5. Washer
6. Nut
7. Hose, Pneumatic, 2-1/2" ID
8. Flange
9. Gasket, Bulkhead
10. Elbow, Bulkhead
11. Hose, Pneumatic, 1-inch
12. Manifold, LCV Adapter
13. Clamp, Marmon
14. Flange, Adapter
15. Load Control Valve
16. Elbow, Pipe
17. Solenoid, NC
18. Valve, Surge Control
19. Transducer, Pressure
20. Y fitting
21. Fitting, Air Cleaner
22. Tube Assembly
23. Solenoid, N.O.
24. Valve, Pressure Release
25. Electrical Leads
26. Elbow, Bulkhead
27. Wire, Ground
28. Fitting, Pipe
29. Tee, Pipe
30. Cap, De-Icing Port
31. Union, Pipe
32. Plug, Self-Tapping
33. Muffler
34. Internal Band Clamps
35. Lockwasher
36. Nut
37. Transducer Terminal

Figure 1. Pneumatic System.

TEST AND INSPECTION

WARNING

Prior to performing the following procedures, allow AGPU to cool for 1 hour if AGPU has been placed into operation.

NOTE

Refer to WP 0012 00, trouble shooting procedure 123. PRESSURE TRANSDUCER MAL FUNCTION for test.

1. Ensure parking brake is set and wheels are choked with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
3. Remove roof (WP 0022 00).
4. Inspect pressure transducer (Figure 1, Item 19) for cracks or dents. No cracks or dents are allowed.
5. Inspect tube assembly (Figure 1, Item 22) and both elbows (Figure 1, Item 16) for cracks or bent tubing. Replace if damaged.

REMOVAL

1. Disconnect electrical lead (Figure 1, Item 25) from pressure transducer (Figure 1, Item 19) by removing nut (Figure 1, Item 36) and lockwasher (Figure 1, Item 35).
2. Remove pressure transducer (Figure 1, Item 19) from elbow pipe (Figure 1, Item 16).

INSTALLATION

1. Install pressure transducer (Figure 1, Item 19) onto elbow pipe (Figure 1, Item 16).
2. Connect electrical lead (Figure 1, Item 25) to transducer terminal (Figure 1, Item 34) with nut (Figure 1, Item 36) and lockwasher (Figure 1, Item 35).
3. Install roof (WP 0022 00).
4. Reconnect batteries.
5. Perform MOC and check for pneumatic psi gauge reading.

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

ENGINE (GTE) OIL FILTER ELEMENT, SIGHT GLASS, AND MAGNETIC DRAIN PLUGS

INITIAL SETUP:

Tools and Special Tools

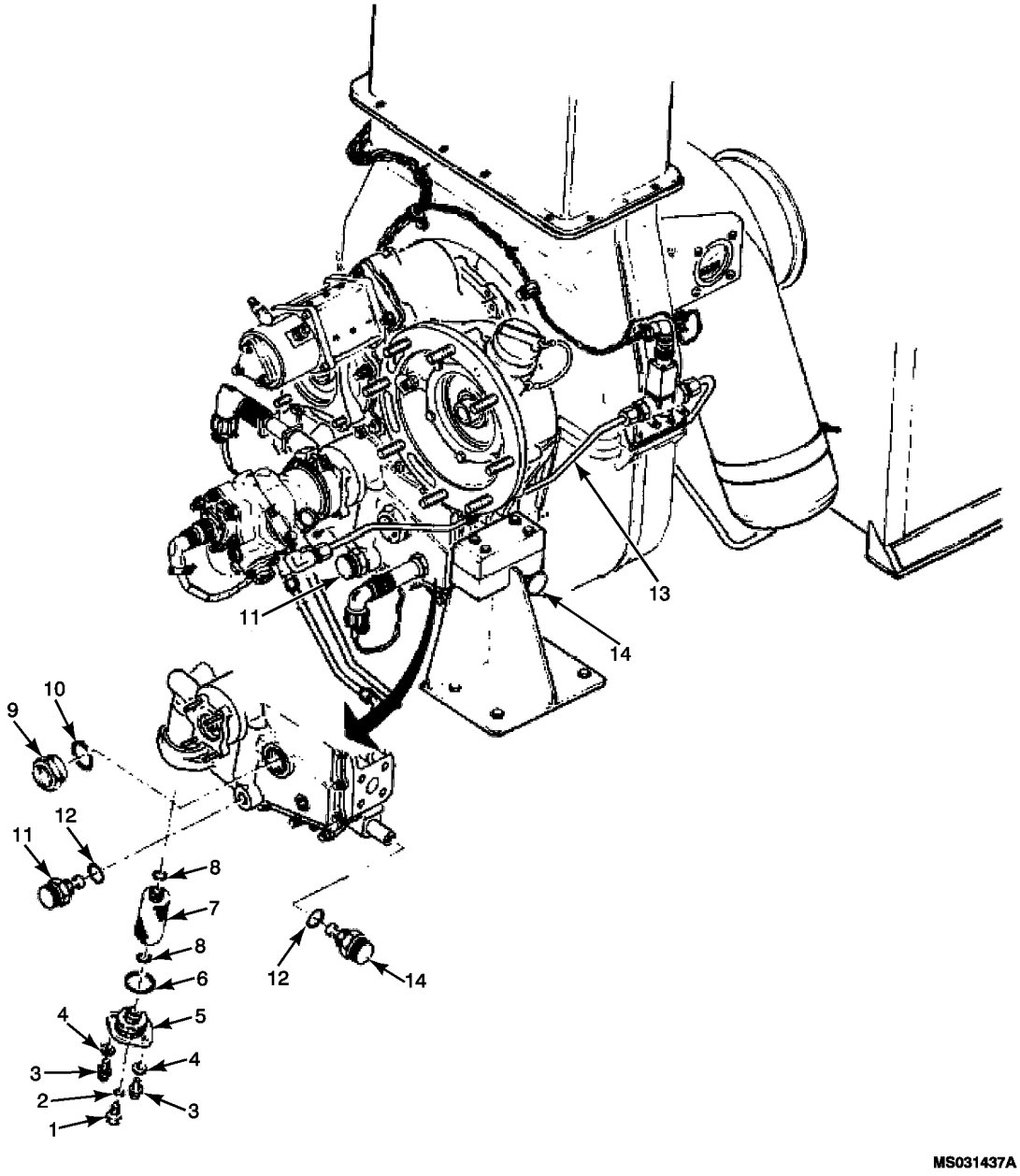
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0015 00
WP 0016 00
WP 0021 00
WP 0034 00

Materials/Parts

Lockwire (WP 0170 00, Item 30)



1. Tap Plug	5. Filter Cover	9. Sight Level Indicator	13. Fuel Line
2. Packing	6. Packing	10. Packing	14. Magnetic Drain Plug (Overflow Tube)
3. Bolt	7. Filter Element	11. Magnetic Drain Plug (Gearcase)	
4. Washer	8. Packing	12. Packing	

Figure 1. Engine Lubrication System Components.

REMOVAL

MAGNETIC DRAIN PLUG

1. Start and operate Gas Turbine Engine (GTE) for 15 minutes, then shutdown engine and proceed with oil change while oil is hot.

REMOVAL – CONTINUED

MAGNETIC DRAIN PLUG – CONTINUED

2. Remove magnetic drain plug (Figure 2, Item 1) by pushing in and turning counterclockwise to unlock, then remove drain plug.

TEST AND INSPECTION

MAGNETIC DRAIN PLUG

1. Inspect packing (Figure 1, Item 12), and replace if damaged.
2. Inspect magnetic drain plug for metal particles which may indicate internal damage to engine. If metal particles are present on drain plug, notify maintenance supervisor.

INSTALLATION

MAGNETIC DRAIN PLUG

1. Install magnetic drain plug (gearcase) (Figure 1, Item 11) and magnetic drain plug (overflow tube) (Figure 1, Item 14) by pushing in and turning clockwise (cw) to lock.
2. Perform MOC and check for oil leaks.
3. Check that proper oil level is shown in sight level indicator. Add GTE oil as required (WP 0016 00).

REMOVAL

OIL FILTER ELEMENT AND SEALS

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Remove hydraulic access cover (WP 0021 00, Figure 2, Item 15).
3. Cut and remove lockwire from oil pressure tap plug (Figure 1, Item 1).
4. Place container under filter cover Figure 1, Item 5) to catch draining oil.
5. Remove oil pressure tap plug (Figure 1, Item 1) with packing (Figure 1, Item 2) from filter cover (Figure 1, Item 5). Discard packing (Figure 1, Item 2).
6. Remove two bolts (Figure 1, Item 3), washers (Figure 1, Item 4), filter cover (Figure 1, Item 5) with packing (Figure 1, Item 6 and 8) and oil filter element (Figure 1, Item 7). Discard packing (Figure 1, Item 6 and 8) and oil filter element (Figure 1, Item 7).

TEST AND INSPECTION

OIL FILTER ELEMENT AND SEALS

1. Inspect oil filter element (Figure 1, Item 7) for metal particles and other foreign material which may indicate internal engine damage. If metal particles are present, change oil and oil filter element, and then operate engine for a minimum of 15 minutes. If oil filter element is free of metal particles or foreign materials, engine is acceptable for continued service. Submit oil for sampling if oil is changed or metal particles are found.

NOTE

After replacing oil filter element, engine oil supply must be replenished.

2. If metal particles or foreign material is present on oil filter element after 15 minutes of operation, internal damage is indicated. Notify maintenance supervisor and submit oil for sampling.
3. Inspect filter cover packing grooves for nicks, scratches, or burring. No damage is allowed.

INSTALLATION

OIL FILTER ELEMENT AND SEALS

1. Install new oil filter element (Figure 1, Item 7), new packing (Figure 1, Item 6 and 8) and filter cover (Figure 1, Item 5) into oil filter housing.
2. Attach filter cover (Figure 1, Item 5) with two washers (Figure 1, Item 4) and bolts (Figure 1, Item 3). Tighten bolts to a torque value of 50 inch-pounds.
3. Install oil pressure tap plug (Figure 1, Item 1), with new packing (Figure 1, Item 2) into filter cover (Figure 1, Item 5). Lockwire plug.
4. Refill engine with 2.3 quarts of Turbine Engine Oil. Refer to WP 0016 00 for type and proper amount of oil.
5. Perform MOC and check for oil leaks.

REMOVAL

SIGHT LEVEL INDICATOR

1. Drain oil to a level below sight level indicator (Figure 1, Item 9).
2. Disconnect fuel line (Figure 1, Item 13) at both ends and move it down to gain access to sight level indicator.
3. Cut and remove lockwire from sight level indicator (Figure 1, Item 9).
4. Remove sight level indicator (Figure 1, Item 9) and packing (Figure 1, Item 10). Discard packing.

INSTALLATION

SIGHT LEVEL INDICATOR

1. Install sight level indicator (Figure 1, Item 9) with new packing (Figure 1, Item 10).
2. Lockwire sight level indicator (Figure 1, Item 9).
3. Connect fuel line (Figure 1, Item 13) at both ends.

INSTALLATION – CONTINUED

SIGHT LEVEL INDICATOR – CONTINUED

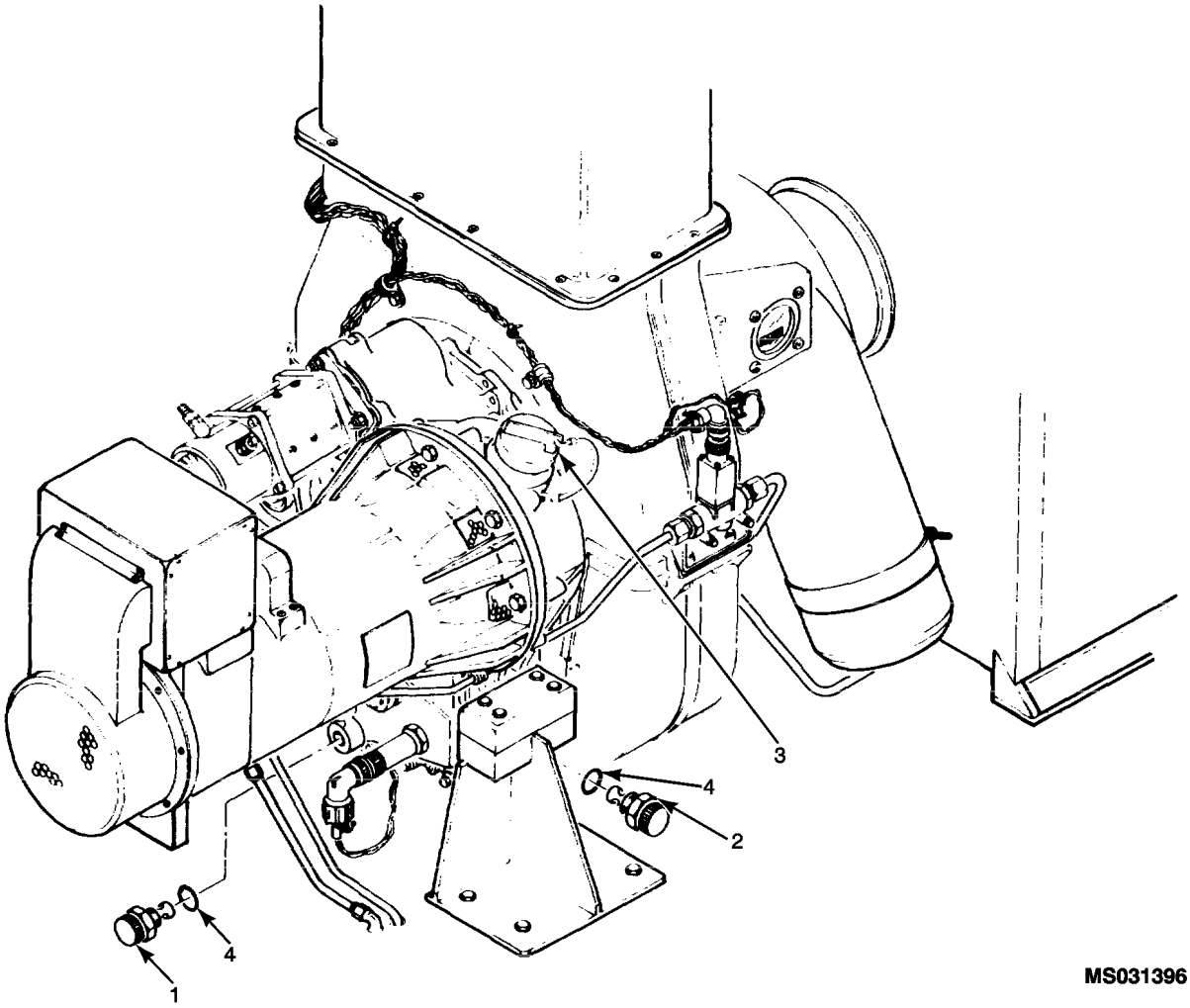
4. Perform MOC and check for fuel and oil leaks.

NOTE

After replacing sight level indicator, engine oil supply must be replenished (WP 0016 00).

LUBRICATION

ENGINE OIL CHANGE



1. Magnetic Drain Plug (Gearcase)
2. Magnetic Drain Plug (Overflow Tube)
3. Oil Filler Cap
4. Packing

Figure 2. Engine Oil Change.

1. Start and operate (GTE) for 15 minutes, then shutdown engine and proceed with oil change while oil is hot.
2. Remove magnetic drain plug (Figure 2, Item 1) by pushing in and turning counterclockwise to unlock, then remove drain plug.
3. Pull oil sample from GTE before the engine completely drains of oil.

LUBRICATION – CONTINUED

ENGINE OIL CHANGE – CONTINUED

4. Inspect packing (Figure 2, Item 4), and replace if damaged.
5. Inspect magnetic drain plug for metal particles which may indicate internal damage to engine. If metal particles are present on drain plug, notify maintenance supervisor.

NOTE

The drain plug is a self-closing bayonet type.

6. Remove oil filler cap (Figure 2, Item 3).
7. Connect oil drain fitting/hose to drain fitting and drain oil into a container.
8. Remove, inspect, and install new oil filter element and seals (INSTALLATION).
9. Remove drain fitting/hose and install magnetic drain plug (Figure 2, Item 1), with new packing (Figure 2, Item 4).
10. Remove overflow tube magnetic drain plug (Figure 2, Item 2) by pushing in and turning counterclockwise.
11. Connect oil drain fitting/hose to overflow tube drain fitting and drain any oil in overflow tube into a container.
12. Add oil per lube order (WP 0015 00, Lubrication) (approximately 2.3 quarts) until oil from overflow tube begins to flow from oil drain fitting/hose.
13. Wait approximately two minutes for excess oil to drain and remove drain fitting/hose and install overflow tube magnetic drain plug (Figure 2, Item 2), with new packing (Figure 2, Item 4).

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

IGNITER PLUG

INITIAL SETUP:

Tools and Special Tools

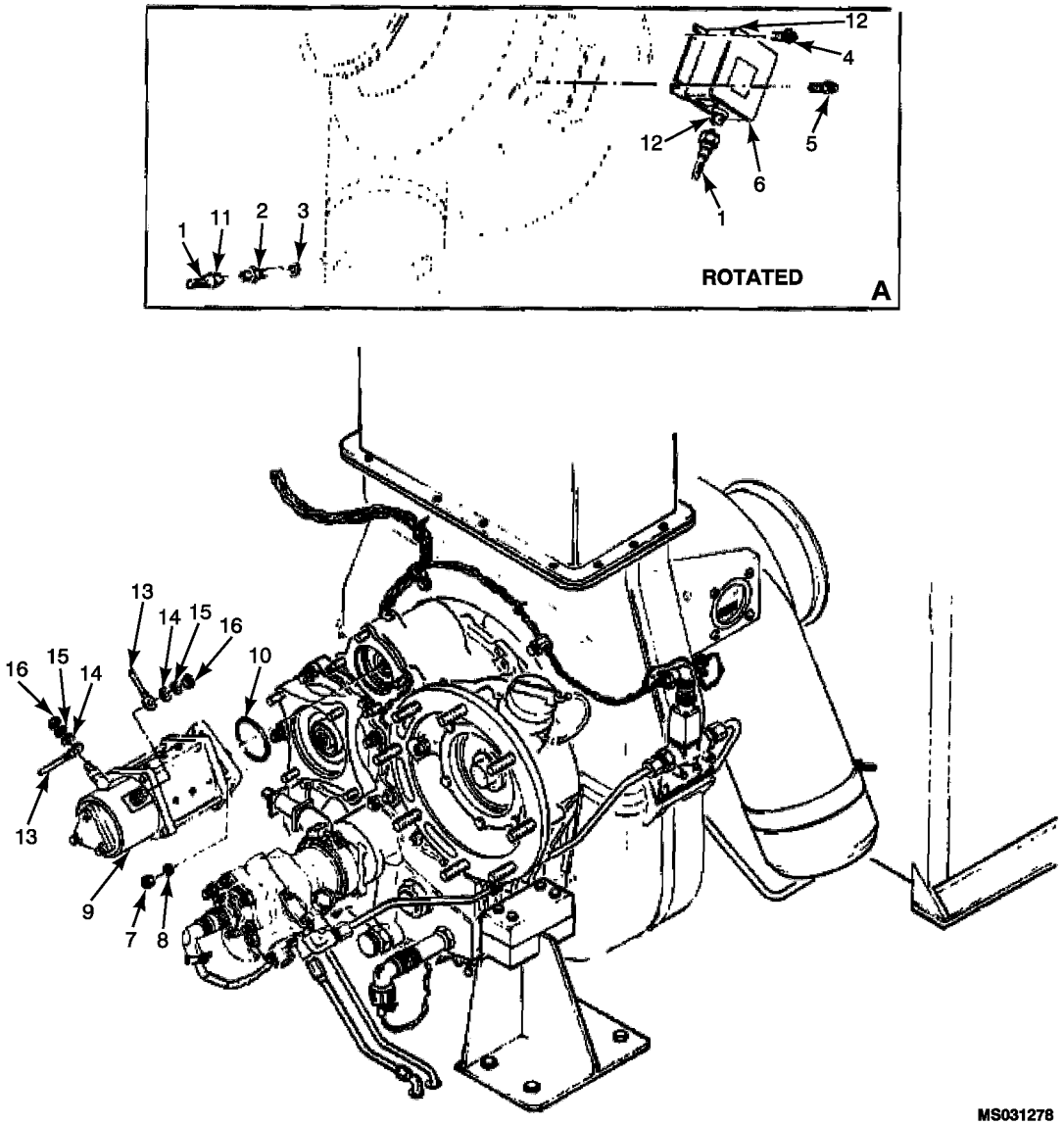
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Anti-Seize Compound (WP 0170 00, Item 3)
Wire, Nonelectrical (WP 0170 00, Item 60)

References

WP 0002 00
WP 0034 00



1. Igniter Plug Lead	5. Bolt	9. Starter Assembly	13. Electrical Lead
2. Igniter Plug	6. Ignition Unit	10. Packing	14. Washer, Flat
3. Washer	7. Nut	11. Insulator Grommet	15. Lockwasher
4. Bolt	8. Washer	12. Connector	16. Nut

Figure 1. Engine Ignition System Components.

REMOVAL

WARNING

Do not disconnect ignition cable within 30 minutes of running or attempting to start AGPU. Voltages used can cause arcing which may result in severe burns. Use extreme care when working with ignition system. Failure to observe all precautions may result in serious injury or death.

1. Ensure parking brake is set and wheels are choked with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
3. Open engine access door (WP 0002 00).
4. Cut and remove lockwire on igniter plug lead (Figure 1, Item 1).
5. Disconnect igniter plug lead (Figure 1, Item 1) from igniter plug (Figure 1, Item 2).
6. Remove igniter plug (Figure 1, Item 2) and washer (Figure 1, Item 3).

TEST AND INSPECTION

1. Inspect ceramic insulation of igniter plug (Figure 1, Item 2) for cracks and chips. No cracks or chips are allowed.
2. Inspect electrode for distortion and erosion. Electrode shall not be less than 0.010 inch above ceramic insulator. Replace igniter plug (Figure 1, Item 2) if electrode is distorted or eroded.
3. Inspect connector (Figure 1, Item 12) for damaged or burned contact, and damaged or worn threads. No damage, burned contacts, or worn threads are allowed.
4. Inspect housing for cracks. No cracks are allowed.

INSTALLATION

1. Coat threads of igniter plug (Figure 1, Item 2) with anti-seize compound.
2. Install igniter plug (Figure 1, Item 2) with washer (Figure 1, Item 3). Ensure washer is seated on one end of plug prior to applying torque. Tighten igniter plug to a torque value of 100 inch-pounds.
3. Connect igniter plug lead (Figure 1, Item 1) to igniter plug (Figure 1, Item 2) and tighten to a torque value of 35 inch-pounds. Lockwire igniter plug lead.
4. Close engine access door (WP 0002 00).
5. Reconnect batteries.
6. Perform MOC.

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

IGNITER PLUG LEAD

INITIAL SETUP:

Tools and Special Tools

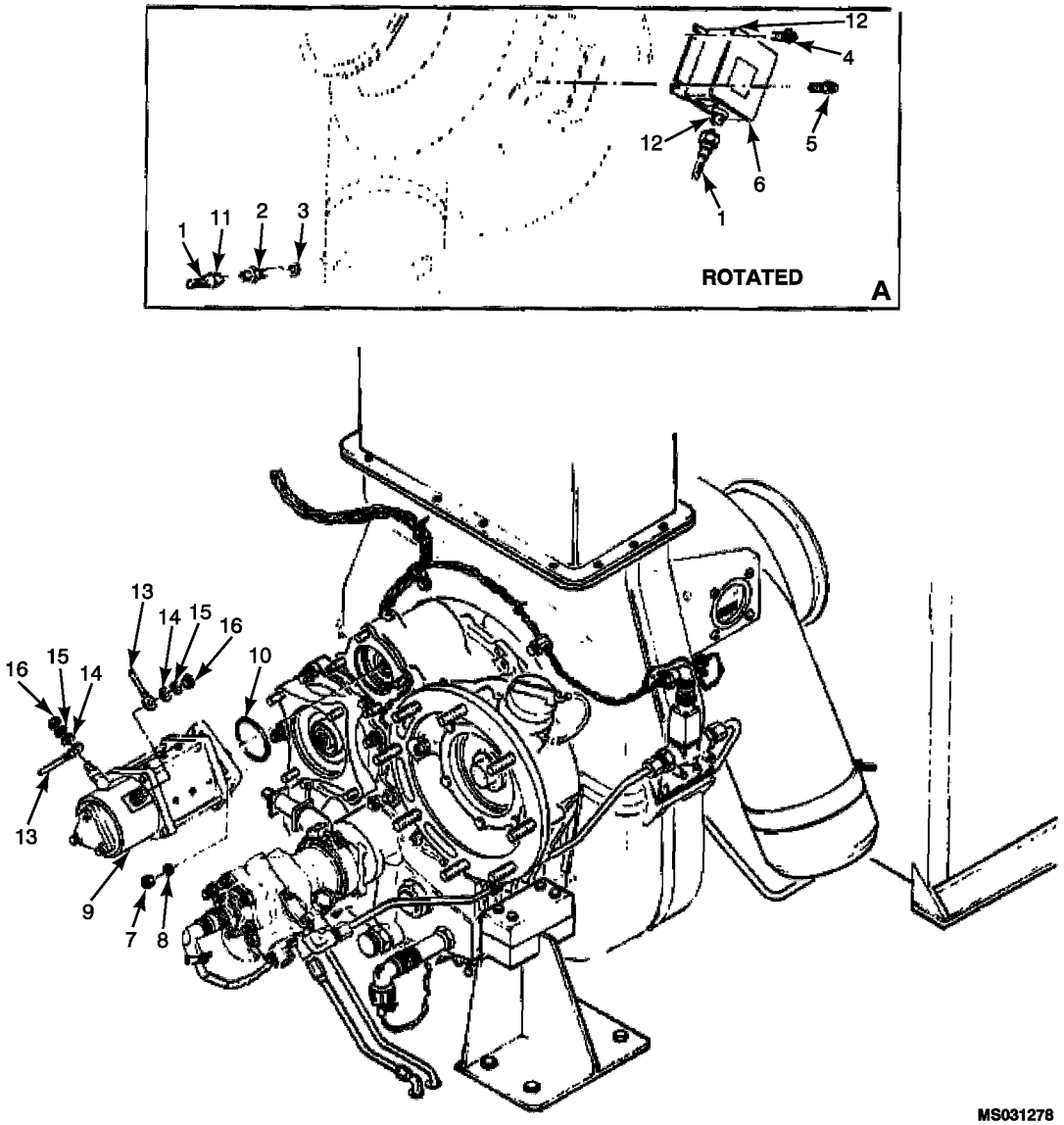
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Wire, Nonelectrical (WP 0170 00, Item 60)

References

WP 0034 00



1. Igniter Plug Lead	5. Bolt	9. Starter Assembly	13. Electrical Lead
2. Igniter Plug	6. Ignition Unit	10. Packing	14. Washer, Flat
3. Washer	7. Nut	11. Insulator Grommet	15. Lockwasher
4. Bolt	8. Washer	12. Connector	16. Nut

Figure 1. Engine Ignition System Components (MEP 83-360A and MEP 83-360D/E).

TEST AND INSPECTION

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
3. Open engine access door (WP 0002 00).
4. Inspect coupling nuts on igniter plug lead (Figure 1, Item 1) for cracks, corrosion and damaged threads. No cracks or damaged threads are allowed.

TEST AND INSPECTION – CONTINUED

5. Inspect outer shielding for chafing. Check for cracks or separation between shielding and terminal end. No cracks or separations are allowed.

REMOVAL

1. Cut and remove lockwire on both connectors.
2. Loosen both coupling nuts.
3. Disconnect igniter plug lead (Figure 1, Item 1) from igniter plug (Figure 1, Item 2) and ignition unit (Figure 1, Item 6).
4. Inspect teflon or silicone insulator grommet (Figure 1, Item 11) that surrounds insulation for cracks and distortion. No cracks or distortion are allowed.

INSTALLATION

1. Connect igniter plug lead (Figure 1, Item 1) to igniter plug (Figure 1, Item 2) and ignition unit (Figure 1, Item 6). Tighten hand tight.
2. Tighten both connectors of igniter plug lead to a torque value of 35 inch-pounds. Lockwire both connectors.
3. Close engine access door (WP 0002 00).
4. Reconnect batteries.
5. Perform MOC.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

IGNITION UNIT

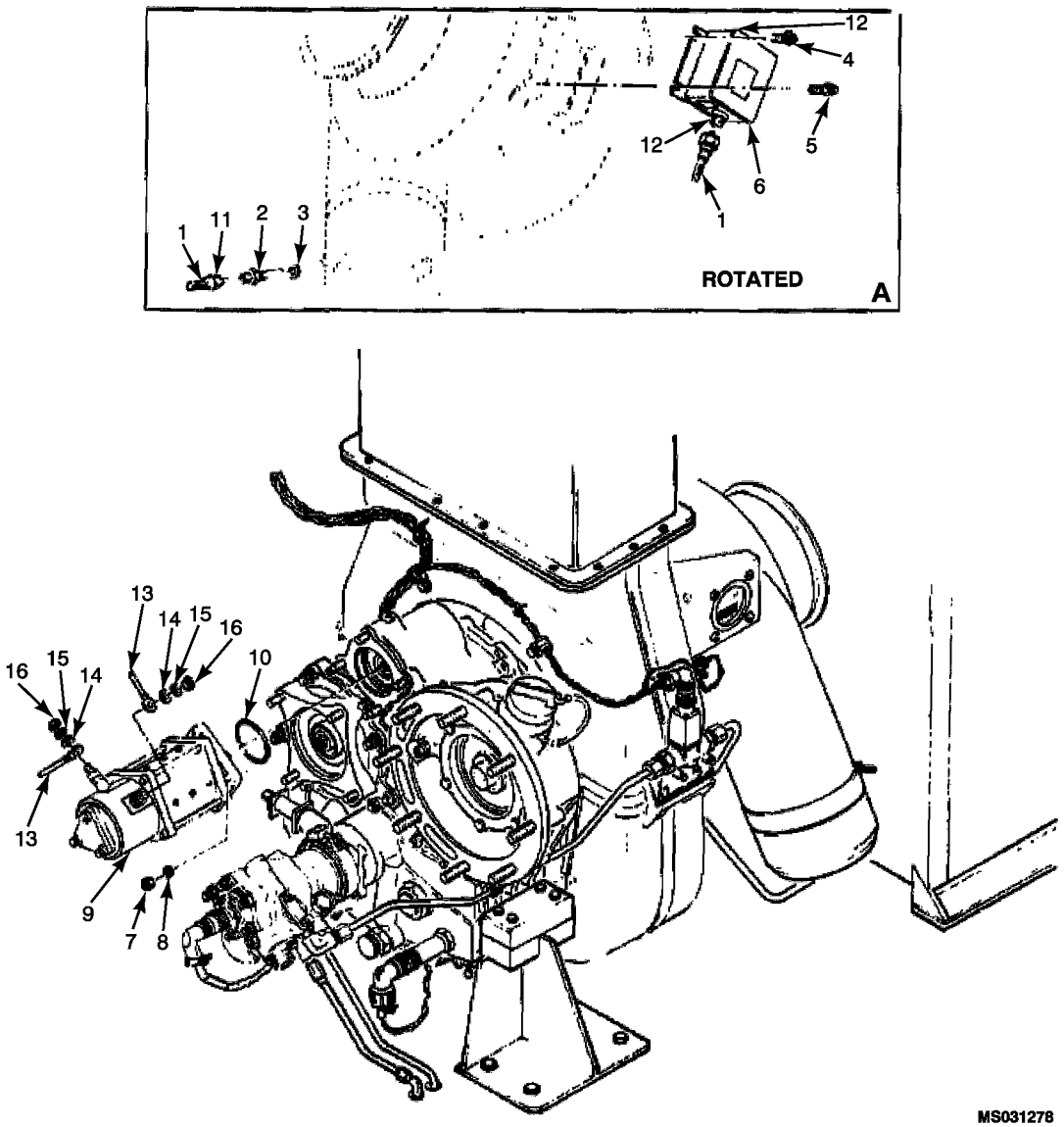
INITIAL SETUP:

Tools and Special Tools
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts
Anti-Seize Compound (WP 0170 00, Item 3)

Materials/Parts (cont.)
Lockwire (WP 0170 00, Item 30)

References
WP 0012 00
WP 0021 00
WP 0034 00



1. Igniter Plug Lead	5. Bolt	9. Starter Assembly	13. Electrical Lead
2. Igniter Plug	6. Ignition Unit	10. Packing	14. Washer, Flat
3. Washer	7. Nut	11. Insulator Grommet	15. Lockwasher
4. Bolt	8. Washer	12. Connector	16. Nut

Figure 1. Engine Ignition System Components.

TEST AND INSPECTION

NOTE

Refer to WP 0012 00, 119. IGNITION UNIT MALFUNCTION for test.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.

TEST AND INSPECTION – CONTINUED

3. Remove engine access cover (WP 0021 00).
4. Inspect case of ignition unit (Figure 1, Item 6) for dents or cracks. No dents or cracks are allowed.
5. Inspect brackets on ignition unit for cracks and security of mounting. No cracks are allowed.
6. Inspect electrical connectors (Figure 1, Item 12) for burned or damaged contacts, and worn or damaged threads. No damage is allowed.

REMOVAL

1. Disconnect electrical connector and igniter plug lead (Figure 1, Item 1) from ignition unit (Figure 1, Item 6).
2. Remove bolts (Figure 1, Item 4 and 5) and ignition unit (Figure 1, Item 6) from brackets on turbine plenum assembly.

INSTALLATION

1. Apply a light coat of anti-seize compound to threads of bolts (Figure 1, Item 4 and 5).
2. Place ignition unit (Figure 1, Item 6) on brackets and secure with bolts (Figure 1, Item 4 and 5). Tighten bolts to a torque value of **50 inch-pounds**.
3. Connect electrical connector and igniter plug lead (Figure 1, Item 1) to ignition unit (Figure 1, Item 6). Tighten igniter plug connector to a torque value of 35 inch-pounds. Lockwire igniter plug lead.
4. Install engine access cover (WP 0021 00).
5. Reconnect batteries.
6. Perform MOC.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

STARTER ASSEMBLY REMOVAL, OVERHAUL, DISASSEMBLY AND INSTALLATION

INITIAL SETUP:

Tools and Special Tools

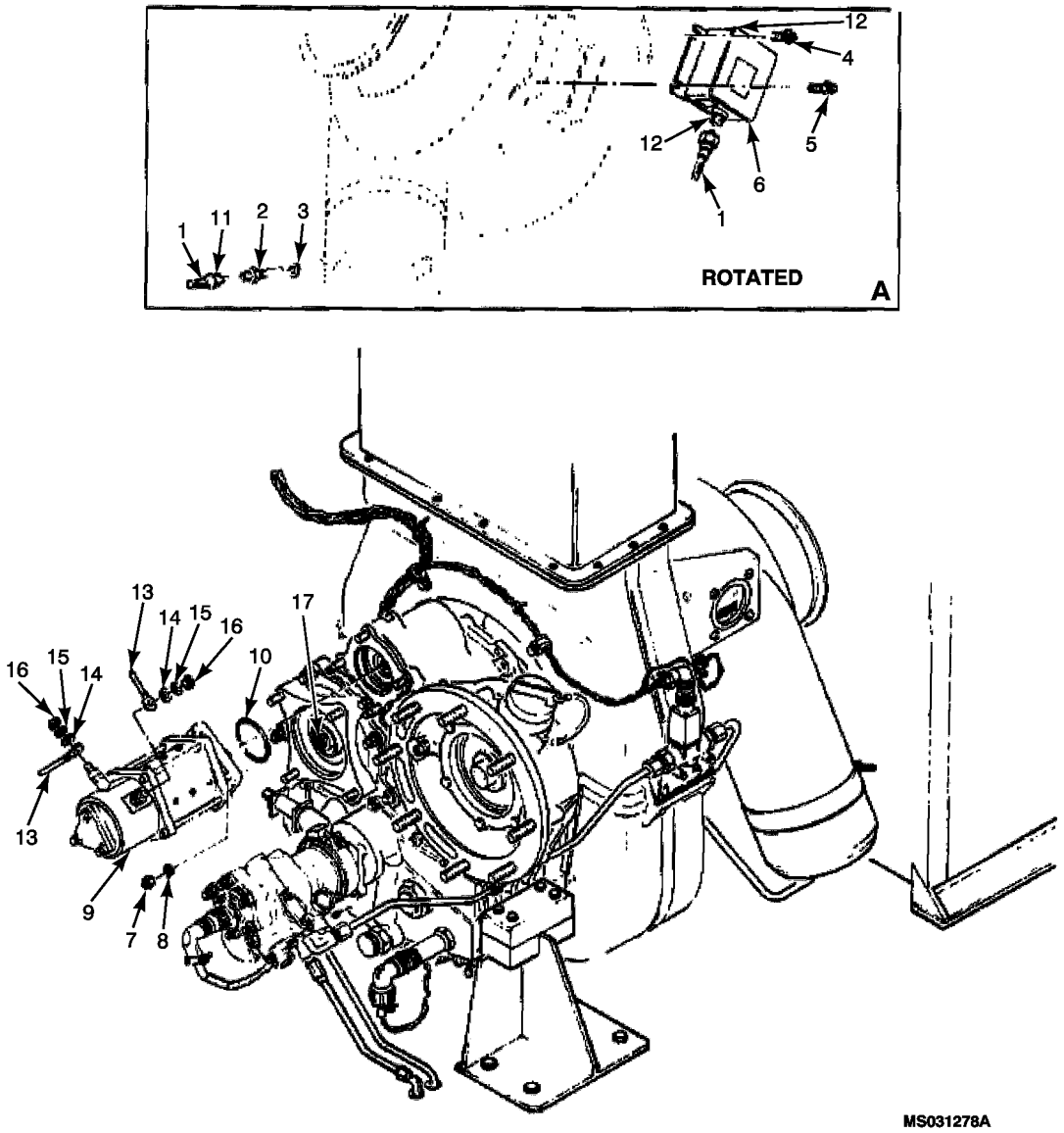
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Lubricating Oil, Molybdenum Disul (WP 0170 00, Item 36)

References

WP 0022 00
WP 0034 00

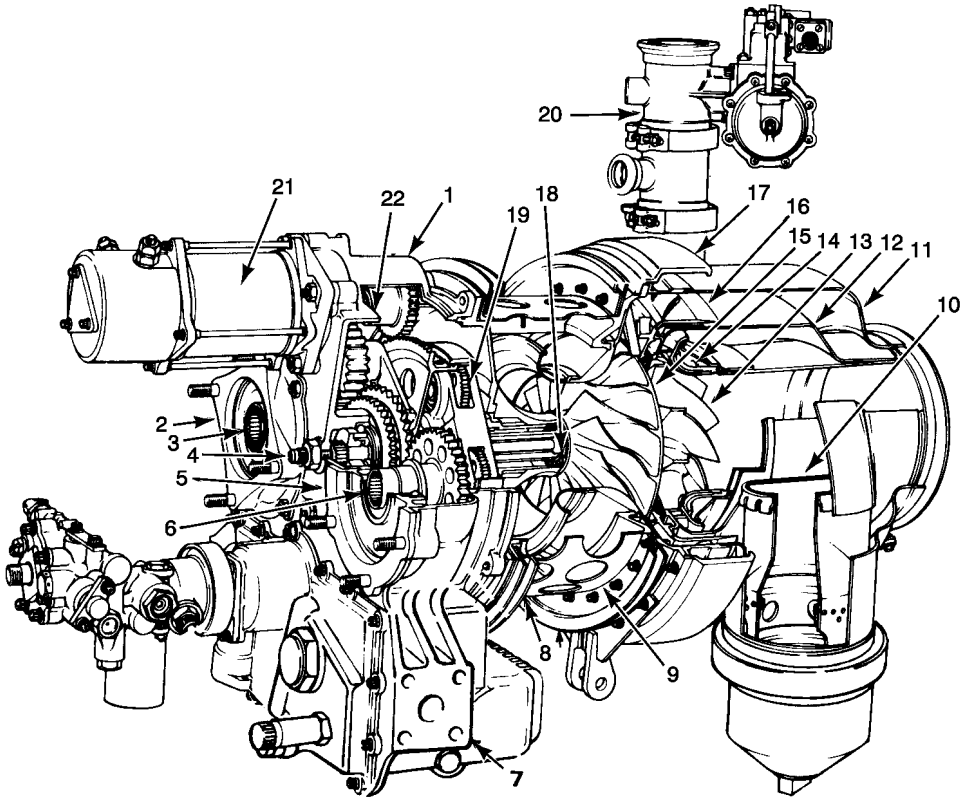


1. Igniter Plug Lead
2. Igniter Plug
3. Washer
4. Bolt
5. Bolt
6. Ignition Unit
7. Nut
8. Washer
9. Starter Assembly
10. Packing
11. Insulator Grommet
12. Connector
13. Electrical Lead
14. Washer, Flat
15. Lockwasher
16. Nut
17. Sprag Clutch

Figure 1. Engine Ignition System Components.

REMOVAL

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
3. Remove roof (WP 0022 00).
4. Tag starter assembly electrical leads (positive/negative) (Figure 1, Item 13).
5. Disconnect two electrical leads (Figure 1, Item 13) from starter assembly (Figure 1, Item 9) by removing two nuts (Figure 1, Item 16), lock washers (Figure 1, Item 15), and flat washers (Figure 1, Item 14).
6. Remove nuts (Figure 1, Item 7) and washers (Figure 1, Item 8).
7. Remove starter assembly (Figure 1, Item 9) and packing (Figure 1, Item 10). Discard packing.



1. Gearcase Assembly	7. Side Mounting Pad (2)	13. Turbine Rotor	19. Planetary Gear Set
2. Hydraulic Pump Pad	8. Inlet Duct Fitting	14. Deswirl Assembly	20. Load Control Valve (LCV)
3. Hydraulic Pump Splined Drive	9. Compressor Inlet Housing	15. Compressor Rotor	21. Starter Assembly
4. Vent	10. Combustor Chamber	16. Deflector	22. Starter Sprag Clutch
5. Generator Pad	11. Turbine Plenum	17. Containment Ring	
6. Generator Splined Drive	12. Torus Scroll	18. Compressor Bearing	

Figure 2. Engine/Gearcase Assembly, Starter Assembly and Sprag Clutch View.

8. Inspect sprag clutch (Figure 1, Item 17) or (Figure 2, Item 22) for damage, and check for rough rotation in the overrunning counter clockwise direction. If rotation is rough, or if the clutch is seized, it must be replaced.

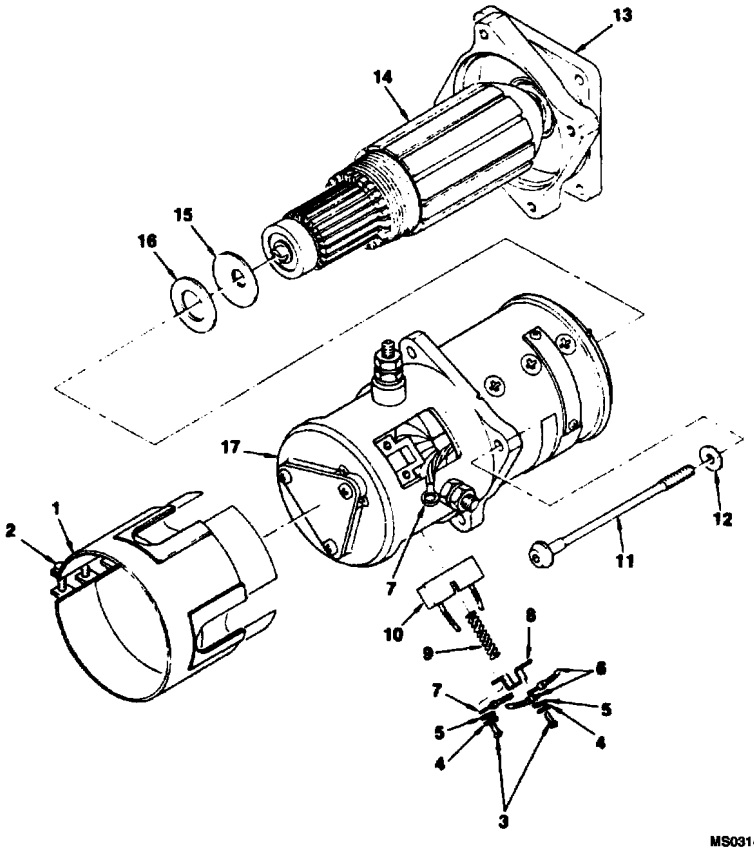
REMOVAL – CONTINUED

9. If starter sprag clutch (Figure 2, Item 22) is found bad, the engine must be replaced. Notify maintenance supervisor.

REPAIR OR REPLACEMENT

STARTER ASSEMBLY REPAIR

Inspect/Replace Starter Brushes



1. Brush Access Cover Assembly
2. Screw
3. Screw
4. Lockwasher
5. Washer, Flat
6. Wire Terminals
7. Wire Terminal
8. Brush Spring Cap
9. Spring (PN 47417–1)
10. Brush (PN 47407–1)
11. Bolt
12. Washer
13. Mount End Bell
14. Armature Assembly
15. Preload Washer
16. Shim Washer
17. Housing and Commutator Assembly

Figure 3. Brush Removal/Replacement.

1. Dimensionally check length of each brush (Figure 3, Item 10). Length of each brush shall not be less than 0.31 inch. (Length of new brush is 0.51 inch).
2. Verify that brush (Figure 3, Item 10) assemblies are properly seated and that 75 percent of brush surfaces are contacting the commutator.
3. If brush assemblies do not meet the requirements of steps 1 and 2, perform the following procedures:
   a. Loosen three screws (Figure 3, Item 2) and remove the brush access cover assembly (Figure 3, Item 1) by sliding off.

REPAIR OR REPLACEMENT – CONTINUED

STARTER ASSEMBLY REPAIR – CONTINUED

b. Remove eight screws (Figure 3, Item 3), lock washers (Figure 3, Item 4), flat washers (Figure 3, Item 5) with wiring terminals (Figure 3, Item 6 and 7) from brush spring cap (Figure 3, Item 8).

c. Remove four brush spring caps (Figure 3, Item 8), springs (Figure 3, Item 9) and brushes (Figure 3, Item 10).

d. Scribe and alignment mark on end bell (Figure 3, Item 13), and on housing and commutator assembly (Figure 3, Item 17).

e. Remove four bolts (Figure 3, Item 11) and washers (Figure 3, Item 12).

CAUTION

Do not scratch or score commutator surface during disassembly.

NOTE

Record configuration of shim washers (Figure 3, Item 16) and preload washer (Figure 3, Item 15) to reassemble to the original configuration.

f. Remove mount end bell (Figure 3, Item 13) and armature assembly (Figure 3, Item 14) from the housing commutator assembly (Figure 3, Item 17).

g. Remove shim washers (Figure 3, Item 16) and preload washers (Figure 3, Item 15).

h. Use low pressure air in a ventilated area to blow carbon dust from all parts of the disassembled starter motor.

i. Install preloaded washer (Figure 3, Item 15) and shim washer (Figure 3, Item 16) to same thickness as recorded at disassembly to reassemble to original configuration.

j. Reinstall mount end bell (Figure 3, Item 13) and armature assembly (Figure 3, Item 14) into the housing and commutator assembly (Figure 3, Item 17), and align scribe marks.

k. Reinstall four washers (Figure 3, Item 12) and bolts (Figure 3, Item 11). Tighten bolts (Figure 3, Item 11) to **25 inch-pounds torque**.

l. Install four new brushes (Figure 3, Item 10) into brush holders.

m. Reinstall four brush spring (Figure 3, Item 9) and spring caps (Figure 3, Item 8).

n. Install wiring terminals (Figure 3, Item 6) on screws (Figure 3, Item 3) with lockwashers (Figure 3, Item 4) and flatwashers (Figure 3, Item 5), and secure brush spring cap (Figure 3, Item 8) and assemble items to brush holders with screws (Figure 3, Item 3).

o. Reinstall brush access cover assembly (Figure 3, Item 1), and tighten three screws (Figure 3, Item 2).

CAUTION

The brush run-in is required to provide adequate contact area for current transfer from the brush to commutator. Insufficient contact area will result in localized heating, commutator and brush will be damaged.

p. Clamp the starter motor assembly to a stationary work bench.

q. Using low pressure (20-30 psig) air to cool the starter motor, seat the new brushes by running the starter motor with no-load to 6 to 8 VDC for two hours.

r. Inspect brushes for a minimum of 75 percent of the contact surface touching the commutator after run-in.

REPAIR OR REPLACEMENT – CONTINUED

STARTER ASSEMBLY REPAIR – CONTINUED

s. Remove brush access cover assembly (Figure 3, Item 1) and using low pressure air (20-30 psig) blow the carbon dust from the commutator.

t. Reinstall the brush access cover assembly (Figure 3, Item 1).

u. Perform bench test to ensure starter is functional.

INSTALLATION

1. Install new packing (Figure 1, Item 10) in place on starter assembly (Figure 1, Item 9).
2. Apply a light coat of Lubricating Oil, Molybdenum Disul to the threads of nuts (Figure 1, Item 7).
3. Install starter assembly and secure with washers (Figure 1, Item 8) and nuts (Figure 1, Item 7). Tighten nuts to a torque value of **100 inch-pounds.**
4. Reconnect two electrical leads (Figure 1, Item 13) to starter assembly, (Figure 1, Item 9) using tags for identification.
5. Install two flat washers (Figure 1, Item 14), lock washers (Figure 1, Item 15), and nuts (Figure 1, Item 16).
6. Install roof (WP 0022 00).
7. Reconnect batteries.
8. Perform MOC.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

GENERAL INSPECTION OF ENGINE ASSEMBLY

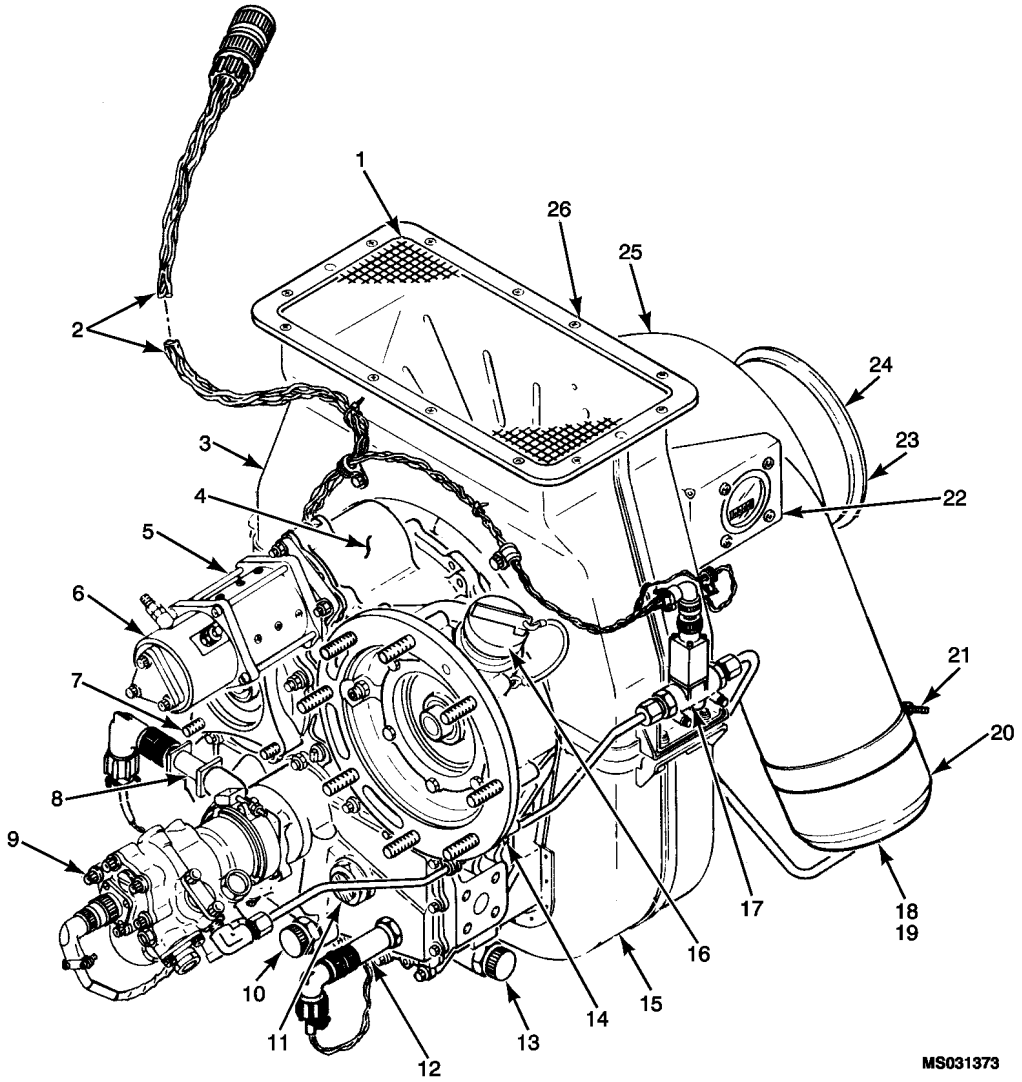
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0034 00



1. Inlet Duct Screen
2. Wiring Harness
3. Inlet Duct (Upper Half)
4. Gearcase Assembly
5. Speed Sensor (Not Shown)
6. Starter Assembly
7. Hydraulic Pump Pad
8. Low Oil Pressure Switch
9. Fuel Control Unit (FCU)
10. Magnetic Drain Plug (Gearcase)
11. Sight Level Indicator (Oil)
12. High Oil Temperature Switch
13. Magnetic Drain Plug (Overflow)
14. Generator Pad
15. Inlet Duct (Lower Half)
16. Oil Fill Cap
17. Fuel Solenoid
18. Fuel Nozzle (Not Shown)
19. Igniter Plug (Not Shown)
20. Combustor Cap
21. Combustor Clamp
22. Hour Meter
23. Thermocouple (Not Shown)
24. Exhaust Nozzle
25. Ignition Unit (Not Shown)
26. Load Control Valve (LCV) (Not Shown)

Figure 1. Gas Turbine Engine (GTE).

TEST AND INSPECTION

General Inspection

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.

TEST AND INSPECTION – CONTINUED

3. Inspect engine for leakage at fuel and hydraulic line fittings. Tighten loose fittings.
4. Inspect wiring harness for cuts or abraded wires. Inspect electrical connectors for security of installation, damage, and corrosion.
5. Inspect engine accessories for security of installation, damage, and corrosion.

Inlet Duct and Screen

Inspect inlet duct (lower half) (Figure 1, Item 15) and inlet duct (upper half) (Figure 1, Item 3) for cracks, hole, or damage. Inspect inlet duct screen (Figure 1, Item 1) for damage by opening bypass door. Remove any foreign material from screen. Inspect inlet duct (lower half) (Figure 1, Item 15) for loose rivets and damaged nut plates.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

HOUR METER

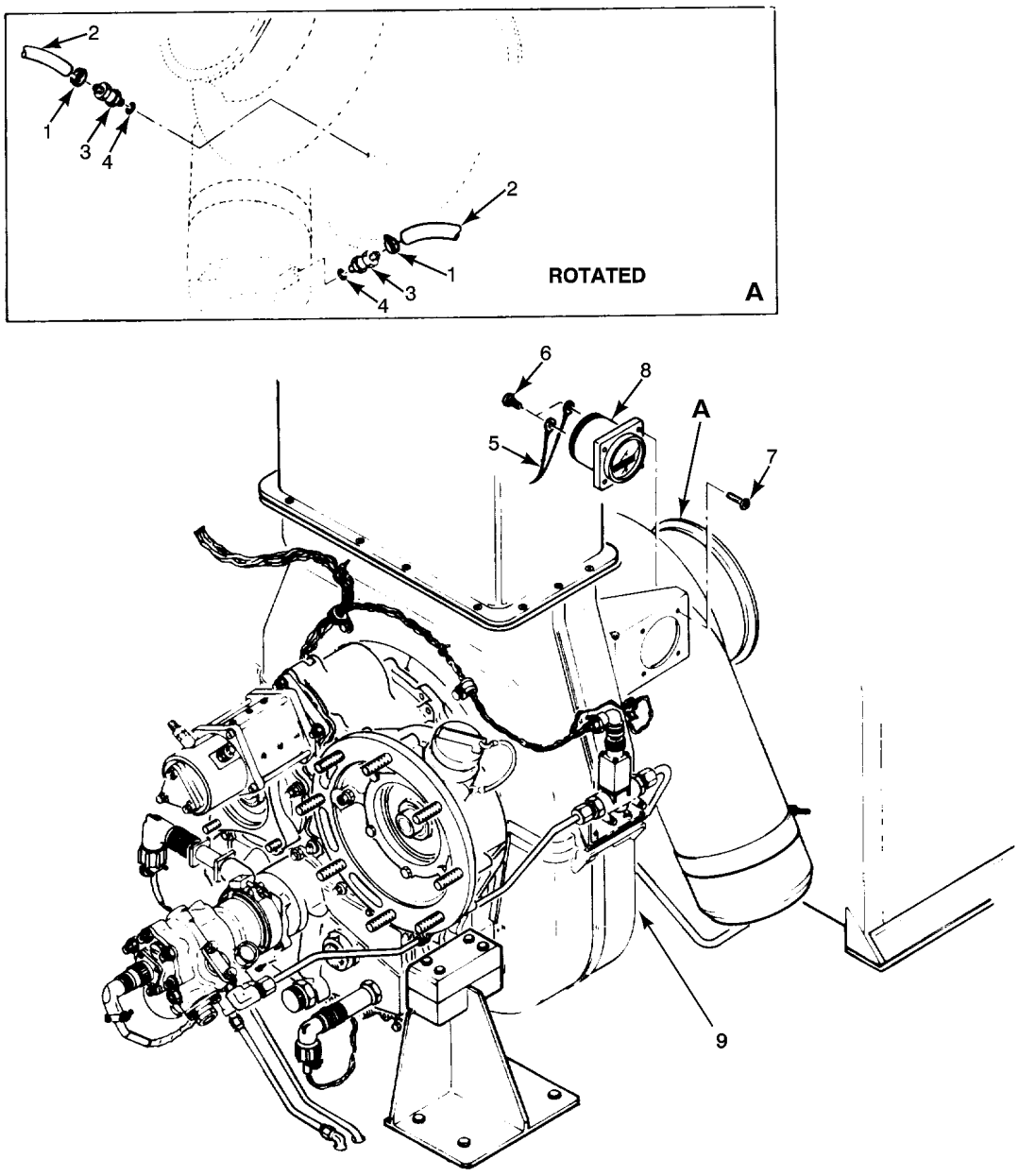
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK
(WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0034 00



MS031375A

1. Steel Fitting
2. Steel Drain Line
3. Check Valve
4. Packing
5. Electrical Connections
6. Screw
7. Screw
8. Hour Meter

Figure 1. Engine Components.

REMOVAL

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
3. Tag electrical connections (Figure 1, Item 5) to hour meter.
4. Disconnect electrical connections (Figure 1, Item 5) from hour meter (Figure 1, Item 8) by removing two screws (Figure 1, Item 6).
5. Remove four screws (Figure 1, Item 7) from hour meter (Figure 1, Item 8) and remove hour meter from bracket.

INSTALLATION

1. Position hour meter (Figure 1, Item 8) in bracket and secure with four screws (Figure 1, Item 7). Tighten screws to a torque value of **35 inch-pounds**.
2. Attach electrical connections (Figure 1, Item 5) to hour meter using two screws (Figure 1, Item 6).
3. Reconnect batteries.
4. Perform MOC and see if hour meter increases in time.

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
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EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

ENGINE (GTE) PLUMBING AND WIRING HARNESSES

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK
(WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

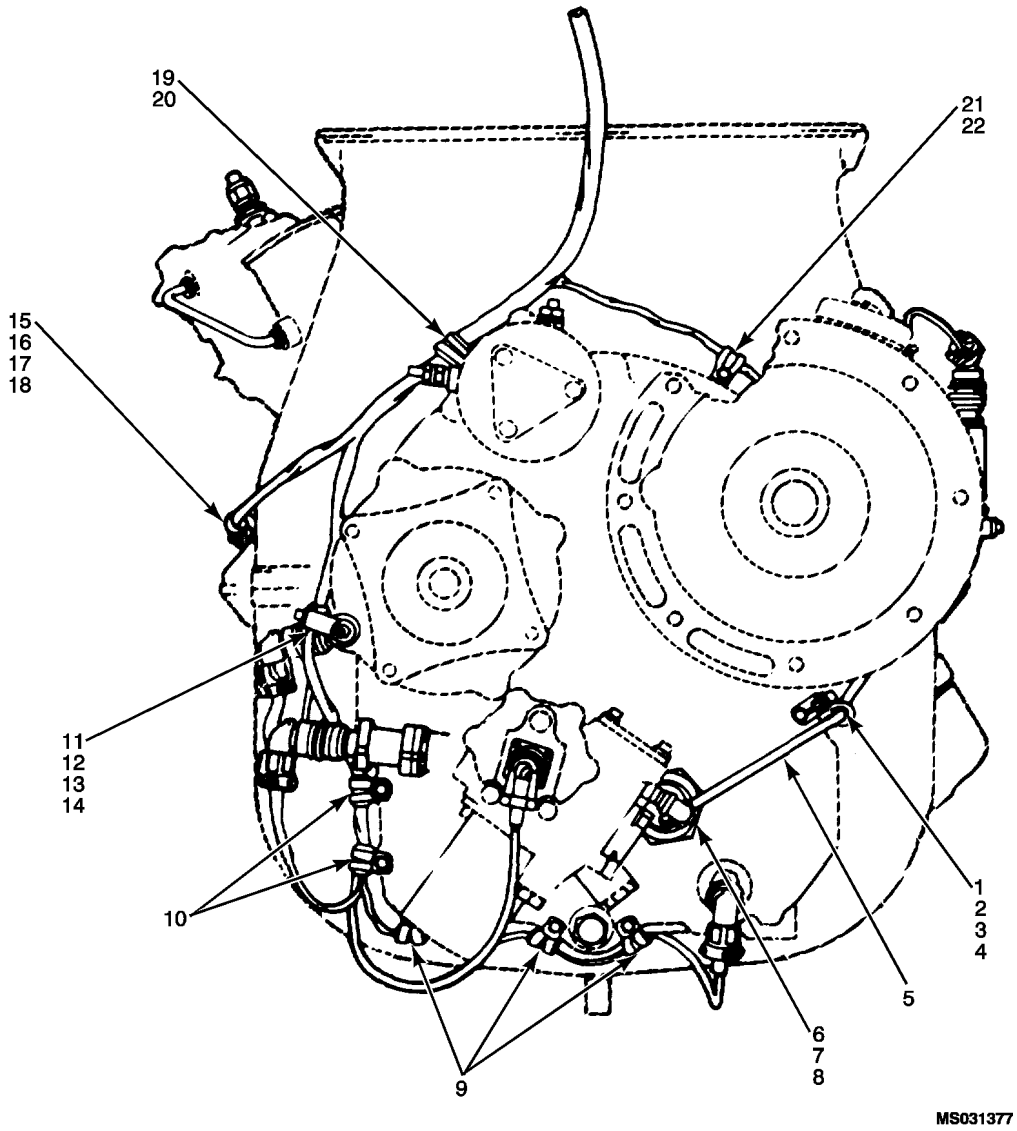
Materials/Parts

Solder, Tin Alloy (WP 0170 00, Item 53)
Tape, Anti-Seizing (WP 0170 00, Item 54)

References

TM 1-1500-323-24-1
MIL-HDBK-454B
QQ-B-654A(1)
WP 0006 00
WP 0034 00

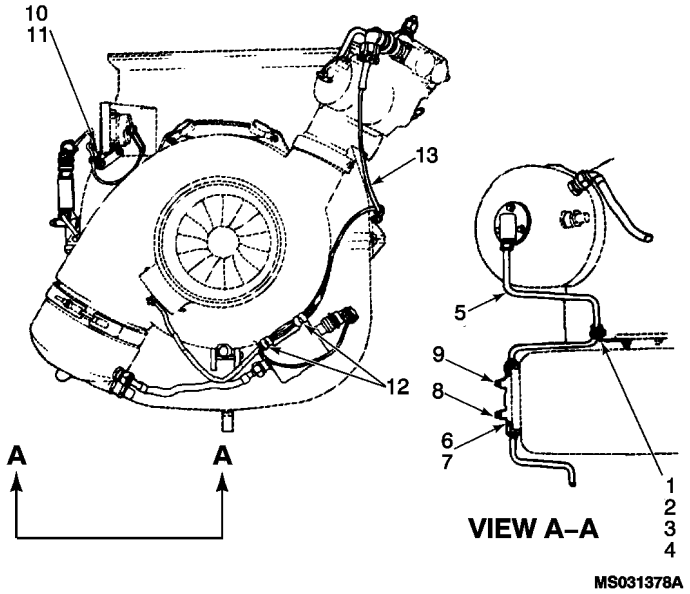
TEST AND INSPECTION



1. Nut	9. Clamp	17. Clamp
2. Bolt	10. Claw	18. Bracket
3. Clamp	11. Nut	19. Bolt
4. Bracket	12. Bolt	20. Clamp
5. Tube Assembly	13. Clamp	21. Bolt
6. Elbow	14. Bracket, Angle	22. Clamp
7. Nut	15. Nut	
8. Packing	16. Bolt	

Figure 1. Engine Plumbing and Wiring Harness Installation, Front View.

TEST AND INSPECTION – CONTINUED



1. Nut	6. Union	11. Bracket
2. Bolt	7. Packing	12. Clamp
3. Clamp	8. Nut	13. Harness Assembly, Wiring
4. Bracket	9. Bolt	
5. Tube Assembly	10. Clamp	

Figure 2. Engine Plumbing and Wiring Harness Installation, Rear View.

Engine Wiring Harness

NOTE

The engine wiring harness connects between the ECU (P2) and all engine mounted components.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
3. Set MASTER SWITCH to OFF.
4. Inspect wiring harness for damaged insulation and broken wires (Figure 2, Item 13). Refer to FO 3 for wiring identification and connections.
5. Check that all terminal connections are secure.
6. Inspect harness connectors for damage.

Engine Wiring Harness (Repair or Replacement)

Repair broken wires by splicing. Refer to TM 1-1500-323-24-1,.

Inspect Plumbing Components

1. Inspect tube assembly (Figure 1, Item 5, and Figure 2, Item 5) as follows:
   a. Visually inspect tubing for distortion, corrosion, splits, pits, cracks, nicks, dents, scratches and kinks.
   b. Visually inspect sleeves for splits, cracks, galling, corrosion, nicks, and dents.

TEST AND INSPECTION – CONTINUED

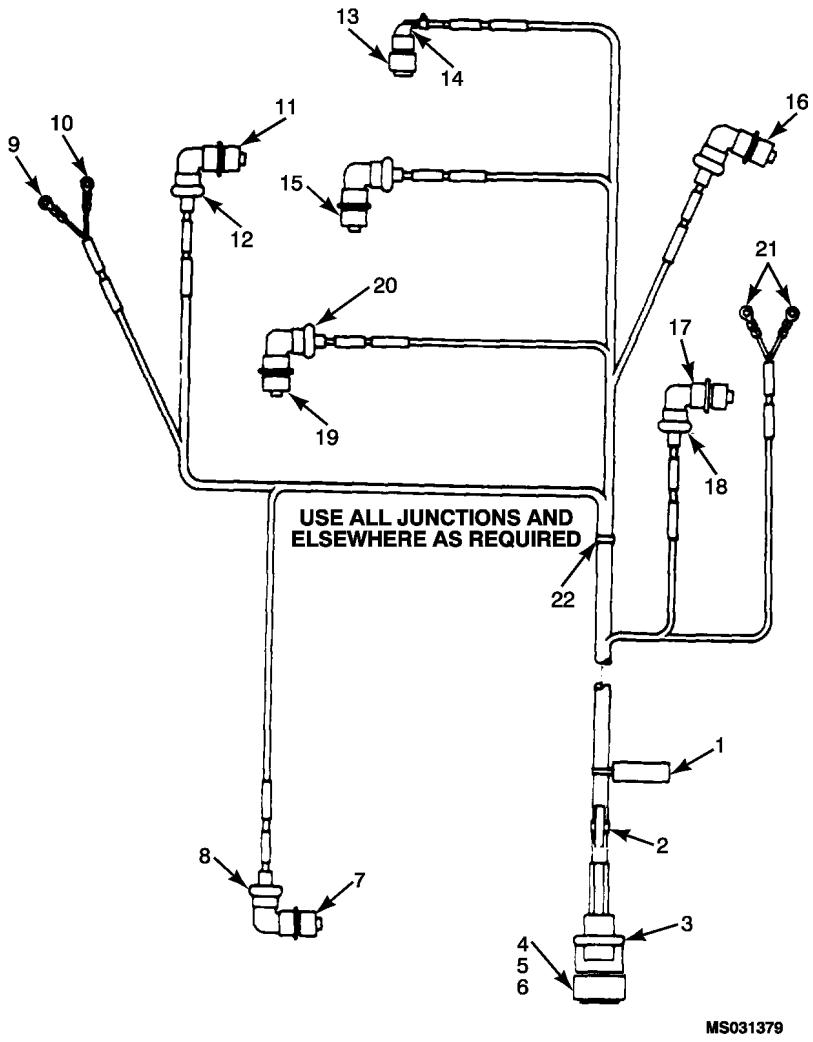
c. Visually inspect nuts and threaded bushings for galled, crossed, stripped or worn threads and for corrosion and rounded wrenching flats.

2. Inspect adapters, unions, elbows, tees, plugs and caps as follows:

a. Visually inspect fittings for galled, crossed, stripped, or worn threads.

b. Visually inspect fittings for cracks, nicks, dents and corrosion.

c. Visually inspect fittings for rounded wrenching flats and torn or closed lockwire holes.



1. Identification Strap	6. Contact	11. Connector (P7)	16. Connector (P6)	21. Terminal (Hour Meter)
2. Identification Strap	7. Connector (P5)	12. Backshell	17. Connector (P4)	22. Retaining Strap
3. Backshell	8. Backshell	13. Connector (P10)	18. Backshell	
4. Connector (P4)	9. Terminal (Couple)	14. Backshell	19. Connector (P9)	
5. Contact	10. Terminal (Couple)	15. Connector (P8)	20. Backshell	

Figure 3. Wiring Harness Assembly.

Inspect Wiring Harness Assembly

1. Visually inspect sleeving for chafing, tears and deterioration.

TEST AND INSPECTION – CONTINUED

2. Visually inspect insulation for cracks, chafing, deterioration and exposed wires.
3. Visually inspect electrical connectors as follows:
    a. Check connectors for security to wiring.
    b. Check connectors for broken, burned, corroded or bent contacts.
    c. Check connectors for cracks, corrosion, distortion, nicks and burrs.
4. Visually inspect identification straps for security and legibility.
5. Check braiding for security, deterioration and chaffing.

REPAIR OR REPLACEMENT

Repair Wiring Harness Assembly

1. Remove defective connectors as follows:
    a. Loosen connector plug screws. Pull back backshell (Figure 3, Item 18).
    b. Remove all teflon tape from back of connector, contacts and wires.
    c. Heat contacts of connector to melt solder and disconnect wires as necessary to remove defective connector.
2. Remove damaged wires as follows:
    a. Remove damaged wire from insulation sleeving.
    b. Measure the cut replacement wire.
    c. Insert replacement wire through insulation sleeving.
3. Install connectors as follows:
    a. Connect wires and electrical cables to connector. Solder wires and electrical cables to connector. Solder wires and electrical cables using silver solder in accordance with MIL-HDBK-454B, Requirement 5, using solder in accordance with QQ-B-654A(1), Grade V.
    b. Apply teflon tape to fill space inside clamp or connector.
    c. Slide back backshell and secure with connector plug screws.
4. Reconnect batteries.
5. Perform MOC.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

COMBUSTOR ASSEMBLY

INITIAL SETUP:

Tools and Special Tools

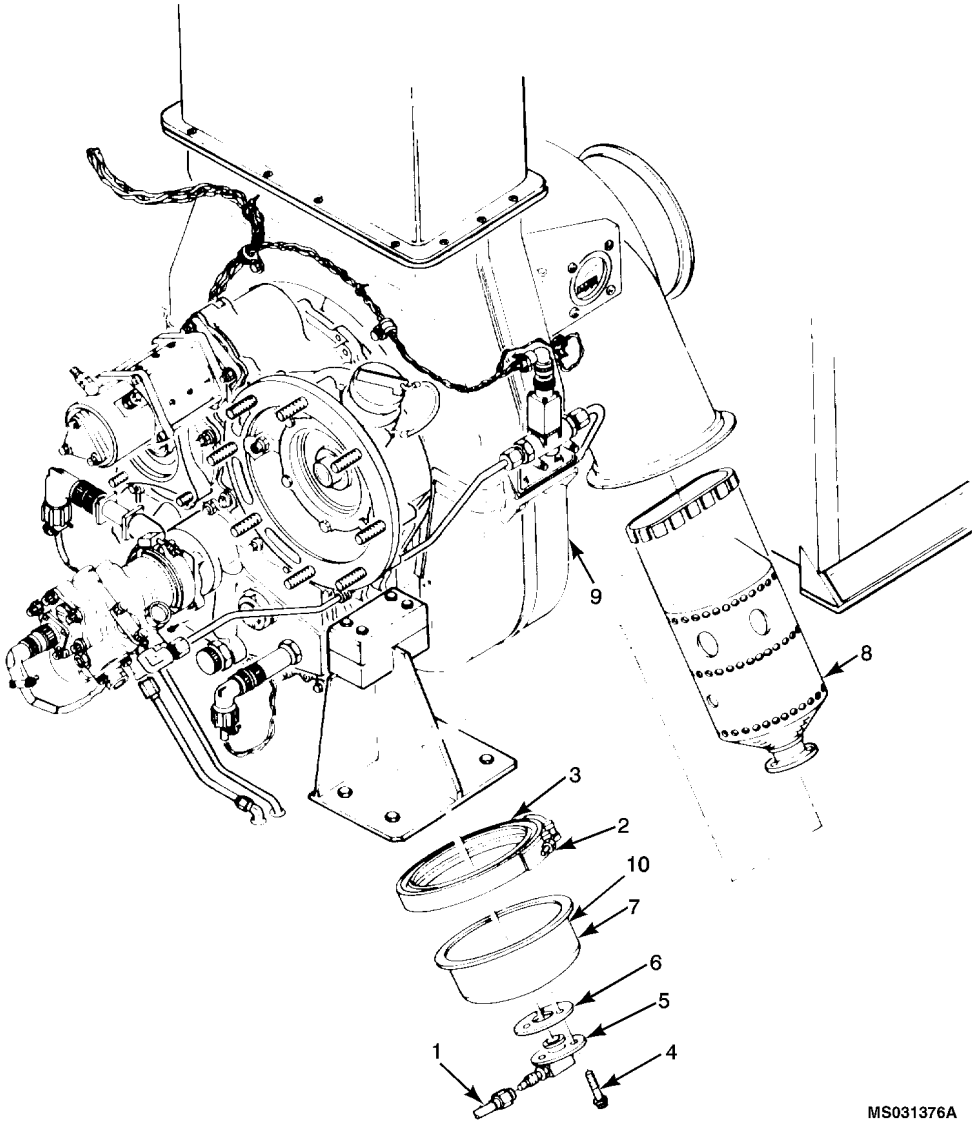
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Anti-Seize Compound (WP 0170 00, Item 3)
Wire, Nonelectrical (WP 0170 00, Item 61)

References

WP 0034 00
WP 0090 00



1. Fuel Line
2. Nut
3. Clamp
4. Bolt
5. Fuel Nozzle
6. Gasket
7. Combustion Chamber Cap
8. Combustion Chamber
9. Engine
10. Combustion Check Valve (Not Shown)

Figure 1. Combustor Assembly (MEP 83-360A and MEP 83-360D/E).

REMOVAL

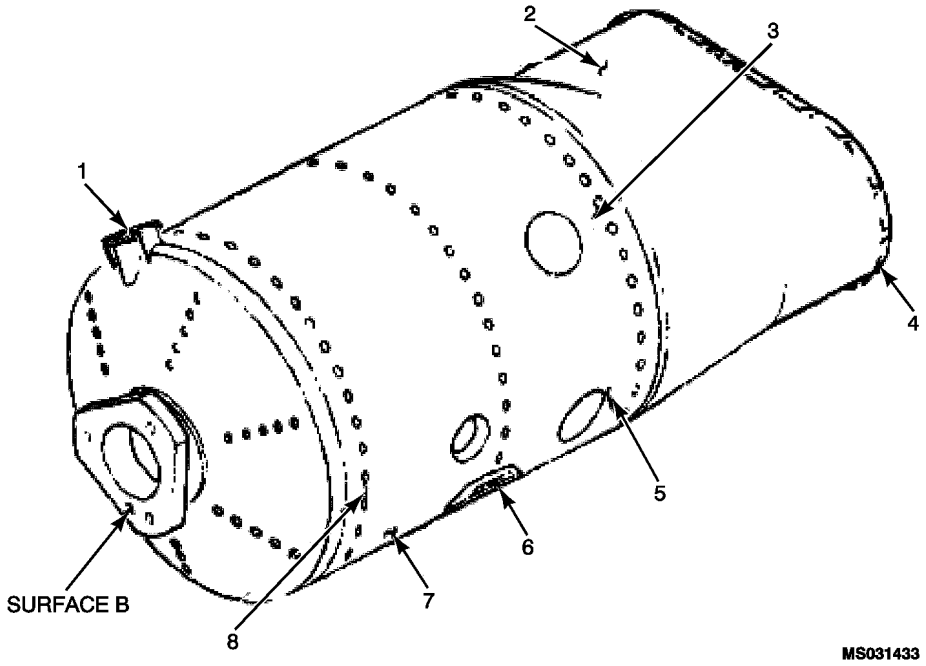
1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
3. Place container under fuel line (Figure 1, Item 1) under fuel nozzle (Figure 1, Item 5).
4. Disconnect fuel line (Figure 1, Item 1) from fuel nozzle (Figure 1, Item 5).
5. Remove igniter plug (WP 0090 00) and combustor check valve (Figure 1, Item 10).

REMOVAL – CONTINUED

6. Cut and remove lockwire. Remove nut (Figure 1, Item 2) and clamp (Figure 1, Item 3), then remove combustor assembly from engine.
7. Cut and remove lockwire. Remove bolts (Figure 1, Item 4), fuel nozzle (Figure 1, Item 5) and gasket (Figure 1, Item 6) from combustion chamber cap (Figure 1, Item 7).
8. Separate combustion chamber cap (Figure 1, Item 7) from combustion chamber (Figure 1, Item 8).

TEST AND INSPECTION

COMBUSTOR ASSEMBLY



1. Cracks	3. Cracks	5. Cracks	7. Deformation
2. Metal Thinning	4. Cracks	6. Distortion	8. Cracks

Figure 2. Combustion Chamber Inspection/Check.

1. Inspect clamp (Figure 1, Item 3) for cracks, distortion, and damaged threads. No cracks, distortion, or damaged threads are allowed.
2. Inspect combustion chamber cap (Figure 1, Item 7) for cracks, deformation, and damaged threads. No cracks, deformation, or damaged threads are allowed.
3. Inspect combustion chamber for conformance to the following requirements. Replace combustion chamber if the inspection requirements are not met.
    a. Check for cracks (Figure 2, Item 1) in igniter grommet welds or retainer. No cracks are allowed.
    b. Check for metal thinning (Figure 2, Item 2). Notify maintenance supervisor if metal thinning below 0.016 inch due to corrosion or erosion is indicated.
    c. Check for cracks (Figure 2, Item 3). Notify maintenance supervisor if cracks separated by less than 0.25 inch are indicated.
    d. Check for cracks (Figure 2, Item 4) at tabs. No cracks allowed.
    e. Check for cracks (Figure 2, Item 5) which could cause material breakaway. Notify maintenance supervisor if cracks are indicated.

TEST AND INSPECTION – CONTINUED

COMBUSTOR ASSEMBLY – CONTINUED

f. Check for distortion (Figure 2, Item 6) of cooling ring. Cooling ring distortion greater than one-half of normal gap not allowed.

g. Check for deformation (Figure 2, Item 7). Deformation greater than 0.125 inch not allowed.

h. Check for cracks (Figure 2, Item 8) connecting any two holes. Notify maintenance supervisor if cracks are indicated.

FUEL NOZZLE

1. Inspect fuel nozzle (Figure 1, Item 5) for security of installation. Tighten fuel line (Figure 1, Item 1) if required.
2. Inspect fuel nozzle for carbon buildup. Remove carbon buildup or replace fuel nozzle.

INSTALLATION

1. Apply a thin coat of anti-seize compound to threads of bolts (Figure 1, Item 4).
2. Place combustion chamber cap (Figure 1, Item 7) over combustion chamber (Figure 1, Item 8), aligning igniter plug boss of combustion chamber cap (Figure 1, Item 7) with igniter plug hole in combustion chamber (Figure 1, Item 8).
3. Install gasket (Figure 1, Item 6), fuel nozzle (Figure 1, Item 5), and bolts (Figure 1, Item 4) to combustion chamber cap (Figure 1, Item 7). Tighten bolts to a torque value of 50 inch-pounds. Lockwire bolts.
4. Install bolt (Figure 1, Item 4), Fuel Nozzle (Figure 1, Item 5), gasket (Figure 1, Item 6), combustion chamber cap (Figure 1, Item 7) and combustion chamber (Figure 1, Item 8) into engine and tighten clamp (Figure 1, Item 2) to a torque value of 45 inch-pounds.
5. Install igniter plug (WP 0090 00) and combustor check valve (Figure 1, Item 10).
6. Reconnect fuel line (Figure 1, Item 1) to fuel nozzle (Figure 1, Item 5).
7. Reconnect batteries.
8. Perform MOC.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

GENERAL MAINTENANCE, GAS TURBINE ENGINE (GTE)

INITIAL SETUP:

Materials/Parts
Cloth, Cleaning (WP 0170 00, Item 8)
Detergent (WP 0170 00, Item 16)
Dishwashing Compound, Hand (WP 0170 00, Item 17)
Distilled Water, Reagent (WP 0170 00, Item 18)

Materials/Parts (cont.)
Lubricating Oil, Aircraft Turbine (WP 0170 00, Item 33)

References
TM 1-1500-344-23

DISASSEMBLY

GENERAL DISASSEMBLY INSTRUCTIONS

Obvious steps or procedures necessary to disassemble the engine, such as removal of lockwire, attaching parts or simple components are omitted from the text. Removal of plumbing and electrical installation may be accomplished whenever parts are accessible.

NOTE

Do not disassemble tube assemblies, hose assemblies, wiring harness assemblies, rivet assemblies or staked or press-fit parts (except seals and bearings) or remove nameplates, modification plates, lubrication plates, decals, studs or their lockrings or thread inserts, unless specifically required in the text or necessary for replacement of a part. If disassembly or removal is necessary, proceed in a manner consistent with good shop practice.

1. Protection of Engine from Entry of Foreign Particles. Extreme care shall be exercised to prevent dirt, dust or foreign particles from entering engine components and assemblies.
    a. Engine assemblies shall be protected during maintenance by covering areas and passages left open by component removal. Until the component is to be reinstalled, large openings shall be covered with tape and cardboard, small openings with tape or clean cloth and tube ends with caps or plugs. Openings of fuel and lubrication system components shall not be taped; plastic caps, plugs or similar coverings shall be used.
    b. If any foreign particle is dropped into an assembly while performing maintenance operations, the process shall be stopped until the foreign particle is located and removed.
2. Lockwiring. Record the manner of lockwiring for duplication at reassembly.
3. Shims and Shim Washers. During disassembly, thickness of all shims or shim washers removed from the engine may be recorded for reference at reassembly.

DISASSEMBLY – CONTINUED

GENERAL DISASSEMBLY INSTRUCTIONS – CONTINUED

4. Bearings. Minimize handling of the bearings and avoid contacting the bearings with bare hands. Keep the components of each bearing together and separate from all other bearing components. Inspect all bearings immediately after removal.
5. Packings, Gaskets, and Self-Locking Nuts. Discard all removed packings, gaskets and self-locking nuts.
6. Examination of Removed Parts. During various stages of disassembly, examine all parts and assemblies for signs of scoring, chipping or other damaged. Note physical conditions which will not be apparent after cleaning: tag involved parts before they are cleaned and laid out for detail inspection.
7. Controlling and Protecting Removed Parts. After disassembly, apply oil, MIL-L-7808 to steel parts. Cover all parts with clean paper or suitable coverings unless cleaning and inspection are to be accomplished immediately. Provide proper covering for support to protect shafts, gears, studs and projecting parts from damage. Place each part disassembled on a clean work bench in the order of removal in preparation for cleaning and inspection. Keep hardware and small parts together in trays.
8. General Cleaning. Cleaning of unit components shall be accomplished in accordance with standard procedures contained in TM 1-1500-344-23, Chapter 3, Section 1, Cleaning. After cleaning, components shall be placed on clean paper-covered benches, ports and orifices capped, plugged or sealed with recommended type of noncorrosive pressure sensitive tape and protected from dust or other contaminants by clean paper or plastic covers. Steel parts shall be sprayed with corrosion preventive oil and covered with clean paper or suitable coverings. Too much emphasis cannot be placed on the necessity of maintaining the cleanliness of all components. When considerable time will elapse between cleaning and inspection or reassembly, cleaned parts shall be placed in clear non-hygroscopic plastic bags to prevent corrosion and contamination by dirt or dust.

NOTE

Removal of all heat discoloration from insulating compound on plenum assembly combustor cap and thermocouple cover assembly is not required during cleaning.

9. Special Cleaning of Insulated Components. Clean thermocouple cap assembly, combustor cap, and plenum assembly as follows:
    a. Clean exterior insulated compound coating using a mild detergent with P-D-410 (at 2 ounces by weight per gallon of water) or MIL-D-16791 at 1 ounce detergent per gallon of water) using distilled deionized or reverse osmosis (RO) water.

NOTE

Compressed air shall be regulated between 5 and 15 psig.

    b. Dry using a clean lint-free cloth or filtered, low pressure compressed air.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU) WHEEL MOUNTED, SELF-PROPELLED, TOWABLE AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V DC - 28 VOLT PNEUMATIC - 60 LBS/MIN. AT 40 PSIG HYDRAULIC - 15.2 GPM AT 3300 PSIG LIN: P44627 PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A) EIC: UEG PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D) EIC: UDG PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E) EIC: UDH

GAS TURBINE ENGINE (GTE) MAINTENANCE INTRODUCTION AND TIME BEFORE OVERHAUL (TBO) INFORMATION

INITIAL SETUP:

References

AR 725-50
DA PAM 738-751
DMWR 1-2835-213

References (cont.)

WP 0101 00
WP 0104 00

SCOPE

These instructions are for use by depot or contractor personnel. They apply to the Pneumatic and Shaft Power Gas Turbine Engine Assembly, Part Number 3800232-1-1/-2/-3/-4, Model GTCP36-50 [H], used on Ground Power Unit (engine), manufactured by Garrett Auxiliary Power Division, Allied Signal and Honeywell Inc. In case of conflict, they take precedence over all other documents pertinent to depot maintenance of the item. Condition of overhauled engine shall be that utility and performance is equal to that of a condition code A as defined in AR 725-50.

Forms, Records and Reports

Department of the army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 738-751.

DESCRIPTION

Basic Engine

The engine is designed to provide pneumatic power for aircraft Main Engine Start (MES) and air cycle refrigeration systems and shaft power for hydraulic and electrical system operation. The engine also shall provide air for general aircraft maintenance requirements. Refer to Table 1 for tabulated data.

The engine has three major sections; the compressor, turbine and accessory section.

Compressor Section

The single stage compressor section is the source of compressed air for general aircraft use. Air enters the compressor inlet, is compressed in a centrifugal impeller and discharged through a two-stage diffuser into the turbine section.

Turbine Section

The turbine section consists of a turbine-wheel assembly, plenum, nozzle and single-can-type combustion chamber assembly. The turbine plenum serves as a receiver for compressor discharge air and as an enclosure for the combustion chamber and torus. The compressed air received by the turbine plenum is directed through the combustion chamber where fuel is introduced and burned; the hot gases then flow into the torus, which directs the flow into the turbine. The single-stage turbine consists of a radial, fixed-area nozzle and radial, inward-flow turbine wheel that drives

SCOPE – Continued
DESCRIPTION – Continued

the compressor and gearbox. After passing through the turbine wheel, the gas discharges axially through a short diffusing section.

Accessory Section

The accessory section provides two separate output pads to drive a hydraulic pump and a generator at 8000 rpm, the control systems and accessories required for the engine operation. Control systems and accessories include; fuel system, lubrication system, low-energy type ignition system, electric starter, load control valve, Low Oil Pressure (LOP) switch, high oil temperature switch, monopole speed sensor, EGT thermocouple, hourmeter and the associated wiring harness. These items provide complete automatic engine control when used in conjunction with the 2117404-4 electronic control unit (provided separately from the engine).

The Electronic Control Unit (ECU) and fuel control provide isochronous closed loop speed control by monitoring speed and modulating fuel flow.

Automatic engine shutdown is provided by the ECU in the event of overspeed, exhaust gas overtemperature, excess current draw in the control circuit, high oil temperature or low oil pressure. These driver circuits can actuate fault lights on a malfunction indicator panel to display the specific shutdown mode; fault circuits are latching with a “first fault wins” mode.

Data Plates

The engine, fuel control assembly, load control valve and electric starter motor have identification plates refer to Figure 1. The identification plates provide the operator with original manufacture’s data.

The engine, fuel control assembly, load control valve and electric starter motor will require overhaul data plates when overhaul occurs. The identification and overhaul data plates will be affixed to the respective component.

Table 1. Tabulated Data.

System	Specifics
Overall Engine Dimensions (approx)	
Length	32.8 inches
Width	20.8 inches
Height	24.8 inches
Weight (dry)	140 pounds
APU Type	
Compressor Rotor	Single stage centrifugal
Turbine Rotor	Single stage radial flow
APU Temperatures	
Compressor Air Inlet	-65 to 125ºF
Turbine Exhaust Gas (continuous operation)	1205 to 1255ºF (1255ºF maximum)
Turbine Exhaust Gas (during start)	1600 to 1800ºF (2 seconds maximum)
Engine Speeds	
Turbine Rotor	

Table 1. Tabulated Data. – Continued

SCOPE – Continued
DESCRIPTION – Continued

Nominal Full-Load Governed Speed	58,667 rpm (99 to 101 percent speed)
maximum Allowable Rotor Speed	64,587 rpm (110 percent)
Actuate Overspeed Switch	109 percent
Alternator Output Drive Pad	8000 rpm
(clockwise rotation)	
Hydraulic Pump Output Drive Pad	8000 rpm
(clockwise rotation)	
Fuel System	Closed or open fuel system (CCR)
Consumption	
Range	0 to 600 +/- pounds per hour
Fuel Specification	
MIL-T-5624	
Grade JP-4	-65 to 115ºF at 10,000 feet and 135ºF at sea level
Grade JP-5	*-30 to 135ºF
MIL-T-83133	
Grade JP-8	*-30 to 135ºF
ASTM-D-1655	
Jet A, A1, B	*-40 to 135ºF
Inlet Pressure	5 to 40 psig maximum with a maximum of 2 1/2 psig fluctuation
Fuel Leakage (accessory drain)	3cc/per hour maximum
Fuel Leakage (plenum drain)	Fuel leakage from the plenum drain is permitted only on false start or blowout

*Or at a temperature corresponding to a fuel viscosity of not more than 12 centistokes.

Lubrication System	
Oil Temperature	275 F maximum
Oil Specification	MIL-L-7808, MIL-L-23699
Oil Consumption	0.025 pounds per hour maximum
Oil Leakage (accessory drain)	3 cc/per hour maximum

Table 1. Tabulated Data. – Continued

SCOPE – Continued
DESCRIPTION – Continued

Oil Leakage (from each output shaft seal)	5 cc/per hour maximum
Oil Pressure (measured at oil pump)	35 to 55 psig
Oil Sump tank Capacity (total)	2.3 quarts
Oil Sump tank Capacity (usable)	1.6 quarts
Electrical System Supply	16 to 30 vdc, 10 ampere maximum steady state
Vibration	0.6 inch/second maximum
Automatic Shutdown Features	
Overspeed	110 +1 percent rpm
Overtemperature	1300 to 1350ºF at 100 percent rpm
Overcurrent	4.0 ampere maximum
Low Oil Pressure (10 seconds above 95 percent rpm)	31 psig minimum
Loss of EGT	Open thermocouple circuit
Loss of RPM	Open motional pickup transducer circuit
High Oil Temperature	275ºF maximum

Configuration Data

The Engine Part Number 3800232-1-1/-2/-3/-4, Model GTCP36-50[H] manufactured by Garrett Auxiliary Power Division (99193) AND Honeywell.

SCOPE – Continued
DESCRIPTION – Continued

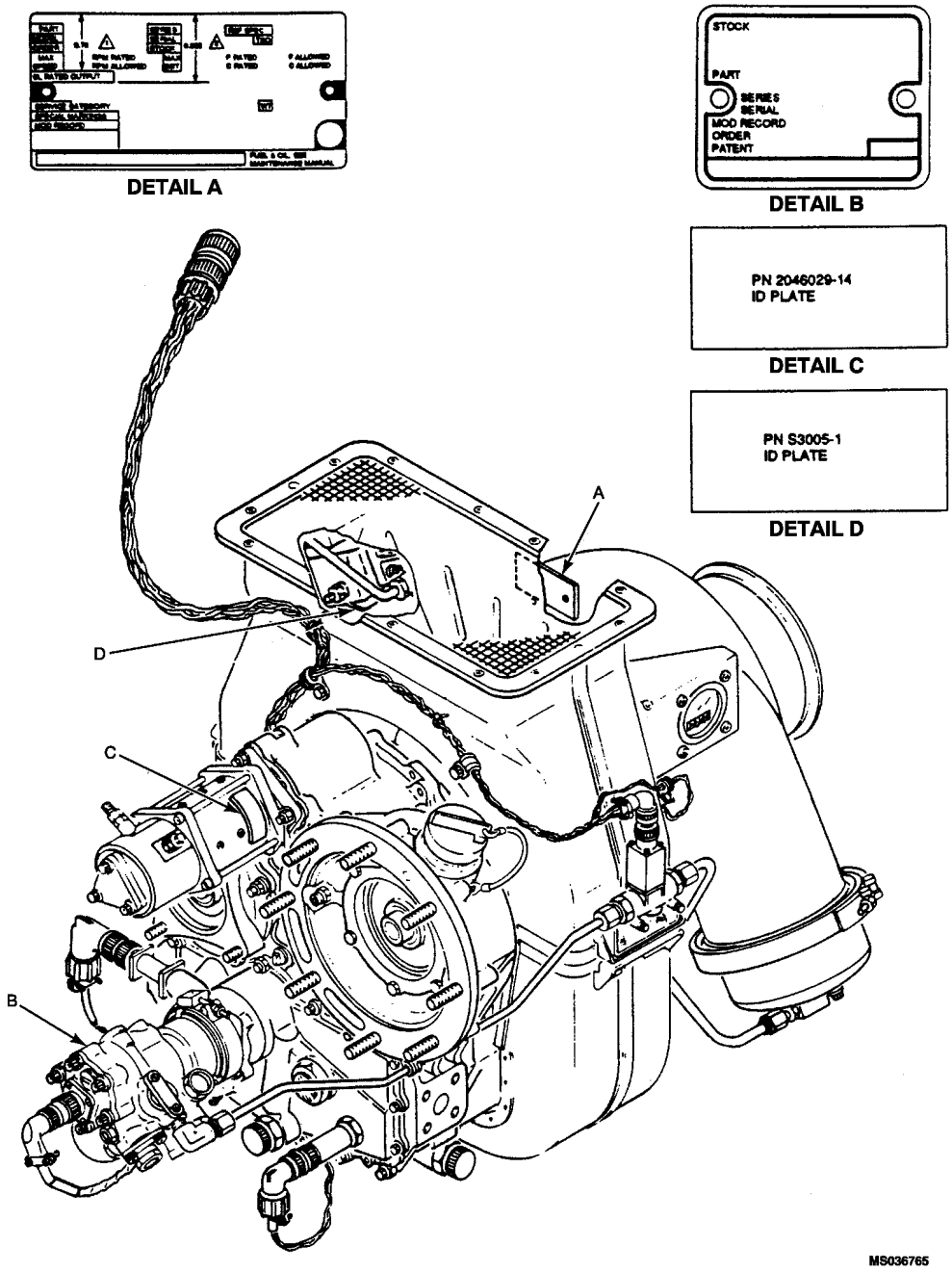


Figure 1. Data Plates.

SCHEDULED 500 HOUR HOT SECTION INSPECTION

Hot Section Inspection (Engine Installed)

The following procedure can be performed with the engine installed in the AGPU.

Disassembly

Perform steps WP 0101 00.

SCHEDULED 500 HOUR HOT SECTION INSPECTION – CONTINUED

Inspection and Repair

1. Perform inspection steps in WP 0101 00 Test and Inspection.
2. Perform applicable repair steps in WP 0101 00.
3. Refer to Figure 2 and Figure 3. Using fiber scope (FS-100 or equivalent), visually inspect the following areas by observation through combustion chamber opening in turbine plenum:
    a. Inspect turbine housing scroll combustion chamber port for cracks, distortion, and heavy fretting and wear marks. If damage is indicated, perform procedures in 1500 Hour HSI.
    b. Inspect scroll flange (which seals against nozzle forward surface above vanes) for cracks or distortion. If damage is indicated, perform procedures in 1500 Hour HSI.
    c. Inspect turbine nozzle vane leading edges for cracks, erosion, and FOD. If damage is indicated, perform procedures in 1500 Hour HSI.

Assembly

NOTE

Assembly and disassembly should be referred to DMWR 1-2835-213.

Perform steps in DMWR 1-2835-213 section 5, Final assembly para 4-94. Assembly 4-94.2.

SCHEDULED 500 HOUR HOT SECTION INSPECTION – CONTINUED

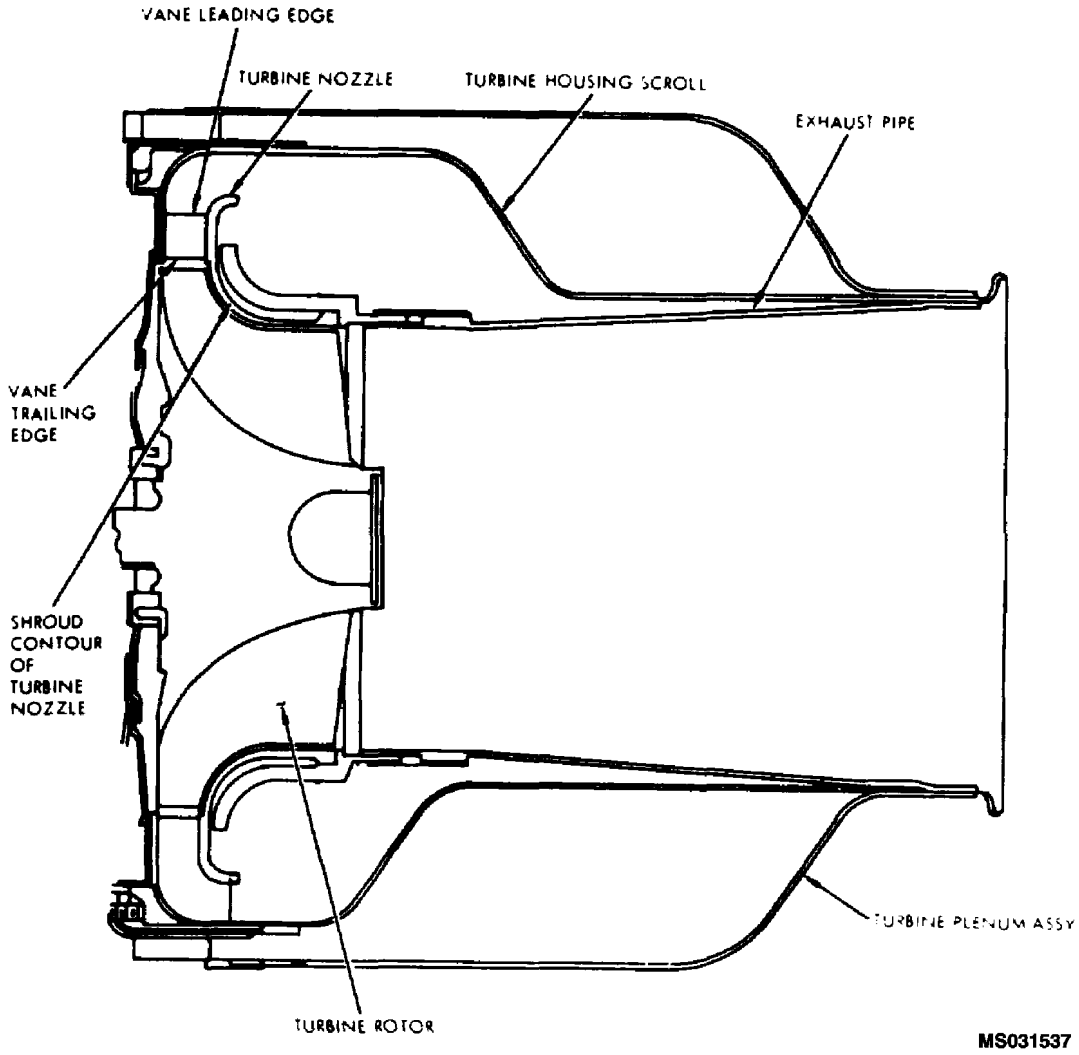
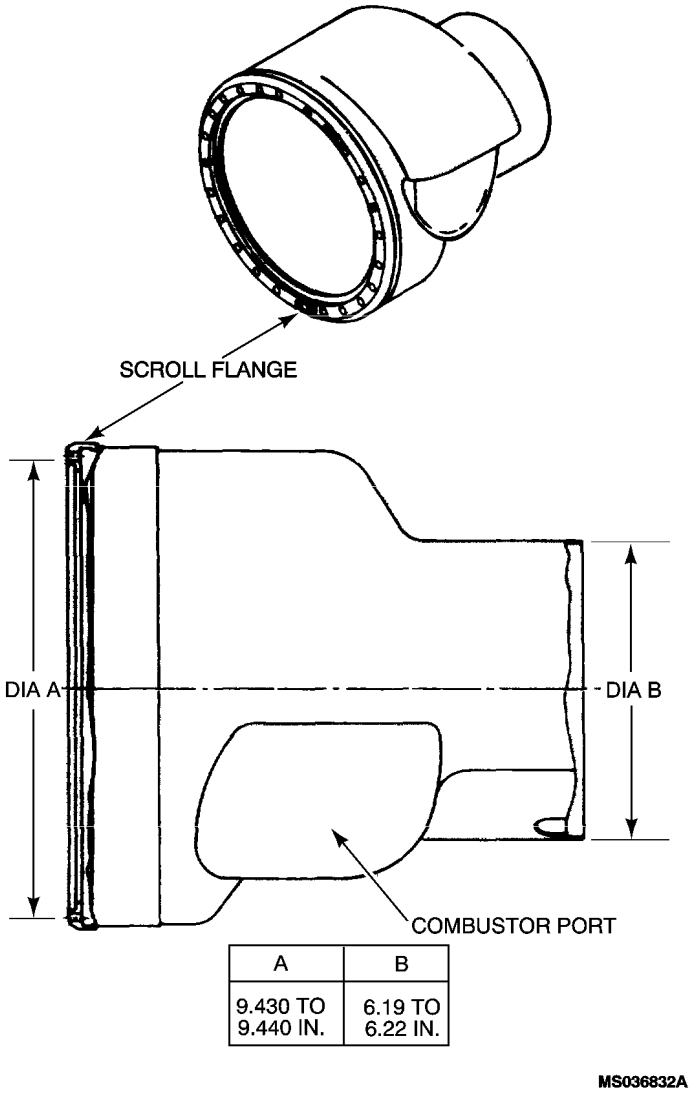


Figure 2. Hot Section Inspection Points (Sheet 1 of 2).

SCHEDULED 500 HOUR HOT SECTION INSPECTION – CONTINUED



A	B
9.430 TO 9.440 IN.	6.19 TO 6.22 IN.

Figure 2. Hot Section Inspection Points (Sheet 2 of 2).

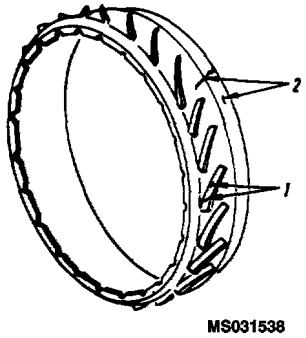
SCHEDULED 1500 HOUR DETAILED HOT SECTION INSPECTION (ENGINE MUST BE REMOVED PRIOR TO PERFORMING THIS INSPECTION)

The following procedure is performed with the engine removed from the AGPU and installed on maintenance stand.

Disassembly, Inspection, and Repair.

1. Perform procedures in WP 0101 00 Accessory Items Removal and Inspection.
2. Perform procedures in WP 0104 00 Removal of Hot Section Scroll Housing.
3. Inspect Deflector, Figure 3, as follows:
    a. Check vane surfaces Figure 3, Item 1 for nicks, dents, or cracks. No damage allowed.
    b. Check body Figure 3, Item 2 for dents or cracks. No damage allowed.
    c. If damage is evident or suspected remove engine from service.

SCHEDULED 1500 HOUR DETAILED HOT SECTION INSPECTION (ENGINE MUST BE REMOVED PRIOR TO PERFORMING THIS INSPECTION) – CONTINUED



1. Vane Surface 2. Body

Figure 3. Inspection of Deflector.

4. Inspect turbine rotor, Figure 2, as follows:
    a. Visually inspect each turbine rotor blade for cracks in trailing edge. No cracks allowed.
    b. Visually inspect turbine rotor blade ends, blade contour and hub area for cracks. No cracks allowed.
    c. Visually inspect blade tips for damage.
    d. Visually inspect blade tips and blade contour for evidence of oil streaking. No oil allowed.
5. Blades that are bent due to foreign object damage shall not exceed a maximum bend of 15 degrees. (Refer to Figure 3).
6. Blade tips that are bent because of erosion shall not exceed a maximum bend of 90 degrees. (Refer to Figure 3).
7. Blade tips with pieces missing because of erosion shall not exceed 0.25 inch maximum depth each blade. (Refer to Figure 3).
8. Visually check for cracks in saddle area between blades. No cracks are allowed.
9. Visually inspect labyrinth seal as follows. (Refer to Figure 3)
    a. Intersecting cracks, none allowed.
    b. A maximum of six cracks are permitted from cooling vent to the outer seal edge.
    c. Cracks tat are separated by one cooling vent must not extend beyond 0.50 inch.

Assembly

Perform procedures DMWR 1-2835-213 section 5.

SCHEDULED 1500 HOUR DETAILED HOT SECTION INSPECTION (ENGINE MUST BE REMOVED PRIOR TO PERFORMING THIS INSPECTION) – CONTINUED

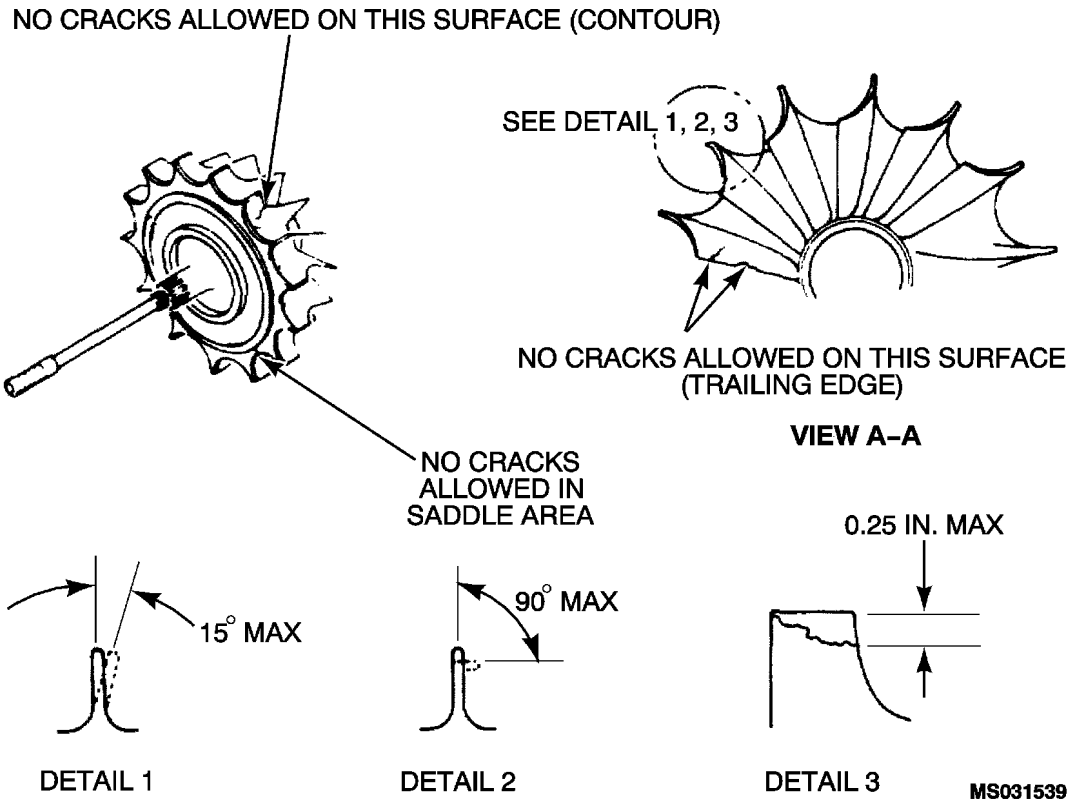


Figure 4. Inspection of Turbine Rotor.

SCHEDULED 1500 HOUR DETAILED HOT SECTION INSPECTION (ENGINE MUST BE REMOVED PRIOR TO PERFORMING THIS INSPECTION) – CONTINUED

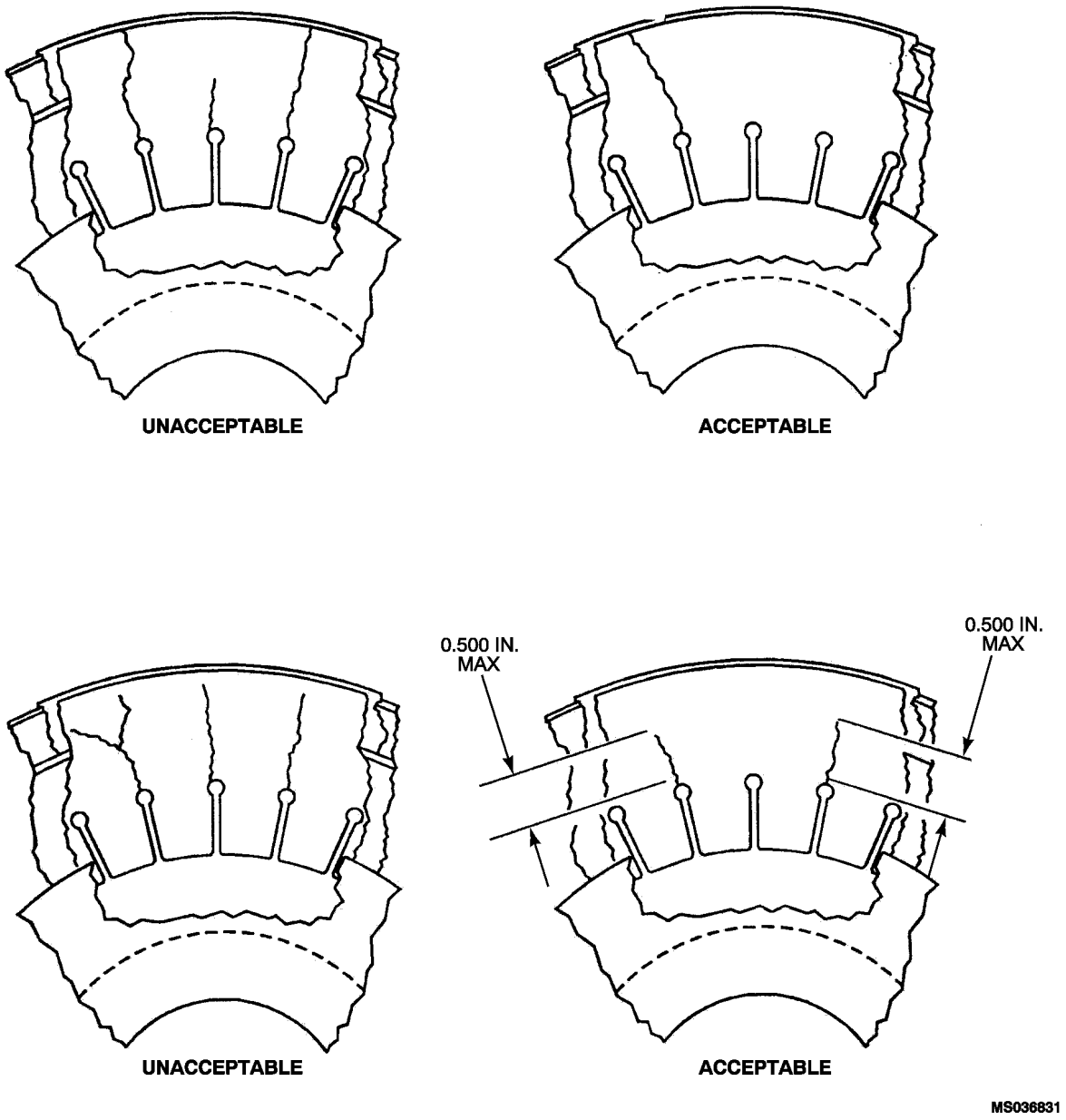


Figure 5. Inspection of Labyrinth Seal.

TECHNICAL SUPPORT REQUIREMENTS

Facilities

The facilities required to perform complete depot maintenance on the Pneumatic and Shaft Power Gas Turbine Engine Assembly (engine) consist of a general work area and facilities for cleaning, painting, metal treatment, magnetic particle inspection, fluorescent penetrant inspection, machining of the bearing sleeves, processing of bearings and operational testing of the engine. The overhaul working area should be adequate in size for the volume and, if possible, dust free. Sufficient equipment and personnel should be available to maintain cleanliness. The area should be equipped with conveyors, special tools, storage space, benches and other necessary equipment.

TECHNICAL SUPPORT REQUIREMENTS – CONTINUED

Work area and test cells shall be well lighted and protected from air currents that stir and carry dust and foreign particles. Work area, test cells, tools, equipment, workbenches and personal clothing shall be free from dirt and foreign particles that would contaminate the part or end article being repaired or assembled. Adequate procedures and controls shall be established and enforced to ensure that parts, components and end articles being disassembled, repaired, assembled and tested are free from dirt or foreign particles that may adversely affect their proper operation.

Keep inspection tables and benches clean. Keep special gages and indicators in cabinet lockers when not in use.

After inspection, identify each part as Serviceable, Repairable or condemned and send it to its proper area for deposition.

TOOLS AND EQUIPMENT

Special Tools and Equipment

Special tools and equipment listed in Table 1 are needed to accomplish the requirements of this WP. This table lists the tools by nomenclature and part number. Possession of all the tools listed is not to be constructed as mandatory when the contractor/depot may have similar tools at its facility or can locally purchase or manufacture adequate tools to accomplish all job functions in a competent and efficient manner.

Inspection and Test Equipment

Inspection and test equipment listed inTable 1 are used to determine conformance to specifications and requirements contained in this manual.

Special Inspection Equipment (SIE)

Special inspection equipment listed in Table 1 was designed and developed or selected specifically for performing maintenance operations applicable only to the DMWR equipment item.

Fabrication of Tools and Equipment

Fabricated tools and equipment listed in Table 1 may be fabricated locally. Fabrication of these tools is not to be construed as mandatory when the contractor/depot may have similar tools at its facility/depot or has adequate tools to accomplish all job functions in a competent and efficient manner.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

ENGINE PLUMBING AND WIRING HARNESS

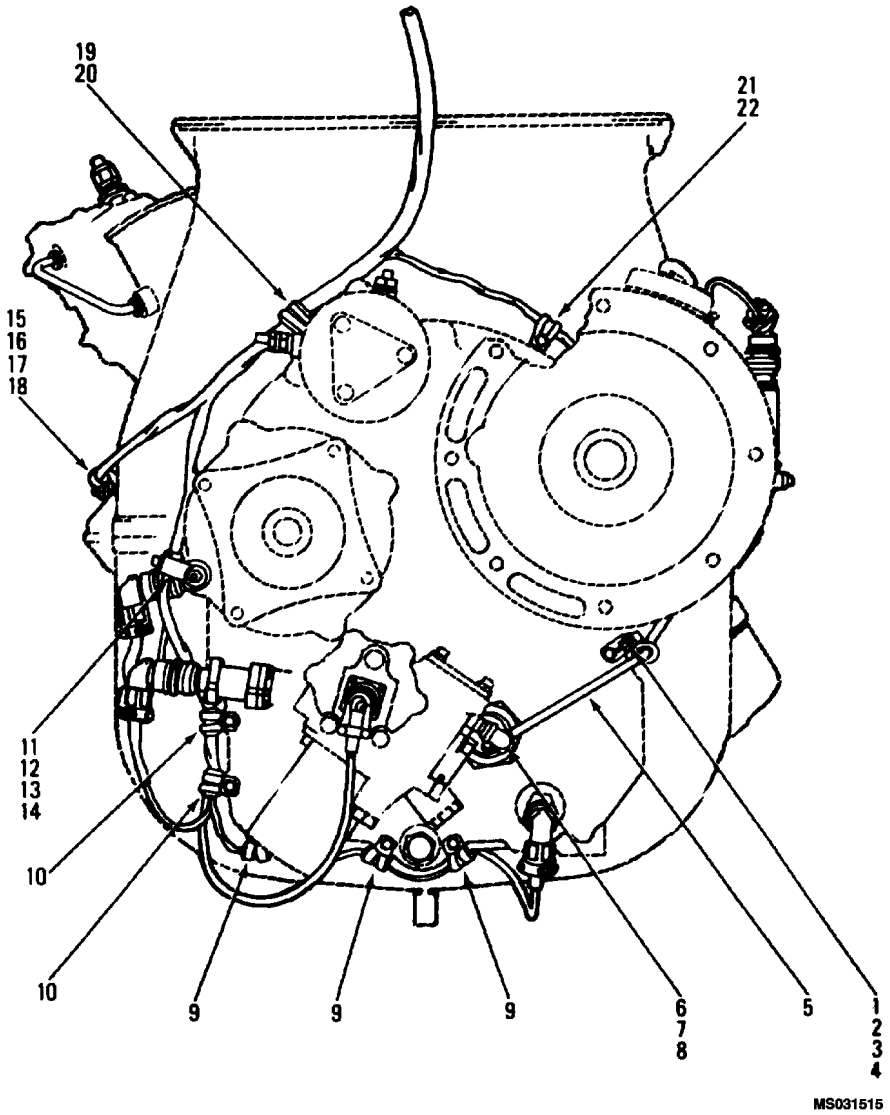
INITIAL SETUP:

Tools and Special Tools
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts
Solder, Tin Alloy (WP 0170 00, Item 53)

Materials/Parts (cont.)
Tape, Anti-Seizing (WP 0170 00, Item 54)

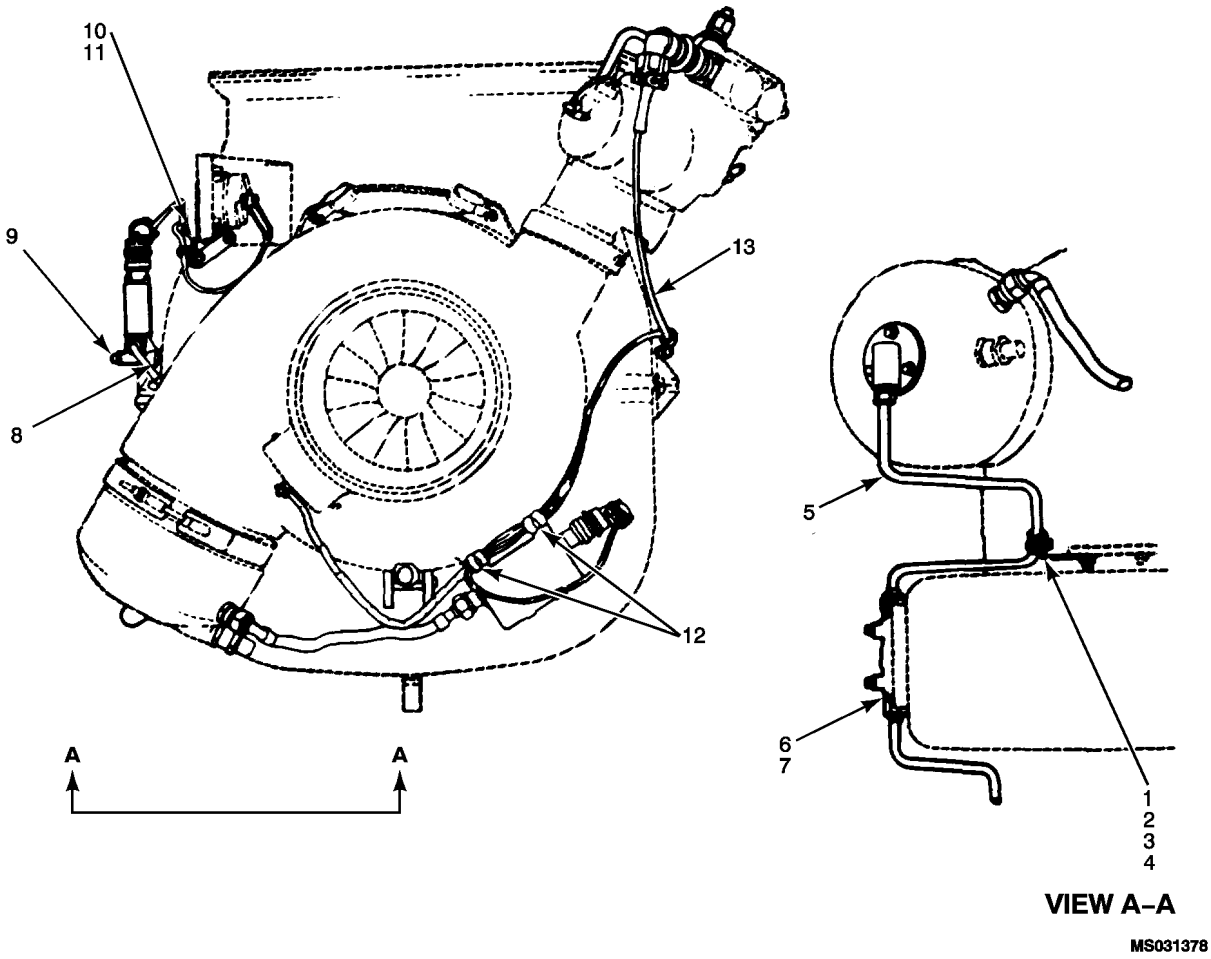
References
TM 1-1730-229-13
MIL-STD-454
QQ-B-654



1. Nut
2. Bolt
3. Clamp
4. Bracket
5. Tube Assembly
6. Elbow
7. Nut
8. Packing
9. Clamp
10. Clamp
11. Nut
12. Bolt
13. Clamp
14. Bracket, Angle
15. Nut
16. Bolt
17. Clamp
18. Bracket
19. Bolt
20. Clamp
21. Bolt
22. Clamp

Figure 1. Engine Plumbing and Wiring Harness Installation, Front View.

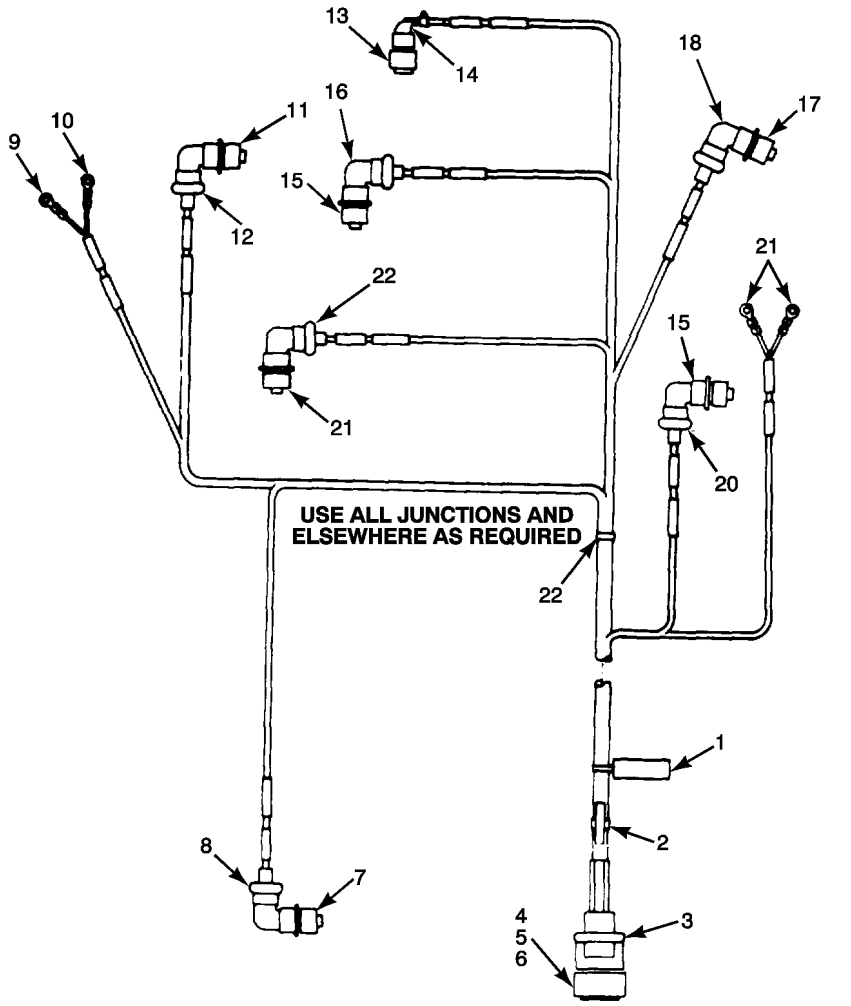
– Continued



1. Nut	6. Union	11. Bracket
2. Bolt	7. Packing	12. Clamp
3. Clamp	8. Nut	13. Harness Assembly, Wiring
4. Bracket	9. Bolt	
5. Tube Assembly	10. Clamp	

Figure 2. Engine Plumbing and Wiring Harness Installation, Rear View.

– Continued



1. Identification Strap	9. Terminal	17. Connector
2. Identification Strap	10. Terminal	18. Backshell
3. Backshell	11. Connector	19. Connector
4. Connector	12. Backshell	20. Backshell
5. Contact	13. Connector	21. Connector
6. Contact	14. Backshell	22. Backshell
7. Connector	15. Connector	23. Terminal
8. Backshell	16. Backshell	24. Retaining Strap

Figure 3. Wiring Harness Assembly.

REMOVAL

The wire harness may be removed in accordance with good shop practice. During removal, note routing of harness and manner of attaching clamps for reference at reassembly. Wiring harness connectors and terminals shall be tagged as removed for aid in installation.

TEST AND INSPECTION

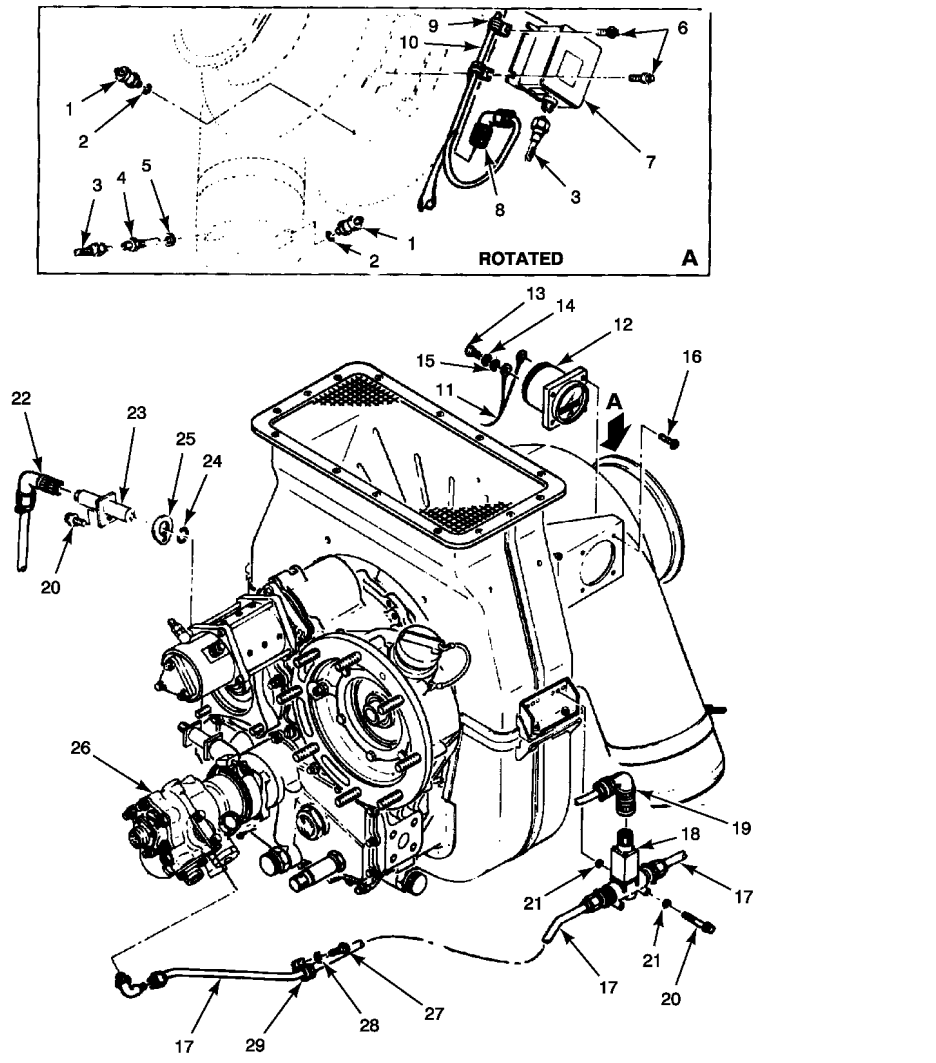
1. Visually inspect wires for condition, chaffing, cuts, and insulation damage.
2. Visually inspect connectors for hose pins, bent pins, thread condition, corrosion, or other damage.

REPAIR OR REPLACEMENT

1. Remove damaged wires as follows :
    a. Remove damaged wire from insulation sleeving.
    b. Measure the cut replacement wire.
    c. Insert replacement wire through insulation sleeving.
2. Install connectors as follows:
    a. Connect wires and electrical cables to connector. Solder wires and electrical cables using silver solder (WP 0170 00, Item 53) in accordance with MIL-STD-454, Requirement 5 using solder in accordance with QQ-B-654, Grade V.
    b. Apply teflon tape (WP 0170 00, Item 54) to fill space inside clamp or connector.
    c. Slide back backshell and secure with connector plug screws.

ACCESSORY ITEMS REMOVAL AND INSPECTION

REMOVAL



1. Check Valve
2. Packing
3. Ignitor Plug Lead
4. Ignitor Plug
5. Washer
6. Bolt
7. Ignition Unit
8. Connector P7
9. Clamp
10. Wire Harness
11. Wiring Harness
12. Hourmeter
13. Screw
14. Lockwasher
15. Washer
16. Screw
17. Fuel Line
18. Fuel Solenoid, Shutdown
19. Connector
20. Bolt
21. Washer
22. Connector P6
23. Speed Sensor
24. Packing
25. Shim
26. Fuel Control Unit (FCU)
27. Screw
28. Washer
29. Clamp

Figure 4. Accessory Items.

REMOVAL – CONTINUED

1. Remove two check valves (Figure 4, Item 1) and packing (Figure 4, Item 2). Discard packing.
2. Remove igniter plug lead (Figure 4, Item 3), igniter plug (Figure 4, Item 4), and washer (Figure 4, Item 5).
3. Disconnect connector P7 (Figure 4, Item 8) from ignition unit (Figure 4, Item 7).
4. Remove four bolts (Figure 4, Item 6) and remove ignition unit (Figure 4, Item 7). Leave clamps (Figure 4, Item 9) on wire harness (Figure 4, Item 10).
5. Tag and disconnect two wiring harness (Figure 4, Item 11) from hourmeter (Figure 4, Item 12) by removing two screws (Figure 4, Item 13), lockwashers (Figure 4, Item 14), and washers (Figure 4, Item 15).
6. Remove four screws (Figure 4, Item 16) and hourmeter (Figure 4, Item 12).
7. Disconnect fuel lines (Figure 4, Item 17) from shutdown fuel solenoid (Figure 4, Item 18), and elbow on fuel control unit (Figure 4, Item 26).
8. Disconnect connector (Figure 4, Item 19) from shutdown fuel solenoid (Figure 4, Item 18).
9. Remove two bolts (Figure 4, Item 20), washers (Figure 4, Item 21), and remove shutdown fuel solenoid (Figure 4, Item 18).

NOTE

Removal of speed sensor, steps (10) and (11), is not required unless new shim set is required (as indicated by TM 1-1730-229-13).

10. Disconnect connector P6 (Figure 4, Item 22) from speed sensor (Figure 4, Item 23).
11. Remove bolt (Figure 4, Item 20), speed sensor (Figure 4, Item 23), packing (Figure 4, Item 24), and shim (Figure 4, Item 25).
12. Remove screw (Figure 4, Item 27), washer (Figure 4, Item 28) and remove fuel line (Figure 4, Item 17) with clamp (Figure 4, Item 29).

Inspection and Checks. Perform procedures contained in Table 1.

Repair. Repair starter assembly as outlined in WP 0093 00.

REMOVAL

CONTROLS REMOVAL AND INSPECTION

Table 1. Electical Assemblies Inspection/Check Procedures..

Fig. 4 Item No.	Nomenclature	Inspect/Check	Requirements
3	Igniter Plug Lead	Visually check outer shielding for chafing.	No chafing on outer shielding allowed.
		Visually check for cracks or separation between shielding and terminal end.	No cracks or separation between shielding and terminal end allowed.
		Visually check connector nuts for cracks and damaged threads.	No cracks or damaged threads allowed.
4	Igniter Plug	Visually check ceramic insulator of igniter plug for cracks and chips.	No cracks or chips allowed.
		Visually check electrode for distortion and erosion.	No distortion allowed. Electrode shall not be less than 0.010 inch above ceramic insulator.

REMOVAL – CONTINUED

CONTROLS REMOVAL AND INSPECTION – CONTINUED

Table 1. Electical Assemblies Inspection/Check Procedures.. – Continued

		Visually check connector for bent, broken and burned pins.	No bent, broken or burned pins allowed.
		Visually check igniter plug threads for damage.	No damage to threads allowed.
		Visually check igniter plug housing for cracks.	No cracks allowed.
7	Ignition Unit	Visually check case of ignition unit for dents and cracks.	No dents or cracks allowed.
		Visually check brackets on ignition unit for cracks.	No cracks allowed.
		Visually check electrical connectors for corrosion and bent, broken and burned pins.	No corrosion allowed. No damage to pins allowed.
23	Speed Sensor	Visually check case for dents and cracks.	No dents or cracks allowed.
		Visually check connector for bent, broken and burned pins.	No bent, broken or burned pins allowed.
		Visually check mounting flange for cracks and distorted bolt hole.	No cracks in mounting flange or distorted bolt hole allowed.
		Using multimeter check resistance between pins A and C.	Resistance shall be 20 ohms maximum.
		Using a Kelvin Bridge check resistance between case and pin B.	Resistance shall be 0.010 ohm maximum.

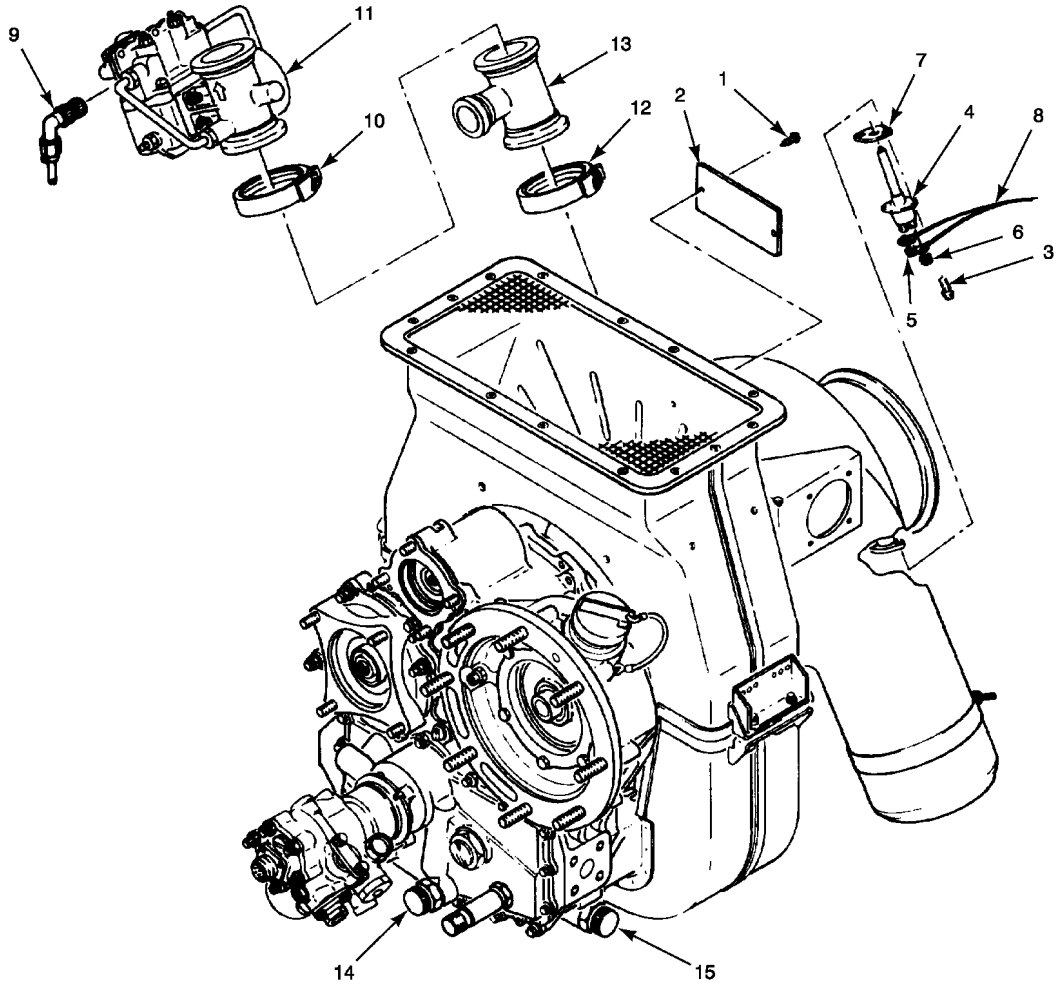
Remove. (See figure Figure 5)

1. If identification plate (Figure 5, Item 2) is damaged, remove screws (Figure 5, Item 1) and identification plate (Figure 5, Item 2).
2. Tag and disconnect wires (Figure 5, Item 8) from thermocouple (Figure 5, Item 4) by removing nuts (Figure 5, Item 5 and 6).
3. Remove bolts (Figure 5, Item 3), thermocouple (Figure 5, Item 4), and gasket (Figure 5, Item 7). Discard gasket.
4. Disconnect electrical connector (Figure 5, Item 9) from load control valve (Figure 5, Item 11).
5. Loosen clamp (Figure 5, Item 10), then remove load control valve (Figure 5, Item 11) and clamp (Figure 5, Item 10) from adapter (Figure 5, Item 13).
6. Loosen clamp (Figure 5, Item 12), then remove adapter (Figure 5, Item 13) and clamp (Figure 5, Item 12) from engine.

TEST AND INSPECTION

Perform Procedures contained in Table 2.

TEST AND INSPECTION – CONTINUED



MS031534A

1. Screw
2. Identification Plate
3. Thermocouple
4. Nut
5. Nut
6. Gasket
7. Gasket
8. Wiring Harness, Thermocouple
9. Connector P5
10. Clamp
11. Load Control Valve
12. Clamp
13. Adapter
14. Drain Plug, Magnetic
15. Drain Plug, Magnetic (Overflow Tube)

Figure 5. Controls.

Table 2. Controls Inspection/Check Procedures..

Item No.	Nomenclature	Inspect/Check	Requirements

TEST AND INSPECTION – CONTINUED

Table 2. Controls Inspection/Check Procedures.. – Continued

4	Thermocouple	Visually check thermocouple for damage to threads on alumel and chromel terminal posts.	No damage to threads allowed.
		Visually check thermocouple for distorted flange tube and tube holes.	No distortion to flange tube or tube holes.
		Perform thermocouple loop resistance check as follows. (1) Connect one lead of Kelvin Bridge (Model 1699) to alumel post. (2) Connect other lead of Kelvin Bridge to chromel post.	Thermocouple loop resistance shall not exceed 1.0 ohm maximum at room temperature.
		Using multimeter check each thermocouple post to case resistance.	Thermocouple post to case resistance shall be 10K ohms minimum.
		Heat thermocouple to 1000 °F (538 °c).	Thermocouple temperature shall read within 8 °F (5 °C) on test equipment indicator.
11	Load Control Valve	Visually check for cracks or dents.	No cracks or dents allowed.
10,12	Clamp	Visually check clamp for cracks, distortion and damaged threads. Check for distortion of the inner “V” Clamping surface.	No cracks, distortion or damaged threads allowed.
13	Adapter	Visually check adapter for cracks.	No cracks allowed.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

COMBUSTION SECTION DISASSEMBLY, INSPECTION AND REPAIR

INITIAL SETUP:

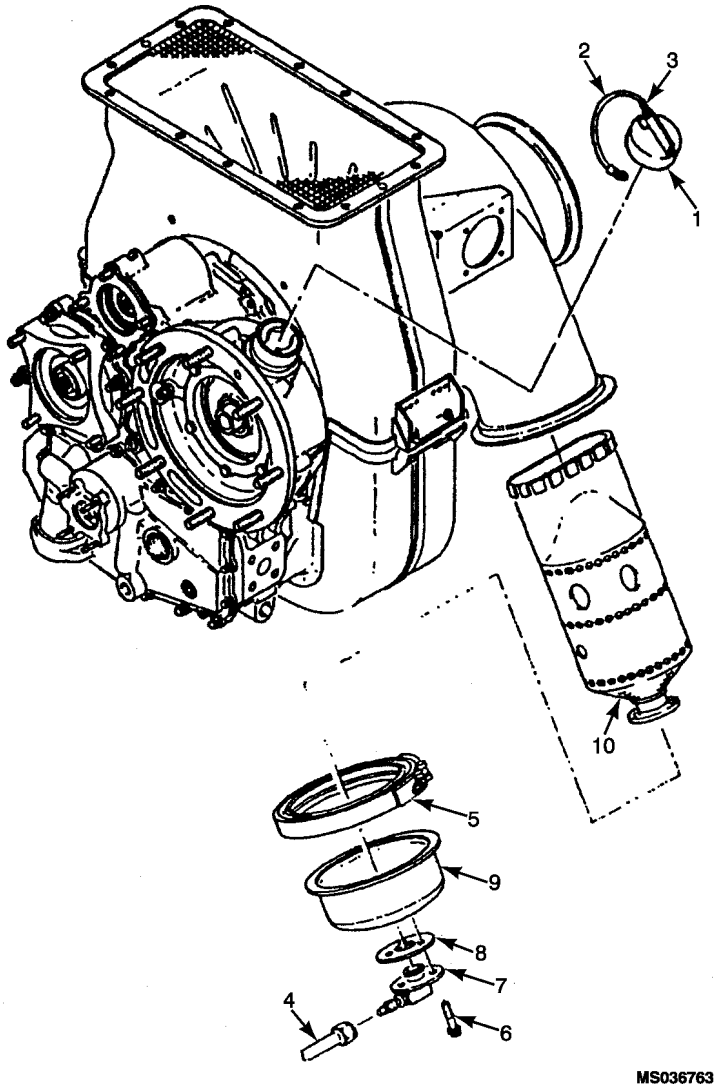
Tools and Special Tools
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts
Acetone, Technical (WP 0170 00, Item 2)
Cloth, Cleaning (WP 0170 00, Item 8)
Coating, Thermal (WP 0170 00, Item 10)
Isopropyl Alcohol, Technical (WP 0170 00, Item 28)
Methyl Ethyl Ketone (WP 0170 00, Item 38)

Materials/Parts (cont.)
Primer, Adhesive (WP 0170 00, Item 41)
Primer, Adhesive (WP 0170 00, Item 42)
Rod, Welding (WP 0170 00, Item 45)
Rod, Welding (WP 0170 00, Item 46)
Sheet, Metal (WP 0170 00, Item 51)

References
ASTM-E1417
SAE-AMS-W-6858

DISASSEMBLY



1. Filler Cap
2. Wire Rope
3. Splice
4. Fuel Line
5. Clamp
6. Bolt
7. Fuel Nozzle Assembly
8. Gasket
9. Combustion Chamber Cap
10. Combustion Chamber

Figure 1. Combustion Section Components.

NOTE

Do not remove filler cap (Figure 1, Item 1), wire rope (Figure 1, Item 2), and splice (Figure 1, Item 3) unless inspection reveals damage.

1. Remove filler cap (Figure 1, Item 1).
2. Disconnect fuel line (Figure 1, Item 4) from fuel nozzle assembly (Figure 1, Item 7).

DISASSEMBLY – CONTINUED

3. Loosen clamp (Figure 1, Item 5), then remove combustor assembly.
4. Remove bolts (Figure 1, Item 6), fuel nozzle assembly (Figure 1, Item 7), and gasket (Figure 1, Item 8) from combustion chamber cap (Figure 1, Item 9), then separate combustion chamber cap (Figure 1, Item 9) from combustion chamber (Figure 1, Item 10). Discard gasket.

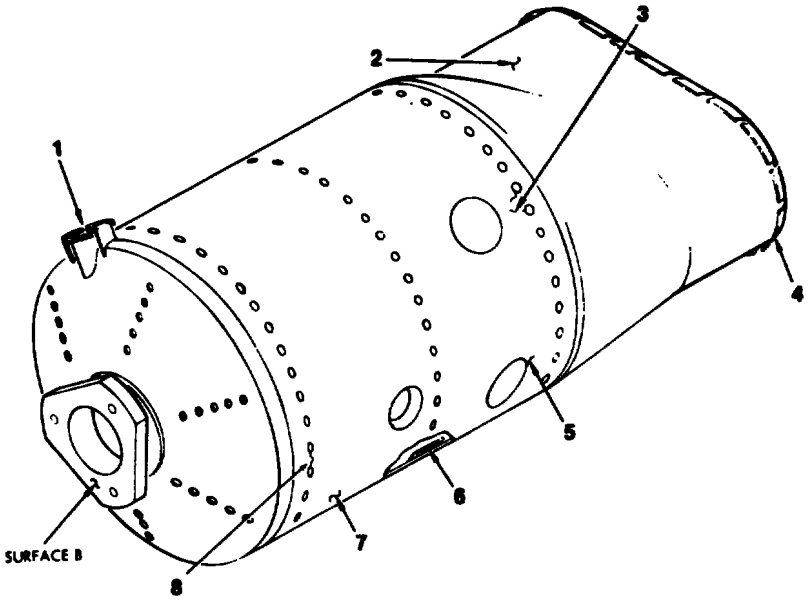
TEST AND INSPECTION

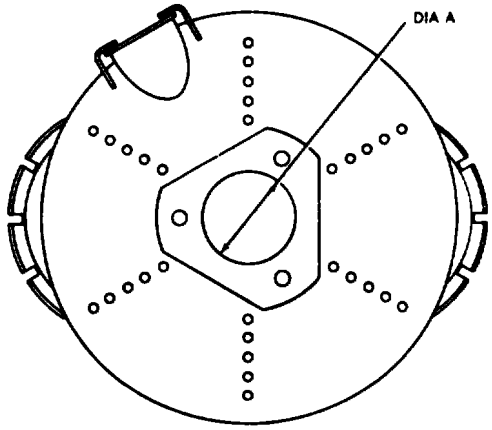
1. Perform inspection procedures in Table 1.

Table 1. Combustion Section Components Inspection/Check Procedures.

Item No.	Nomenclature	Inspect/Check	Requirements
1	Filler Cap	Visually check gasket material.	No deterioration or cuts allowed.
		Check attached cable for security	Cable shall be secure.
		Visually check for galled, peened, bent and damaged retaining ears.	No galled, peened, crossed, bent or damaged retaining ears allowed.
		Visually inspect filler neck screen for holes, tears and/or damage.	No holes, tears or damage allowed.
5	Clamp	Visually check clamp for cracks, distortion and retaining screw for damaged threads.	No cracks, distortion or damaged threads allowed.
7	Fuel Nozzle Assembly	Visually check fuel nozzle assembly for burring, flattening, scratching of conical surface, or crossed or worn threads.	Replace fuel nozzle assembly if damage is indicated.
9	Combustion Chamber Cap	Visually check insulation material for damage (bare metal visible).	No damage allowed. Refer to “Repair Combustion Chamber Cap” for repair.
		Visually check for cracks, dents, deformation and damaged threads.	No cracks, dents, deformation or damaged threads allowed.
		Perform fluorescent penetrant inspection on inside surface or to outside surface if insulating material has been removed.	No cracks or damage allowed.
10	Combustion Chamber	Visually and dimensionally check combustion chamber.	Refer to “Inspect Combustion Chamber” (Figure 2)

TEST AND INSPECTION – CONTINUED





A
1.001 TO 1.006 IN.

MS031521

1. Cracks
2. Metal Thinning
3. Cracks
4. Cracks
5. Cracks
6. Distortion
7. Deformation
8. Cracks

Figure 2. Inspection of Combustion Chamber.

2. Inspect Combustion Chamber.
   a. Check for cracks (Figure 2, Item 1) in igniter grommet retain welds or retainer. No cracks allowed.
   b. Check for metal thinning (Figure 2, Item 2). Repair if metal thinning below 0.016 inch due to corrosion or erosion is indicated.

TEST AND INSPECTION – CONTINUED

c. Check for cracks (Figure 2, Item 3). Repair if cracks separated by less than 0.25 inch are indicated.

d. Check for cracks (Figure 2, Item 4) at tabs. No cracks allowed.

e. Check for cracks (Figure 2, Item 5) which could cause material breakaway. Repair if cracks are indicated.

f. Check for distortion (Figure 2, Item 6) of cooling ring. Cooling ring distortion greater than one-half of normal gap not allowed.

g. Check for deformation (Figure 2, Item 7). Deformation greater than 0.125 inch not allowed.

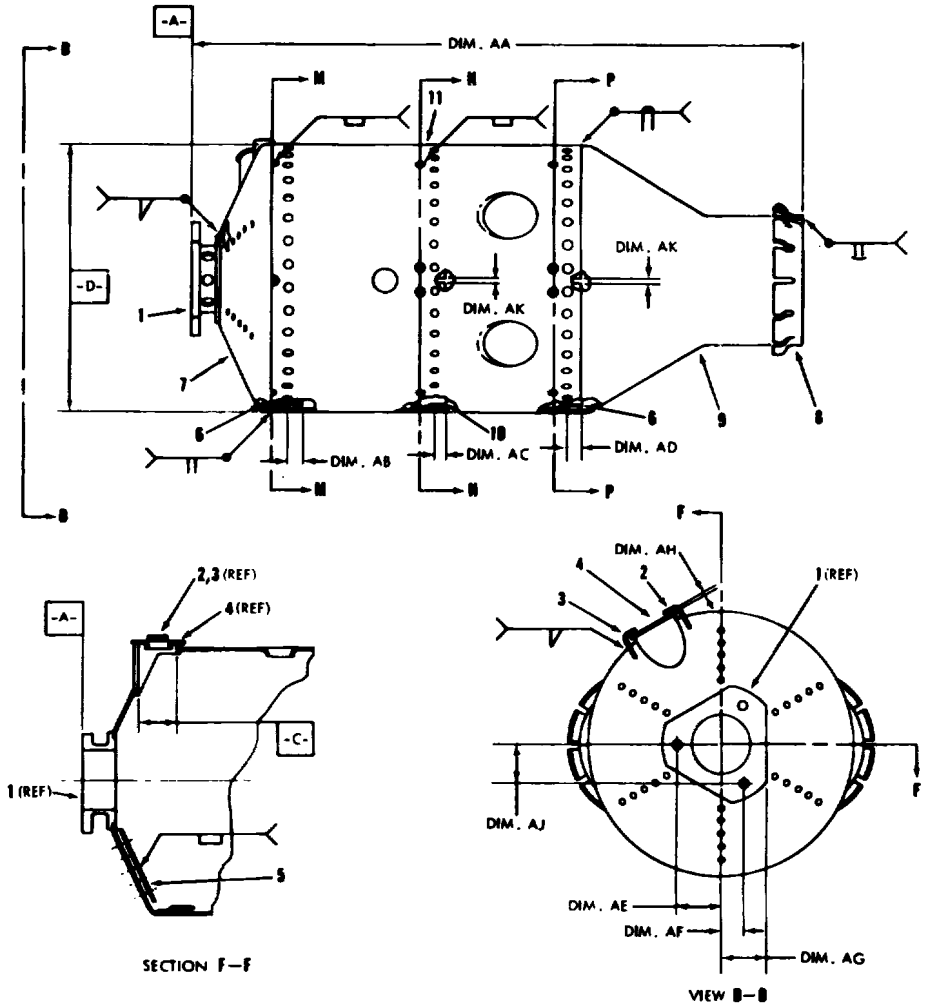
h. Check for cracks (Figure 2, Item 8) connecting any two holes. Repair if cracks are indicated.

i. Dimensionally inspect Diameter A. Diameter A shall be 1.001 to 1.006 inches. Replace combustion chamber if not as specified.

j. Check Surface B (Figure 2) for flatness. Replace combustion chamber if Surface B is not flat within 0.003 inch.

k. Replace/repair combustion chamber if inspection requirements are not met.

REPAIR OR REPLACEMENT



D	AA	AB	AC	AD	AE
4.49 TO 4.52 IN.	10.34 TO 10.42 IN.	0.22 TO 0.28 IN.	0.16 TO 0.22 IN.	0.22 TO 0.28 IN.	0.750 IN. TYP

AF	AG	AH	AJ	AK
0.375 IN. TYP	0.74 TO 0.78 IN.	0.005 TO 0.025 IN.	0.650 IN. TYP	0.06 IN. MAX

MS031522

1. Flange
2. Retainer
3. Retainer
4. Shield
5. Tab
6. Cooling Ring
7. Dome
8. Spring Ring
9. Duct Half
10. Cooling Ring
11. Body

Figure 3. Repair of Combustion Chamber (Sheet 1 of 2).

REPAIR OR REPLACEMENT – CONTINUED

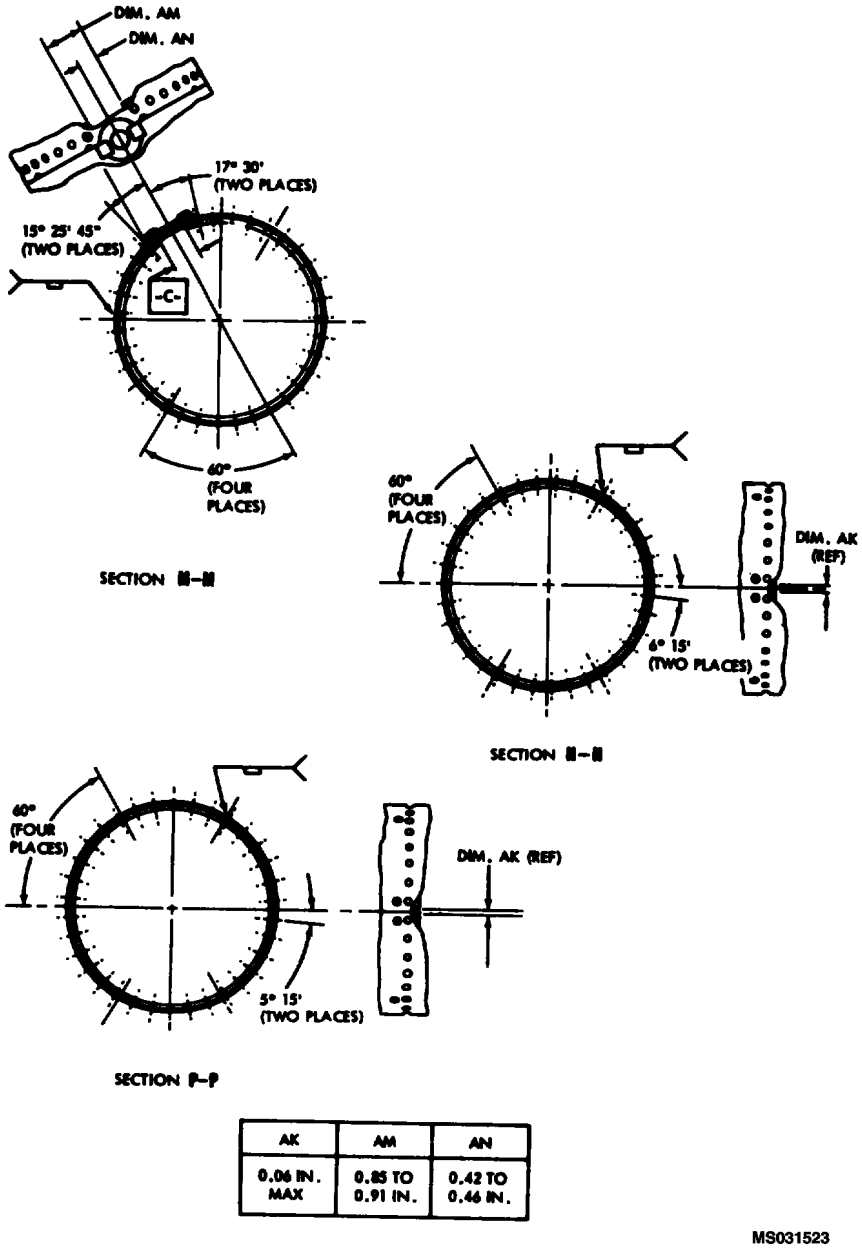


Figure 4. Repair of Combustion Chamber (Sheet 2 of 2).

1. Replace damaged spring ring (Figure 3, Item 8) as follows:
    a. Hand grind weld as required to remove spring ring (Figure 3, Item 8). Blend excess weld on duct half (Figure 3, Item 9).
    b. Hand abrade weld area to cleanup.
    c. Clean area prior to welding with clean, lint-free cloth (WP 0170 00, Item 8) dampened with isopropyl alcohol (WP 0170 00, Item 28) or equivalent.
    d. Position new spring ring (Figure 3, Item 8) onto duct half (Figure 3, Item 9). Corner flange weld spring ring (8) by fusion arc welding with gas backup using Hastelloy X filler rod (WP 0170 00, Item 46).

REPAIR OR REPLACEMENT – CONTINUED

e. Perform fluorescent penetrant inspection in accordance with ASTM-E1417, Type I, Method A.

2. Replace damaged flange (Figure 3, Item 1) as follows:
   a. Hand grind weld as required to remove flange (Figure 3, Item 1). Blend excess weld on dome (Figure 3, Item 7).
   b. Clean area prior to welding with clean, lint-free cloth (WP 0170 00, Item 8) dampened with isoproyl alcohol (WP 0170 00, Item 28) or equivalent.
   c. Position and secure flange (Figure 3, Item 1) onto dome (Figure 3, Item 7) as shown in Section BB. Fillet weld flange (Figure 3, Item 1) all around by fusion arc welding with gas backup using Hastelloy X filler rod (WP 0170 00, Item 46).
   d. Perform fluorescent penetrant inspection in accordance with ASTM-E1417, Type I, Method A.
3. Replace damaged cooling ring (Figure 3, Item 6 and 10) as follows:
   a. Mark dome (Figure 3, Item 7) or duct half (Figure 3, Item 9) and body (Figure 3, Item 11) using scribe for subsequent realignment of components.
   b. Hand machine weld to remove dome (Figure 3, Item 7) or duct half (Figure 3, Item 9) from body (Figure 3, Item 11) as required for access to cooling ring (Figure 3, Item 6 and 10).
   c. Locate and machine through welds as shown on sheets 1 and 2 to remove damaged cooling ring (Figure 3, Item 6 and 10) as required.
   d. Deburr completely and hand grind to remove damaged cooling ring (Figure 3, Item 6 and 10) and blend excess weld.

CAUTION

Regulate air pressure to keep erosion of base metal to a minimum.

CAUTION

Keep nozzle in motion to prevent blast from dwelling on one spot.

   e. Shot peen weld area with glass beads (Screen No. 100-230 (130 grit) Class IV, Size AF or AG or equivalent). Clean area of glass beads.
   f. Clean weld area with clean, lint-free cloth dampened (WP 0170 00, Item 8) with acetone (WP 0170 00, Item 2) or Methyl-Ethyl-Ketone (WP 0170 00, Item 38).
   g. Plug weld holes through body (Figure 3, Item 11) at resistant spot welds using Hastelloy X filler rod (WP 0170 00, Item 46) in accordance with SAE-AMS-W-6858.
   h. Hand finish to blend excess plug welds inside and outside of body (Figure 3, Item 11).
   i. Place cooling ring (Figure 3, Item 6 and 10) into body (Figure 3, Item 11). Cut or size cooling ring (Figure 3, Item 6 and 10) to fit assembly as shown on Figure 3, sheet 2 of 2.

NOTE

No grinding of weld permitted.

   j. Install cooling ring (Figure 3, Item 6 and 10) observing dimensions AB, AC or AD as required and plug weld cooling ring (Figure 3, Item 6 and 10) to body (Figure 3, Item 11) by fusion arc welding with gas backup using Hastelloy W filler rod (WP 0170 00, Item 45) in accordance with SAE-AMS-W-6858. Weld shall not exceed 0.03 inch maximum above surface.
   k. Check for correct fit of cooling ring (Figure 3, Item 6 and 10) as follows:

REPAIR OR REPLACEMENT – CONTINUED

(1) Check for gap between cooling ring (Figure 3, Item 6 and 10) and body (Figure 3, Item 11). Maximum gap of 0.010 inch is permissible.

(2) Check forward cooling ring (Figure 3, Item 6) for conformance to limits specified for dimensions AM and AN at section M-M (Figure 3).

(3) Check cooling ring (Figure 3, Item 10) and aft cooling ring (Figure 3, Item 6) for maximum clearance gap as specified at dimension AK.

l. Butt weld dome (Figure 3, Item 7) or duct half (Figure 3, Item 9) onto body (Figure 3, Item 11) by fusion arc welding with gas backup using Hastelloy X filler rod (WP 0170 00, Item 46) in accordance with SAE-AMS-W-6858. Melt weld through on duct half (Figure 3, Item 9).

m. Machine weld to 0.00 to 0.03 inch above surface.

n. Perform fluorescent penetrant inspection in accordance with ASTM-E1417, Type I, Method A.

4. Replace damaged shield (Figure 3, Item 4) and retainer (Figure 3, Item 2 and 3) as follows:

a. Hand grind weld as required to remove retainers (Figure 3, Item 2 and 3).

b. Remove shield (Figure 3, Item 4).

c. Blend excess weld on dome (Figure 3, Item 7).

d. Clean area prior to welding with clean, lint-free cloth (WP 0170 00, Item 8) dampened with isopropyl alcohol (WP 0170 00, Item 28) or equivalent.

e. Install shield (Figure 3, Item 4) into dome (Figure 3, Item 7).

f. Position retainers (Figure 3, Item 2 and 3) onto dome (Figure 3, Item 7) as shown on section B-B and secure. Fillet weld retainers (Figure 3, Item 2 and 3) to dome (Figure 3, Item 7) by fusion arc welding with gas backup using Hastelloy X filler rod (WP 0170 00, Item 46) in accordance with SAE-AMS-W-6858.

g. Check for true position to retainers (Figure 3, Item 2 and 3). Retainers shall be located within 0.040 inch of the true position established by datmus D, A and C.

h. Check shield (Figure 3, Item 4) for freedom of movement. Shield shall have 0.005 to 0.025 inch movement as shown by dimension AH.

i. Perform fluorescent penetrant inspection in accordance with ASTM-E1417, Type I, Method A.

5. Replace damaged tab (Figure 3, Item 5) as follows:

a. Mark dome (Figure 3, Item 7) or duct half (Figure 3, Item 9) and body (Figure 3, Item 11) using scribe for subsequent realignment of components.

b. Hand machine weld to remove dome (Figure 3, Item 4) from body (Figure 3, Item 11).

c. Locate and machine through welds to remove damaged tab (Figure 3, Item 5).

d. Deburr and hand grind to remove excess weld.

e. Clean area prior to welding with clean, lint-free cloth (WP 0170 00, Item 8) dampened with isopropyl alcohol (WP 0170 00, Item 28) or equivalent.

f. Position tab (Figure 3, Item 5) onto dome (Figure 3, Item 7) as shown in Figure 3, section F-F, secure and plug weld to dome (Figure 3, Item 7) by fusion arc welding with gas backup using Hastelloy X filler rod (WP 0170 00, Item 46) in accordance with SAE-AMS-W-6858.

g. Position and butt weld onto body (Figure 3, Item 11) by fusion arc welding with gas backup using Hastelloy X filler rod (WP 0170 00, Item 46) in accordance with SAE-AMS-W-6858.

h. Machine weld to 0.00 to 0.03 inch above surface.

6. Repair crack as follows:

REPAIR OR REPLACEMENT – CONTINUED

a. Stop drill crack ends with number 60 drill to prevent progression of cracks.

NOTE

Ensure inside flow surfaces are free of excess weld.

b. Fusion arc weld cracks using Hastelloy X weld rod (WP 0170 00, Item 46) with gas backup in accordance with SAE-AMS-W-6858.

7. Repair hot spot in combustion chamber as follows:
   a. Hand machine to remove hot spot.
   b. Fabricate flush patch from Hastelloy X sheet metal (WP 0170 00, Item 51) 0.032 inch stock.
   c. Deburr combustion chamber and flush patch.
   d. Clean weld areas with a stainless steel wire brush and wipe clean with acetone (WP 0170 00, Item 2) or equivalent.
   e. Position and fusion arc weld patch with continuous weld using Hastelloy X filler rod (WP 0170 00, Item 46) with gas backup in accordance with SAE-AMS-W-6858. Weld may extend 0.03 inch maximum above surface.
   f. Perform fluorescent penetrant inspection on all welded areas.

CAUTION

Regulate air pressure to keep erosion of base metal to a minimum. Keep nozzle in motion to prevent blast from dwelling on one spot.

g. Shot peen all over to clean with glass beads (Screen No.100-230,130 grit Class IV, Size AF or AG or equivalent) . Clean area of glass beads.

REPAIR OR REPLACEMENT

Repair Combustion Chamber Cap

1. Repair damaged insulation material on combustion chamber cap (Figure 1, Item 9) as follows:
   a. Cut away any loose material around damaged area.
   b. Thoroughly clean area with acetone (WP 0170 00, Item 2) or equivalent. Dry with clean, lint-free cloth (WP 0170 00, Item 8).
   c. Apply primer (WP 0170 00, Item 42), by wiping, brushing or spraying to a thickness of 0.1 to 0.3 millimeter. Air-dry for 1 hour. Alternate primer DC1200 (WP 0170 00, Item 41) may be used.
   d. Mix insulating compound (WP 0170 00, Item 10) as follows. Thoroughly mix 10 parts of resin and 1 part of catalyst. Addition of the catalyst should be held within ±10 percent of the specified amount. Mixed compound will have a 4 to 6 hour application life at 77°F (25°C) during which time the compound is most easily applied. Mix the catalyst with base for 2 to 5 minutes stirring by hand. Machine stirring may be used but speeds must be comparable to that achieved by hand to avoid adverse effects on the finished product.
   e. Apply insulating compound as follows. Trowel compound onto cleaned area. Total thickness of insulation material after repair shall be 0.20 to 0.40 inch.
   f. Cure insulating compound as follows. Curing techniques can range from a simple passover with a hot air gun application to radiant heat sources. The selection of equipment for the heat generating source is dependent upon the configuration of auxiliary power unit when the compound is applied. Recommended cure conditions are; 5 minutes at 300°F (149°C) or 10 minutes at 280°F (138°C) or 1 hour at 250°F (121°C), Once the applied coating has achieved the temperature required, complete

REPAIR OR REPLACEMENT – CONTINUED

forming and cure will be completed. A surface tack will indicate incomplete cure and additional time at temperature is required.

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

COMPRESSOR INLET DUCTS DISASSEMBLY, INSPECTION AND REPAIR

INITIAL SETUP:

Tools and Special Tools

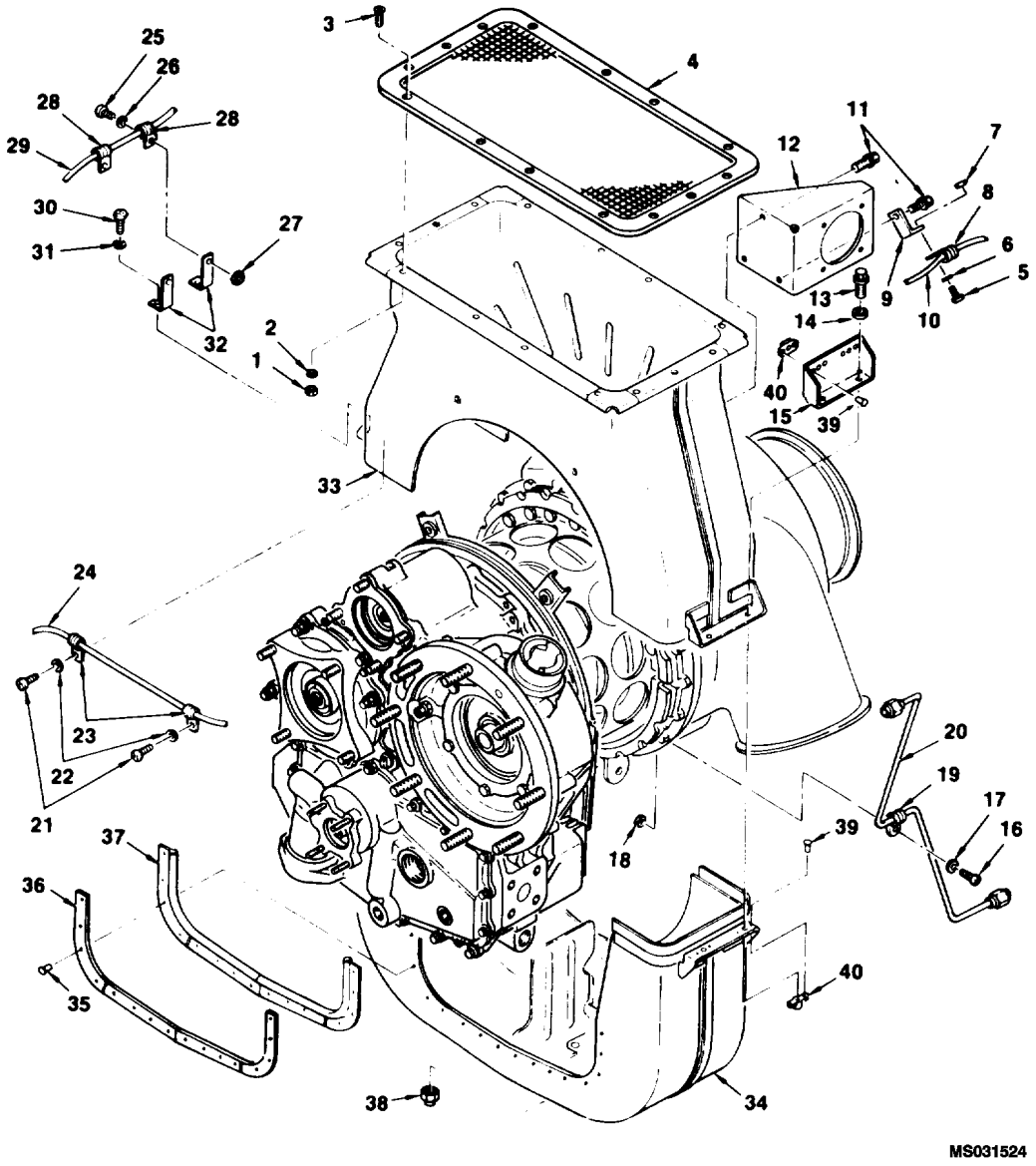
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Gasket Material, Engine (WP 0170 00, Item 21)
Sealing Compound (WP 0170 00, Item 50)

References

MIL-STD-403



1. Nut	11. Bolt	21. Screw	31. Washer
2. Washer	12. Bracket, Hourmeter	22. Washer	32. Bracket
3. Screw	13. Bolt	23. Clamp	33. Upper Duct
4. Inlet Screen	14. Washer	24. Wiring Harness	34. Lower Duct
5. Screw	15. Bracket	25. Bolt	35. Rivet
6. Washer	16. Screw	26. Washer	36. Seal Retainer
7. Nut	17. Washer	27. Nut	37. Seal
8. Clamp	18. Nut	28. Clamp	38. Cap
9. Bracket	19. Clamp	29. Wiring Harness	39. Rivet
10. Wiring Harness	20. Fuel Line	30. Bolt	40. Nut plate

Figure 1. Compressor Inlet Ducts and Hourmeter Bracket.

DISASSEMBLY

1. Remove nuts (Figure 1, Item 1), washers (Figure 1, Item 2), screws (Figure 1, Item 3), and inlet screen (Figure 1, Item 4).
2. Remove screws (Figure 1, Item 5), washer (Figure 1, Item 6), and nut (Figure 1, Item 7) and remove clamp (Figure 1, Item 8) from bracket (Figure 1, Item 9). Leave clamp (Figure 1, Item 8) on wiring harness (Figure 1, Item 10).
3. Remove bolts (Figure 1, Item 11) and hourmeter bracket (Figure 1, Item 12), along with bracket (Figure 1, Item 9).
4. Remove bolts (Figure 1, Item 13), washers (Figure 1, Item 14), and bracket (Figure 1, Item 15).
5. Remove screw (Figure 1, Item 16), washer (Figure 1, Item 17) and nut (Figure 1, Item 18), securing clamp (Figure 1, Item 19) to bracket.
6. Remove fuel line (Figure 1, Item 20) with clamp (Figure 1, Item 19) attached.
7. Remove screws (Figure 1, Item 21) and washers (Figure 1, Item 22) securing clamps (Figure 1, Item 23) to upper duct (Figure 1, Item 33). Leave clamps on wiring harness (Figure 1, Item 24).
8. Remove bolts (Figure 1, Item 25), washers (Figure 1, Item 26), and nuts (Figure 1, Item 27) securing clamps (Figure 1, Item 28) to brackets (Figure 1, Item 32). Leave clamps (Figure 1, Item 28) on wiring harness (Figure 1, Item 29).
9. Support upper duct (Figure 1, Item 33) and lower duct (Figure 1, Item 34) and remove bolts (Figure 1, Item 30) and washers (Figure 1, Item 31) along with brackets (Figure 1, Item 32).
10. Move wiring harness (Figure 1, Item 24) out away from upper and lower ducts (Figure 1, Item 33 and 34).
11. Separate and remove, upper duct (Figure 1, Item 33) and lower duct (Figure 1, Item 34) from engine.

NOTE

Do not disassemble lower duct (Step 12. and Step 13.) unless required for repair.

12. Remove rivets (Figure 1, Item 35), seal retainer (Figure 1, Item 36), and seal Figure 1, Item 37) from lower duct (Figure 1, Item 34).
13. Remove cap (Figure 1, Item 38) from lower duct (Figure 1, Item 34).

INSPECTION OF COMPRESSOR INLET DUCT AND HOURMETER BRACKET

Perform procedures in Table 1.

REPAIR OR REPLACEMENT

Repair lower duct as follows:

1. Replace loose rivets (Figure 1, Item 35) and damaged hardware in accordance with MIL-STD-403 standard shop practices.
2. Replace damaged seal (Figure 1, Item 37) by removing rivets (Figure 1, Item 35) securing seal retainer (Figure 1, Item 36) and separate seal retainer (Figure 1, Item 36), and upper duct (Figure 1, Item 33).
3. Fabricate new seal using Seal Material (WP 0170 00, Item 21) and old seal (Figure 1, Item 37) as pattern.
4. Cement edges of new seal Figure 1, Item 37) with sealing compound (WP 0170 00, Item 50), place seal (Figure 1, Item 37) on lower duct (Figure 1, Item 34) and secure with seal retainer (Figure 1, Item 36) and rivets (Figure 1, Item 35).

REPAIR OR REPLACEMENT – CONTINUED

Table 1. Compressor Inlet Ducts and Hourmeter Bracket Inspection/Check Procedures .

WP 0106 00, Figure 1 Item No.	Nomenclature	Inspect/Check	Requirements
4	Inlet Screen	Visually check screen for cracks and damage.	No cracks or damage allowed.
9, 12, 15, 32	Bracket	Visually check bracket for cracks.	No cracks allowed.
33	Upper Duct	Visually check for damaged mount brackets.	No damage to mount brackets allowed.
		Visually check for cracks in duct.	No cracks in duct allowed.
34	Lower Duct	Visually check for loose/missing rivets (Figure 1, Item 39) and damaged nut plates (Figure 1, Item 40).	No loose/missing rivets or damaged nut plates allowed.
		Visually check seal (Figure 1, Item 36) for security and deterioration.	Seal shall be secure, no deterioration allowed.
		Visually check for cracks in duct (Figure 1, Item 34). Check drain fitting for damage.	No cracks or damage allowed.
		Visually check for loose/missing rivets (Figure 1, Item 35).	No loose/missing rivets allowed.

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

COMPRESSOR INLET DUCTS ASSEMBLY

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Anti-Seize Compound (WP 0170 00, Item 3)
Lockwire (WP 0170 00, Item 30)
Lubricating Oil, Molybdenum Disul (WP 0170 00, Item 36)

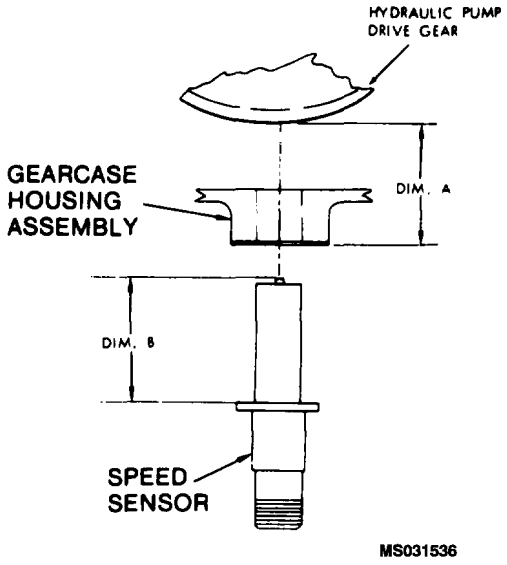


Figure 1. Determining Shimming for Speed Sensor.

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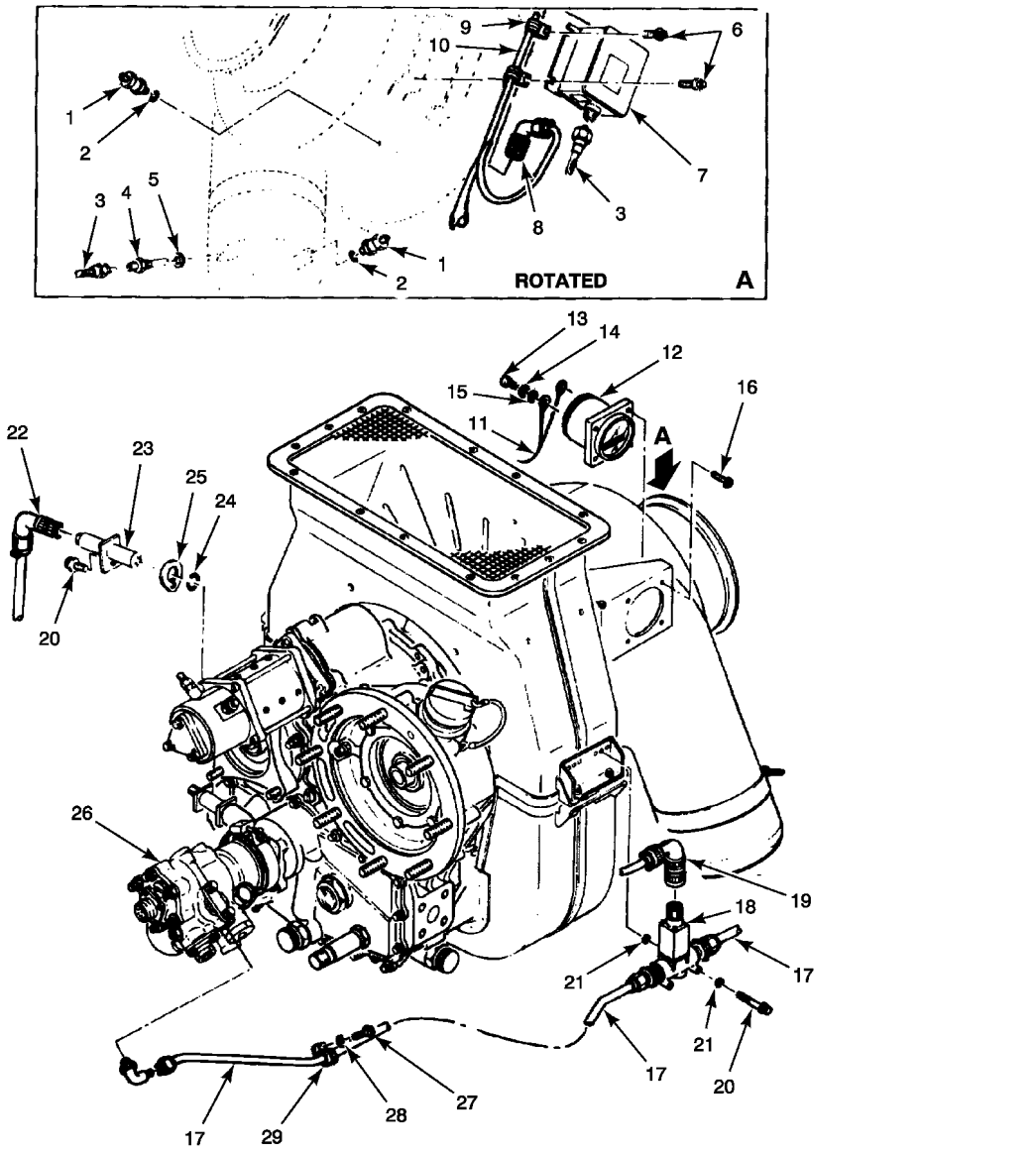
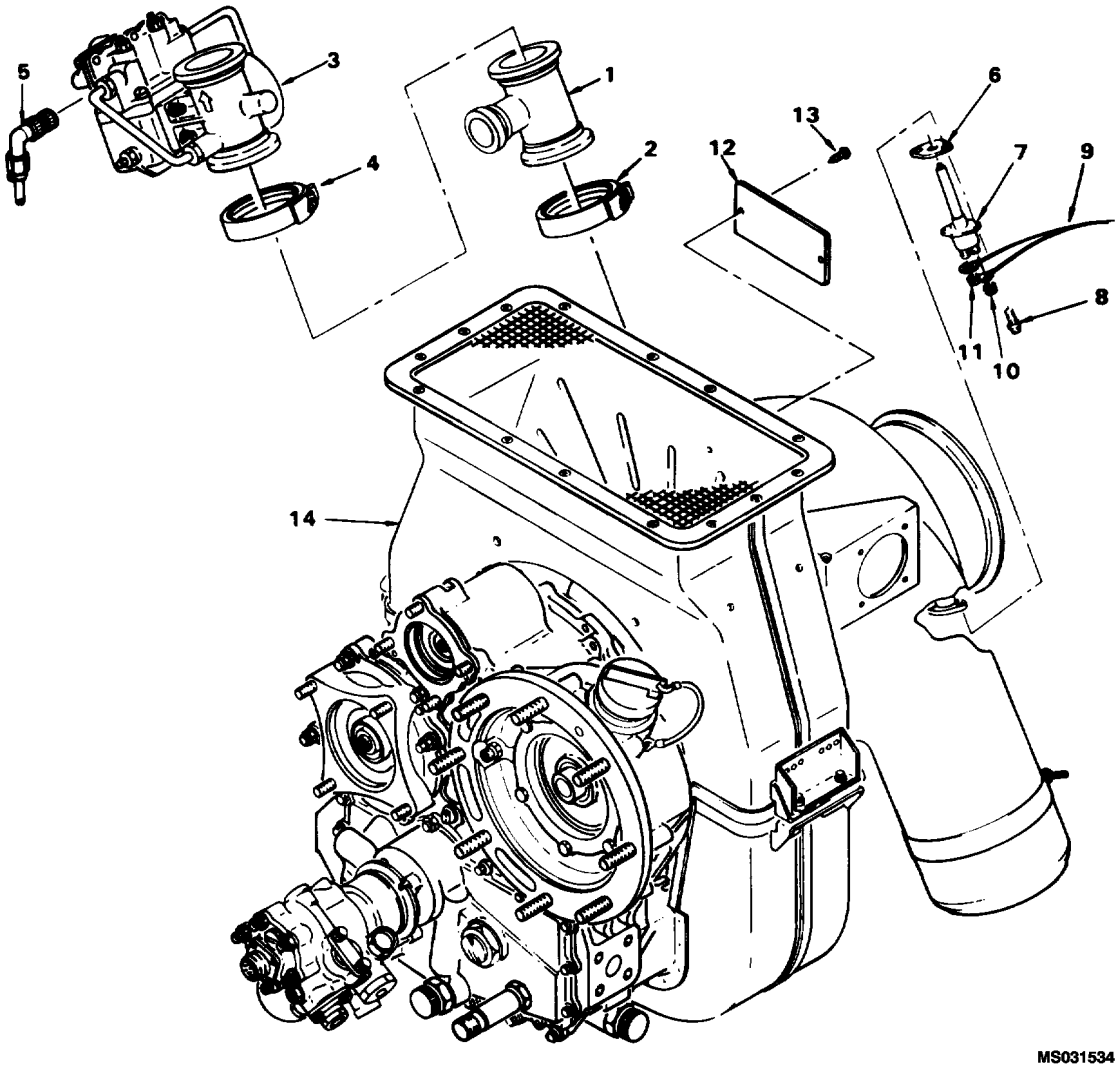


1. Shim
2. Speed Sensor
3. Packing
4. Bolt
5. Connector P6
6. Bolt
7. Washer
8. Fuel Solenoid
9. Connector
10. Fuel Line
11. Fuel Line
12. Bracket
13. Screw
14. Washer
15. Fuel Control Unit
16. Hourmeter
17. Screw
18. Wiring Harness
19. Screw
20. Lockwasher
21. Washer
22. Bolt
23. Ignition Unit
24. Wiring Harness
25. Clamp
26. Connector P7
27. Igniter Plug
28. Washer
29. Igniter Plug Lead
30. Check Valve
31. Packing

Figure 2. Installation of Accessory Items.

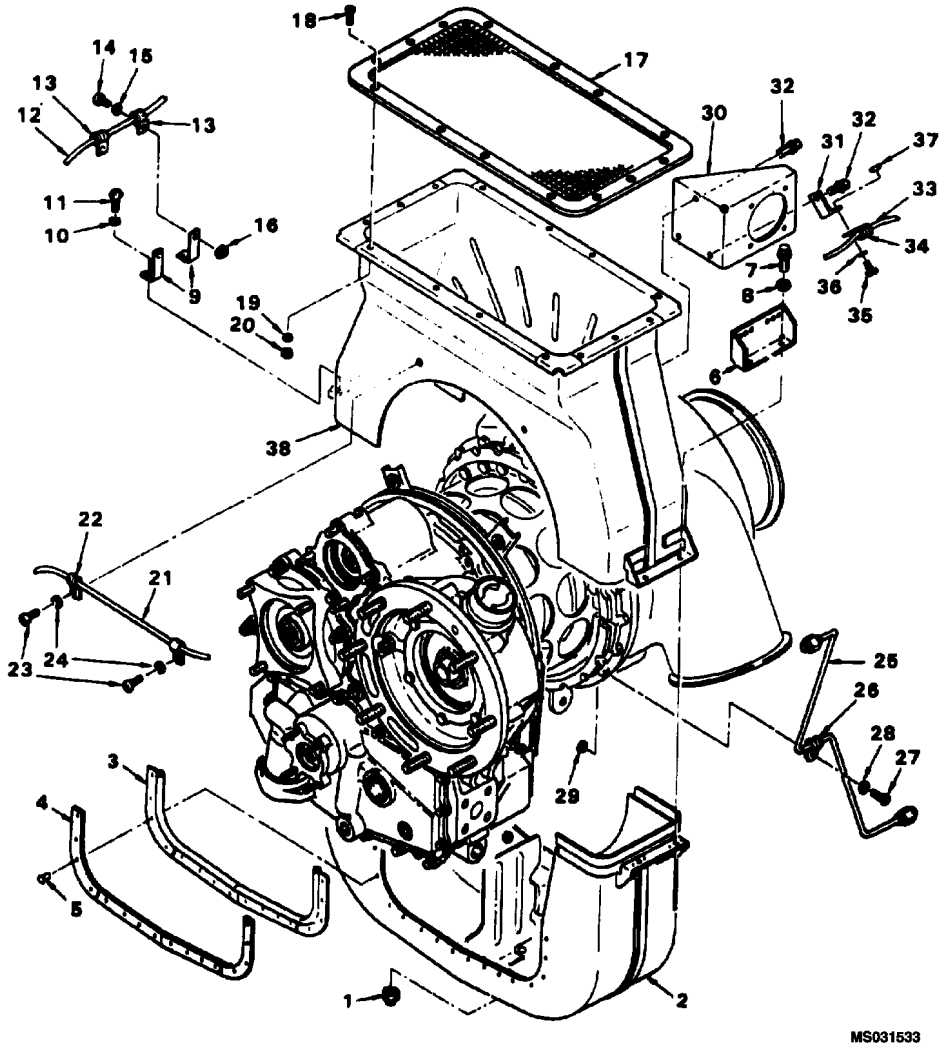
– Continued



1. Adapter
2. Clamp
3. Load Control Valve
4. Clamp
5. Connector (P5)
6. Gasket
7. Thermocouple
8. Bolt
9. Wiring Harness
10. Nut
11. Nut
12. Identification Plate
13. Screw
14. Engine

Figure 3. Installation of Controls.

– Continued



1. Cap	11. Bolt	21. Wiring Harness	31. Bracket
2. Lower Duct	12. Wiring Harness	22. Clamp	32. Bolt
3. Seal	13. Clamp	23. Screw	33. Wiring Harness
4. Seal Retainer	14. Bolt	24. Washer	34. Clamp
5. Rivet	15. Washer	25. Fuel Line	35. Screw
6. Bracket	16. Nut	26. Clamp	36. Washer
7. Bolt	17. Screen	27. Screw	37. Nut
8. Washer	18. Screw	28. Washer	38. Upper Duct
9. Bracket	19. Washer	29. Nut	
10. Washer	20. Nut	30. Bracket, Hourmeter	

Figure 4. Assembly of Compressor Inlet Ducts and Hourmeter Brackets.

ASSEMBLY

1. Refer to Figure 4. Install cap (Figure 4, Item 1) on lower duct (Figure 4, Item 2). Lockwire (WP 0170 00, Item 30) cap.
2. If lower duct has been disassembled, assemble as follows. Position seal (Figure 4, Item 3) and seal retainer (Figure 4, Item 4) to lower duct (Figure 4, Item 2) and secure with rivets (Figure 4, Item 5).
3. Position lower duct (Figure 4, Item 2) and upper duct (Figure 4, Item 38) to engine. Position bracket (Figure 4, Item 6) to upper duct (Figure 4, Item 38) and secure to lower duct (Figure 4, Item 2) with bolts (Figure 4, Item 7) and washers (Figure 4, Item 8). Ensure that ducts are located in slots on retainer and gearcase. Torque bolts to 35 inch-pounds.
4. Install brackets (Figure 4, Item 9), washers (Figure 4, Item 10), and bolts (Figure 4, Item 11). Torque bolts to 35 inch-pounds.
5. Install wiring harness (Figure 4, Item 12) and clamps (Figure 4, Item 13) on brackets (Figure 4, Item 9) using bolts (Figure 4, Item 14), washers (Figure 4, Item 15), and nuts (Figure 4, Item 16).
6. Install inlet screen (Figure 4, Item 17) on upper duct and secure with screws (Figure 4, Item 18), washers (Figure 4, Item 19), and nuts (Figure 4, Item 20). Torque nuts (Figure 4, Item 20) to 25 inch-pounds.
7. Install wiring harness (Figure 4, Item 21) clamps (Figure 4, Item 22) on upper duct (Figure 4, Item 38) using screws (Figure 4, Item 23) and washers (Figure 4, Item 24).
8. Install fuel line (Figure 4, Item 25) and clamp (Figure 4, Item 26) to bracket (Figure 4, Item 23) using screw (Figure 4, Item 27), washer (Figure 4, Item 28), and nut (Figure 4, Item 29).
9. Install hourmeter bracket (Figure 4, Item 30) and bracket (Figure 4, Item 31) using bolts (Figure 4, Item 32). Torque bolts to 35 inch-pounds.
10. Install wiring harness (Figure 4, Item 33) and clamp (Figure 4, Item 34) on bracket (Figure 4, Item 31) using screw (Figure 4, Item 35), washer (Figure 4, Item 36), and nut (Figure 4, Item 37).

INSTALLATION

INSTALL ACCESSORY ITEMS

(See Figure 1 and Figure 2.)

1. Determine shim (Figure 1, Item 1) requirements for speed sensor (Figure 1, Item 2) as follows:
    a. Using a depth micrometer, measure and record dimension A, Figure 1.
    b. Using a micrometer, measure and record dimension B.
    c. Subtract dimension A from dimension B and record the difference as dimension C.
    d. Add 0.015 inch to dimension C and record as dimension D.
    e. Dimension D is the required shim thickness and has an allowable tolerance of ±0.003 inch.
    f. Peel laminations from shim (Figure 2, Item 1) to the required thickness of step e.
2. Install shim (Figure 2, Item 1) and packing (Figure 2, Item 3) on speed sensor (Figure 2, Item 2).
3. Install speed sensor (Figure 2, Item 2) with assembled items into gearcase and secure with bolt (Figure 2, Item 4). Torque bolt to 35 inch-pounds.
4. Connect wiring harness connector P6 (Figure 2, Item 5) to speed sensor (Figure 2, Item 2) and lockwire (WP 0170 00, Item 30).
5. Apply a light coat of antiseize compound (WP 0170 00, Item 36) to threads of bolts (Figure 2, Item 6).
6. Install fuel solenoid (8) onto duct bracket and secure with washers (Figure 2, Item 7) and bolts (Figure 2, Item 6). Torque bolts to 35 inch-pounds.
7. Connect wiring harness connector (Figure 2, Item 9) to fuel solenoid (Figure 2, Item 8).
8. Connect fuel line (Figure 2, Item 10) to fuel solenoid (Figure 2, Item 8).

INSTALLATION – CONTINUED

9. Install fuel line (Figure 2, Item 11) with clamp (Figure 2, Item 12), using screw (Figure 2, Item 13) and washer (Figure 2, Item 14) to secure bracket (Figure 2, Item 12) to gearcase.
10. Connect fuel line (Figure 2, Item 11) to fuel solenoid (Figure 2, Item 8) and fuel control unit (Figure 2, Item 15).
11. Install hourmeter (Figure 2, Item 16) and secure with screws (Figure 2, Item 17). Torque screws to 35 inch-pounds.
12. Install wiring harness (Figure 2, Item 18) lugs on hourmeter (Figure 2, Item 16) using screws (Figure 2, Item 19), lockwashers (Figure 2, Item 20) and washers (Figure 2, Item 21).
13. Coat threads of bolts (Figure 2, Item 22) with high temperature anti-seize compound (WP 0170 00, Item 3).
14. Install ignition unit (Figure 2, Item 23) and wiring harness (Figure 2, Item 24) clamps (Figure 2, Item 25) on plenum and secure with bolts (Figure 2, Item 22). Torque bolts to 50 inch-pounds.
15. Connect wiring harness connector P7 (Figure 2, Item 26) to ignition unit (Figure 2, Item 23) and lockwire (WP 0170 00, Item 30).
16. Coat threads of igniter (Figure 2, Item 27) with high temperature compound (WP 0170 00, Item 3).
17. Install igniter plug (Figure 2, Item 27) with washer (Figure 2, Item 28). Torque igniter plug to 100 inch-pounds.
18. Connect igniter plug lead (Figure 2, Item 29) to ignition unit (Figure 2, Item 23) and igniter plug (Figure 2, Item 27) . Torque both ends of igniter plug lead to 35 inch-pounds.
19. Install two check valves (Figure 2, Item 30) with new packings Figure 2, Item 31).

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

INSPECTION, REMOVAL AND INSTALLATION OF HOT SECTION SCROLL HOUSING

INITIAL SETUP:

Tools and Special Tools
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts
Acetone (WP 0170 00, Item 2)
Anti-Seize Compound (WP 0170 00, Item 3)
Cleaning Compound, Solvent (WP 0170 00, Item 5)
Cloth, Cleaning (WP 0170 00, Item 8)
Isopropyl Alcohol, Technical (WP 0170 00, Item 28)
Methyl Ethyl Ketone (WP 0170 00, Item 38)

Materials/Parts (cont.)
Primer, Adhesive (WP 0170 00, Item 41)
Primer, Adhesive (WP 0170 00, Item 42)
Rod, Welding (WP 0170 00, Item 46)
Wire, Nonelectrical (WP 0170 00, Item 62)

References
ASTM-E1417
WP 0100 00
WP 0101 00
WP 0102 00

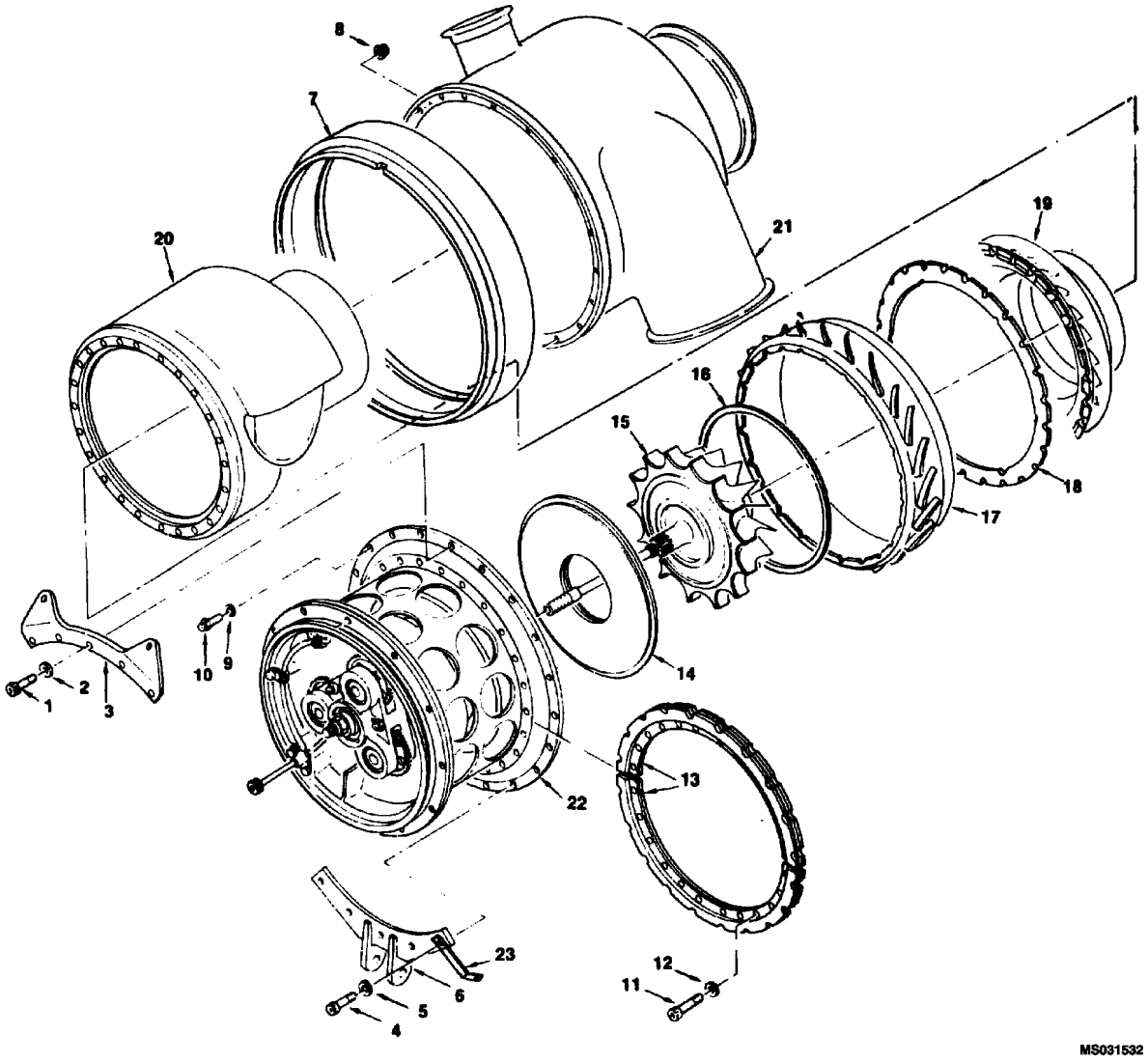
REMOVAL

HOT SECTION SCROLL HOUSING

1. Accomplish disassembly of inlet ducts per WP 0102 00.
2. Accomplish disassembly of combustion section (minus filler cap) per WP 0101 00.
3. Accomplish disassembly of engine plumbing and wiring per WP 0100 00, Steps 4 through 8.

REMOVAL – CONTINUED

HOT SECTION SCROLL HOUSING – CONTINUED



1. Bolt	9. Washer	17. Deflector
2. Washer	10. Bolt	18. Shim
3. Lifting Lug	11. Bolt	19. Turbine Nozzle
4. Bolt	12. Washer	20. Turbine Housing Scroll
5. Washer	13. Retaining Halves	21. Turbine Plenum Assembly
6. Mount Bracket	14. Labyrinth Seal	22. Housing
7. Containment Ring	15. Turbine Wheel	23. Bracket, Fuel Line
8. Nut	16. Shim	

Figure 1. Disassembly of Compressor and Turbine.

4. Accomplish disassembly of power section per the following steps:

   a. Remove bolts (Figure 1, Item 1) and washers (Figure 1, Item 2).

REMOVAL – CONTINUED

HOT SECTION SCROLL HOUSING – CONTINUED

b. Remove bolts (Figure 1, Item 4) and washers (Figure 1, Item 5).

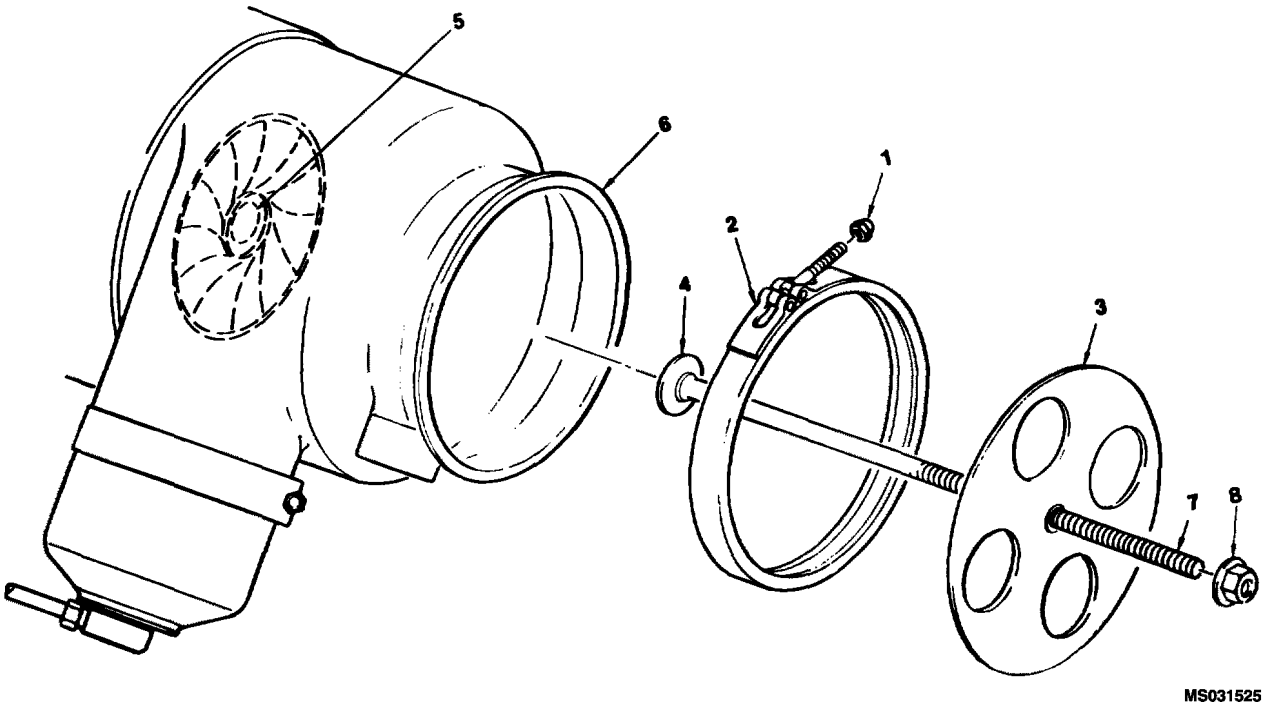
c. Remove lifting lug (Remove bolts (Figure 1, Item 3), mount bracket (Figure 1, Item 6), angle bracket (Figure 1, Item 23) and containment ring (Figure 1, Item 7).

d. Install power section with exhaust end up on assembled 291978-1 adapter and 29400-1 stand. Secure using four bolts (PN MS9557-13) and four nuts (PN MS21043-4).

e. Remove nuts (Figure 1, Item 8), bolts (Figure 1, Item 9) and washers (Figure 1, Item 10).

5. Match mark containment ring (Figure 1, Item 7) to compressor housing for aid during assembly.

6. Slide containment ring (Figure 1, Item 7) back over compressor housing towards gear box. Secure as necessary.

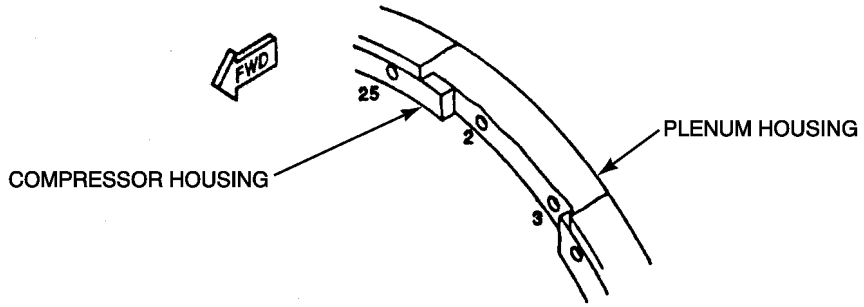


1. Clamp, Nut
2. Clamp
3. Puller, Turbine Plenum
4. Pad, Swivel
5. Turbine Wheel
6. Exhaust Flange
7. Puller Shaft
8. Nut

Figure 2. Installation of Turbine Plenum Puller.

REMOVAL – CONTINUED

HOT SECTION SCROLL HOUSING – CONTINUED



DETAIL A

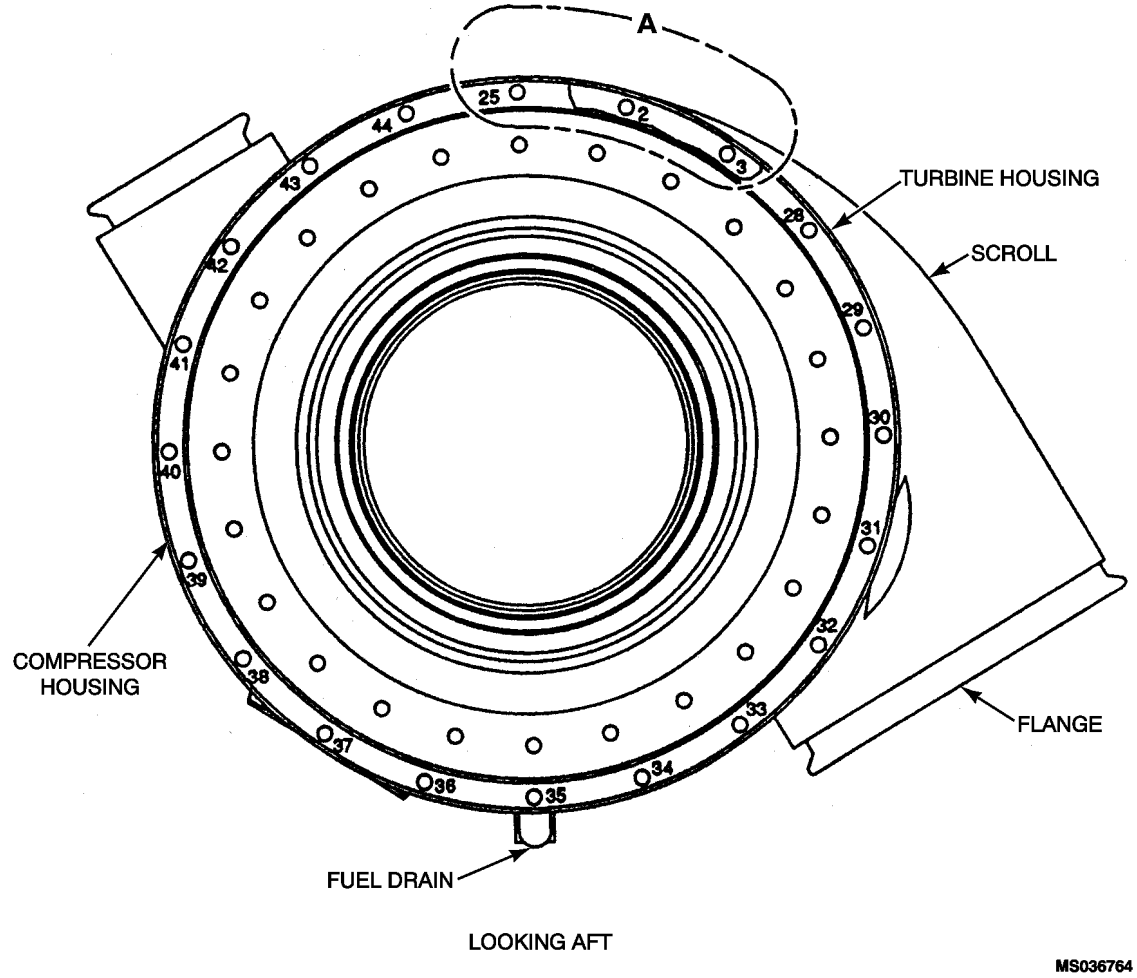


Figure 3. Scroll and Plenum Assembly Orientation.

REMOVAL – CONTINUED

HOT SECTION SCROLL HOUSING – CONTINUED

CAUTION

Turbine plenum must be supported during removal procedure if engine is not mounted with exhaust end up. Failure to support turbine plenum during removal could result in damage to turbine wheel.

7. Loosen clamp nut (Figure 2, Item 1) on turbine plenum mechanical puller 293171-1 (Figure 2, Item 3) and install puller with swivel pad (Figure 2, Item 4) on end of shaft centered on turbine wheel (Figure 2, Item 5). Install clamp (Figure 2, Item 2) on engine exhaust flange (Figure 2, Item 6) and tighten clamp nut (Figure 2, Item 1). Turn nut (Figure 2, Item 8) on puller shaft (Figure 2, Item 7) until turbine plenum breaks loose. Remove puller.
8. Carefully slide plenum off to clear turbine wheel (Figure 2, Item 5). Remove plenum from engine.

NOTE

Match mark retainer halves (Figure 1, Item 13) and plenum (Figure 1, Item 21) to housing (Figure 1, Item 22) for aid during assembly.

9. Remove bolts (Figure 1, Item 11), washers (Figure 1, Item 12) and retainer halves (Figure 1, Item 13).

NOTE

Match mark turbine housing scroll (Figure 1, Item 20) to turbine plenum assembly (Figure 1, Item 21) for aid during assembly.

NOTE

Do not unthread deflector (Figure 1, Item 17) from turbine nozzle (Figure 1, Item 19) unless inspection reveals damage.

10. Remove turbine housing scroll (Figure 1, Item 20), deswirl turbine nozzle (Figure 1, Item 19) with deflector (Figure 1, Item 17) and shims (Figure 1, Item 18). Record thickness and number of shims removed for reference at installation.

Table 1. Compressor and Turbine Assembly Inspection/Check Procedures.

Item No.	Nomenclature	Inspect/Check	Requirements
Figure 1, Item 3	Lifting Lug	Visually check for cracks and elongated bolt or lift holes.	No cracks or elongated bolt or lift holes allowed
Figure 1, Item 6	Mount Bracket	Visually check for damage and security of pin.	Pin shall be secure. No damage allowed.
		Visually check bracket (6) for cracks and elongated bolt or mount holes.	No cracks or elongated bolt or mount holes allowed.
Figure 1, Item 7	Containment Ring	Visually and dimensionally check containment ring.	Refer to Containment Ring Inspection, Steps 1 through 5.
Figure 1, Item 13	Retainer Half	Visually check for cracks and deformation of flange.	No cracks or deformation of flange allowed.

REMOVAL – CONTINUED

HOT SECTION SCROLL HOUSING – CONTINUED

Table 1. Compressor and Turbine Assembly Inspection/Check Procedures. – Continued

Item No.	Nomenclature	Inspect/Check	Requirements
		Visually check for separation and cracks at welds.	No separation or cracks at weld allowed.
Figure 1, Item 21	Turbine Plenum Assembly	Visually and dimensionally check turbine plenum assembly.	Refer to Turbine Plenum Assembly Inspection, Steps 1 through 9.
Figure 1, Item 20	Turbine Housing Scroll	Visually and dimensionally check turbine housing scroll.	Refer to Turbine Housing Scroll Inspection, Steps 1 through 8.
Figure 1, Item 19	Turbine Nozzle	Visually and dimensionally check turbine nozzle.	Refer to Turbine Nozzle Inspection, Steps 1 through 3.

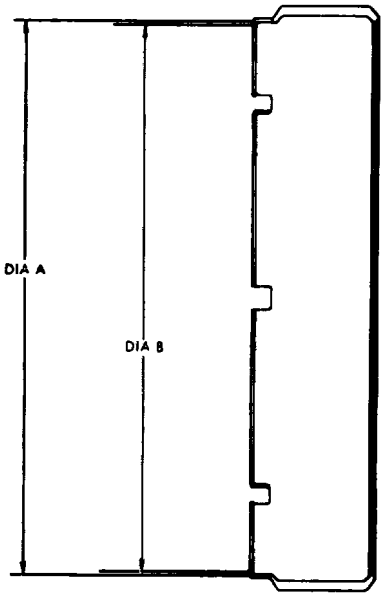


Figure 4. Inspection of Containment Ring.

INSPECTION OF INSTALLED ITEMS

CONTAINMENT RING INSPECTION

(See Figure 4.)

1. Visually check containment ring for cracks and deformation. No damage allowed.
2. Dimensionally check Diameter A. Diameter A shall be 12.005 to 12.015 inches. Replace if not as specified.

INSPECTION OF INSTALLED ITEMS – CONTINUED

CONTAINMENT RING INSPECTION – CONTINUED

3. Dimensionally check Diameter B. Diameter B shall be 11.890 to 11.900 inches. Replace if not as specified.
4. If damage is evident or suspected perform fluorescent penetrant inspection in accordance with ASTM-E1417. No cracks allowed.
5. Replace containment ring if inspection requirements are not met.

TURBINE PLENUM ASSEMBLY INSPECTION

(See Figure 5.)

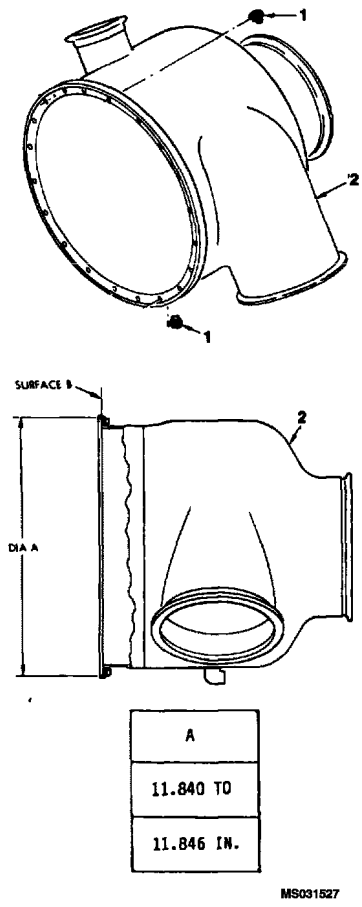


Figure 5. Inspection of Turbine Plenum Assembly.

1. Plenum Assembly Nut
2. Plenum

1. Check for damaged or missing plenum assembly nuts (Figure 5, Item 1). Repair if damage is indicated.
2. Visually check insulation material on plenum (Figure 5, Item 2) for damage (bare metal visible). Repair if damage is indicated.
3. Check for cracks in plenum (Figure 5, Item 2). Repair if cracks are indicated.
4. Check for distortion of exhaust pipe portion of plenum (Figure 5, Item 2). Replace turbine plenum assembly if distortion exceeds 0.125 inch.
5. Dimensionally inspect Diameter A. Diameter A shall be 11.840 to 11.846 inches.
6. Check Diameter A (Figure 5) for out of round. Diameter should be round within 0.010 inch.

INSPECTION OF INSTALLED ITEMS – CONTINUED

TURBINE PLENUM ASSEMBLY INSPECTION – CONTINUED

7. Check Surface B for flatness. Surface B shall be flat within 0.010 inch.
8. Perform fluorescent penetrant inspection in accordance with ASTM-E1417. Refer to Repair Turbine Plenum Assembly if cracks are indicated.
9. Replace/repair turbine plenum assembly if inspection requirements are not met.

TURBINE HOUSING SCROLL INSPECTION

(See Figure 6.)

INSPECTION OF INSTALLED ITEMS – CONTINUED

TURBINE HOUSING SCROLL INSPECTION – CONTINUED

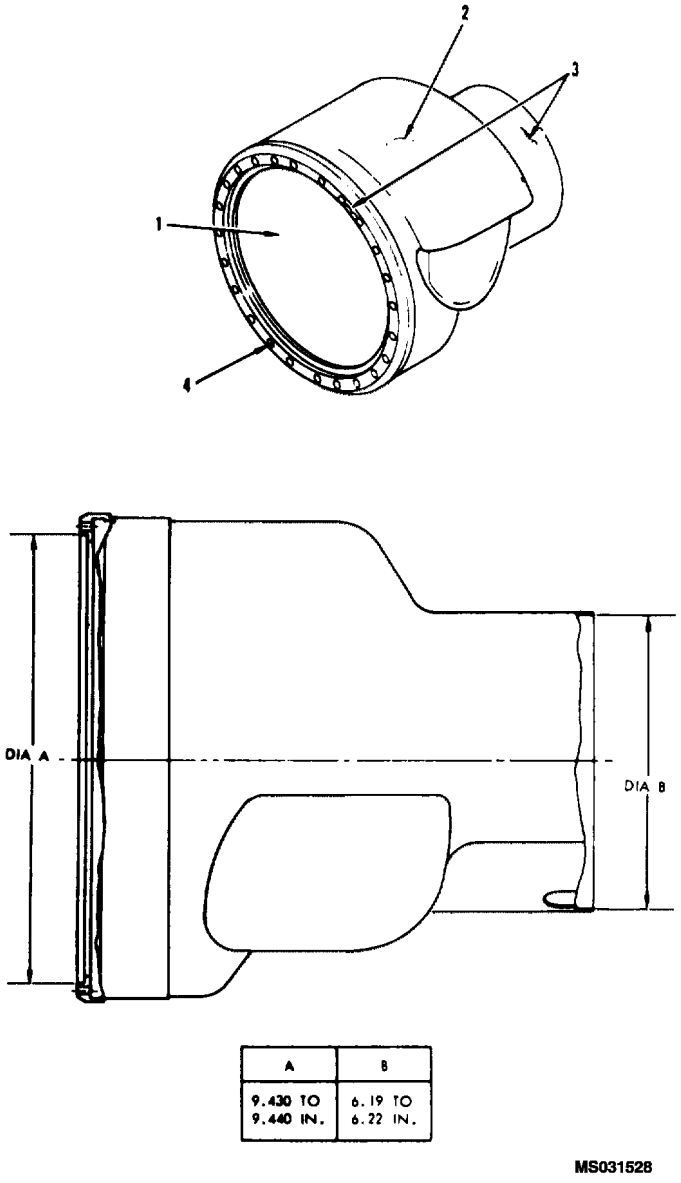


Table 2

1. Metal Thinning
2. Body Surface
3. Body
4. Threads

Figure 6. Inspection of Turbine Housing Scroll.

1. Check scroll for erosion with subsequent metal thinning (Figure 6, Item 1). Replace scroll if erosion with subsequent metal thinning below twenty-five percent of stock thickness.
2. Check for distortion of body surfaces (Figure 6, Item 2). Replace scroll if distortion of surfaces exceeds 0.125 inch.
3. Check for cracks in flange and body (Figure 6, Item 3). Repair if cracks are indicated.

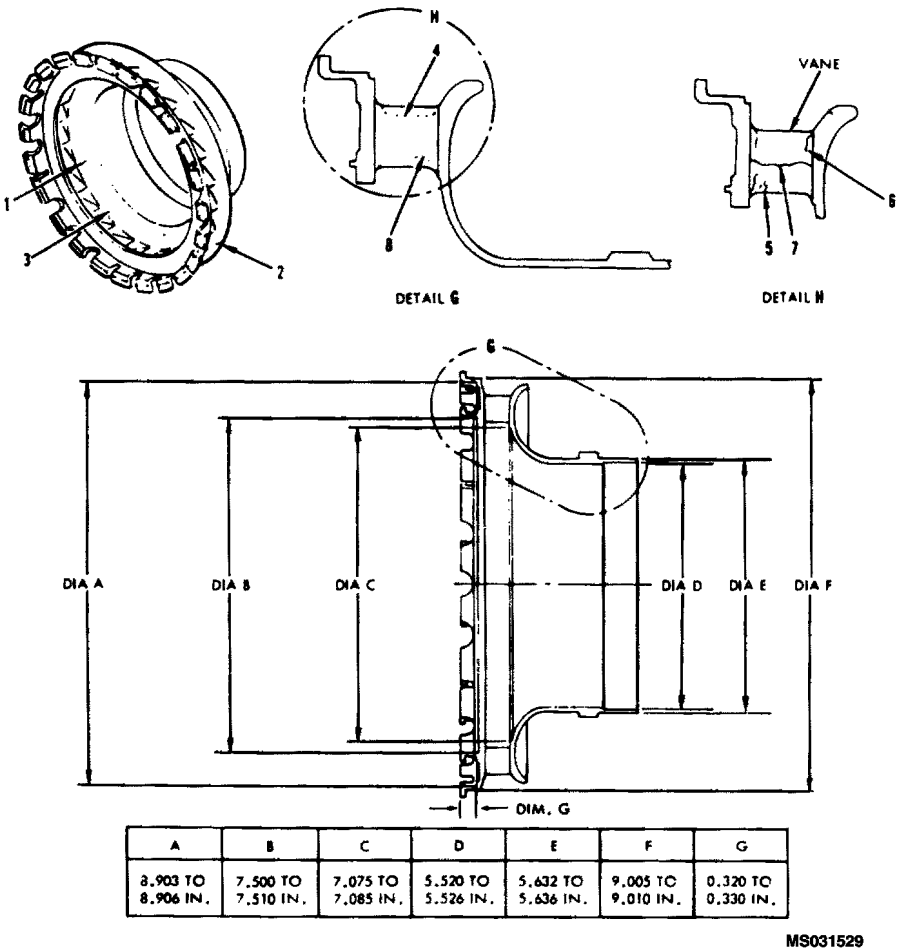
INSPECTION OF INSTALLED ITEMS – CONTINUED

TURBINE HOUSING SCROLL INSPECTION – CONTINUED

4. Check flange for damage to threads (Figure 6, Item 4). No damage to threads permitted. Replace turbine housing scroll if damage is indicated.
5. Dimensionally check Diameter A. Diameter A shall be 9.430 to 9.440 inches.
6. Dimensionally check Diameter B. Diameter B shall be 6.19 to 6.22 inches.
7. Perform fluorescent penetrant inspection in accordance with ASTM-E1417. Refer to Repair Turbine Housing Scroll if cracks are Indicated.
8. Replace/repair turbine housing scroll if inspection requirements are not met.

TURBINE NOZZLE INSPECTION

(See Figure 7.)



A	B	C	D	E	F	G
8.903 TO 8.906 IN.	7.500 TO 7.510 IN.	7.075 TO 7.085 IN.	5.520 TO 5.526 IN.	5.632 TO 5.636 IN.	9.005 TO 9.010 IN.	0.320 TO 0.330 IN.

1. Axial Cracks
2. Cracks
3. Scoring
4. Erosion
5. Cracks
6. Cracks
7. Axial Cracks
8. Trailing Edge

Figure 7. Inspection of Turbine Nozzle.

INSPECTION OF INSTALLED ITEMS – CONTINUED

TURBINE NOZZLE INSPECTION – CONTINUED

1. Check for axial cracks (Figure 7, Item 1) in shroud contour below vane ID. No cracks allowed.
2. Check for cracks (Figure 7, Item 2) in shroud. Cracks in shroud OD over to vane OD acceptable. Cracks extending inward from vane OD, replace nozzle.
3. Check for scoring (Figure 7, Item 3) on shroud contour. Scoring up to 0.030 inch deep acceptable. Scoring in excess of 0.030 inch deep, replace nozzle.
4. Check leading edge of vane for erosion (Figure 7, Item 4). Damage up to 0.125 inch deep, refer to Repair Turbine Nozzle. Damage in excess of 0.125 inch deep, replace nozzle.
5. Check trailing edge of vanes for cracks (Figure 7, Item 5). Cracks up to 0.500 inch in length on six adjacent vanes or ten non-adjacent vanes are acceptable. Cracks in excess of above limits or intersecting cracks, replace nozzle.
6. Check for cracks (Figure 7, Item 6) at leading edge of vanes. No cracks allowed.
7. Check for axial cracks (Figure 7, Item 7) in vanes. No cracks allowed.
8. Check vane trailing edges for erosion (Figure 7, Item 8) or feathering damaged. Damage up to 0.130 inch deep, refer to Repair Turbine Nozzle. Damage in excess of 0.130 inch deep, replace nozzle.
9. Perform fluorescent penetrant inspection in accordance with ASTM-E1417. No cracks allowed.
10. Dimensionally check turbine nozzle for requirements as shown in Figure 7.
11. Replace turbine nozzle if inspection requirements are not met.

REPAIR OR REPLACEMENT

REPAIR TURBINE PLENUM ASSEMBLY

(See Figure 8.)

1. Straighten surface A face as follows:
    a. Cold straight surface A to best condition possible.
    b. Check flatness of surface A. If surface is not flat within 0.010 inch reject turbine plenum assembly.
    c. Perform fluorescent penetrant Inspection in accordance with ASTM-E1417.
2. Replace damaged nut (Figure 8, Item 1) as follows:
    a. Remove damaged nut (Figure 8, Item 1).
    b. Insert new nut into mounting flange.
    c. Restrain nut using a suitable dolly and flare shank with 30 to 60 degrees conical punch.
3. Replace damaged nutplate (Figure 8, Item 2) as follows:
    a. Machine weld to remove nutplate. Hand finish to blend remaining weld to existing surface.
    b. Clean area to be welded with clean, lint-free cloth (WP 0170 00, Item 8) dampened with isopropyl alcohol (WP 0170 00, Item 28).
    c. Position nutplate onto ignition unit bracket and retain with a 10/32 bolt for welding.
    d. Spot weld nutplate by fusion arc welding with gas backup using 347 filler rod (AMS5680).
4. Replace damaged nutplate (Figure 8, Item 3) as follows:
    a. Machine weld to remove nutplate from flange. Hand finish to blend remaining weld to existing surface.
    b. Clean area to be welded with clean, lint-free cloth (WP 0170 00, Item 8) dampened with isopropyl alcohol (WP 0170 00, Item 28).
    c. Position nutplate onto flange and retain with a 10/32 bolt for welding.

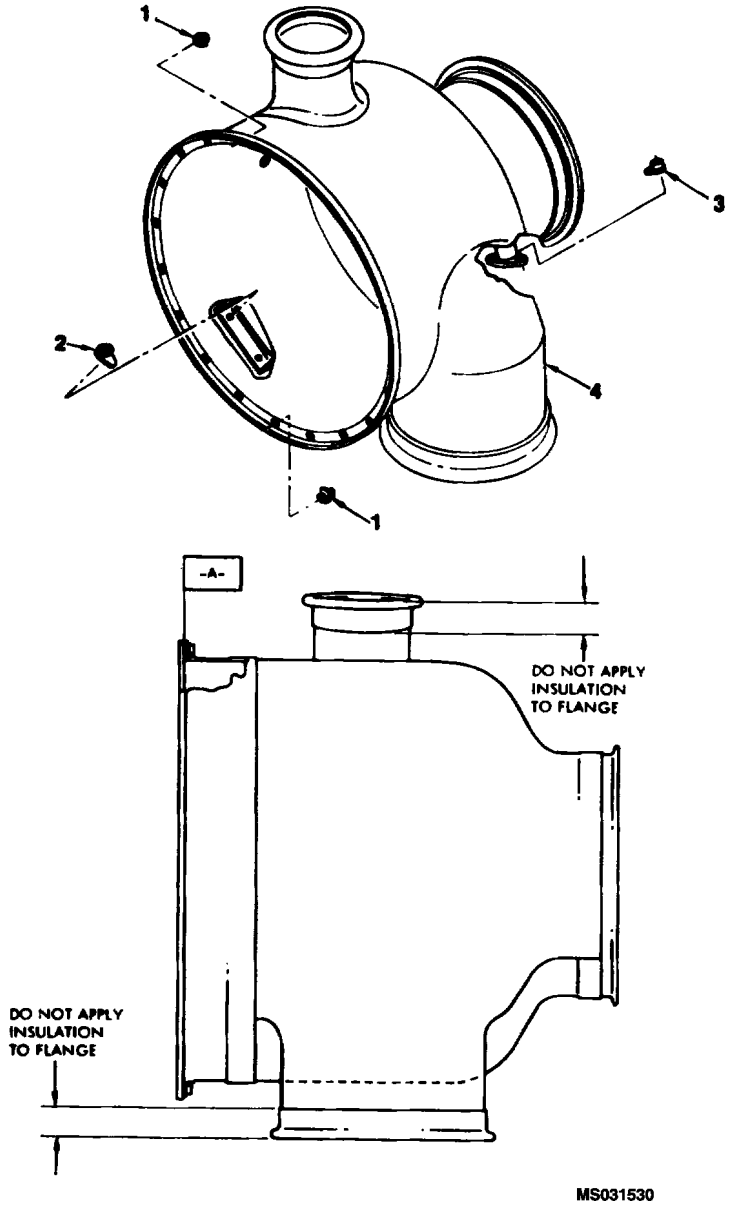
REPAIR OR REPLACEMENT – CONTINUED

REPAIR TURBINE PLENUM ASSEMBLY – CONTINUED

d. Spot weld nutplate by fusion arc welding with gas backup and 347 filler rod (AMS5680).

5. Repair cracks in turbine plenum (Figure 8, Item 4) as follows.

a. Remove insulation material away from area to be repaired.



1. Nut
2. Nutplate
3. Nutplate
4. Turbine Plenum

Figure 8. Repair of Turbine Plenum Assembly.

b. Stop drill (0.125nch max) crack ends to prevent further progression of cracks.

c. Fusion arc weld cracks using Hastelloy X weld rod (WP 0170 00, Item 46) with gas backup.

REPAIR OR REPLACEMENT – CONTINUED

REPAIR TURBINE PLENUM ASSEMBLY – CONTINUED

d. Perform fluorescent penetrant inspection after repair in accordance with ASTM-E1417. No cracks permitted.

e. Replace insulation material as required.

6. Repair damaged insulating material on turbine plenum (Figure 8, Item 4) as follows:

a. Cut away any loose material around damaged area.

b. Thoroughly clean area with methyl-ethyl-ketone MEK ASTM D740 (WP 0170 00, Item 38) or equivalent. Dry with clean, lint-free cloth (WP 0170 00, Item 8).

c. Apply primer (SS4155) by wiping, brushing a spraying to a thickness of 0.1 to 0.3 millimeter. Air-dry for 1 hour. Alternate primers DC1200 or Dow Corning 92–203 may be used.

d. Mix insulation compound (CAGE 64101, P/N V-657) as follows. Thoroughly mix 10 parts of resin and 1 part catalyst. Addition of the catalyst should be held within ±10 percent of the specified amount. Mixed compound will have a 4 to 6 hours application life at 77 °F (25 °C) during which time the compound is most easily applied. Alternate material mixed by combining 10 parts of insulating base compound Dow Corning 93-104 (Part A) with 1 part Dow Corning 93-104 (Part B) catalyst based on weight. Addition of catalyst should be held within ±10 percent of the specified amount. Mix the catalyst with base for 2 to 5 minutes stirring by hand. Machine stirring may be used but speeds must be comparable to that achieved by hand to avoid adverse effects on the finished product. Refer to the Dow Corning Product Information Sheet for requirements.

e. Apply insulating compound as follows. Trowel compound onto cleaned area. Total thickness of insulation material after repair shall be 0.20 to 0.40 inch.

f. Cure insulating compound as follows. Curing techniques can range from a simple pass-over with a hot air gun application to radiant heat sources. The selection of equipment for the heat configuration of auxiliary power unit when the compound is applied. Recommended cure conditions are: 5 minutes at 300 °F (149 °C) or 10 minutes at 280 °F (138 °C) or for 1 hour at 250 °F (121 °C). Once the applied coating has achieved the temperature required, complete forming and cure will be completed. A surface tack will indicate incomplete cure and additional time at temperature is required.

REPAIR OR REPLACEMENT

REPAIR TURBINE HOUSING SCROLL

(See Figure 9.)

1. Repair cracks in flange (Figure 9, Item 2) and body (Figure 9, Item 1) as follows:

a. Stop drill crack at both ends to prevent progression of crack.

b. Hand abrade to clean up area around crack.

REPAIR OR REPLACEMENT – CONTINUED

REPAIR TURBINE HOUSING SCROLL – CONTINUED

WARNING

Cleaning Compound Solvent, MIL-PRF-680, is combustible and toxic to eyes, skin, and respiratory tract. Wear protective gloves and goggles/face shield. Avoid repeated or prolonged contact. Use only in well-ventilated areas (or use approved respirator as determined by local safety/industrial hygiene personnel). Keep away from open flames or other sources of ignition.

NOTE

Compressed air shall be regulated between 5 and 15 psig.

c. Clean turbine housing scroll with MIL-PRF-680, Type II (WP 0170 00, Item 5) or equivalent. Dry with clean, lint-free cloth (WP 0170 00, Item 8) or with filtered, low pressure compressed air.

REPAIR OR REPLACEMENT – CONTINUED

REPAIR TURBINE HOUSING SCROLL – CONTINUED

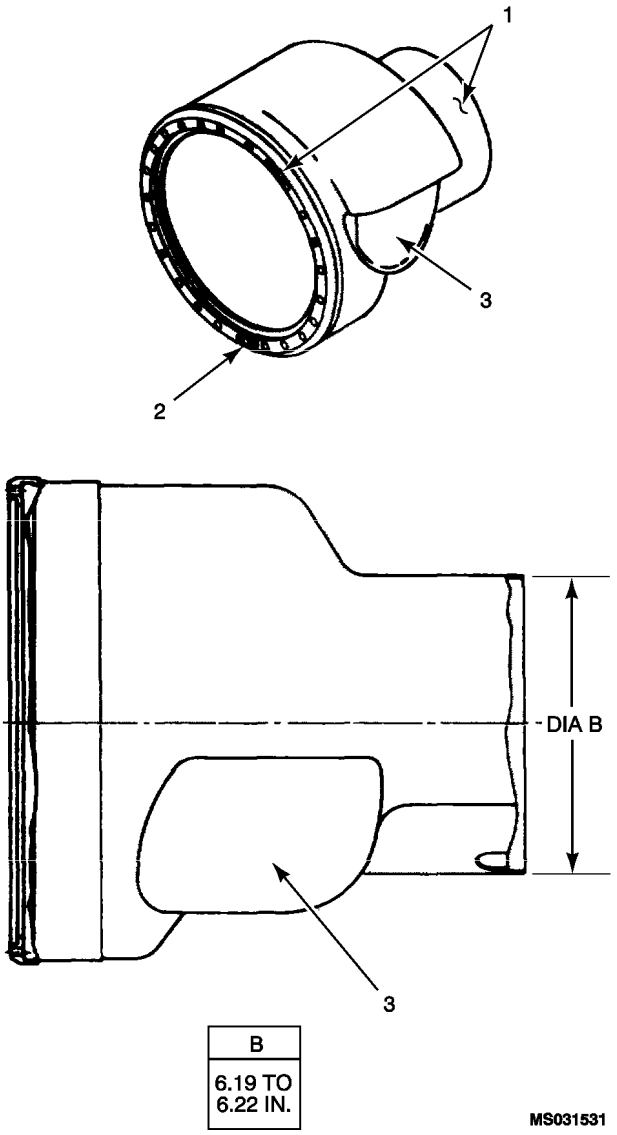


Figure 9. Repair of Turbine Housing Scroll.

d. Fusion arc weld cracks using Hastelloy X filler rod (AFS4798) with gas backup.

e. Hand finish to blend weld to existing surface.

f. Perform fluorescent penetrant inspection of weld area.

2. Repair rub damage in inlet flange (Figure 9, Item 3) as follows:

a. Hand abrade to clean up area.

REPAIR OR REPLACEMENT – CONTINUED

REPAIR TURBINE HOUSING SCROLL – CONTINUED

WARNING

Cleaning Compound Solvent, MIL-PRF-680, is combustible and toxic to eyes, skin, and respiratory tract. Wear protective gloves and goggles/face shield. Avoid repeated or prolonged contact. Use only in well-ventilated areas (or use approved respirator as determined by local safety/industrial hygiene personnel). Keep away from open flames or other sources of ignition.

NOTE

Compressed air shall be regulated between 5 and 15 psig.

b. Clean turbine housing scroll using MIL-PRF-680, Type II (WP 0170 00, Item 5) or equivalent. Dry with clean, lint-free cloth (WP 0170 00, Item 8) or filtered, low pressure compressed air.

c. Puddle weld to fill rub area by fusion arc weld using Hastelloy X filler rod (AMS5798) with gas backup.

d. Hand finish to blend weld to flange surface.

e. Perform fluorescent penetrant inspection.

3. Straighten and correct diameter B out of roundness as follows:
   a. Cold straight diameter B to correct out of roundness to within 0.030 care to prevent metal thinning.
   b. Perform fluorescent penetrant.

REPAIR OR REPLACEMENT

REPAIR TURBINE NOZZLE

(See Figure 10.)

1. Hand finish to remove cracks or feathering not more than 0.060 inch deep on trailing edge of vanes. Rework of one or more vanes may be preformed without reworking all vanes. Remove an identical amount of material from all vanes when cracks or feathering require material removal 0.060 to 0.130 inch deep.
2. Repair erosion of vane leading edge that is less than 0.125 inch deep by bleeding and fairing to blade contour.
3. Repair radial shroud rub less than 0.300 inch deep by blending with adjacent surface using abrasive cloth P-C-451.
4. Clean entire area with glass beads (Screen No. 100-230) (130 grit, ClassIV, Size AF or AG)

ASSEMBLY

HOT SECTION SCROLL ASSEMBLY

GENERAL INSTRUCTIONS

This section provides procedures for the assembly of the engine after a detailed hot section inspection. The engine is a precision unit. Maintenance practices employed during assembly shall conform to the highest precision shop standard. Fits and tolerances shall be maintained.

Protection of Components.

Extreme care shall be exercised to prevent dirt, dust or foreign particles from entering the unit. If any foreign particle is dropped into the unit during assembly, assembly shall be stopped until the foreign particle is located and removed, even if this may cause considerable disassembly. For added protection, large openings shall be covered with tape and cardboard, small openings with tape or a clean cloth. Open tube ends shall be capped or plugged. Openings on fuel

ASSEMBLY – CONTINUED

HOT SECTION SCROLL ASSEMBLY – CONTINUED

system components shall not be taped; caps, plugs or similar coverings shall be used. If the unit is to be left for even a short period in a partially disassembled state, all openings shall be covered.

NOTE

Materials and compounds used in assembly may be substituted with equivalent products.

NOTE

Use caution not to remove match marks during cleaning.

Cleaning

If any parts are coated with corrosion-preventive compound, all traces of this compound and any accumulated foreign matter shall be removed. All parts shall be thoroughly clean before assembly. All parts and surfaces shall be wiped with a clean lint-free cloth.

Special Measurements

When special measurements for shimming or fitting are made on parts or on assembled parts prior to their installation in the next higher assembly, these parts shall be tagged as measured components of the higher assembly and kept with that assembly. If damage or other reason causes replacement of a measured component, all measurements which include that part shall be repeated using the new part.

Use of Force

Extreme force shall never be used in assembly of the engine. If difficulty is encountered, the unit shall be disassembled and inspected for burrs or other interferences.

Safety Fastening Methods

Certain attaching parts are locked using lockwire (WP 0170 00, Item 62). Duplicate lockwiring as noted during disassembly. Lockwiring shall conform to MS 33540.

HOT SECTION ASSEMBLY

1. Refer to Figure 10. Install shim (Figure 10, Item 16) over turbine wheel (Figure 10, Item 15) on labyrinth seal (Figure 10, Item 14). Ensure that shim (Figure 10, Item 16) is centered on labyrinth seal (Figure 10, Item 14) and shim surface fits flat with contour on seal.
2. Clean mating flange on housing (Figure 10, Item 22) with acetone (WP 0170 00, Item 2) and allow to air dry. Apply a thin even coat of compound (MIL-A-46146, Type II) to mating flange with finger and allow to air dry for ten minutes.
3. Install deflector (Figure 10, Item 17) and align notches with bolt holes.

CAUTION

Ensure that six alignment pins are in place on diffuser assembly. A loose pin can damage turbine wheel when engine is run.

4. Install shim (Figure 10, Item 18). Ensure that six pins on diffuser assembly, located between turbine wheel (Figure 10, Item 15) and housing (Figure 10, Item 22) engage notches in shim (Figure 10, Item 18). Ensure that shim is aligned with bolt holes.
5. Install turbine nozzle (Figure 10, Item 19). Ensure that six pins on diffuser assembly engage notches in turbine nozzle (Figure 10, Item 19).
6. Run a 10-32 tap through threaded holes on turbine housing scroll (Figure 10, Item 20) prior to assembly to remove carbon buildup.

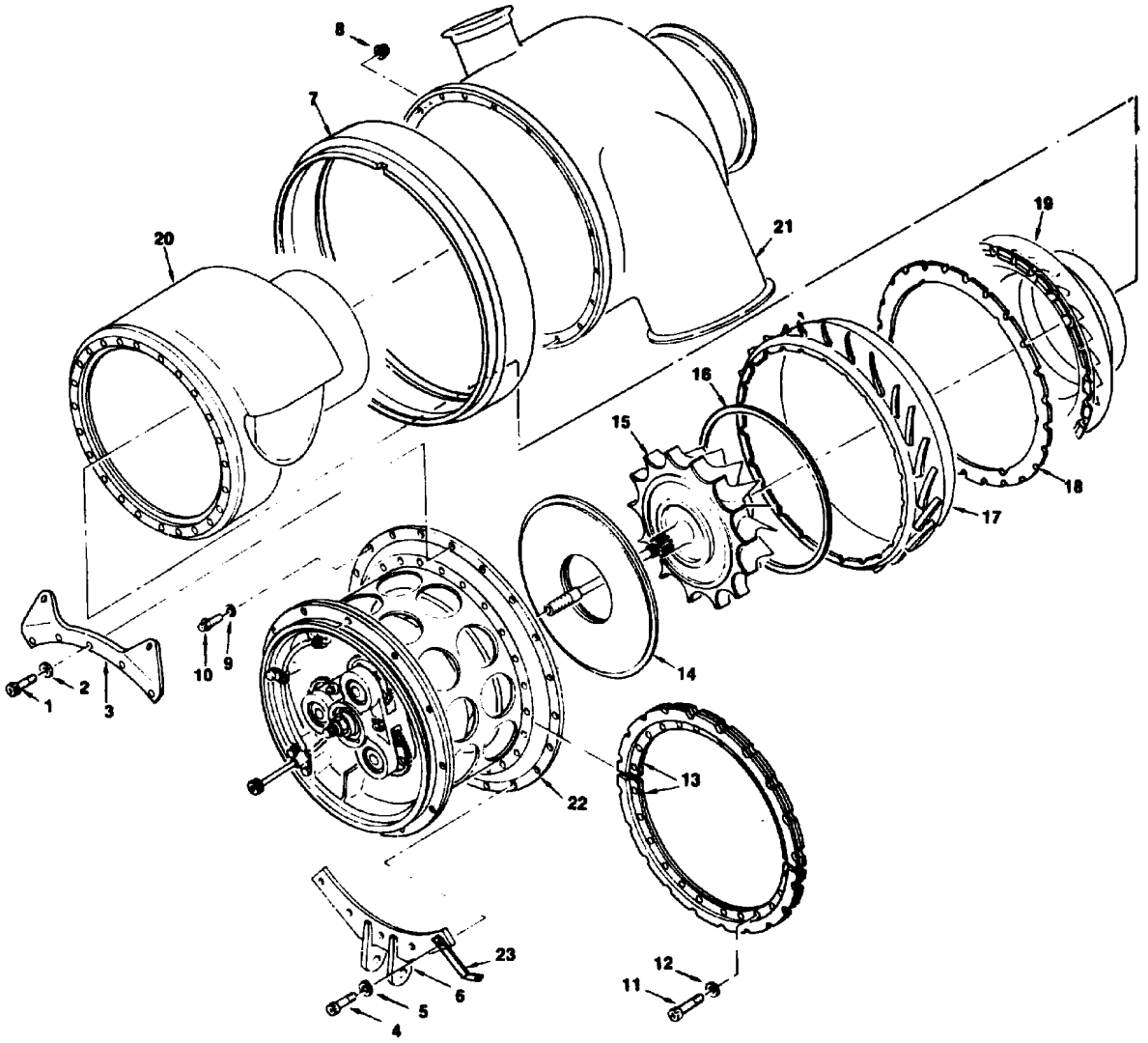
ASSEMBLY – CONTINUED

HOT SECTION SCROLL ASSEMBLY – CONTINUED

7. Using match marks applied during disassembly for alignment, install turbine housing scroll (Figure 10, Item 20) and retaining halves (Figure 10, Item 13). Apply a coat of high temperature compound (WP 0170 00, Item 3) to threads of bolt (Figure 10, Item 11). Install bolts (Figure 10, Item 11) and washers (Figure 10, Item 12). Tighten bolts in opposing sequence to a torque value of 50 Inch-pounds. Recheck torque several times. Check for proper assembly by attempting to turn turbine wheel (wheel should turn freely with no binding). Lockwire bolts.
8. Install containment ring (Figure 10, Item 7) over turbine housing scroll and temporarily position over housing (Figure 10, Item 22).
9. Clean mating flange of turbine plenum assembly (Figure 10, Item 21) with acetone (WP 0170 00, Item 2) and allow to dry. Apply a thin coat of compound (MIL-A- 46146, Type II) to mating flange and allow to air dry for ten minutes.
10. Using match marks applied during disassembly for alignment, install turbine plenum assembly (Figure 10, Item 21). Secure with bolts (Figure 10, Item 10), washers (Figure 10, Item 9) and nuts (Figure 10, Item 8).
11. Slide containment ring (Figure 10, Item 7) onto turbine plenum assembly (Figure 10, Item 21).
12. Install lifting lug (Figure 10, Item 3) and mounting bracket (Figure 10, Item 6) and secure with bolts (Figure 10, Item 1 and 4) and washers (Figure 10, Item 2 and 5). Install fuel line bracket (Figure 10, Item 23) as shown in Figure 10. Tighten bolts (Figure 10, Item 1, 4 and 10) to a torque value of 60 inch-pounds.

ASSEMBLY – CONTINUED

HOT SECTION SCROLL ASSEMBLY – CONTINUED



1. Bolt	9. Washer	17. Deflector
2. Washer	10. Bolt	18. Shim
3. Lifting Lug	11. Bolt	19. Turbine Nozzle
4. Bolt	12. Washer	20. Turbine Housing Scroll
5. Washer	13. Retaining Halves	21. Turbine Plenum Assembly
6. Mount Bracket	14. Labyrinth Seal	22. Housing
7. Containment Ring	15. Turbine Wheel	23. Bracket, Fuel Line
8. Nut	16. Shim	

Figure 10. Assembly of Compressor and Turbine.

13. Accomplish assembly of inlet ducts per WP 0102 00.
14. Accomplish assembly of combustion section (minus filler cap) per WP 0101 00.

ASSEMBLY – CONTINUED

HOT SECTION SCROLL ASSEMBLY – CONTINUED

15. Accomplish assembly of engine plumbing and wiring per WP 0100 00.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

COMPRESSOR INLET DUCTS

INITIAL SETUP:

Tools and Special Tools

Tool Set, Aviation Unit (WP 0171 00, Item 42)
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)

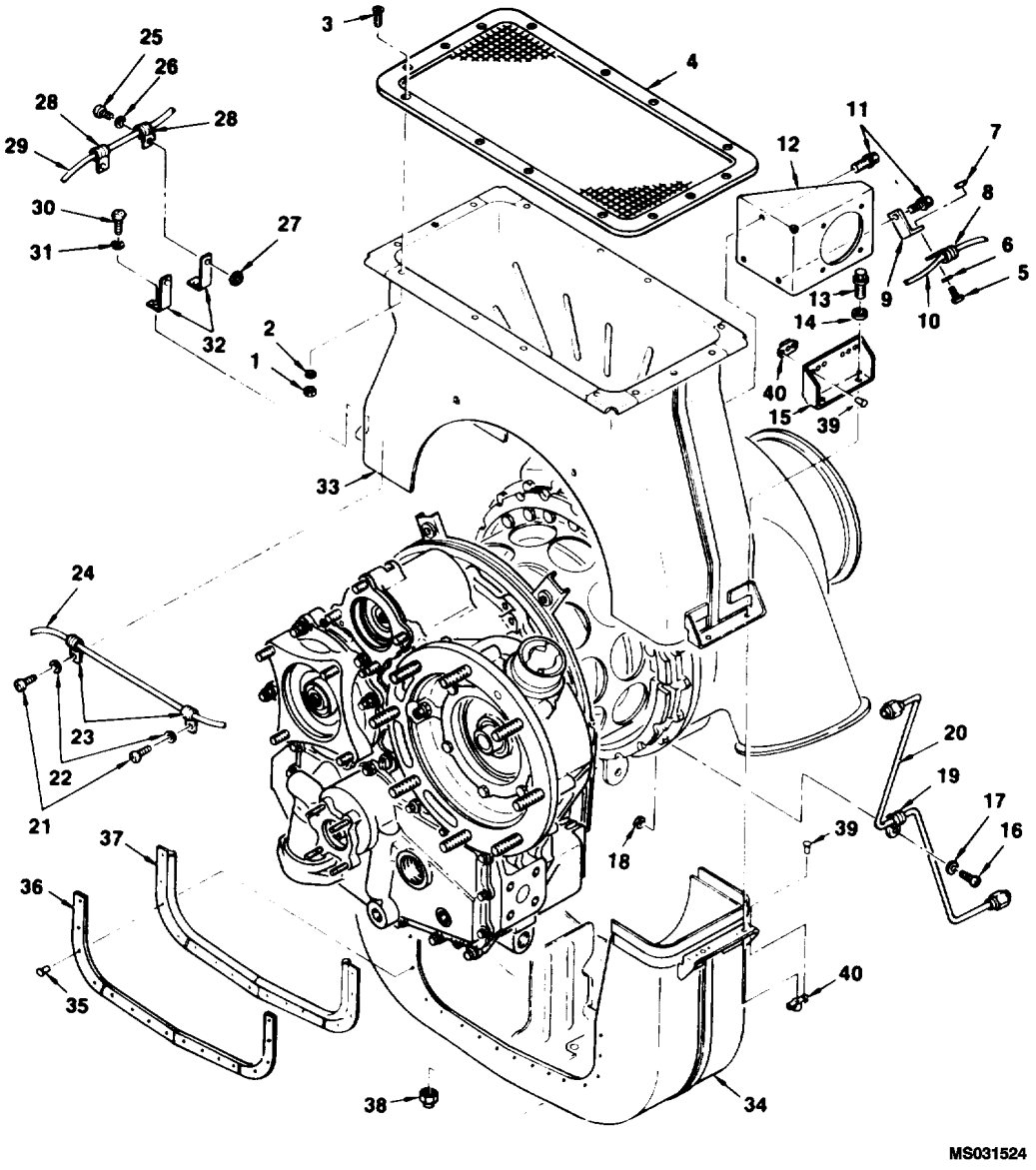
Materials/Parts

RTV Red Gasket Maker (WP 0170 00, Item 47)
Wire, Nonelectrical (WP 0170 00, Item 60)

References

MIL-STD-403

GENERAL



1. Nut	11. Bolt	21. Screw	31. Washer
2. Washer	12. Bracket, Hourmeter	22. Washer	32. Bracket
3. Screw	13. Bolt	23. Clamp	33. Upper Duct
4. Inlet Screen	14. Washer	24. Wiring Harness	34. Lower Duct
5. Screw	15. Bracket	25. Bolt	35. Rivet
6. Washer	16. Screw	26. Washer	36. Seal Retainer
7. Nut	17. Washer	27. Nut	37. Seal
8. Clamp	18. Nut	28. Clamp	38. Cap
9. Bracket	19. Clamp	29. Wiring Harness	39. Rivet
10. Wiring Harness	20. Fuel Line	30. Bolt	40. Nutplate

Figure 1. Compressor Inlet Ducts and Hourmeter Bracket.

DISASSEMBLY

1. Remove nuts (Figure 1, Item 1), washers (Figure 1, Item 2), screws (Figure 1, Item 3), and inlet screen (Figure 1, Item 4).
2. Remove screws (Figure 1, Item 5), washer (Figure 1, Item 6), and nut (Figure 1, Item 7) and remove clamp (Figure 1, Item 8) from bracket (Figure 1, Item 9). Leave clamp (Figure 1, Item 8) on wiring harness (Figure 1, Item 10).
3. Remove bolts (Figure 1, Item 11) and hourmeter bracket (Figure 1, Item 12), along with bracket (Figure 1, Item 9).
4. Remove bolts (Figure 1, Item 13), washers (Figure 1, Item 14), and bracket (Figure 1, Item 15).
5. Remove screw (Figure 1, Item 16), washer (Figure 1, Item 17) and nut (Figure 1, Item 18), securing clamp (Figure 1, Item 19) to bracket.
6. Remove fuel line (Figure 1, Item 20) with clamp (Figure 1, Item 19) attached.
7. Remove screws (Figure 1, Item 21) and washers (Figure 1, Item 22) securing clamps (Figure 1, Item 23) to upper duct (Figure 1, Item 33). Leave clamps on wiring harness (Figure 1, Item 24).
8. Remove bolts (Figure 1, Item 25), washers (Figure 1, Item 26), and nuts (Figure 1, Item 27) securing clamps (Figure 1, Item 28) to brackets (Figure 1, Item 32). Leave clamps (Figure 1, Item 28) on wiring harness (Figure 1, Item 29).
9. Support ducts and remove bolts (Figure 1, Item 30) and washers (Figure 1, Item 31) along with brackets (Figure 1, Item 32).
10. Move wiring harnesses out away from inlet ducts.
11. Separate and remove, upper duct (Figure 1, Item 33) and lower duct (Figure 1, Item 34) from engine.

NOTE

Do not disassemble lower duct (Step 12. and Step 13.) unless required for repair.

12. Remove rivets (Figure 1, Item 35), seal retainer (Figure 1, Item 36), and seal (Figure 1, Item 37) from lower duct (Figure 1, Item 34).
13. Remove cap (Figure 1, Item 38) from lower duct (Figure 1, Item 34).

INSPECTION OF INSTALLED ITEMS

Perform procedures in Table 1.

REPAIR OR REPLACEMENT

Repair lower duct as follows:

1. Replace loose rivets and damaged hardware in accordance with MIL-STD-403 and standard shop practices.
2. Replace damaged seal (Figure 1, Item 37) by removing rivets (Figure 1, Item 35) securing seal retainer (Figure 1, Item 36) and separate retainer, seal, and inlet duct.
3. Fabricate new seal using old seal as pattern.
4. Cement edges of new seal with sealing compound, place seal on duct and secure with seal retainer and rivets.

REPAIR OR REPLACEMENT – CONTINUED

Table 1. Compressor Inlet Ducts and Hourmeter Bracket Inspection/Check Procedures .

WP 0106 00, Figure 1 Item No.	Nomenclature	Inspect/Check	Requirements
4	Inlet Screen	Visually check screen for cracks and damage.	No cracks or damage allowed.
9, 12, 15, 32	Bracket	Visually check bracket for cracks.	No cracks allowed.
33	Upper Duct	Visually check for damaged mount brackets.	No damage to mount brackets allowed.
		Visually check for cracks in duct.	No cracks in duct allowed.
33	Lower Duct	Visually check for loose rivets (Figure 1, Item 39) and damaged nut plates (Figure 1, Item 40).	No loose rivets or damaged nut plates allowed.
		Visually check seal (Figure 1, Item 37) for security and deterioration.	Seal shall be secure, no deterioration allowed.
		Visually check for cracks in duct (Figure 1, Item 34). Check drain fitting for damage.	No cracks or damage allowed.
		Visually check for loose rivets (Figure 1, Item 35).	No loose rivets allowed.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

COMPRESSOR INLET DUCTS ASSEMBLY

INITIAL SETUP:

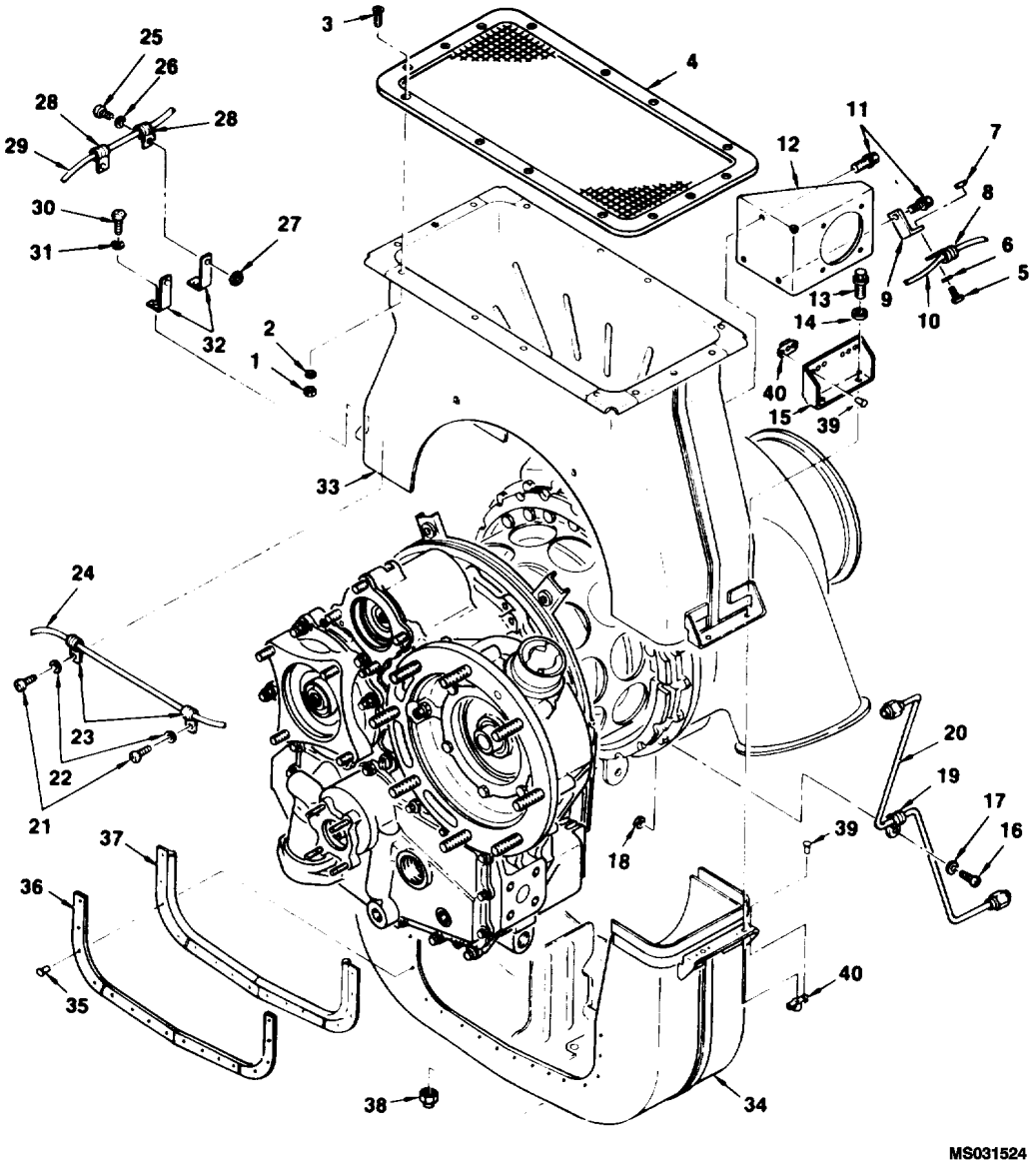
Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK
(WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Wire, Nonelectrical (WP 0170 00, Item 60)

GENERAL



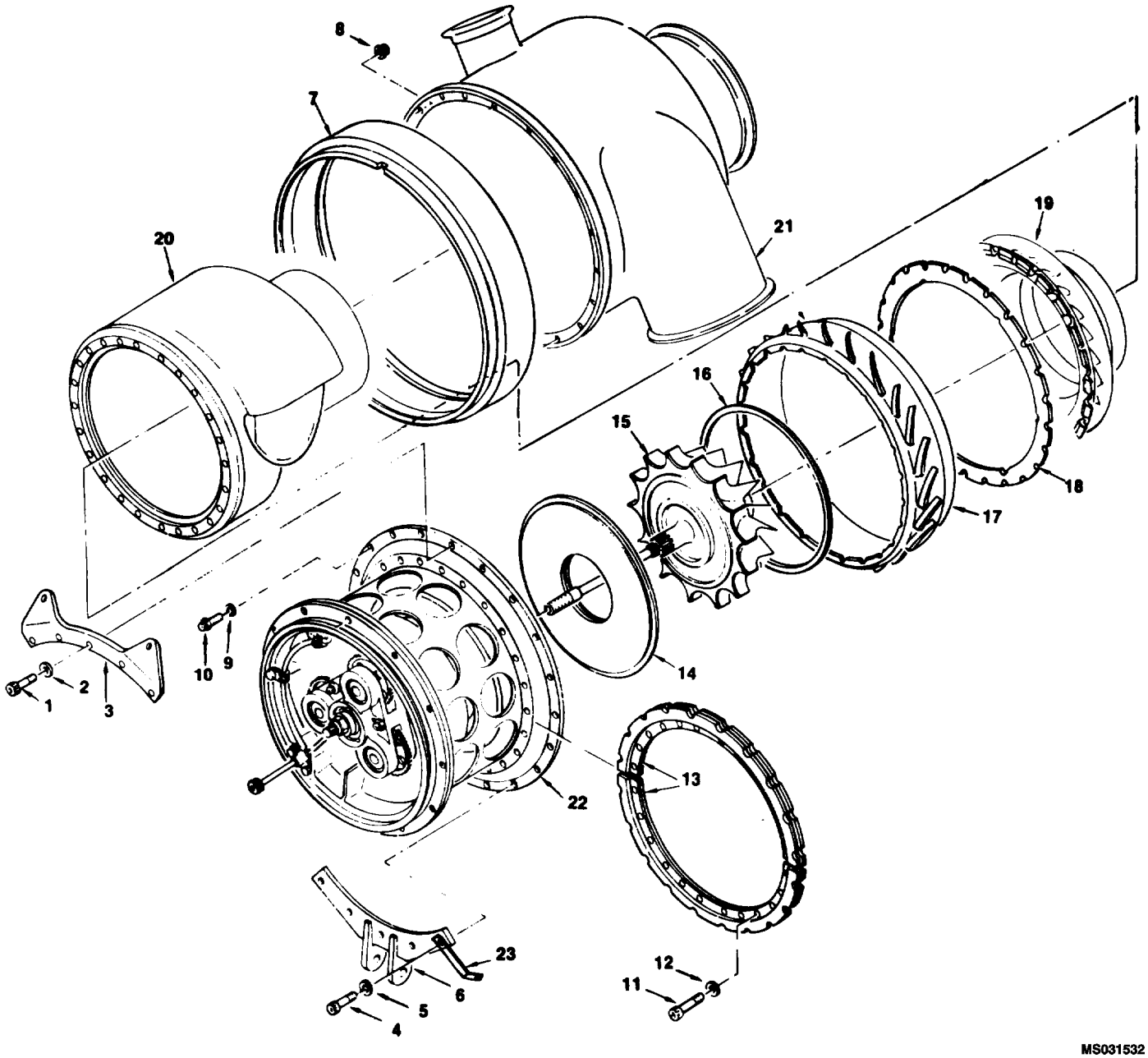
1. Nut	11. Bolt	21. Screw	31. Washer
2. Washer	12. Bracket, Hourmeter	22. Washer	32. Bracket
3. Screw	13. Bolt	23. Clamp	33. Upper Duct
4. Inlet Screen	14. Washer	24. Wiring Harness	34. Lower Duct
5. Screw	15. Bracket	25. Bolt	35. Rivet
6. Washer	16. Screw	26. Washer	36. Seal Retainer
7. Nut	17. Washer	27. Nut	37. Seal
8. Clamp	18. Nut	28. Clamp	38. Cap
9. Bracket	19. Clamp	29. Wiring Harness	39. Rivet
10. Wiring Harness	20. Fuel Line	30. Bolt	40. Nutplate

Figure 1. Compressor Inlet Ducts and Hourmeter Bracket.

ASSEMBLY

1. Install cap (Figure 3, Item 1) on lower duct (Figure 3, Item 2). Lockwire cap.
2. If lower duct has been disassembled, assemble as follows. Position seal (Figure 3, Item 3) and seal retainer (Figure 3, Item 4) to lower duct (Figure 3, Item 2) and secure with rivets (Figure 3, Item 5).
3. Position lower duct (Figure 3, Item 2) and upper duct (Figure 3, Item 38) to engine. Position bracket (Figure 3, Item 6) to upper duct (Figure 3, Item 38) and secure to lower duct (Figure 3, Item 2) with bolts (Figure 3, Item 7) and washers (Figure 3, Item 8). Ensure that ducts are located in slots on retainer and gearcase. Torque bolts to **35 inch-pounds.**
4. Install brackets (Figure 3, Item 9), washers (Figure 3, Item 10), and bolts (Figure 3, Item 11). Torque bolts to **35 inch-pounds.**
5. Install wiring harness (Figure 3, Item 12) and clamps (Figure 3, Item 13) on brackets (Figure 3, Item 9) using bolts (Figure 3, Item 14), washers (Figure 3, Item 15), and nuts (Figure 3, Item 16).
6. Install inlet screen (Figure 3, Item 17) on upper duct and secure with screws (Figure 3, Item 18), washers (Figure 3, Item 19), and nuts (Figure 3, Item 20). Torque nuts to **25 inch-pounds.**
7. Install wiring harness (Figure 3, Item 21) clamps (Figure 3, Item 22) on upper duct (Figure 3, Item 38) using screws (Figure 3, Item 23) and washers (Figure 3, Item 24).
8. Install fuel line (Figure 3, Item 25) and clamp (Figure 3, Item 26) to bracket (Figure 2, Item 23) using screw (Figure 3, Item 27), washer (Figure 3, Item 28), and nut (Figure 3, Item 29).
9. Install hourmeter bracket (Figure 3, Item 30) and bracket (Figure 3, Item 31) using bolts (Figure 3, Item 32). Torque bolts to **35 inch-pounds.**
10. Install wiring harness (Figure 3, Item 33) and clamp (Figure 3, Item 34) on bracket (Figure 3, Item 31) using screw (Figure 3, Item 35), washer (Figure 3, Item 36), and nut (Figure 3, Item 37).

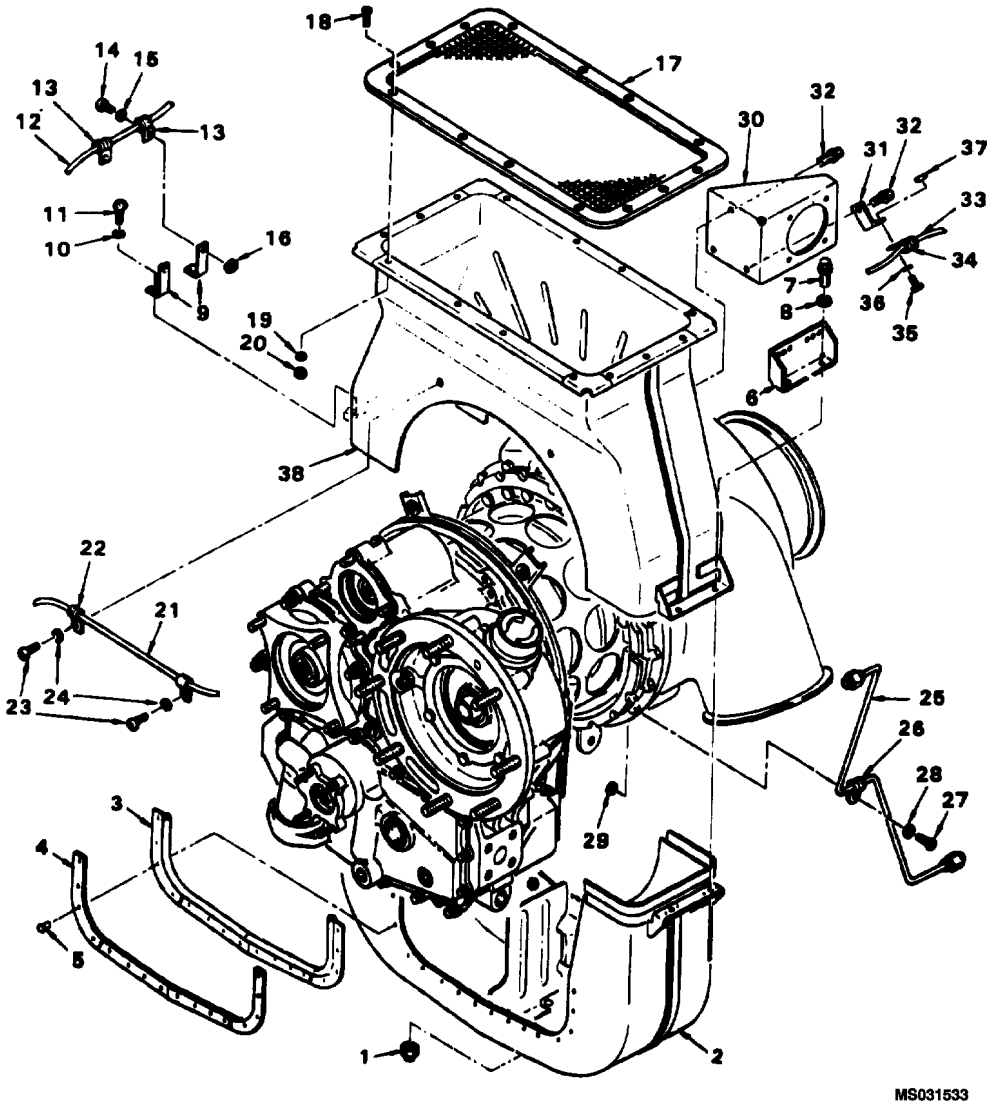
ASSEMBLY – CONTINUED



1. Bolt
2. Washer
3. Lifting lug
4. Bolt
5. Washer
6. Mount bracket
7. Containment ring
8. Nut
9. Bracket
10. Bolt
11. Bolt
12. Washer
13. Retainer halves
14. Labyrinth seal
15. Turbine wheel
16. Shim
17. Deflector
18. Shim
19. Turbine nozzle
20. Turbine housing scroll
21. Turbine plenum assembly
22. Housing
23. Bracket, fuel line

Figure 2. Assembly of Compressor and Turbine.

ASSEMBLY – CONTINUED



1. Cap	11. Bolt	21. Wiring Harness	31. Bracket
2. Lower Duct	12. Wiring Harness	22. Clamp	32. Bolt
3. Seal	13. Clamp	23. Screw	33. Wiring Harness
4. Seal Retainer	14. Bolt	24. Washer	34. Clamp
5. Rivet	15. Washer	25. Fuel Line	35. Screw
6. Bracket	16. Nut	26. Clamp	36. Washer
7. Bolt	17. Screen	27. Screw	37. Nut
8. Washer	18. Screw	28. Washer	38. Upper Duct
9. Bracket	19. Washer	29. Nut	
10. Washer	20. Nut	30. Bracket, Hourmeter	

Figure 3. Assembly of Compressor Inlet Ducts.

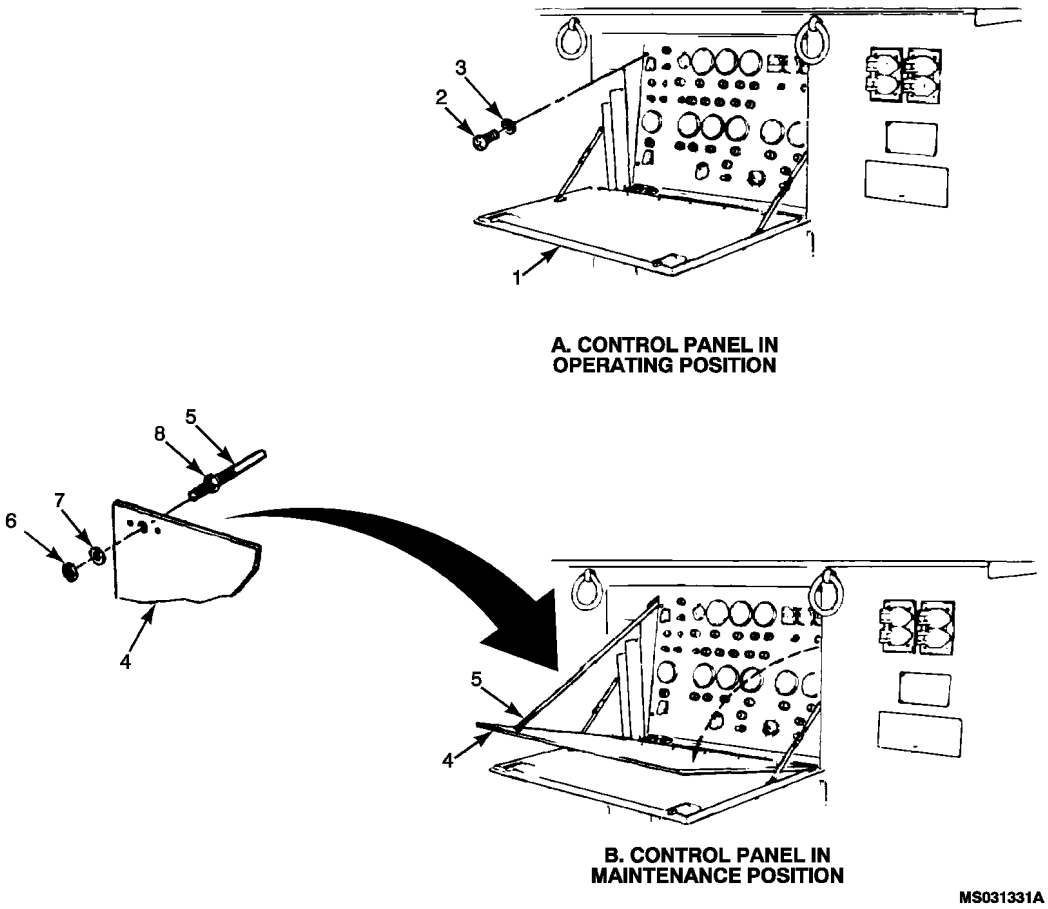
END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

CONTROL PANEL

INITIAL SETUP:

Tools and Special Tools	References
Aviation Foot Locker, AFL (WP 0171 00, Item 3)	WP 0016 00
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)	WP 0021 00
Tool Set, Aviation Unit (WP 0171 00, Item 42)	WP 0034 00



1. Control Panel Access Door	3. Washer	5. Support Cable	7. Washer
2. Screw	4. Control Panel	6. Nut	8. Jam Nut

Figure 1. Control Panel Lowered for Maintenance.

REMOVAL

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
3. Remove battery charger access cover (WP 0021 00).
4. Disconnect main harness connectors from control panel connectors 1P5, 1P6, and 1P7 (WP 0141 00, Figure 1, Item 6).
5. Remove four screws (Figure 1, Item 2), washers (Figure 1, Item 3) and lower control panel (WP 0032 00) so that panel is supported by cable (Figure 1, Item 5).
6. Remove nut (Figure 1, Item 6) and washer (Figure 1, Item 7) from support cable (Figure 1, Item 5).
7. Remove control panel (Figure 1, Item 4).

REPAIR OR REPLACEMENT

Replace damaged components or wiring harnesses as required.

INSTALLATION

1. Position control panel (Figure 1, Item 4) with lower edge of panel resting on ledge beneath panel opening in rear of AGPU.

INSTALLATION – CONTINUED

2. Attach support cable (Figure 1, Item 5) to control panel using washers (Figure 1, Item 7) and nut (Figure 1, Item 6).
3. Ensure connections connect main harness connectors to control panel connectors 1P5, 1P6 and 1P7 (MEP 83-360E ONLY).
4. Raise panel into position and secure with four washers (Figure 1, Item 3) and screws (Figure 1, Item 2).
5. Install battery charger access cover (WP 0021 00).
6. Reconnect batteries.
7. Perform MOC and PMCS (WP 0016 00).

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

ENGINE CONTROL SWITCH

INITIAL SETUP:

Tools and Special Tools

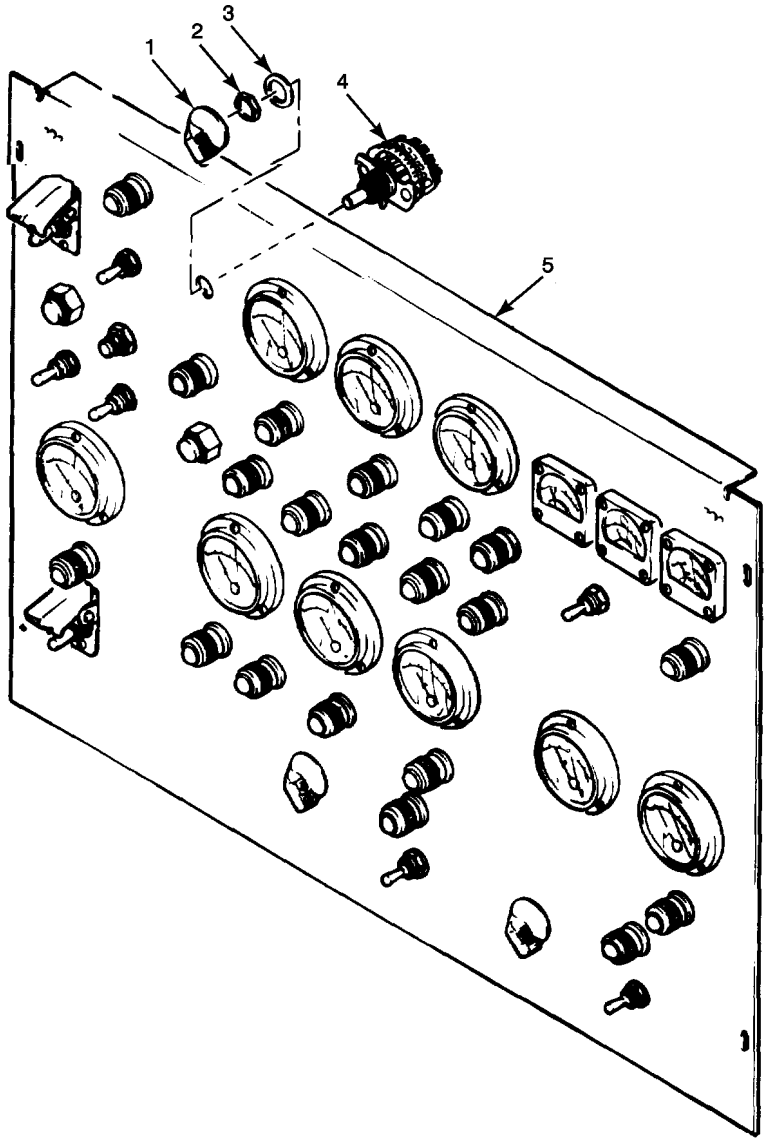
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK
(WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Solder, Tin Alloy (WP 0170 00, Item 53)

References

WP 0012 00
WP 0034 00
WP 0107 00



1. Knob
2. Nut
3. Lock Washer
4. Engine Control Switch
5. Panel

Figure 1. Control Panel ENGINE CONTROL Switch.

REMOVAL

NOTE

Refer to WP 0012 00, troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS for test.

NOTE

Procedures in this section require that wires be disconnected from control panel terminals. Before disconnecting wires from more than one terminal, make sure that wire numbers are legible. If not, use tape to identify wires. Refer to FO 16.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
3. Remove control panel (WP 0107 00).
4. Loosen two setscrews in switch knob (Figure 1, Item 1) and remove knob.
5. Unsolder all wires from terminal lugs on back of engine control switch (Figure 1, Item 4). Use care not to shorten wires any more than necessary.
6. Remove nut (Figure 1, Item 2), lock washer (Figure 1, Item 3), and engine control switch (Figure 1, Item 4).
7. Measure length of switch shaft for reference.

INSTALLATION

1. Using hacksaw, cut shaft of replacement switch to same length as shaft of old engine control switch. Remove any burrs from shaft end.
2. Remove nut (Figure 1, Item 2) and lock washer (Figure 1, Item 3) from replacement engine control switch (Figure 1, Item 4).
3. Install replacement engine control switch (Figure 1, Item 4) from back of panel, and secure with lock washer (Figure 1, Item 3) and nut (Figure 1, Item 2).
4. Solder all wires removed during the removal step to solder lugs on switch.
5. Position knob (Figure 1, Item 1) on shaft of switch and tighten setscrews in knob.
6. Rotate knob to full counterclockwise position. If knob is not pointing to STOP position, loosen setscrews, position knob to point to STOP position, and tighten both setscrews in knob.
7. Install control panel (WP 0107 00).
8. Reconnect batteries.
9. Perform MOC and verify pointer of knob is pointing to STOP, RUN, START positions.

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

HYDRAULIC SYSTEM MAINTENANCE INTRODUCTION

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Hydraulic Fluid, Fire Resistant (WP 0170 00, Item 26)
Hydraulic Fluid, Petroleum Base (WP 0170 00, Item 27)

References

TM 1-1730-229-13
WP 0116 00
WP 0117 00
WP 0119 00
WP 0129 00
WP 0130 00
WP 0120 00

GENERAL

This section contains hydraulic system maintenance procedures. Certain maintenance procedures require disassembly and reassemble of the hydraulic module to gain access to the component being repaired. These disassembly and reassembly procedures are contained in WP 0129 00, Hydraulic Module Disassembly and WP 0130 00, Hydraulic Module Assembly. Steps in these sections are referenced for disassembly and reassembly procedures necessary to remove/install components.

GENERAL – Continued

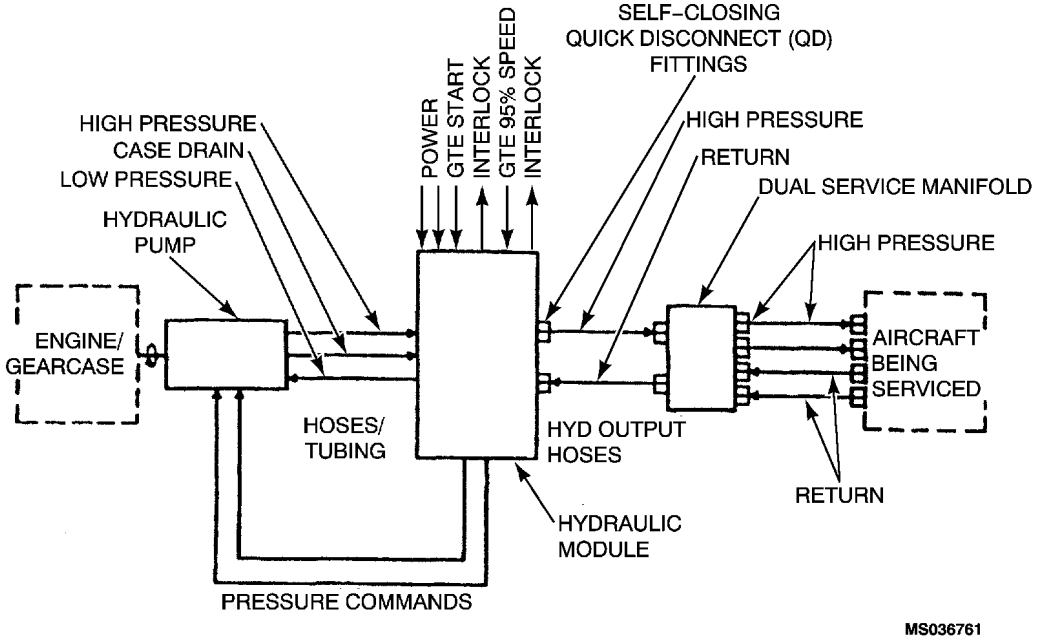
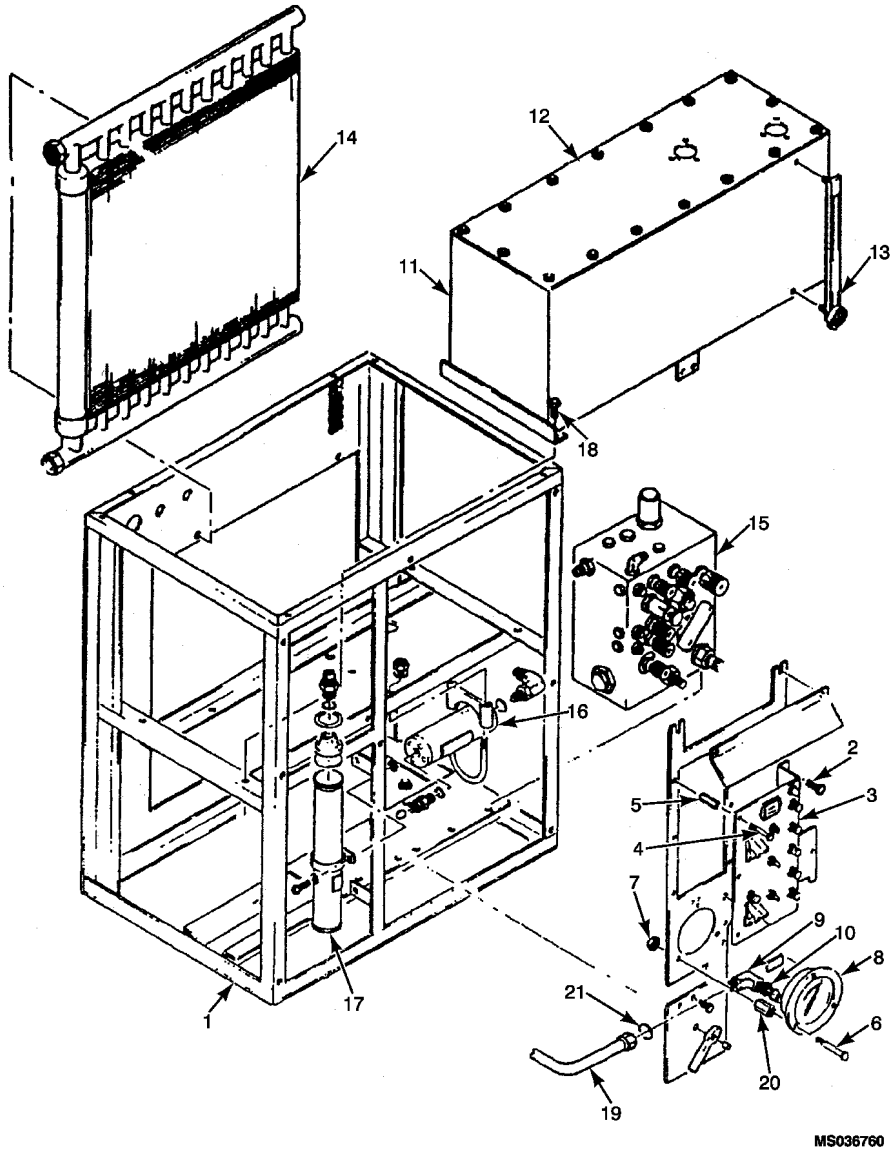


Figure 1. Hydraulic System, Simplified.

GENERAL – Continued



1. Frame	8. Gauge	15. Manifold
2. Screw	9. Elbow	16. Accumulator
3. Electrical Control Panel	10. Jam Nut	17. Vent Dryer
4. Screw	11. Reservoir	18. Bolt
5. Standoff	12. Reservoir Top Cover	19. Gauge Tube Assembly
6. Bolt	13. Temp/Level Guage	20. Standoff
7. Nut	14. Cooler (Heat Exchanger)	21. Seal

Figure 2. Hydraulic Module Major Components.

GENERAL – Continued

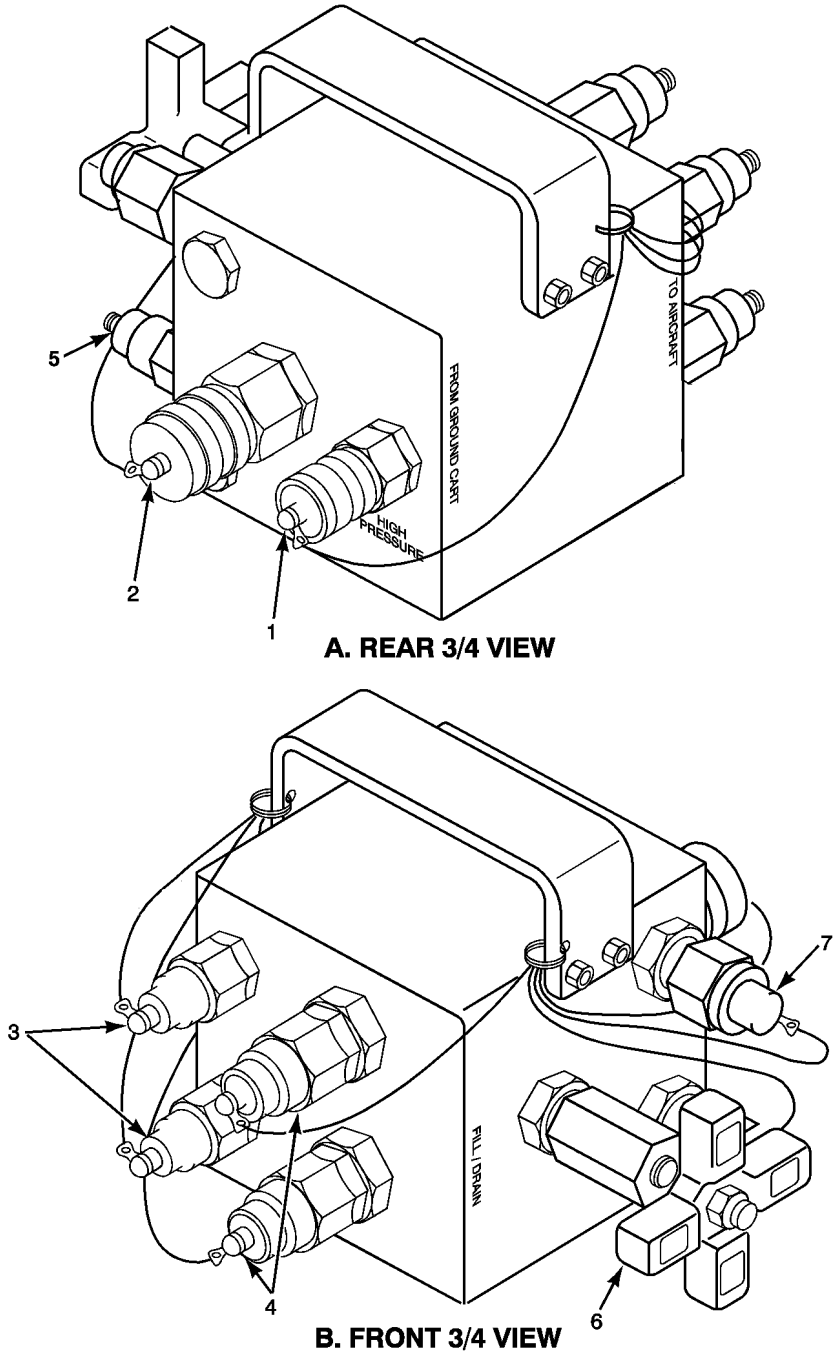


Figure 3. Hydraulic Dual Service Manifold.

GENERAL – Continued

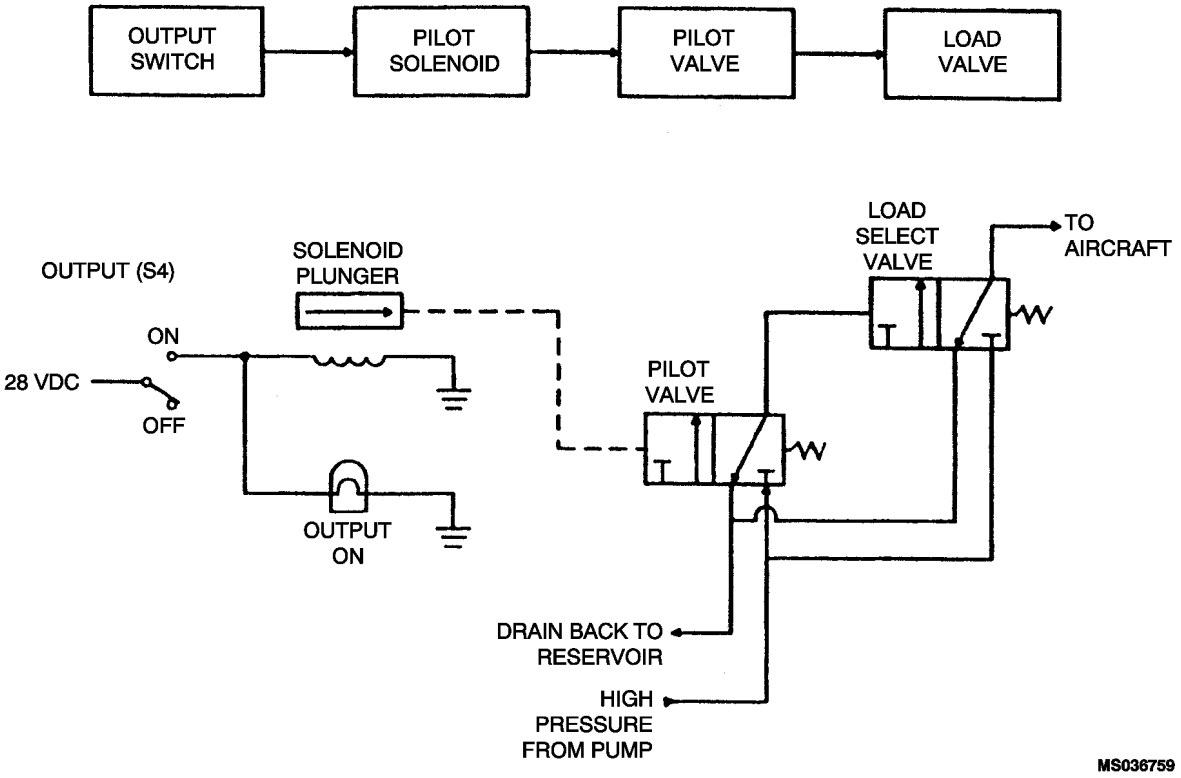


Figure 4. Load Valve Schematic Operation.

DESCRIPTION

The hydraulic system (Figure 1) consists of: hydraulic pump (mounted on engine gearcase), hydraulic module, dual service manifold, Purge oil sample adaptor and hydraulic hoses and lines. The hydraulic system provides adjustable high pressure hydraulic power up to 3,300 psig at 15.2 gpm to an aircraft. This hydraulic power can be used to drive aircraft hydraulic systems, fill aircraft reservoirs, or flush aircraft hydraulic systems. Output pressure to the aircraft is adjusted by the operator at the hydraulic module control panel. Hydraulic pressure, once set, remains constant regardless of the flow rate demanded by the aircraft (up to the maximum flow rate of 15.2 gpm). The hydraulic system uses fluid MIL-PRF-83282, or MIL-PRF- 5606. Fluid MIL-PRF-83282 is limited to temperature ranges from -40 to +125 °F.

Hydraulic Pump

The hydraulic pump (WP 0117 00) (with pressure compensation controls enclosed) bolts to the engine/gearcase pump mounting pad. The pump is driven by the engine/gearcase at approximately 8,000 rpm. For units not requiring hydraulic power, a spacer is provided to bolt between the engine/ gearcase and pump. This spacer disconnects the pump from the drive gear. This eliminates unnecessary wear on pump, and reduces load on engine (since the pump must maintain a minimum 500 psig pressure for self-lubrication). The hydraulic system must never be operated without sufficient hydraulic fluid , or pump will be damaged. The pump receives a low pressure fluid from the hydraulic module reservoir and supplies high pressure hydraulic power. The pump is designed to allow hydraulic fluid to leak through the bearings for cooling and lubrication. This fluid is routed from the pump case drain back to the reservoir. The pump receives electrical commands, set by the operator, from the hydraulic module control panel for an increase or decrease of output fluid pressure.

Hydraulic Module

The hydraulic module (Figure 2) contains all controls (fluid and electrical) for the hydraulic system. The module contains a nine-gallon reservoir with attachments for manual filling and draining, overflow, and removal of moisture from

GENERAL – Continued

vent air that enters as fluid level changes. High pressure (2 micron) and return (5 micron) filters have throw away elements. The filters have built-in electrical circuits that illuminate the CHANGE FILTER light on the control panel when the filter elements need changing. The accumulator (pressurized with nitrogen), heat exchanger, gauge, valves and plumbing complete the makeup of the hydraulic module.

Dual Service Manifold

A separate dual service manifold (WP 0119 00) is included in the hydraulic system to accommodate the need for dual outlet and return connections. The single input is branched to two equal output lines, and two returns are combined into a single return path. Valves and fluid ports are provided for filling and draining hoses.

Hydraulic Oil Sampling/Purge Adaptor

A separate Hydraulic Oil Sampling/Purge Adaptor (WP 0120 00) is included in the hydraulic system to accommodate purging and oil sampling of the entire hydraulic system.

Hoses and Lines

Plumbing between the pump and module consists of fixed tubing with sections of hose at the end near the pump. The hoses between the hydraulic module and dual manifold are 30 feet long. The output (high pressure) hose is 1/2-inch diameter and the return (low pressure) hose is 3/4 inch diameter. The four (two output and two return) adapter hoses are 10 feet long.

Hydraulic System Function

The most common hydraulic system operating mode is that of supplying hydraulic power to an aircraft. The hydraulic flow diagram for this mode is on figureFO 10.

NOTE

Foldouts are contained in TM 1-1730-229-13 and TM 1-1730-229-40.

1. A schematic of the hydraulic system electrical controls and indicators is shown on figure (FO 9). Hydraulic flow diagrams for other modes of operation are shown on figures (FO 11) (servicing aircraft using aircraft reservoir), figure (FO 12) (warming fluid in module), figure (FO 13) (warming fluid in hoses), and figure (FO 14) (bleeding air).
2. As shown on figure (FO 10), hydraulic fluid from the AGPU reservoir is routed through a reservoir selector valve and passes four temperature sensors to the hydraulic pump. The temperature sensors TS1 through TS4 on figure (FO 9) are set to close at various temperatures . The 70°F sensor (TS1) causes SYSTEM READY light DS5 to illuminate. This indicates that the hydraulic fluid is at the minimum temperature for operation. Sensors TS2 and TS3 illuminate 160°F and 240°F indicator lights. If hydraulic fluid reaches 275°F, TS4 activates to illuminate HI TEMP light. Activation of TS4 also interrupts the circuit to the load valve pilot solenoid, and shuts down hydraulic power to aircraft.
3. The pump provides hydraulic pressure as commanded by the PRESSURE switch, figure (FO 9). The two pressure command lines to the pump carry 28 vdc which positions the pressure adjustment mechanism inside the pump. When output connector pin G is at 28 vdc (pin H is the return) the pump mechanism operates to increase pressure. When the applied voltage is reversed on the pump input leads, the mechanism operates to decrease pressure. The PRESSURE switch is spring loaded to its unconnected center position, So the pump pressure mechanism remains in the last position it was set to by the operator unless power to the hydraulic module is turned off. When POWER switch S1 is set to OFF, output connector pin H is connected to 28 vdc and pin G becomes the return line. This causes the pump pressure mechanism to move to the position of minimum pressure (500 psig).
4. Prior to servicing an aircraft the PRESSURE RELIEF valve figure (FO 10) is set to the maximum allowable pressure for that particular aircraft. if the operator increases the pump pressure beyond the allowable maximum, the PRESSURE RELIEF valve will open to prevent excess pressure.
5. A high and low pressure filter is provided to remove any solid contamination in the hydraulic fluid. A switch is connected across each filter. If the filter gets dirty and the difference between input and output fluid pressure exceeds

GENERAL – Continued

50 psi the switch closes. As shown on figure (FO 9), closure of either pressure switch PS1 or PS2 causes the REPLACE FILTER light to illuminate.

6. The accumulator, figure (FO 10), stores hydraulic pressure to accommodate brief changes in demand. The OUTPUT PRESSURE gauge provides the operator with an indication of pressure being applied. The HIGH PRESSURE BYPASS valve provides a path for circulation of hydraulic fluid when either the load valve is closed or when hoses to the aircraft (or dual manifold) are not connected. Restrictions in the HIGH PRESSURE BYPASS valve line and in the dual manifold bypass line provide a back-pressure if required for proper pump operation. Application of hydraulic power to the aircraft is controlled by the load select valve, as shown in figure 8-4, operation of the load select valve involves three steps as follows:
    1. OUTPUT switch S4 is set to the ON position which applies 28 vdc to the pilot valve solenoid and OUTPUT ON indicator.
    2. Activation of the solenoid pushes the pilot valve against the spring allowing high pressure fluid to be applied to the load valve.
    3. Fluid pressure pushes the load valve against its spring allowing hydraulic system output to be applied to the aircraft.
4. When the OUTPUT switch is set to off, the solenoid, pilot and load valves all return to their original positions and the fluid pressure trapped between the valves is released back to the reservoir. The output and return hoses are each 30 feet in length. The output hose is 1/2 inch in diameter and the return hose is 3/4 inch. Quick disconnects containing check valves on each end hold the fluid in the hose so it will not drain out between uses. Protective caps are attached to keep quick disconnect fittings clean when hoses are not in use.
5. The dual manifold is provided because some aircraft require two high pressure and two return connections. This need id satisfied by dual connections on the manifold and the use of short (10 foot) adapter hoses. The dual manifold provides additional fill and drain ports and valves. Quick disconnects with check valves minimize fluid loss.
6. Return line components include the RETURN BYPASS valve (when set to the off position) provides 65 psi of back pressure to the aircraft. This is required for proper servicing of certain aircraft. In the BYPASS position, no back-pressure is provided. The heat exchanger cools the hydraulic fluid by transferring heat from the fluid to ambient air. The heat exchanger is located at the back of the hydraulic module allowing for escape of heated air. A 10 psi relief valve is parallel to the heat exchanger to prevent flow restriction at maximum flow rates. This relief valve is inside the heat exchanger and not separately replaceable.
7. Attachments to the hydraulic module reservoir permit filling and allow the system to vent. When filling the system with hydraulic fluid at either the SYSTEM FILL, dual manifold FILL, or extra fill ports) the air in the reservoir is allowed to escape through the overflow channel. This is also true of excess hydraulic fluid in the reservoir. Air coming into the reservoir (when hydraulic fluid level drops) passes through the filter drier. This unit removes moisture and other contamination from the air before it enter the reservoir.
8. Figure (FO 11) shows the main flow path when hydraulic fluid is supplied by the reservoir in the aircraft being serviced. Figures (FO 12) and (FO 13) show how cold fluid is circulated through the system to warm it to operating temperature. Warming is accomplished by opening the HIGH PRESSURE BYPASS valve slightly, heat is generated by the friction of forcing the fluid through a small opening. Figure (FO 14) shows the flow while bleeding air from the system. This same flow applies when filling or adding fluid to the system.

Hydraulic Module

Refer to WP 0116 00 for removal and installation of hydraulic module.

Introduction

This section contains hydraulic system maintenance procedures. Certain maintenance procedures require disassembly and reassembly of the hydraulic module to gain access to the component being repaired. These disassembly and reassembly procedures are contained in Section III (Module Disassembly) and Section IV (Module Assembly). Steps in these sections are referenced for disassembly and reassembly procedures necessary to remove/install components.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

HYDRAULIC SYSTEM SERVICING

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
19 (WP 0168 00, Item 19)
20 (WP 0168 00, Item 20)
Reducer, Tube (WP 0171 00, Item 31)
Reservoir Servicing Unit (WP 0171 00, Item 32)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Hydraulic Fluid, Fire Resistant (WP 0170 00, Item 26)
Hydraulic Fluid, Petroleum Base (WP 0170 00, Item 27)

References

WP 0014 00
WP 0015 00
WP 0034 00

NOTE

For identification of hydraulic control panel components and air purging operations refer to TM 1-1730-229-13 (Operation Under Usual Conditions – Hydraulic System).

NOTE

Air purges automatically from the reservoir while filling according to the following procedures. Air purge from hoses, tubing and hydraulic module components is performed during normal operation per TM 1-1730-229-13 (Operation Under Usual Conditions – Hydraulic System).

SERVICE

CAUTION

Ensure reservoir servicing unit is filled with the correct hydraulic fluid (MIL-PRF-5606 or MIL-PRF-83282).

1. Hydraulic fluid fill at RETURN quick disconnect:
    a. Connect reservoir serving unit to RETURN port using quick disconnect adapter.
    b. Set RESERVOIR select to AGPU, RETURN BYPASS to BYPASS, and remove plug from reservoir breather vent.

SERVICE – CONTINUED

c. Pump reservoir servicing unit with correct fluid until hydraulic module reservoir is filled to the desired 3/4 full level.

d. Disconnect reservoir servicing unit.

e. Replace RETURN dust cap and reservoir breather vent plug.

f. Set RESERVOIR select to AGPU, RETURN BYPASS to OFF, and replace plug from reservoir breather vent.

g. Wipe up any fluid spillage.

2. Hydraulic fluid fill at reservoir breathing vent:

a. Connect Reservoir Servicing Unit to reservoir breather vent using Reducer, Tube.

NOTE

You should hear the reservoir relief valve open. This is normal.

b. Pump reservoir servicing unit with correct fluid until hydraulic module reservoir is filled to the desired 3/4 full level.

c. Disconnect reservoir servicing unit.

d. Replace plug on reservoir breather vent.

e. Wipe up any fluid spillage.

3. Hydraulic fluid fill using external fill tube:

a. Remove cap from reservoir breather vent at top of reservoir.

b. Remove cap from SYSTEM DRAIN port.

c. Remove fill extension tube from bracket inside hydraulic control panel access door.

d. Remove protective caps from fill extension tube and attach short section of tube to the SYSTEM DRAIN port.

e. Open SYSTEM DRAIN valve.

f. Using a funnel, slowly pour hydraulic fluid into extension tube until reservoir fluid level is 3/4 full.

g. Close SYSTEM DRAIN valve.

h. Loosen the fill extension tube and slowly rotate fill tube to the left to drain excess fluid into a container. Remove fill extension tube.

i. Install reservoir breather vent and SYSTEM DRAIN port caps.

j. Replace protective caps onto both ends of fill extension tube and store inside of hydraulic control panel access door.

k. Wipe up any fluid spillage.

SERVICE – CONTINUED

WARNING

Suction method of hydraulic reservoir servicing must be completed by trained and qualified personnel only, due to possibility of damaging the pump.

CAUTION

The following procedure requires that **at least one inch** of fluid is visible in the reservoir level gauge and that the hydraulic system is known to be operational. Attempts to fill by this method when hydraulic pump is not primed will damage the pump.

4. Hydraulic fluid fill using suction method:
    a. Remove cap from reservoir breather vent at top of reservoir.
    b. Remove cap from SYSTEM FILL port.
    c. Remove fill extension tube from bracket inside hydraulic control panel access door.
    d. Remove protective caps from fill extension tube and attach threaded short section of extension tube to SYSTEM FILL port. Long section of extension tube should point downward.
    e. Attach a length of hose to the downward directed section of the extension tube. This hose must reach to bottom of container (source of hydraulic fluid).
    f. Establish hydraulic module operation (without output hose connections) refer to TM 1-1730-229-13, Operator Instructions Hydraulic System Operations. Set pressure to between 1,800 and 2,000 psi.

CAUTION

The source of hydraulic fluid must not be permitted to run dry during this procedure. This will cause pump cavitation and damage pump. The AGPU reservoir holds approximately 9 gallons, so the capacity of the fluid source must exceed that amount.

    g. Place hose from extension tube into the container holding the hydraulic fluid for reservoir filling.
    h. Open HIGH PRESSURE BLEED valve 1/4 turn. This setting is critical. Opening this valve too much will cause pump cavitation.

CAUTION

Steps i and j must be performed in the sequence stated and must be performed quickly. While performing these operations watch the OUTPUT PRESSURE gauge. Read and understand the next two steps thoroughly before proceeding.

    i. Press in on PUSH TO FILL valve and hold while rapidly switching RESERVOIR selector valve from AGPU to AIRCRAFT positions. If OUTPUT PRESSURE gauge indication fluctuates excessively, immediately return the RESERVOIR selector valve to the AGPU position and then release the PUSH TO FILL valve. Then close HIGH PRESSURE BLEED valve 1/8 turn. If OUTPUT PRESSURE gauge indication is stable proceed to next step.
    j. Hold PUSH TO FILL valve in while watching the reservoir level gauge. When the reservoir is 3/4 full, set the RESERVOIR selector to AGPU and release the PUSH TO FILL valve.
    k. Remove hose from fill extension tube.
    l. Disconnect fill extension tube. Cap and store fill extension tube.

SERVICE – CONTINUED

m. Install reservoir breather vent and SYSTEM FILL port caps.

n. Close HIGH PRESSURE BLEED valve.

o. Wipe up any fluid spillage.

p. Proceed to operations of the hydraulic system refer to TM 1-1730-229-13, Operator Instructions, Hydraulic System..

5. Hydraulic fluid drain and refill:

WARNING

Operation of AGPU with low fluid level of hydraulic reservoir will damage hydraulic pump. Install hydraulic pump spacer (WP 0014 00) if hydraulic reservoir is not refilled with oil prior to AGPU operation.

a. Remove cap from breather vent at top of reservoir.

b. Remove cap from SYSTEM DRAIN port and attach fill extension tube to port and place container below extension. **Container must be able to hold at least 9 gallons of hydraulic fluid.**

c. Open SYSTEM DRAIN valve.

d. When reservoir fluid level gauge is empty of fluid and flow stops, remove and stow extension tube. Replace caps on SYSTEM DRAIN port and breather vent port.

e. Close SYSTEM DRAIN valve.

f. Wipe up any fluid spillage.

g. Place tag on master switch stating hydraulic reservoir is empty.

h. Refill system as required (WP 0015 00) to prevent damage to hydraulic pump and system.

END OF WORK PACKAGE

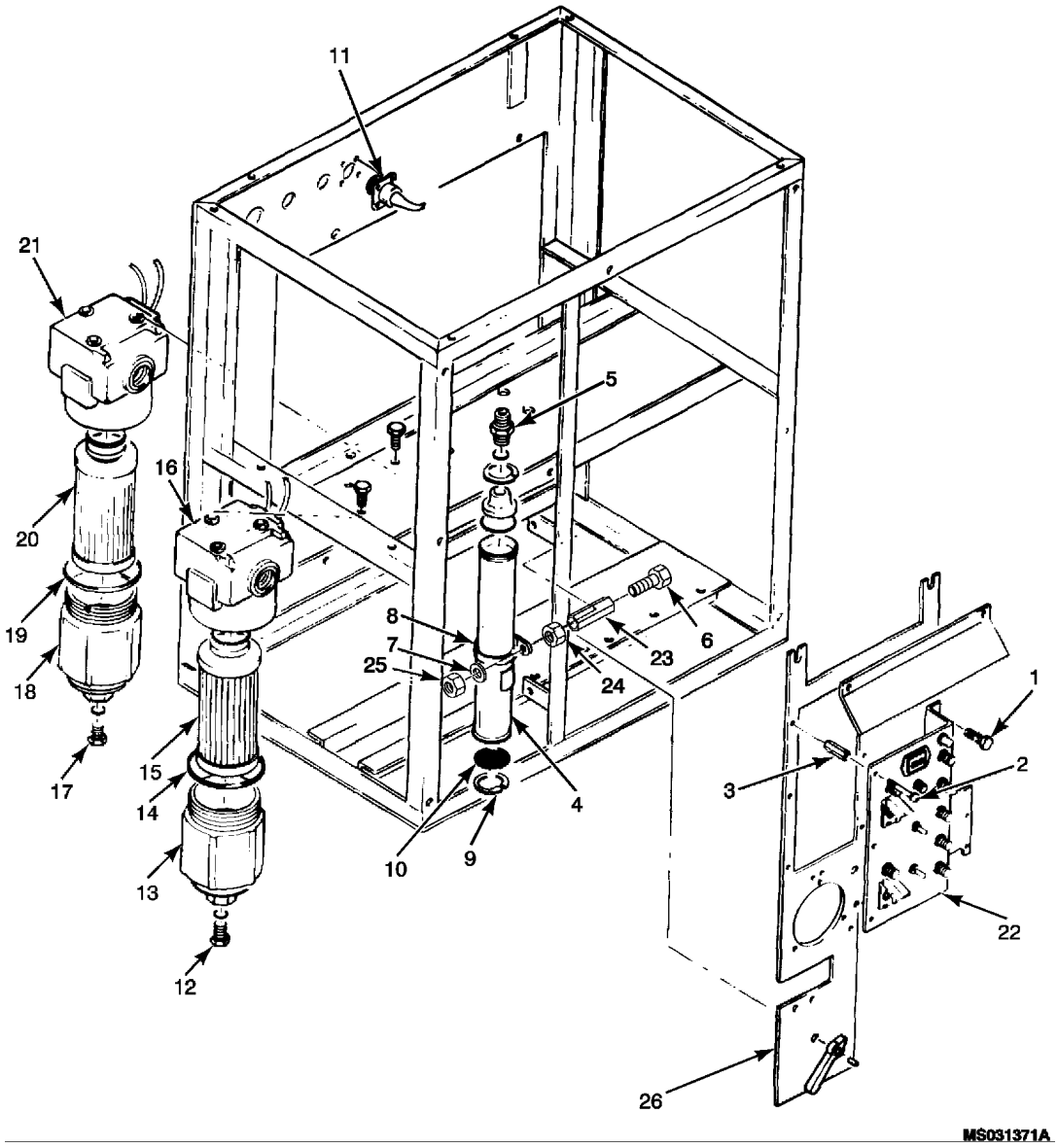
**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

HYDRAULIC MODULE SWITCHES AND CIRCUIT BREAKER

INITIAL SETUP:

Tools and Special Tools	References
Aviation Foot Locker, AFL (WP 0171 00, Item 3)	WP 0012 00
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)	WP 0034 00
	WP 0036 00
Tool Set, Aviation Unit (WP 0171 00, Item 42)	WP 0116 00
	WP 0030 00

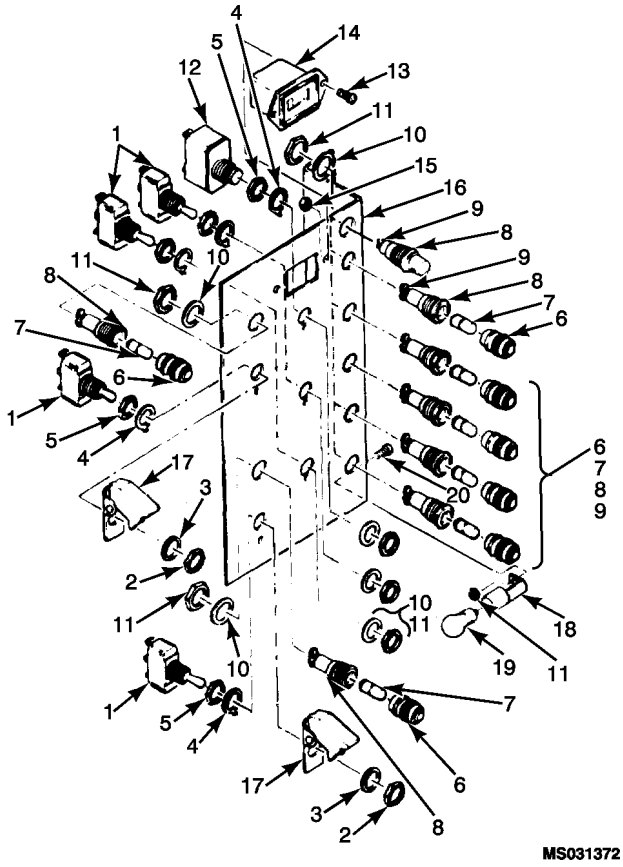
REMOVAL



1. Screw
2. Screw
3. Standoff
4. Vent Dryer
5. Fitting
6. Bolt
7. Washer
8. Clamp
9. Filter Retaining Ring
10. Wafer Filter
11. Connector
12. Drain Plug, Low Pressure
13. Filter Bowl, Low Pressure
14. Packing
15. Filter Element, Low Pressure
16. Filter Head, Low Pressure
17. Drain Plug, High Pressure
18. Filter Bowl, High Pressure
19. Packing
20. Filter Element, High Pressure
21. Filter Head, High Pressure
22. Electrical Panel
23. Standoff
24. Nut
25. Nut
26. Hydraulic Control Panel Frame

Figure 1. Hydraulic Module Subassemblies.

REMOVAL – CONTINUED



1. Switch	6. Lens	11. Nut	16. Panel
2. Nut	7. Lamp	12. Circuit Breaker	17. Switch Guard
3. Washer, Positioning	8. Socket, Lamp	13. Screw	18. Socket, Lamp
4. Washer, Positioning	9. Screws	14. Hour Meter	19. Lamp, Utility
5. Nut, Adjustment	10. Washer	15. Nut	20. Screw

Figure 2. Hydraulic Module Electrical Panel.

NOTE

Refer to WP 0012 00, troubleshooting procedure 106. HYDRAULIC CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Remove hydraulic control panel access door (WP 0030 00).

NOTE

When removing three screws (Figure 1, Item 2) on left side of electrical control panel ensure that standoffs (Figure 1, Item 3) do not fall away.

3. Remove six screws (Figure 1, Item 1 and 2) and standoffs (Figure 1, Item 3) securing electrical panel (Figure 1, Item 22) to Hydraulic Control Panel Frame (Figure 1, Item 26).

REMOVAL – CONTINUED

4. Tilt electrical panel (Figure 1, Item 22) to the left to gain access to switch and circuit breaker terminals.
5. Tag and remove wires from switches (Figure 2, Item 1) or circuit breaker (Figure 2, Item 12) as necessary.
6. Remove retaining nut (Figure 2, Item 2) and positioning washers (Figure 2, Item 3) and remove switch or circuit breaker from panel (Figure 2, Item 16).

INSTALLATION

1. On new switch (Figure 2, Item 1) or circuit breaker (Figure 2, Item 12), set adjustment nut (Figure 2, Item 5) to same position as switch or circuit breaker removed for proper protrusion through control panel.
2. Check switch (Figure 2, Item 1) or circuit breaker (Figure 2, Item 12) orientation and install positioning washer (Figure 2, Item 4) on top of adjustment nut (Figure 2, Item 5).
3. Insert switch (Figure 2, Item 1) on circuit breaker (Figure 2, Item 12) through hole in panel. Ensure that positioning washer (Figure 2, Item 4) tab engages positioning hole in panel.
4. Install positioning washer (Figure 2, Item 3) and nut (Figure 2, Item 2).
5. Connect wires to switch (Figure 2, Item 1) or circuit breaker (Figure 2, Item 12).
6. Position electrical panel (Figure 1, Item 22) and install three screws (Figure 1, Item 2) and standoffs (Figure 1, Item 3) on left side of electrical panel.
7. Install three screws (Figure 1, Item 1) to secure right side of electrical panel (Figure 1, Item 22) to Hydraulic Control Panel Frame (Figure 1, Item 26).
8. Install hydraulic control panel access door (WP 0030 00).
9. Reconnect battery.
10. Perform MOC and check operation of switch or circuit breaker.

END OF WORK PACKAGE

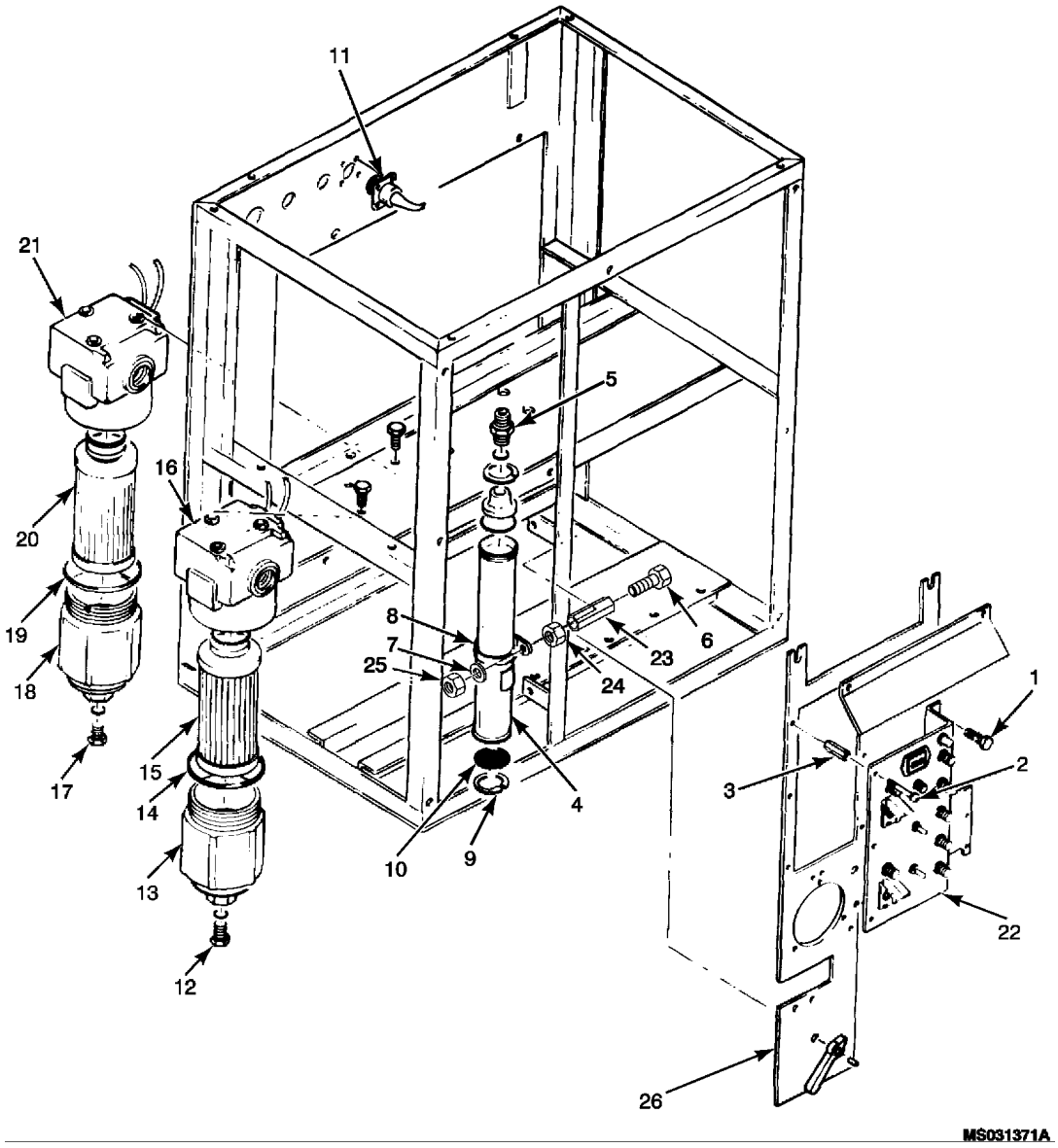
POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

HYDRAULIC MODULE INDICATOR LIGHTS, LAMPS AND HOUR METER

INITIAL SETUP:

Tools and Special Tools	References
Aviation Foot Locker, AFL (WP 0171 00, Item 3)	WP 0012 00
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)	WP 0034 00
	WP 0036 00
Tool Set, Aviation Unit (WP 0171 00, Item 42)	WP 0116 00

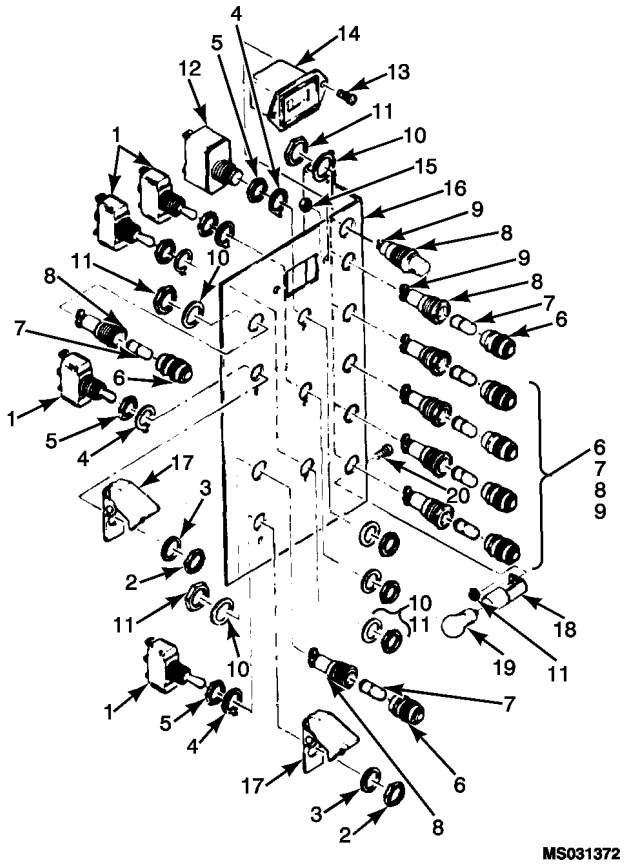
REMOVAL



1. Screw
2. Screw
3. Standoff
4. Vent Dryer
5. Fitting
6. Bolt
7. Washer
8. Clamp
9. Filter Retaining Ring
10. Wafer Filter
11. Connector
12. Drain Plug, Low Pressure
13. Filter Bowl, Low Pressure
14. Packing
15. Filter Element, Low Pressure
16. Filter Head, Low Pressure
17. Drain Plug, High Pressure
18. Filter Bowl, High Pressure
19. Packing
20. Filter Element, High Pressure
21. Filter Head, High Pressure
22. Electrical Panel
23. Standoff
24. Nut
25. Nut
26. Hydraulic Control Panel Frame

Figure 1. Hydraulic Module Subassemblies.

REMOVAL – CONTINUED



1. Switch	6. Lens	11. Nut	16. Panel
2. Nut	7. Lamp	12. Circuit Breaker	17. Switch Guard
3. Washer, Positioning	8. Socket, Lamp	13. Screw	18. Socket, Lamp
4. Washer, Positioning	9. Screws	14. Hour Meter	19. Lamp, Utility
5. Nut, Adjustment	10. Washer	15. Nut	20. Screw

Figure 2. Hydraulic Module Electrical Panel.

Remove Indicators

NOTE

Refer to WP 0012 00, troubleshooting procedures 61. HYDRAULIC CONTROL PANEL IN DICATOR LIGHT TEST FAILS - ONE INDICATOR DOES NOT LIGHT and 62. HYDRAULIC CONTROL PANEL INDICATOR LIGHT TEST FAILS - NO INDICATORS LIGHT for test.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.

REMOVAL – CONTINUED

2. Remove hydraulic control panel access door (WP 0030 00).

NOTE

When removing three screws (Figure 1, Item 1 and 2) on left side of electrical control panel ensure that standoffs (Figure 1, Item 3) do not fall away .

3. Remove six screws (Figure 1, Item 1 and 2) securing electrical panel (Figure 1, Item 22) to frame (Figure 1, Item 23).
4. Tilt electrical panel (Figure 1, Item 22) to the left to gain access to switch and circuit breaker terminals.
5. Tag and remove wires from lamp socket (Figure 2, Item 8).
6. Remove retaining nut (Figure 2, Item 11) and washer (Figure 2, Item 10) and remove lamp socket (Figure 2, Item 8) from panel (Figure 2, Item 16).

INSTALLATION

Install Indicators

1. Insert lamp socket (Figure 2, Item 8) through hole in panel (Figure 2, Item 16).
2. Install washer (Figure 2, Item 10) and nut (Figure 2, Item 11) and tighten.
3. Connect wires to lamp socket (Figure 2, Item 8).
4. Install lamp (Figure 2, Item 7) and lens (Figure 2, Item 6) if not already installed in lamp socket.
5. Position electrical panel (Figure 1, Item 22) and install three screws (Figure 1, Item 1) and standoffs (Figure 1, Item 3) on left side of electrical panel.
6. Install three screws (Figure 1, Item 1) to secure right side of panel (Figure 1, Item 22) to Hydraulic Control Panel Frame (Figure 1, Item 26).
7. Install hydraulic control panel access door (WP 0116 00).
8. Reconnect battery cable.

REMOVAL

Remove Hour Meter

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Remove hydraulic control panel access door (WP 0116 00).
3. Remove three screws (Figure 1, Item 1) securing right side of electrical panel (Figure 1, Item 22) to Hydraulic Control Panel Frame (Figure 1, Item 26).
4. Remove three screws (Figure 1, Item 2) and standoffs (Figure 1, Item 3) securing left side of panel (Figure 1, Item 22).
5. Tilt electrical panel (Figure 1, Item 22) to the right to gain access to switch and circuit breaker terminals.
6. Tag and remove wires from hour meter (Figure 2, Item 14).
7. Remove two screws (Figure 2, Item 13) and remove hour meter (Figure 2, Item 14) from panel (Figure 2, Item 16).

INSTALLATION

Install Hour Meter

1. Insert hour meter (Figure 2, Item 14) through hole in panel (Figure 2, Item 16).
2. Secure hour meter to panel with two screws (Figure 2, Item 13).
3. Connect wires to hour meter (Figure 2, Item 14).

INSTALLATION – CONTINUED

4. Position electrical panel (Figure 1, Item 22) and install three screws (Figure 1, Item 1) and standoffs (Figure 1, Item 3) on left side of electrical panel.
5. Install three screws (Figure 1, Item 1) to secure right side of panel (Figure 1, Item 22) to Hydraulic Control Panel Frame (Figure 1, Item 26).
6. Install hydraulic control panel access door (WP 0030 00).
7. Reconnect battery cable.

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

VENT DRYER (FILTER)

INITIAL SETUP:

Tools and Special Tools

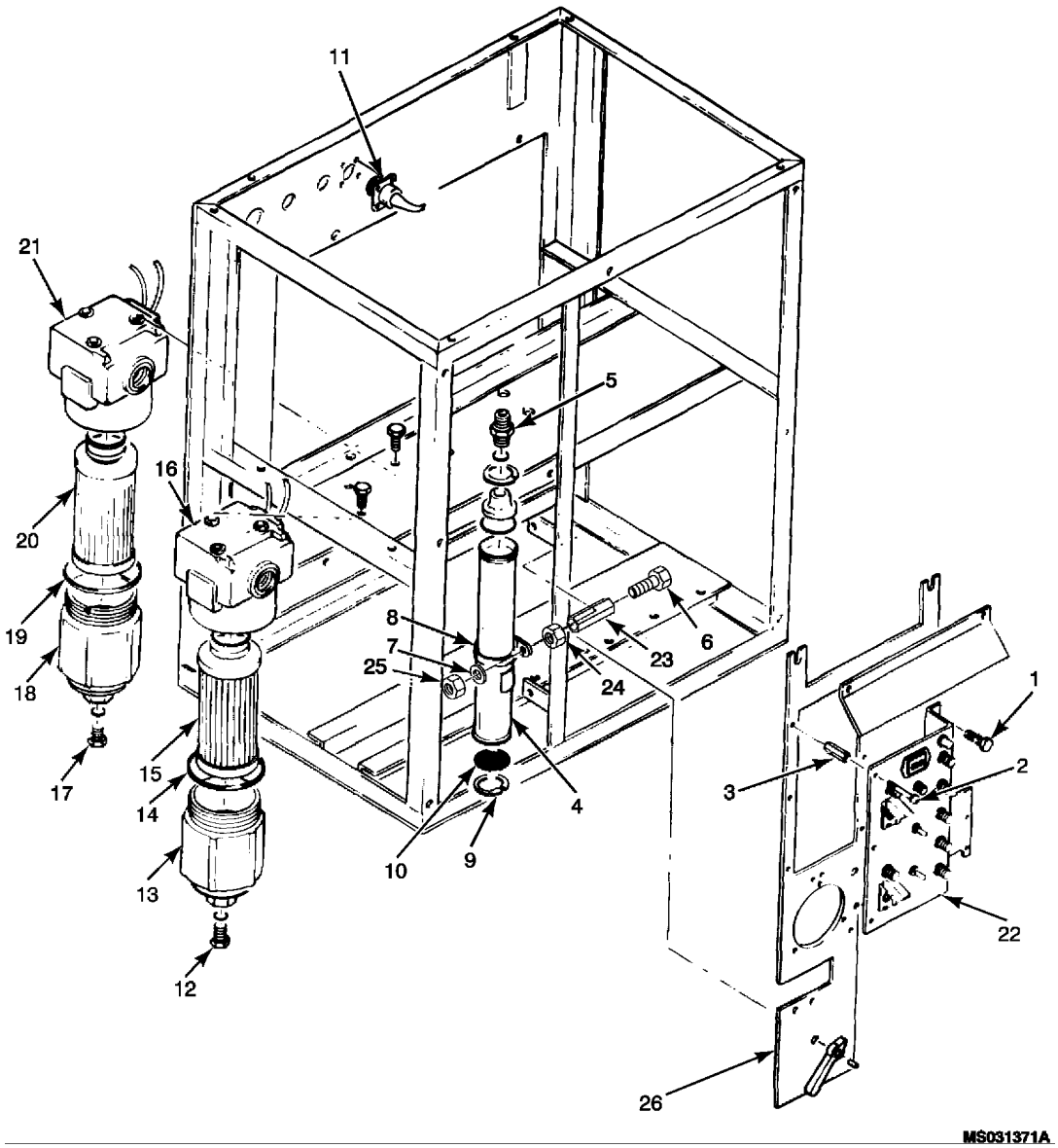
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Desiccant, Activated (WP 0170 00, Item 15)

References

WP 0002 00
WP 0034 00



1. Screw
2. Screw
3. Standoff
4. Vent Dryer
5. Fitting
6. Bolt
7. Washer
8. Clamp
9. Filter Retaining Ring
10. Wafer Filter
11. Connector
12. Drain Plug, Low Pressure
13. Filter Bowl, Low Pressure
14. Packing
15. Filter Element, Low Pressure
16. Filter Head, Low Pressure
17. Drain Plug, High Pressure
18. Filter Bowl, High Pressure
19. Packing
20. Filter Element, High Pressure
21. Filter Head, High Pressure
22. Electrical Panel
23. Standoff
24. Nut
25. Nut
26. Hydraulic Control Panel Frame

Figure 1. Hydraulic Module Subassemblies.

REMOVAL

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.

REMOVAL – CONTINUED

2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
3. Open hydraulic filter access door (WP 0002 00).
4. Remove tube connector from fitting (Figure 1, Item 5) on top of vent dryer (Figure 1, Item 4). Use wrench to hold fitting (Figure 1, Item 5) when loosening tube connector.
5. Remove nut (Figure 1, Item 25) then remove clamp (Figure 1, Item 8).
6. Tilt vent dryer forward and lift up and out of clamp.
7. Remove filter retaining rings (Figure 1, Item 9) and wafer filter (Figure 1, Item 10) from vent dryer acrylic housing.
8. Pour out and discard desiccant.

NOTE

If vent dryer housing is cracked replace vent dryer assembly.

INSTALLATION

1. If not done previously, fill vent dryer housing with fresh desiccant, MIL-D-3716.
2. Install wafer filter (Figure 1, Item 10) and filter retaining ring (Figure 1, Item 9).
3. Place vent dryer in position inside hydraulic module.
4. Reinstall clamp (Figure 1, Item 8) and tighten nut (Figure 1, Item 25).
5. Install tube connector on fitting (Figure 1, Item 5) at top of vent dryer (Figure 1, Item 4).
6. Close hydraulic filter access door.
7. Reconnect batteries.
8. Perform MOC.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

FILTER ASSEMBLIES AND FILTER ELEMENTS

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

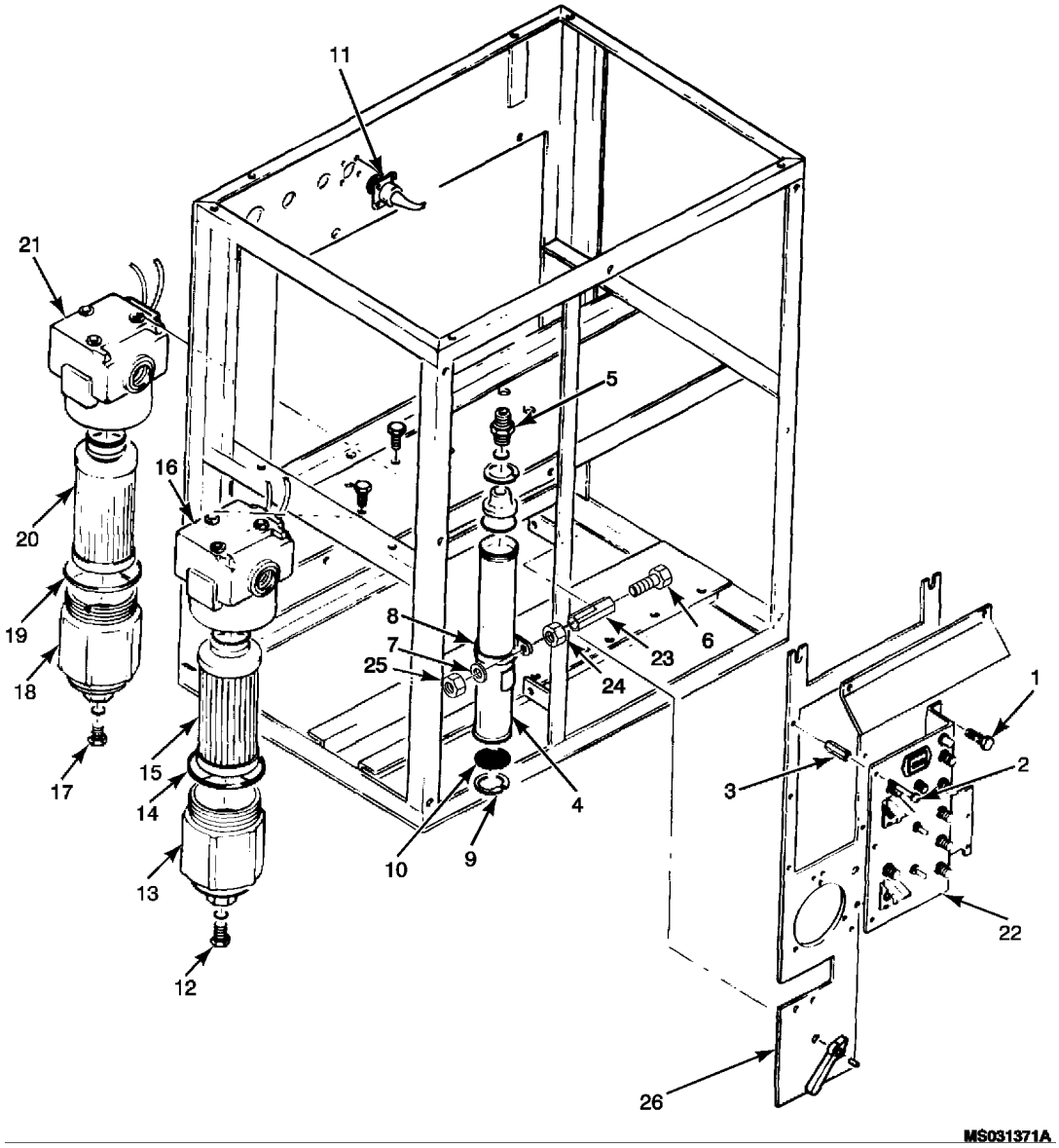
Materials/Parts

Cloth, Cleaning (WP 0170 00, Item 8)

References

TM 1-1730-229-13
WP 0034 00

REMOVAL



1. Screw
2. Screw
3. Standoff
4. Vent Dryer
5. Fitting
6. Bolt
7. Washer
8. Clamp
9. Filter Retaining Ring
10. Wafer Filter
11. Connector
12. Drain Plug, Low Pressure
13. Filter Bowl, Low Pressure
14. Packing
15. Filter Element, Low Pressure
16. Filter Head, Low Pressure
17. Drain Plug, High Pressure
18. Filter Bowl, High Pressure
19. Packing
20. Filter Element, High Pressure
21. Filter Head, High Pressure
22. Electrical Panel
23. Standoff
24. Nut
25. Nut
26. Hydraulic Control Panel Frame

Figure 1. Hydraulic Module Subassemblies.

1. Set RESERVOIR SELECT valve to the AIRCRAFT position.

REMOVAL – CONTINUED

2. Drain oil from the low pressure filter bowl (Figure 1, Item 13) by removing low pressure drain plug (Figure 1, Item 12). Remove and discard packing (Figure 1, Item 14).
3. Unscrew low pressure filter bowl (Figure 1, Item 13) counter clockwise and carefully lower it to clear the low pressure filter element (Figure 1, Item 15) which will remain in the low pressure filter head (Figure 1, Item 16).
4. Remove low pressure filter element (Figure 1, Item 15) from low pressure filter head (Figure 1, Item 16) and remove and discard low pressure filter packing (Figure 1, Item 14) and element.
5. Drain oil from the high pressure filter bowl (Figure 1, Item 18) by removing high pressure drain plug (Figure 1, Item 17). Remove and discard packing (Figure 1, Item 19).
6. Unscrew high pressure filter bowl (Figure 1, Item 18) counter clockwise and carefully lower it to clear the filter element (Figure 1, Item 20) which will remain in the high pressure filter head (Figure 1, Item 21).
7. Remove high pressure filter element (Figure 1, Item 20) from high pressure filter head (Figure 1, Item 21) and remove and discard packing (Figure 1, Item 19) and element.

INSTALLATION

1. Flush and wipe inside of low and high pressure filter bowls (Figure 1, Item 13 and 18) with a clean lint free cloth.
2. Wipe bottom of both low and high pressure filter heads (Figure 1, Item 16 and 21) with a clean lint free cloth.
3. Obtain new low and high pressure filter elements (Figure 1, Item 15 and 20).

NOTE

The low pressure filter is a 5 micron filter (Parker P/N 935853Q, 5Q, TL) and the high pressure filter is a 2 micron filter (Parker P/N 935852, 2QH, TJ). Both of these filters come with a packing around the top.

4. Lubricate high pressure filter packing (Figure 1, Item 19).
5. Install high pressure filter element (Figure 1, Item 20) in high pressure filter head (Figure 1, Item 21).
6. Install high pressure filter packing (Figure 1, Item 19) and high pressure filter bowl (Figure 1, Item 18).
7. Install high pressure filter bowl (Figure 1, Item 18) by screwing clockwise.
8. Install high pressure drain plug (Figure 1, Item 17) with new packing (Figure 1, Item 19) by screwing clockwise.
9. Lubricate low pressure filter packing (Figure 1, Item 14).
10. Install low pressure filter element (Figure 1, Item 15) in low pressure filter head (Figure 1, Item 16).
11. Install low pressure filter packing (Figure 1, Item 14) and low pressure filter bowl (Figure 1, Item 13).
12. Install low pressure filter bowl (Figure 1, Item 13) by screwing clockwise.
13. Install low pressure drain plug (Figure 1, Item 12) and new packing (Figure 1, Item 14) by screwing clockwise.
14. Set RESERVOIR SELECT valve to the AGPU position.
15. Perform MOC and check for leaks.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

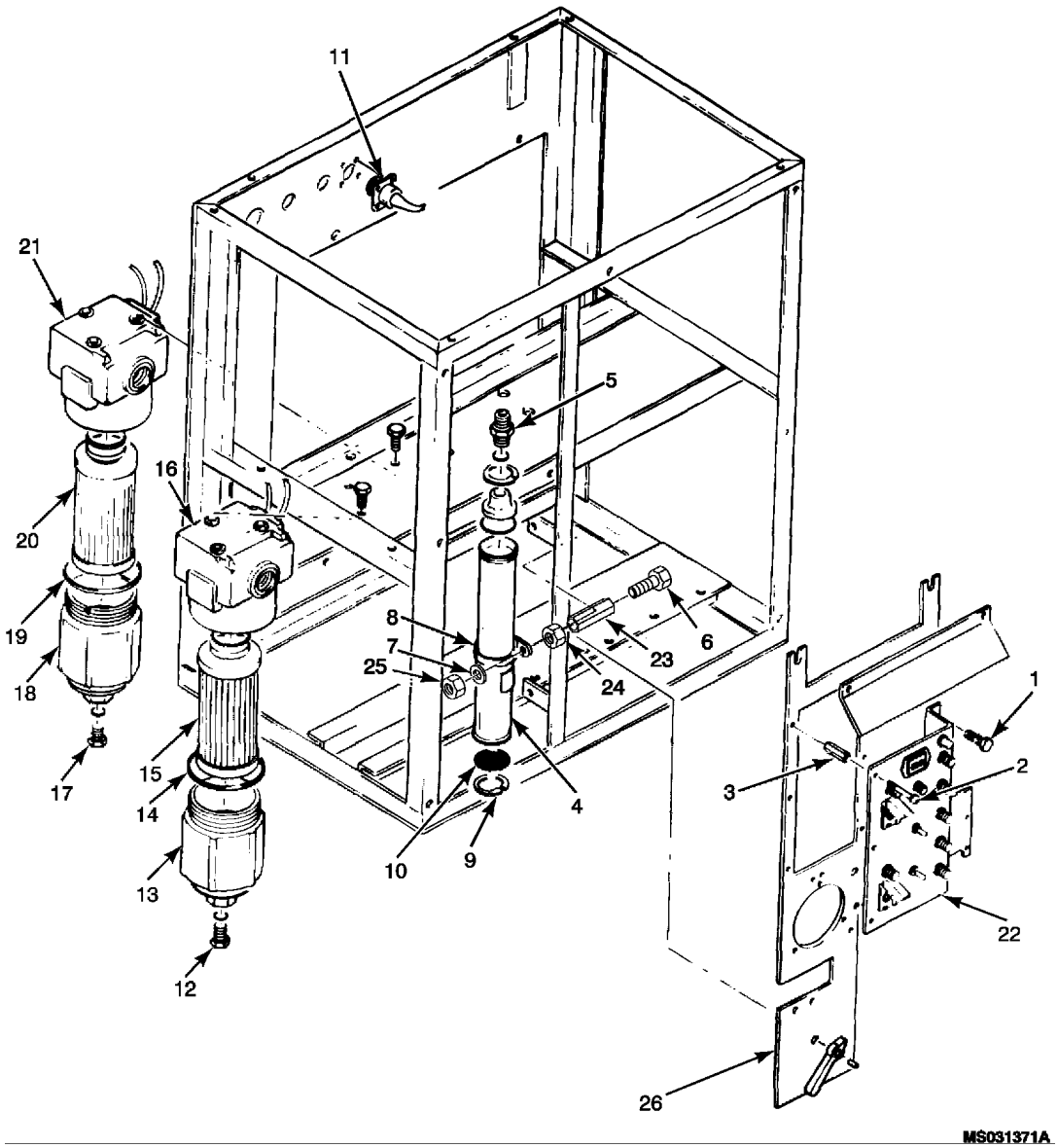
HYDRAULIC MODULE WIRING HARNESS

INITIAL SETUP:

Tools and Special Tools
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References
TM 1-1500-323-24-1

References (cont.)
TM 1-1730-229-13
WP 0012 00
WP 0022 00
WP 0034 00
WP 0036 00



1. Screw
2. Screw
3. Standoff
4. Vent Dryer
5. Fitting
6. Bolt
7. Washer
8. Clamp
9. Filter Retaining Ring
10. Wafer Filter
11. Connector
12. Drain Plug, Low Pressure
13. Filter Bowl, Low Pressure
14. Packing
15. Filter Element, Low Pressure
16. Filter Head, Low Pressure
17. Drain Plug, High Pressure
18. Filter Bowl, High Pressure
19. Packing
20. Filter Element, High Pressure
21. Filter Head, High Pressure
22. Electrical Panel
23. Standoff
24. Nut
25. Nut
26. Hydraulic Control Panel Frame

Figure 1. Hydraulic Module Subassemblies.

TEST AND INSPECTION

NOTE

Wiring connections between the hydraulic module and other system components are provided by the AGPU main wiring harness (P14).

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Remove AGPU roof (WP 0022 00) to gain access to hydraulic electrical harness module connector (Figure 1, Item 11).
3. Set MASTER SWITCH on control panel to OFF.
4. Inspect wiring for damaged insulation and broken wires.
5. Inspect electrical harness connector (Figure 1, Item 11) at rear of hydraulic module for damage.

REPAIR OR REPLACEMENT

1. Repair broken wires by splicing. Refer to TM 1-1500-323-24-1.
2. If harness repair cannot be accomplished by simple splicing, notify supervisor.
3. Perform MOC and check system for proper operation (WP 0012 00).

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

HYDRAULIC MODULE

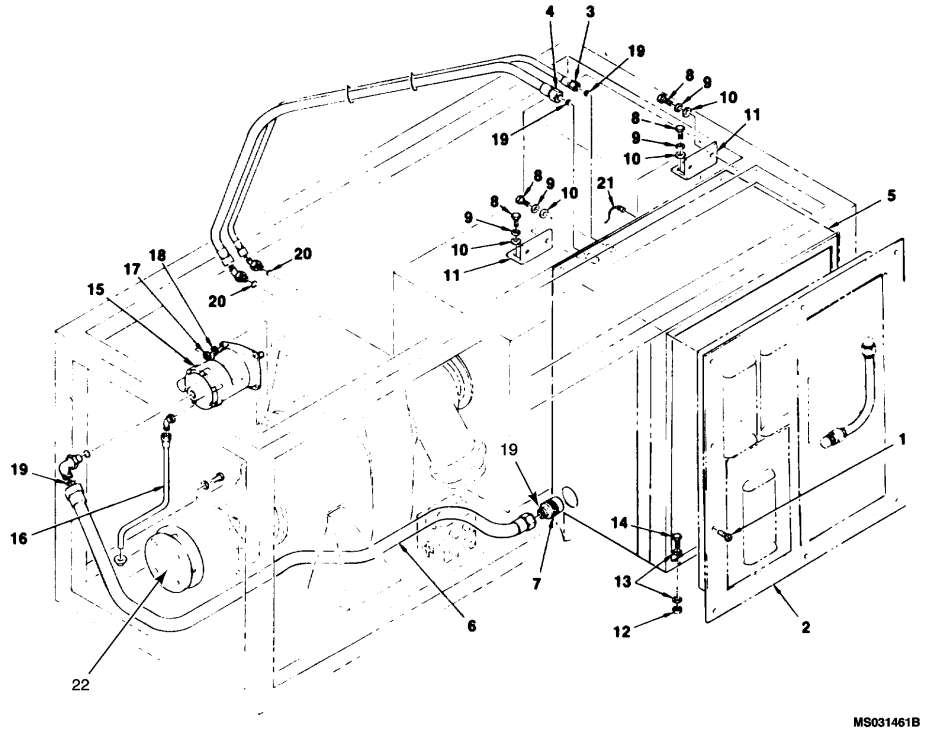
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

TM 1-1730-229-13
WP 0022 00
WP 0034 00
WP 0158 00
WP 0110 00



1. Screw	7. Fitting, quick-disconnect	13. Washer	19. Seal
2. Front panel	8. Bolt	14. Bolts	20. Seal
3. Hose Connectors, hydraulic (AN-6)	9. Lockwasher	15. Hydraulic pump	21. Connector P14
4. Hose Connectors, hydraulic (AN-12)	10. Washer, flat	16. Drain tube	22. Spacer
5. Hydraulic module	11. Bracket	17. Nut	
6. Hose, hydraulic (AN-20)	12. Nut	18. Washer	

Figure 1. Hydraulic Module Removal/Installation.

REMOVAL

WARNING

The hydraulic module weighs approximately **220 pounds** empty and **280 pounds** when the reservoir is full. Use lifting equipment to prevent personnel injury.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Remove front panel (Figure 1, Item 2) by removing 10 screws (Figure 1, Item 1).
3. Remove AGPU roof (WP 0158 00).
4. At hydraulic module control panel:
    a. Set RESERVOIR selector to AGPU.
    b. Open GAUGE SHUTOFF valve 1/4 turn.

REMOVAL – CONTINUED

c. Observe OUTPUT PRESSURE gauge for zero pressure. If any pressure is indicated, open HIGH PRESSURE BYPASS to relieve pressure in system.

NOTE

When disconnecting hydraulic hoses some hydraulic fluid spillage will occur. Be prepared to catch fluid when hoses are disconnected.

5. Disconnect hydraulic hose connectors, (Figure 1, Item 3 and 4) from hydraulic module (Figure 1, Item 5). Remove and discard seals (Figure 1, Item 19). Cover ends of hydraulic hoses and hydraulic module connectors with plastic caps or material to prevent contaminant entry. Tie off hydraulic hoses away from hydraulic module to prevent hydraulic hoses from getting caught when removing hydraulic module.
6. While pulling locking collar forward on quick disconnect fitting (Figure 1, Item 7) have assistance personnel pull Hydraulic hose (AN-20) (Figure 1, Item 6) out from quick disconnect and into engine compartment, and cover with material to prevent foreign material entry, and secure to frame with wire ties.
7. Disconnect electrical connector (P14) (Figure 1, Item 21) from back of hydraulic module, and cover connector with material to prevent foreign material entry.
8. Remove four bolts (Figure 1, Item 8) and four lock washers (Figure 1, Item 9) and four flat washers (Figure 1, Item 10) from two brackets (Figure 1, Item 11) that secure back of hydraulic module to AGPU frame.
9. Remove nuts (Figure 1, Item 12), bolts (Figure 1, Item 14), and washers (Figure 1, Item 13) that secure front of hydraulic module to AGPU frame.
10. Slide hydraulic module forward onto lifting device. Lower module and place on blocks or transport to another work area.

INSTALLATION

WARNING

The hydraulic module weighs approximately **220 pounds** empty and **280 pounds** when the reservoir is full. Use lifting equipment to prevent personnel injury.

1. Position lifting device under hydraulic module and lift module up to level of AGPU floor.
2. Slide hydraulic module into AGPU hydraulic module compartment.
3. Install two bolts (Figure 1, Item 14), washers (Figure 1, Item 13), and nuts (Figure 1, Item 12) to secure front of hydraulic module to AGPU frame.

NOTE

If riv nuts are being used, lock washers are not required.

4. Install four bolts (Figure 1, Item 8) and lock washers (Figure 1, Item 9 and 10) and flat washers (Figure 1, Item 10) and two brackets (Figure 1, Item 11) that secure back of hydraulic module to AGPU frame.
5. Remove protective covers from hydraulic hoses and connectors on hydraulic module.
6. Install new seals (Figure 1, Item 19) in end of hydraulic hoses (Figure 1, Item 3 and 4). Connect hydraulic hoses (Figure 1, Item 3 and 4) to hydraulic module (Figure 1, Item 5). Tighten hydraulic hose (Figure 1, Item 3) coupling nut to 200 to 230 inch-pounds of torque. Tighten hydraulic hose (Figure 1, Item 4) coupling nut to 900 to 1,000 inch-pounds of torque.

INSTALLATION – CONTINUED

7. Connect hydraulic hose (Figure 1, Item 6) quick-disconnect fitting (Figure 1, Item 7) to hydraulic module (Figure 1, Item 5).
8. Connect electrical connector (P14) (Figure 1, Item 21) at rear of hydraulic module.
9. Service hydraulic module (WP 0110 00).
10. Position hydraulic module front panel (Figure 1, Item 2) and secure with ten screws (Figure 1, Item 1).
11. Install AGPU roof (WP 0022 00).
12. Reconnect battery cable to battery.
13. Perform MOC and check for leaks.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

HYDRAULIC PUMP REMOVAL AND INSTALLATION

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

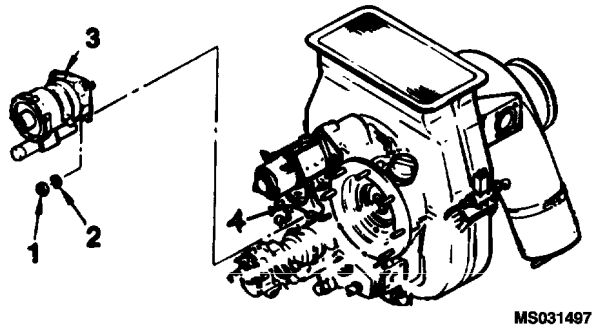
Materials/Parts

Grease, Molybdenum Disulfide (WP 0170 00, Item 25)

References

WP 0161 00

GENERAL



1. Nut
2. Washer
3. Hydraulic Pump
4. Gearcase Drive Pad

Figure 1. Hydraulic Pump Removal/Installation.

GENERAL – Continued

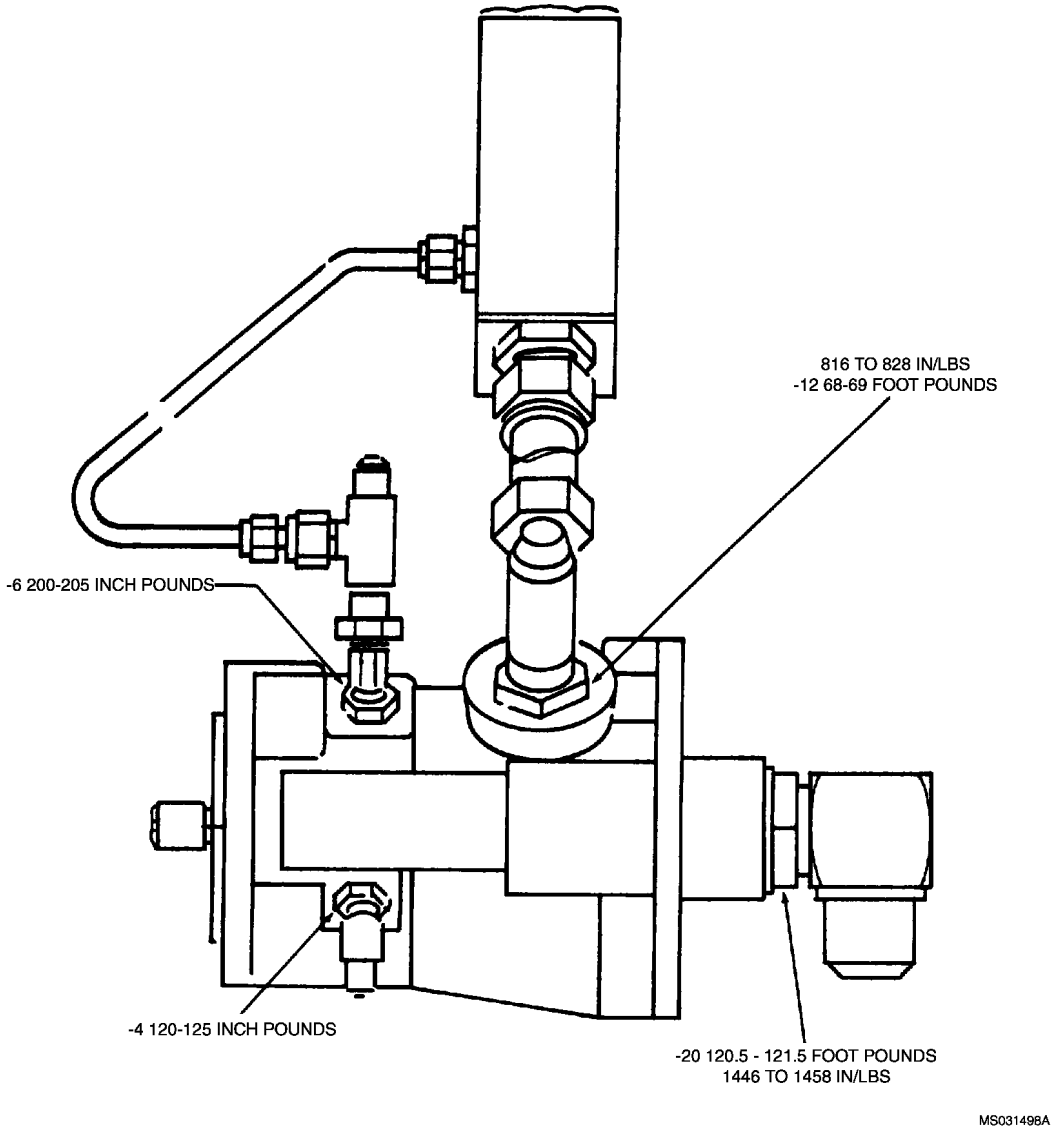


Figure 2. Hydraulic Pump Torque Values.

REMOVAL

CAUTION

Ensure hydraulic system is not under pressure before disconnecting hydraulic hoses.

NOTE

GTE does not have to be removed in order to remove and replace hydraulic pump.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.

REMOVAL – CONTINUED

3. Perform Steps 6.a. through 6.d. in WP 0161 00, Remove.
4. Hold hydraulic pump (Figure 1, Item 3) in position and remove four nuts (Figure 1, Item 1) and washers (Figure 1, Item 2).
5. Carefully remove pump (Figure 1, Item 3) from gearcase drive pad (Figure 1, Item 4).

INSTALLATION

1. Lubricate splines on hydraulic pump (Figure 1, Item 3) shaft and internal splines on gearcase drive pad (Figure 1, Item 4) within a coat of grease MIL-G-21164C.
2. Carefully install hydraulic pump (Figure 1, Item 3) on studs on gearcase drive pad (Figure 1, Item 4). Turn pump shaft slightly, if required, to engage splines on gearcase drive pad.
3. Install washers (Figure 1, Item 2) and nuts (Figure 1, Item 1) and tighten to between 180 and 200 inch-pounds of torque. Torque fitting jam nuts as shown in Figure 2.
4. Perform Installation Steps 5.a. through 5.d. in WP 0161 00.

NOTE

It is necessary to perform an air purging operation of the hydraulic system prior to starting of the GTE.

5. Reconnect batteries.
6. Perform hydraulic purge operation in TM 1-1730-229-13, Operator Instructions and check for hydraulic fluid leakage.
7. Perform MOC.

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

HYDRAULIC PRESSURE GAUGE

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

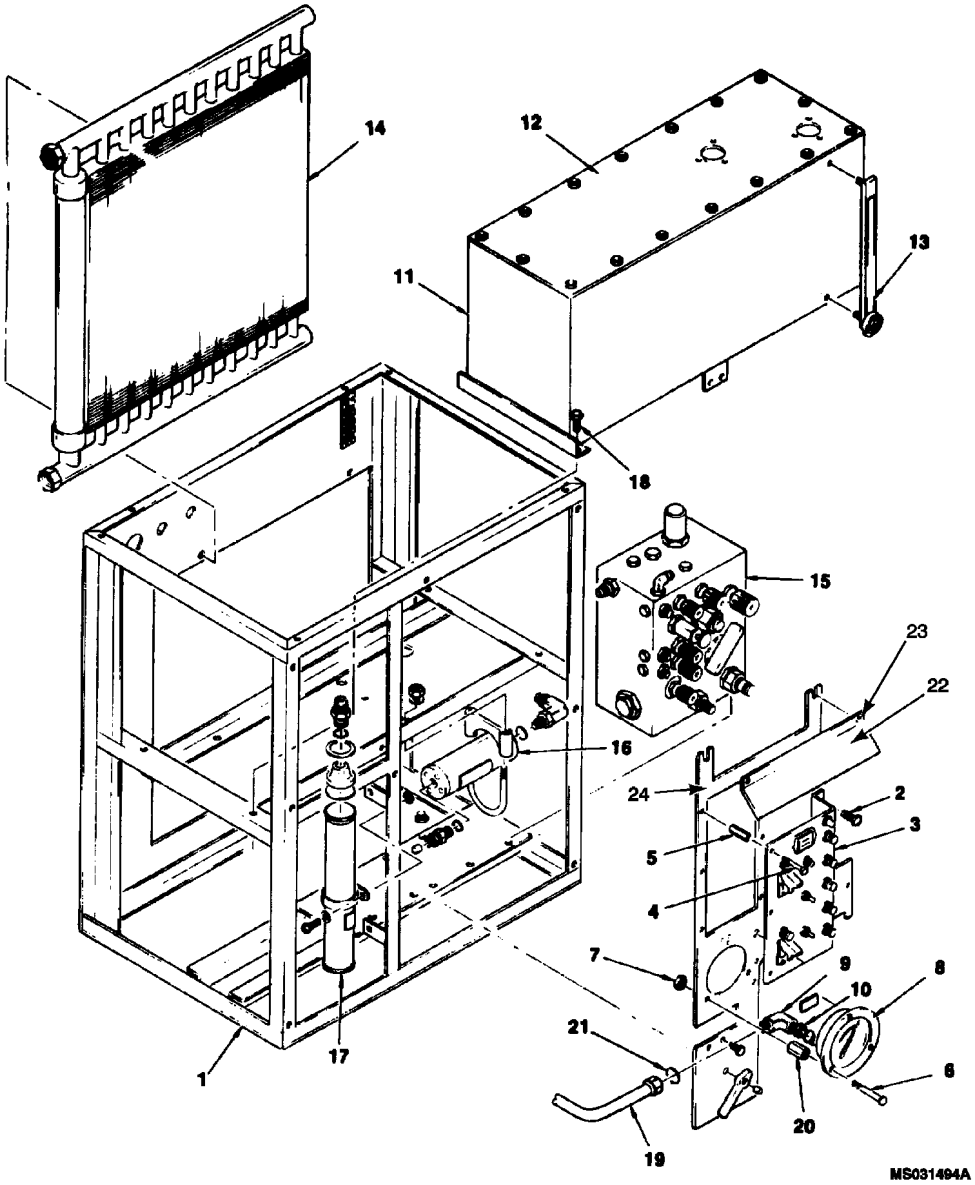
Materials/Parts

Hydraulic Fluid, Fire Resistant (WP 0170 00, Item 26)
Hydraulic Fluid, Petroleum Base (WP 0170 00, Item 27)

References

WP 0113 00
WP 0116 00

GENERAL



1. Frame	7. Nut	13. Temp/Level Gauge	19. Hydraulic Gauge Tube Assembly
2. Screw	8. Gauge	14. Cooler (Heat Exchanger)	20. Standoff
3. Electrical Control Panel	9. Elbow	15. Manifold	21. Seal
4. Screw	10. Jam Nut	16. Accumulator	22. Rain Shield
5. Standoff	11. Reservoir	17. Vent Dryer	23. Bolt
6. Bolt	12. Reservoir Top Cover	18. Bolt	24. Frame

Figure 1. Hydraulic Module Major Components.

REMOVAL

1. Open GAUGE SHUTOFF valve 1/4 turn. This valve is on main control manifold (Figure 1, Item 15).
2. Observe pressure indication on OUTPUT PRESSURE gauge (Figure 1, Item 8). It should read zero. If it does not, open HIGH PRESSURE BYPASS valve on manifold (Figure 1, Item 15) slightly and observe that gauge pressure reduces to zero.
3. Close HIGH PRESSURE BYPASS and GAUGE SHUTOFF valves on manifold (Figure 1, Item 15).
4. Remove vent dryer (WP 0113 00).
5. Remove rain shield (Figure 1, Item 22) from faceplate (Figure 1, Item 24).
6. Remove screws (Figure 1, Item 2 and 4) and standoffs (Figure 1, Item 5) from electrical control panel (Figure 1, Item 3).
7. Remove bolts (Figure 1, Item 23) from faceplate (Figure 1, Item 24) allowing faceplate to hang loose allowing access to gauge (Figure 1, Item 8).
8. Disconnect hydraulic gauge tube assembly (Figure 1, Item 19) connector from elbow (Figure 1, Item 9) on back of OUTPUT PRESSURE gauge (Figure 1, Item 8). Remove and discard copper seal (Figure 1, Item 21).
9. Remove bolts (Figure 1, Item 6), nuts (Figure 1, Item 7) and standoffs (Figure 1, Item 20).
10. Remove gauge (Figure 1, Item 8).
11. Match mark elbow's (Figure 1, Item 9) position on back of gauge (Figure 1, Item 8).
12. Loosen jam nut (Figure 1, Item 10) and remove elbow (Figure 1, Item 9) from back of pressure gauge. Remove jam nut.

INSTALLATION

WARNING

Hydraulic fluid under high pressure is generated (up to 3300 psi) as a result of operation of the AGPU. Do not expose any part of the body to a high pressure leak in the hydraulic system. Never attempt to connect or disconnect hydraulic fittings under high pressure. Ensure that hoses are in good condition, not kinked, and securely connected to aircraft before applying hydraulic power. Wear gloves and eye protection (goggles or face shield) when operating hydraulic systems.

1. Apply hydraulic fluid (MIL-PRF-5606 (WP 0170 00, Item 27) or MIL-PRF-83282 (WP 0170 00, Item 26) to both sets of threads of elbow (Figure 1, Item 9).
2. Install jam nut (Figure 1, Item 10) on fitting on back of gauge (Figure 1, Item 8).
3. Screw elbow (Figure 1, Item 9) onto gauge (Figure 1, Item 8). Ensure that match marks are lined up when elbow is within one turn of being tight.
4. Tighten elbow (Figure 1, Item 9) with jam nut (Figure 1, Item 10).
5. Insert gauge into hole in hydraulic control panel and secure with bolts (Figure 1, Item 6), nuts (Figure 1, Item 7) and standoffs (Figure 1, Item 20).
6. Install faceplate with bolts (Figure 1, Item 23).
7. Install electrical control panel (Figure 1, Item 3) to faceplate (Figure 1, Item 24) with four screws (Figure 1, Item 2 and 4) and 4 standoffs (Figure 1, Item 5).
8. Install rain shield (Figure 1, Item 22) to faceplate (Figure 1, Item 24).
9. Install a new 7C-4 copper seal on elbow (Figure 1, Item 9).

INSTALLATION – CONTINUED

10. Fasten hydraulic gauge tube assembly (Figure 1, Item 19) to elbow (Figure 1, Item 9). Torque to between 135 and 150 inch-pounds.
11. Reinstall vent dryer (WP 0113 00).

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

HYDRAULIC DUAL SERVICE MANIFOLD

INITIAL SETUP:

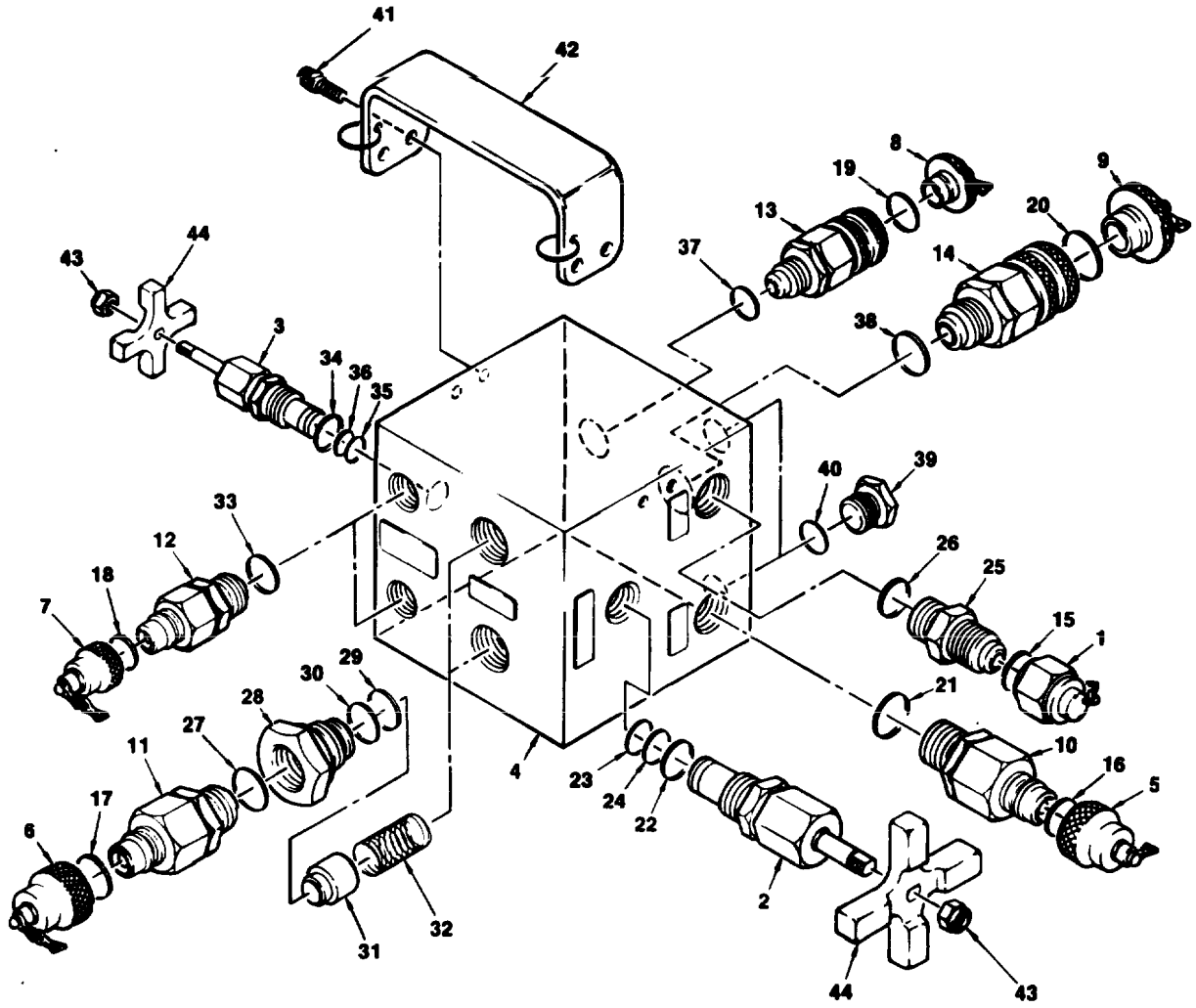
Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)

Tools and Special Tools (cont.)

Tool Set, Aviation Unit (WP 0171 00, Item 42)

GENERAL



1. Dust Cap (Threaded)	12. Quick Disconnect Fitting (2)	23. O-Ring	34. O-Ring
2. Valve	13. Quick Disconnect Fitting	24. Backup Ring	35. O-Ring
3. Valve	14. Quick Disconnect Fitting	25. Fitting (Threaded)	36. Backup Ring
4. Dual Manifold	15. Handle	26. O-Ring	37. O-Ring
5. Dust Cap	16. O-Ring	27. O-Ring (2)	38. O-Ring
6. Dust Cap (2)	17. O-Ring (2)	28. Fitting (2)	39. Plug (2)
7. Dust Cap (2)	18. O-Ring (2)	29. O-Ring (2)	40. O-Ring (2)
8. Dust Cap	19. Packing	30. Backup Ring (2)	41. Screw
9. Dust Cap	20. Packing	31. Poppet (2)	42. Handle
10. Quick Disconnect Fitting	21. O-Ring	32. Spring (2)	43. Nut
11. Quick Disconnect Fitting (2)	22. O-Ring	33. Packing (2)	44. Knob

Figure 1. Hydraulic Dual Manifold.

DISASSEMBLY

1. Remove dust cap (Figure 1, Item 1), open valves (Figure 1, Item 2 and 3) and drain all hydraulic fluid from dual manifold (Figure 1, Item 4).
2. Remove all dust caps (Figure 1, Item 5, 6, 7, 8 and 9) from quick disconnect fittings (Figure 1, Item 10, 11, 12, 13 and 14). Remove and discard O-Ring and packing (Figure 1, Item 16, 17, 18, 19 and 20) from inside dust caps.
3. Remove quick disconnect fitting (Figure 1, Item 10).
4. Remove and discard O-Ring (Figure 1, Item 21).
5. Remove valve (Figure 1, Item 2).
6. Remove and discard O-Ring (Figure 1, Item 22 and 23). Remove backup ring (Figure 1, Item 24).
7. Remove threaded fitting (Figure 1, Item 25).
8. Remove and discard O-Ring (Figure 1, Item 26).
9. Remove two quick disconnect fittings (Figure 1, Item 11).
10. Remove and discard two O-Rings (Figure 1, Item 27).
11. Remove two fittings (Figure 1, Item 28).
12. Remove and discard two O-Rings (Figure 1, Item 29). Remove two backup rings (Figure 1, Item 30).
13. Remove two poppets (Figure 1, Item 31) and springs (Figure 1, Item 32).
14. Remove two quick disconnect fittings (Figure 1, Item 12).
15. Remove and discard two Packing (Figure 1, Item 33).
16. Remove valve (Figure 1, Item 3).
17. Remove and discard O-Rings (Figure 1, Item 34 and 35). Remove backup ring (Figure 1, Item 36).
18. Remove quick disconnect fittings (Figure 1, Item 13).
19. Remove and discard O-Ring (Figure 1, Item 37).
20. Remove quick disconnect fitting (Figure 1, Item 14).
21. Remove and discard O-Ring (Figure 1, Item 38).
22. Remove two plugs (Figure 1, Item 39).
23. Remove and discard two O-Rings (Figure 1, Item 40).

INSPECTION OF INSTALLED ITEMS

1. Inspect valve bodies (Figure 1, Item 2 and 3), quick disconnect fittings (Figure 1, Item 10, 11, 12, 13 and14), threaded fitting (Figure 1, Item 25), and fitting (Figure 1, Item 28) for nicks, scratches or cracks. If damage is found, replace.
2. Inspect threaded holes in manifold for damage and contamination.

ASSEMBLY

1. Install a new O-Ring (Figure 1, Item 26) on each of two plugs (Figure 1, Item 39).
2. Install two plugs (Figure 1, Item 39) into dual manifold (Figure 1, Item 4).
3. Install new O-Ring (Figure 1, Item 38) on quick disconnect fitting (Figure 1, Item 14).
4. Install quick disconnect fitting (Figure 1, Item 14) into dual manifold (Figure 1, Item 4).
5. Install new O-Ring (Figure 1, Item 37) on quick disconnect fitting (Figure 1, Item 13).
6. Install quick disconnect fitting (Figure 1, Item 13) into dual manifold (Figure 1, Item 4).
7. Install new O-Rings (Figure 1, Item 34 and 35) and backup ring (Figure 1, Item 36) on valve (Figure 1, Item 3).
8. Install valve (Figure 1, Item 3) into dual manifold (Figure 1, Item 4).

ASSEMBLY – CONTINUED

9. Install a new Packing (Figure 1, Item 33) on each of two quick disconnect fittings (Figure 1, Item 12).
10. Install two quick disconnect fittings (Figure 1, Item 12) into dual manifold (Figure 1, Item 4).
11. Install a new O-Ring (Figure 1, Item 27) on each of two quick disconnect fittings (Figure 1, Item 11).
12. Install a new O-Ring (Figure 1, Item 29) and a backup ring (Figure 1, Item 30) on each of two fittings (Figure 1, Item 28).
13. Install two springs (Figure 1, Item 32), poppets (Figure 1, Item 31), fittings (Figure 1, Item 28) and quick disconnect fittings (Figure 1, Item 11) into dual manifold (Figure 1, Item 4).
14. Install new O-Ring (Figure 1, Item 26) on threaded fitting (Figure 1, Item 25).
15. Install threaded fitting (Figure 1, Item 25) into dual manifold (Figure 1, Item 4).
16. Install new O-Ring (Figure 1, Item 22, 23) and backup ring (Figure 1, Item 24) on valve (Figure 1, Item 2).
17. Install valve (Figure 1, Item 2) into dual manifold (Figure 1, Item 4).
18. Install new O-Ring (Figure 1, Item 21) on quick disconnect fitting (Figure 1, Item 10).
19. Install quick disconnect fitting (Figure 1, Item 10) into dual manifold (Figure 1, Item 4).
20. Install new O-Rings (Figure 1, Item 16, 17 and 18) and Packing (Figure 1, Item 19 and 20) on dust caps (Figure 1, Item 5, 6, 7, 8 and 9).
21. Install dust caps (Figure 1, Item 1, 5, 6, 7, 8 and 9) on fittings (Figure 1, Item 25, 10, 11, 12, 13 and 14).

TESTING

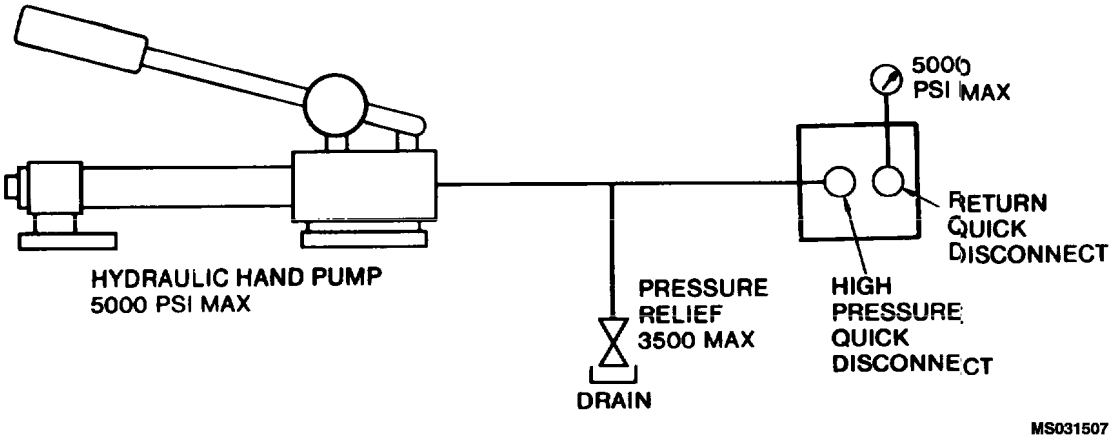


Figure 2. Dual Manifold Test Set-Up.

1. Connect hydraulic dual manifold to test setup as shown in Figure 2.

NOTE

The single input is branched to two equal output lines and two returns are combined into a single return path. Valves and fluid ports are provided for filling and draining hoses.

2. Pressurize dual manifold with hand pump to 4,500 psi and let set for 1/2 hour with no change on gauge. Look for external leaks. If no leaks, remove drain port cap. Open drain/fill valve. Release pressure and disconnect test setup.

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

HYDRAULIC OIL SAMPLING/PURGE ADAPTER

INITIAL SETUP:

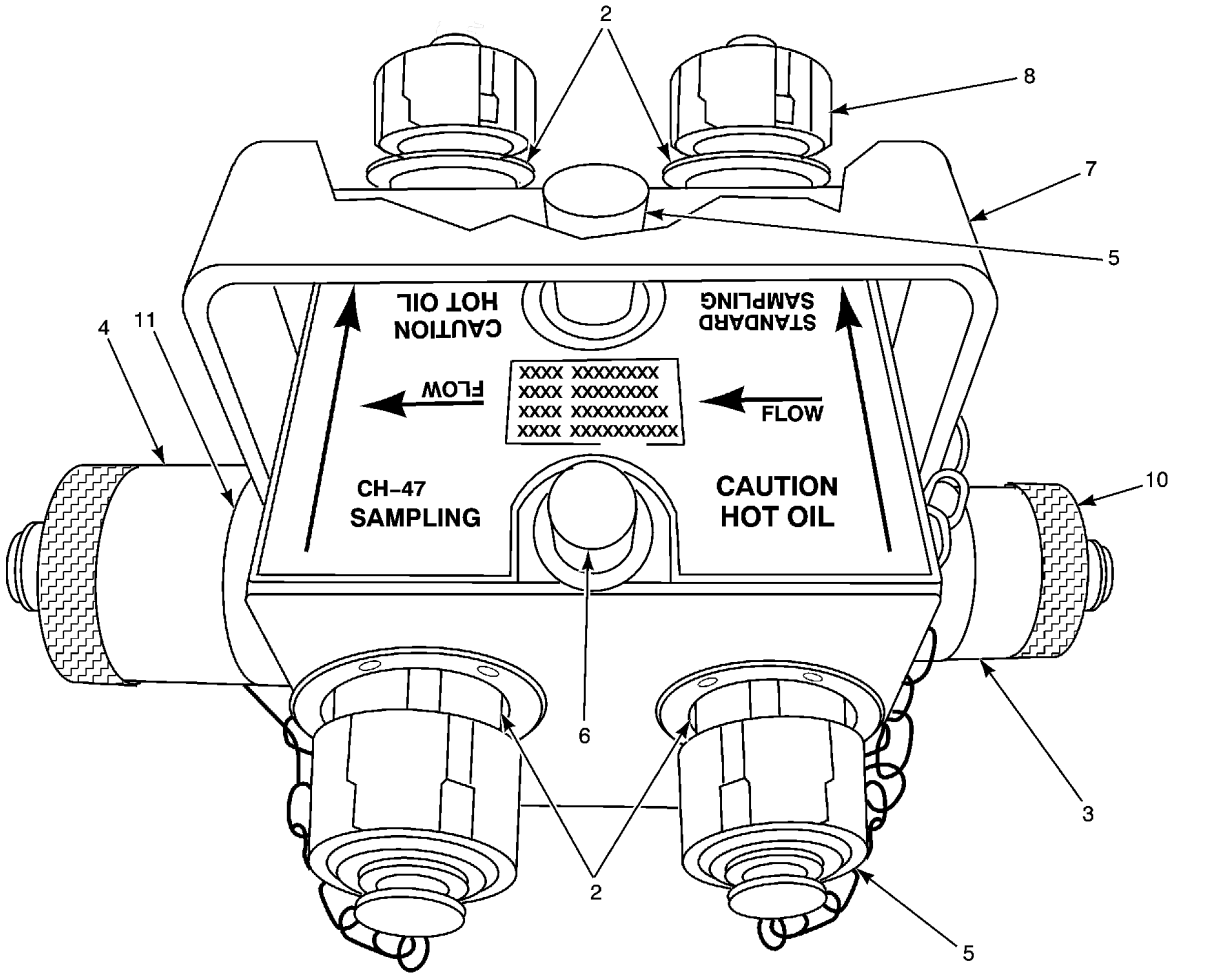
Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK
(WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Cleaning Compound, Solvent (WP 0170 00, Item 5)

HYDRAULIC OIL SAMPLING/PURGE ADAPTER



1. Purge Adapter, AGPU	7. O-Ring L/P	13. Label, High Pressure
2. Coupling, Half, Quick Disconnect H/P	8. Coupling, Half, Quick Disconnect H/P CH-47	14. Label, Low Pressure
3. Cap, Quick Disconnect	9. Cap, Quick Disconnect H/P CH-47	15. Handle
4. O-Ring	10. Coupling, Half, Quick Disconnect L/P CH-47	16. Retaining Ring
5. Coupling, Half, Quick Disconnect L/P	11. Cap, Quick Disconnect L/P CH-47	17. Screw, Cap, Socket Head (Handle)
6. Cap, Quick Disconnect L/P	12. Label, Purge Adapter Assembly	18. Valve Bleed

Figure 1. Hydraulic Oil Sampling/Purge Adapter.

HYDRAULIC OIL SAMPLING/PURGE ADAPTER – Continued

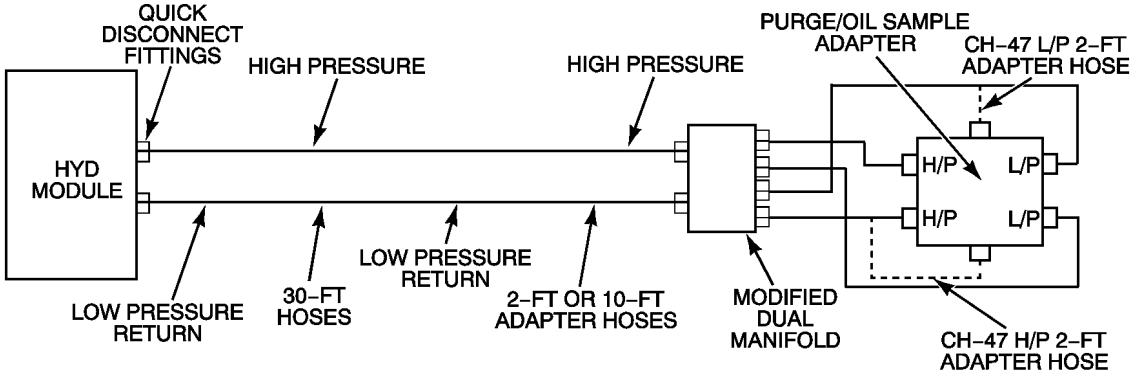


Figure 2. Hydraulic Oil Sampling/purge Adapter Testing Setup.

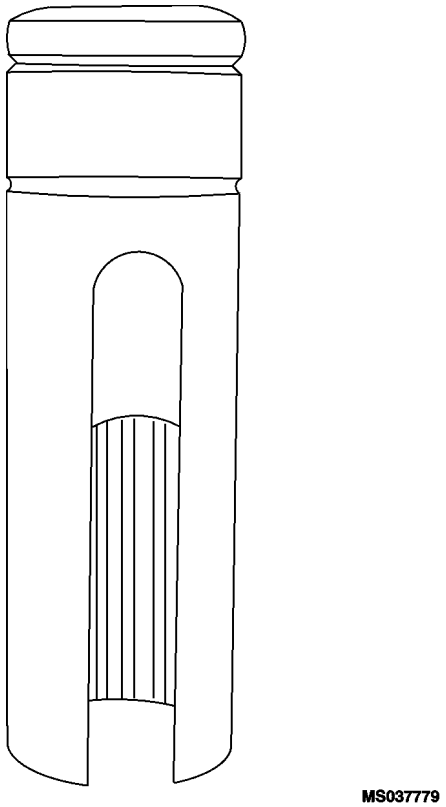


Figure 3. Bleed Valve Removal Tool (Special Socket).

DISASSEMBLY

1. Remove all dust caps (Figure 1, Item 3, 6, 9, and 11) and remove couplings, half quick disconnects, (Figure 1, Item 2, 5, 8, and 10) from adapter and drain any excess hydraulic fluid from all ports of the oil sampling/purge adapter into a catch pan, (don't reuse drained fluid) safe guard all dust caps and couplings, half quick disconnects for reuse.
2. Remove both bleed valves (Figure 1, Item 18) from oil sampling/purge adapter with special socket (Figure 3) and safeguard for reuse.

DISASSEMBLY – CONTINUED

3. Remove and discard O-ring and packings (Figure 1, Item 4 and 7) from all 6 dust caps (Figure 1, Item 3, 6, 9 and 11), couplings, half quick disconnects (Figure 1, Item 2, 5, 8 and 10) from inside dust caps. (Do Not reuse old O-rings and packings)
4. Do not remove retaining rings and chains (Figure 1, Item 16) from oil sampling/purge adapter unless damaged.

WARNING

Cleaning Compound Solvent, MIL-PRF-680, is combustible and toxic to eyes, skin, and respiratory tract. Wear protective gloves and goggles/face shield. Avoid repeated or prolonged contact. Use only in well-ventilated areas (or use approved respirator as determined by local safety/industrial hygiene personnel). Keep away from open flames or other sources of ignition.

5. Clean the oil sampling/purge adapter (Figure 1, Item 1) inside and out with MIL-PRF-680 and let air dry.

TEST AND INSPECTION

1. Inspect oil sampling/purge adapter body (Figure 1, Item 1) for nicks, or cracks in threaded fitting ports. If damage is found, replace oil sampling/purge adapter body.
2. Inspect threaded bodies of dust caps (Figure 1, Item 3, 6, 9 and 11) and couplings, half quick disconnects (Figure 1, Item 2, 5, 8 and 10) for damage and contamination. If damage is found replace, do not reuse. Clean contamination from all caps and couplings,
3. Inspect both bleed valve threaded bodies (Figure 1, Item 18) for damage and contamination. If damage is found replace bleed valve, do not reuse. Clean contamination from bleed valve threaded bodies for reuse in oil sampling/purge adapter body.
4. Inspect retaining rings and chains (Figure 1, Item 16) on oil sampling/purge adapter and replace if damaged.

ASSEMBLY

1. Install new O-rings and packing's (Figure 1, Item 4 and 7) on to all 6 dust caps (Figure 1, Item 3, 6, 9 and 11), couplings and half quick disconnects (Figure 1, Item 2, 5, 8 and 10).
2. Install couplings, half quick disconnects (Figure 1, Item 4 and 7) into oil sampling/purge adapter body (Figure 1, Item 1). Tighten to 1200 in/lbs. of torque.
3. Install both bleed valve threaded bodies (Figure 1, Item 18) into oil sampling/purge adapter body. Tighten to 480 in/lbs. of torque, or until bleed valve threaded bodies bottom on to oil sampling/purge adapter body. (Do not over tighten)

TESTING

1. Connect to test setup as shown in Figure 2.

NOTE

The two inputs are branched to two equal input lines from the AGPU, and two returns lines to the AGPU return path. Valves for oil sampling are located at the top of the oil sampling/purge adapter body.

2. Pressurize oil sampling/purge adapter body with the AGPU hydraulics system to 700 psi and let flow for 1/2 hour with no change on AGPU hydraulics gauge. Look for external leaks. If no leaks, remove pressure

TESTING – CONTINUED

and disconnect oil sampling/purge adapter and stow into AGPU storage bracket, located in engine access compartment.

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

SIGHT GLASSES

INITIAL SETUP:

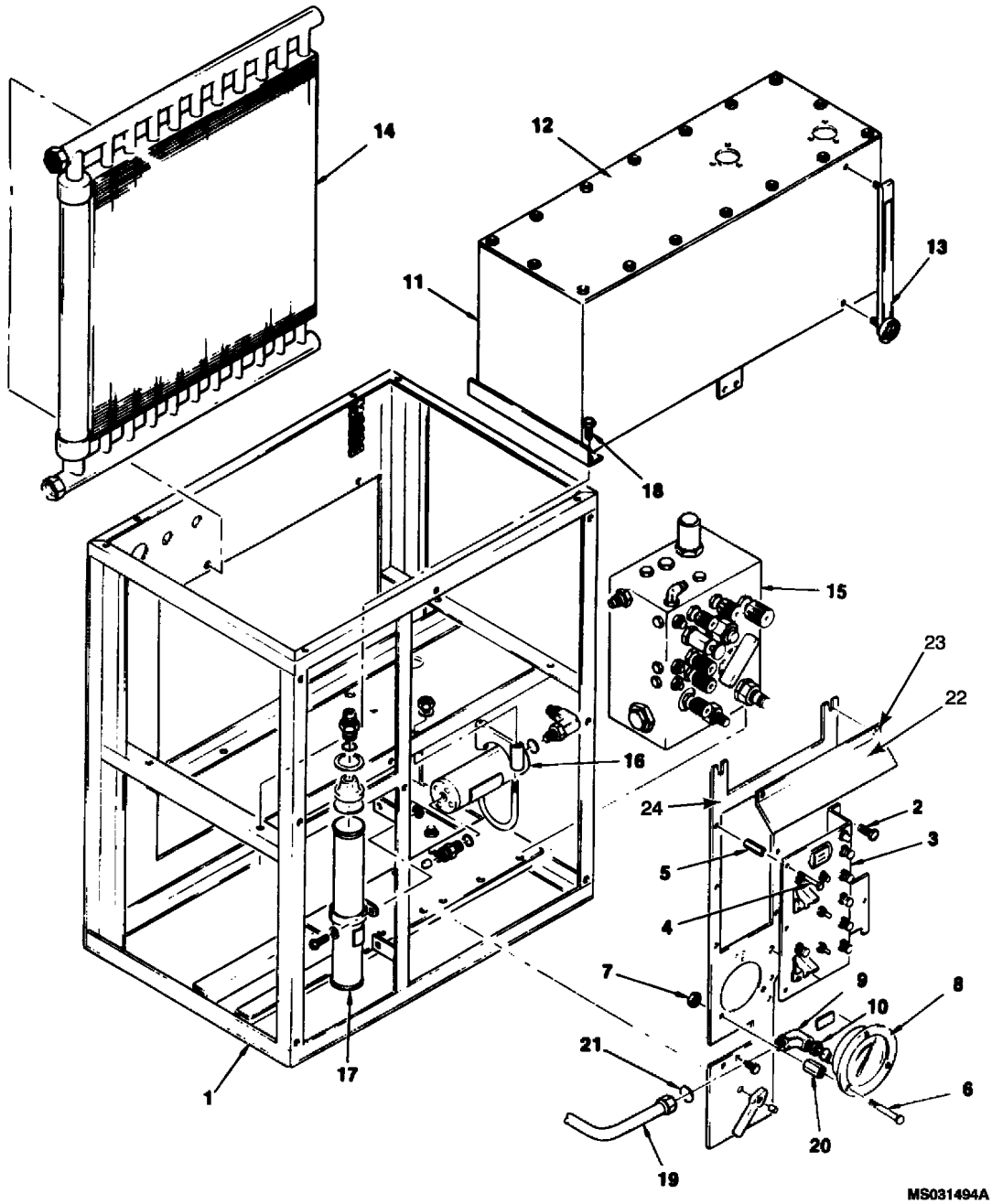
Materials/Parts	**References**
Hydraulic Fluid, Fire Resistant (WP 0170 00, Item 26) Hydraulic Fluid, Petroleum Base (WP 0170 00, Item 27)	TM 1-1730-229-13

This manual contains instructions for TASMG (L) and DEPOT (D) maintenance of Multi-Output Aviation Power Unit MEP 83-360A, MEP 83-360D and E models, referred to as the Aviation Ground Power Unit (AGPU). Prior to performing these maintenance procedures, refer to the MAC chart within this TM 1-1730-229-40 if applicable. The contents of this manual will be followed in the event of conflict with any other document referenced herein.

– Continued

NOTE

This procedure does not require that the module be removed from the unit.



1. Frame
2. Screw
3. Electrical Control Panel
4. Screw
5. Standoff
6. Bolt
7. Nut
8. Gauge
9. Elbow
10. Jam Nut
11. Reservoir
12. Reservoir Top Cover
13. Temp/Level Gauge
14. Cooler (Heat Exchanger)
15. Manifold
16. Accumulator
17. Vent Dryer
18. Bolt
19. Hydraulic Gauge Tube Assembly
20. Standoff
21. Seal
22. Rain Shield
23. Bolt
24. Frame

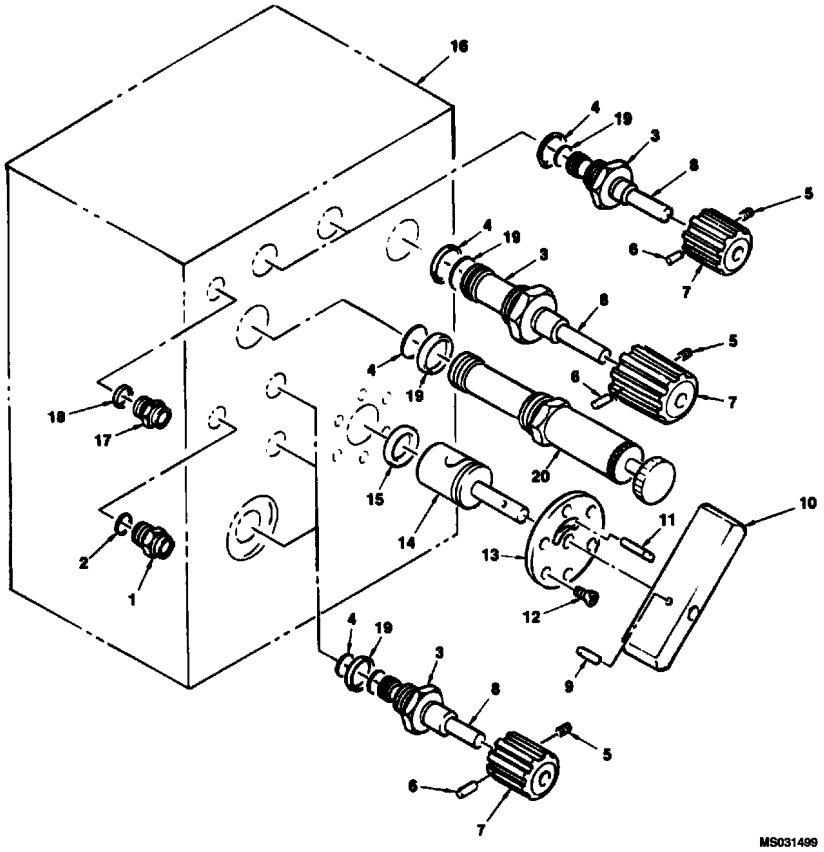
– Continued

Figure 1. Hydraulic Module Major Components.

REMOVAL

1. Open GAUGE SHUTOFF valve 1/4 turn. This valve is on manifold (Figure 1, Item 15). Refer to TM 1-1730-229-13, Operator Instructions, for valve nomenclature.
2. Observe pressure indication on OUTPUT PRESSURE gauge (Figure 1, Item 8). It should read zero. If it does not, open HIGH PRESSURE BYPASS valve on manifold (Figure 1, Item 15) slightly and observe gauge pressure reduces to zero.
3. Close HIGH PRESSURE bypass and gauge SHUTOFF VALVES on manifold (Figure 1, Item 15).
4. Close the RETURN BLEED on manifold (Figure 1, Item 15) if the RETURN sight glass is to be replaced or the HIGH PRESSURE BLEED valve of the HIGH PRESSURE sight glass is to be replaced. These valves and sight glasses are on manifold (Figure 1, Item 15).
5. Turn either PRESSURE sight glass (Figure 2, Item 1) or RETURN sight glass (Figure 2, Item 17) counter-clockwise to remove it. Ensure that packing (Figure 2, Item 2) and/or o-ring (Figure 1, Item 18) have been removed. Discard packing and/or o-ring.

REMOVAL – CONTINUED



1. Pressure Sight Glass	8. Valve Body	15. O-Ring
2. Packing	9. Set Screw	16. Manifold
3. Valve	10. Handle	17. Return Sight Glass
4. Packing	11. Pin	18. O-Ring
5. Set Screw	12. Screw	19. O-Ring
6. Pin	13. Flange	20. Pressure Relief Valve
7. Knob	14. Valve	

Figure 2. Hydraulic Manifold, Front Controls and Connectors.

INSTALLATION

WARNING

Hydraulic fluid under high pressure is generated (up to 3300 psi) as a result of operation of the AGPU. Do not expose any part of the body to a high pressure leak in the hydraulic system. Never attempt to connect or disconnect hydraulic fittings under high pressure.

1. Lubricate sight glass threads with MIL-PRF-5606 (WP 0170 00, Item 27) or MIL-PRF-83282 (WP 0170 00, Item 26).
2. Install new packing (Figure 2, Item 2) and O-Ring (Figure 2, Item 18).

INSTALLATION – CONTINUED

3. Install pressure sight glass (Figure 2, Item 1) and return sight glass (Figure 2, Item 17) into manifold.

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

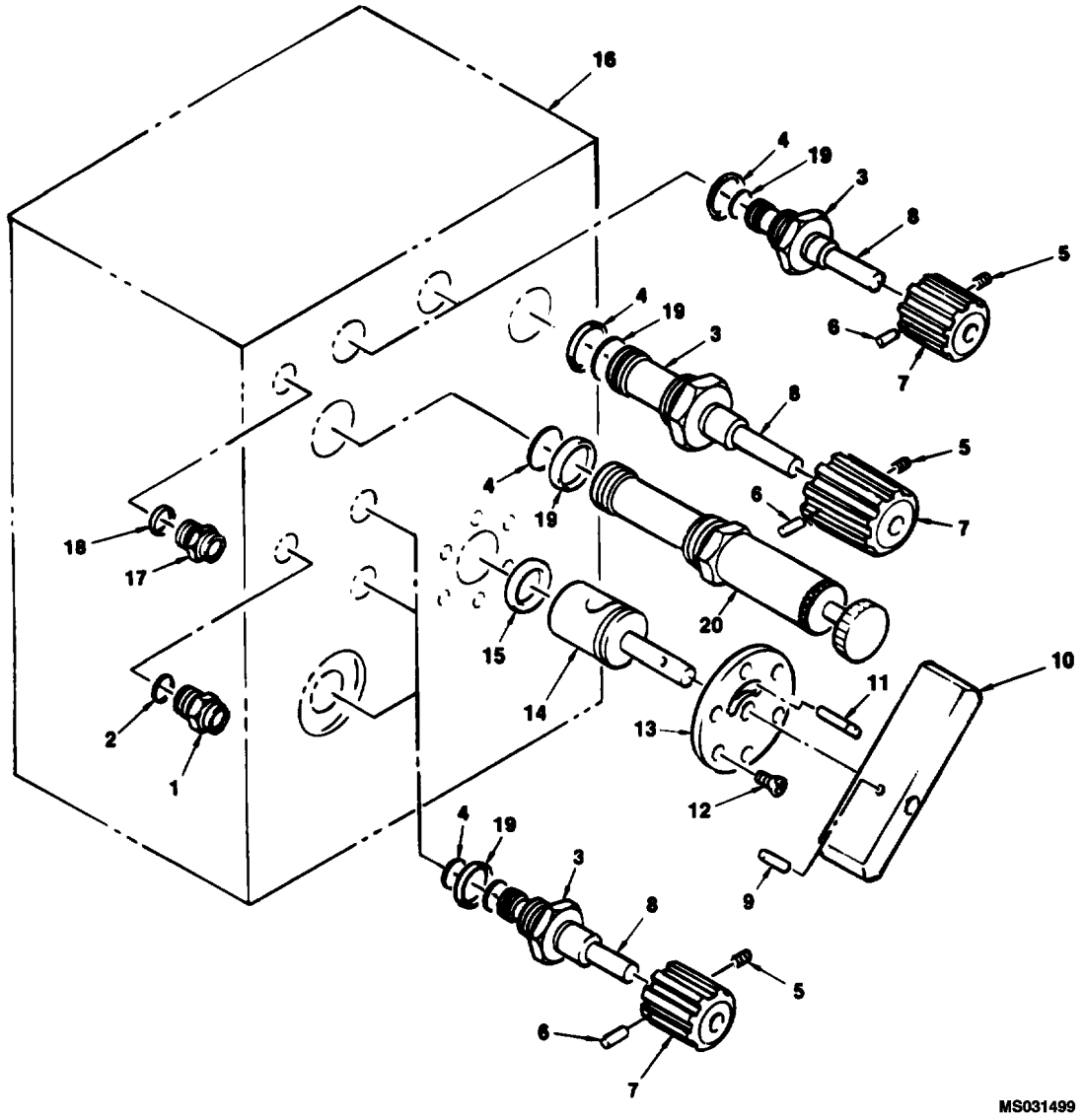
MANIFOLD FRONT VALVES AND FITTINGS

INITIAL SETUP:

Materials/Parts	References
Hydraulic Fluid, Fire Resistant (WP 0170 00, Item 26)	WP 0002 00
Hydraulic Fluid, Petroleum Base (WP 0170 00, Item 27)	WP 0110 00

REMOVAL

Remove Valves and Fittings



1. Pressure Sight Glass
2. Packing
3. Cartridge Valve
4. Packing
5. Set Screw
6. Pin
7. Knob
8. Valve Body
9. Set Screw
10. Handle
11. Pin
12. Screw
13. Flange
14. Bypass Valve
15. Packing
16. Manifold
17. Return Sight Glass
18. O-Ring
19. O-Ring
20. Pressure Relief Valve

Figure 1. Hydraulic Manifold, Front Controls and Connectors.

REMOVAL – CONTINUED

WARNING

Hydraulic fluid under high pressure is generated (up to 3300 psi) as a result of operation of the AGPU. Do not expose any part of the body to a high pressure leak in the hydraulic system. Never attempt to connect or disconnect hydraulic fittings under high pressure.

1. Removal of Cartridge Valves (Figure 1, Item 3).

NOTE

This procedure does not require that the module be removed from unit.

   a. Open GAUGE SHUTOFF valve 1/4 turn. This valve is on manifold (WP 0002 00, Figure 27, Item 15).
   b. Observe pressure indication on OUTPUT PRESSURE gauge (WP 0002 00, Figure 27, Item 8). It should read zero. If it does not, open HIGH PRESSURE BYPASS valve on manifold (WP 0002 00, Figure 27, Item 15) slightly and observe that gauge pressure reduces to zero.
   c. Drain hydraulic fluid from reservoir as described in paragraph 4. of WP 0110 00.
   d. Remove set screw (Figure 1, Item 5) from valve knob (Figure 1, Item 7).
   e. Pry pin (Figure 1, Item 6) from location in knob (Figure 1, Item 7) opposite the set screw (Figure 1, Item 5).
   f. Remove knob (Figure 1, Item 7).
   g. Turn cartridge valve (Figure 1, Item 3) counterclockwise to remove it. Remove packing (Figure 1, Item 4) and O-ring (Figure 1, Item 19). Discard packing and O-ring.

2. Removal of PRESSURE RELIEF Valve (Figure 1, Item 20).

NOTE

This procedure does not require that the module be removed from the unit.

   a. Open GAUGE SHUTOFF valve on manifold 1/4 turn.
   b. Observe pressure indication on OUTPUT PRESSURE gauge (WP 0002 00, Figure 27, Item 8). It should read zero. If it does not, open HIGH PRESSURE BYPASS valve on manifold (WP 0002 00, Figure 27, Item 15) slightly and observe that gauge pressure reduces to zero.
   c. Drain hydraulic fluid from reservoir as described in (paragraph 4. of WP 0110 00).
   d. Turn PRESSURE RELIEF valve (Figure 1, Item 20) counterclockwise to remove it.
   e. Remove and discard packing (Figure 1, Item 4) and O-ring (Figure 1, Item 19).

3. Removal of RETURN BYPASS Valve (Figure 1, Item 14).
   a. Open GAUGE SHUTOFF valve on manifold (WP 0002 00, Figure 27, Item 15) 1/4 turn.
   b. Observe pressure indication on OUTPUT PRESSURE gauge (WP 0002 00, Figure 27, Item 8). It should read zero. If it does not, open HIGH PRESSURE BYPASS valve on manifold (WP 0002 00, Figure 27, Item 15) slightly and observe that gauge pressure reduces to zero.

REMOVAL – CONTINUED

WARNING

Hydraulic fluid under high pressure is generated (up to 3300 psi) as a result of operation of the AGPU. Do not expose any part of the body to a high pressure leak in the hydraulic system. Never attempt to connect or disconnect hydraulic fittings under high pressure.

c. Drain hydraulic fluid from reservoir as described in paragraph 4. of WP 0110 00.

d. Remove set screw (Figure 1, Item 9) and handle (Figure 1, Item 10), from RETURN BYPASS valve.

e. Remove screws (Figure 1, Item 12) and flange (Figure 1, Item 13).

f. Remove bypass valve (Figure 1, Item 14) and packing (Figure 1, Item 15). Discard packing.

INSTALLATION

Install Valves and Fittings

1. Replacement of Cartridge Valves (Figure 1, Item 3).
   a. Inspect manifold hole and threads for nicks, scratches, or contamination.
   b. Lubricate manifold hole and valve threads with MIL-PRF-5605 (WP 0170 00, Item 27) or MIL-PRF-83282 (WP 0170 00, Item 26).
   c. Install new packings (Figure 1, Item 4) and O-ring (Figure 1, Item 19).
   d. Install valve body (Figure 1, Item 8).
   e. Install knob (Figure 1, Item 7), pin (Figure 1, Item 6), and setscrew (Figure 1, Item 5) on valve body (Figure 1, Item 8).
   f. Refill reservoir as described in WP 0110 00.
2. Replacement of PRESSURE RELIEF Valve (Figure 1, Item 20).
   a. Inspect manifold hole and threads for nicks, scratches, or contamination.
   b. Lubricate manifold hole and valve threads with MIL-PRF-5606 (WP 0170 00, Item 27) or MIL-PRF-83282 (WP 0170 00, Item 26).
   c. Install new packings (Figure 1, Item 4) and O-rings (Figure 1, Item 19).
   d. Install pressure relief valve (Figure 1, Item 20).
   e. Refill reservoir as described in WP 0110 00.
3. Replacement of RETURN BYPASS Valve (Figure 1, Item 14).
   a. Inspect manifold valve hole and mounting screw threaded holes for nicks, scratches, or contamination.

WARNING

Hydraulic fluid under high pressure is generated (up to 3300 psi) as a result of operation of the AGPU. Do not expose any part of the body to a high pressure leak in the hydraulic system. Never attempt to connect or disconnect hydraulic fittings under high pressure.

b. Lubricate valve hole and threaded holes with a small amount of MIL-PRF-5606 (WP 0170 00, Item 27) or MIL-PRF-83282 (WP 0170 00, Item 26).

c. Install new packing (Figure 1, Item 15).

INSTALLATION – CONTINUED

d. Insert bypass valve (Figure 1, Item 14) into hole in manifold.

e. Install mounting flange (Figure 1, Item 13), pin (Figure 1, Item 11), and six screws (Figure 1, Item 12).

f. Install handle (Figure 1, Item 10) and set screw (Figure 1, Item 9).

g. Fill reservoir as described in WP 0110 00.

h. Perform MOC and check operation of manifold and valves.

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

RESERVOIR

INITIAL SETUP:

Tools and Special Tools

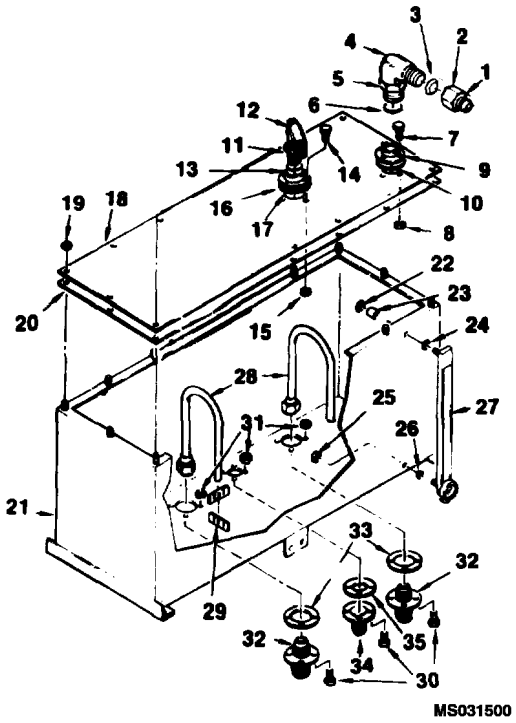
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

RTV Red Gasket Maker (WP 0170 00, Item 47)

References

WP 0129 00
WP 0130 00



1. Coupling, Nut	10. Gasket	19. Nut	28. Tube Assembly
2. Reducer	11. Nut, Jam	20. Gasket	29. Baffle
3. Seal	12. Tee	21. Reservoir	30. Bolt
4. Elbow	13. O-Ring	22. Nut	31. Nut
5. Nut, Jam	14. Bolt	23. Spacer	32. Fitting
6. O-Ring	15. Nut	24. Packing	33. Gasket
7. Bolt	16. Flange	25. Nut	34. Fitting
8. Nut	17. Gasket	26. O-Ring	35. Gasket
9. Flange	18. Top	27. Sight Glass/Temp Gauge	

Figure 1. Reservoir.

REMOVAL

Remove reservoir (WP 0122 00, Figure 1, Item 21) by performing Steps 1. through 19.d. in WP 0129 00.

INSPECTION OF INSTALLED ITEMS

1. Inspect coupling ends of reducer (Figure 1, Item 2), tee (Figure 1, Item 12), and fittings (Figure 1, Item 32 and 34) for scratches or gouges. Replace if damaged.
2. Inspect tube assemblies (Figure 1, Item 28) for cracks or deformation. Replace if damaged.
3. Inspect sight glass/temperature gauge (Figure 1, Item 27) for cracks or leaks. Replace if damaged.
4. Inspect reservoir (Figure 1, Item 21) interior for sludge or contamination. Clean as required.
5. Inspect coupling nut (Figure 1, Item 1) and elbow (Figure 1, Item 4) for cracks and worn threads. Replace if damaged.
6. Inspect flanges (Figure 1, Item 9, 16) for cracks. Replace if damaged.
7. Inspect top (Figure 1, Item 18) for warpage and cleanliness of mating surfaces to reservoir (Figure 1, Item 21).

INSPECTION OF INSTALLED ITEMS – CONTINUED

8. Inspect spacer (Figure 1, Item 23) of temp gauge for burrs, scratches, and corrosion. Replace if damaged.
9. Inspect baffle (Figure 1, Item 29) for damage.

REPAIR OR REPLACEMENT

1. Replace reducer (Figure 1, Item 2) by removing coupling nut (Figure 1, Item 1). Remove and discard seal (Figure 1, Item 3). Install new reducer (Figure 1, Item 2) and seal (Figure 1, Item 3), and tighten coupling nut (Figure 1, Item 1) to between 900 and 1,000 inch-pounds of torque.
2. Replace elbow (Figure 1, Item 4) as follows:
    a. Remove coupling nut (Figure 1, Item 1), reducer (Figure 1, Item 2), and seal (Figure 1, Item 3). Discard seal.
    b. Match mark elbow (Figure 1, Item 4) to flange (Figure 1, Item 9) and top (Figure 1, Item 18) and loosen jam nut (Figure 1, Item 5).
    c. Remove elbow (Figure 1, Item 4) with O-Ring . Discard O-Ring.
    d. Install new elbow (Figure 1, Item 4) with new O-Ring (Figure 1, Item 6), align to match mark, and tighten with jam nut (Figure 1, Item 5).
    e. Install reducer (Figure 1, Item 2) and new seal (Figure 1, Item 3), and tighten coupling nut (Figure 1, Item 1) to between 900 and 1,000 inch-pounds.
3. Replace flange (Figure 1, Item 9) as follows:
    a. Match mark elbow (Figure 1, Item 4) to flange (Figure 1, Item 9) and top (Figure 1, Item 18). Loosen jam nut (Figure 1, Item 5) and remove elbow (Figure 1, Item 4) with reducer (Figure 1, Item 2) attached. Discard O-Ring (Figure 1, Item 6)
    b. Remove four bolts (Figure 1, Item 7) and nuts (Figure 1, Item 8), and remove flange (Figure 1, Item 9) and gasket (Figure 1, Item 10). Discard gasket.
    c. Coat threads of bolts (Figure 1, Item 7) with RTV (WP 0170 00, Item 47).
    d. Position (align match marks) flange (Figure 1, Item 9) and new gasket (Figure 1, Item 10) on top (Figure 1, Item 18) and install bolts (Figure 1, Item 7) and nuts (Figure 1, Item 8).
    e. Install elbow (Figure 1, Item 4) with new O-Ring (Figure 1, Item 6), align to match marks and tighten with jam nut (Figure 1, Item 5).
4. Replace tee (Figure 1, Item 12) as follows:
    a. Match mark tee (Figure 1, Item 12) to flange (Figure 1, Item 16) and top (Figure 1, Item 18).
    b. Loosen jam nut (Figure 1, Item 11) and remove tee. Discard O-Ring (Figure 1, Item 13).
    c. Install tee (Figure 1, Item 12) with new O-Ring (Figure 1, Item 13), align match marks, and tighten with jam nut (Figure 1, Item 11).
5. Replace flange (Figure 1, Item 16) as follows:
    a. Match mark tee (Figure 1, Item 12) to flange (Figure 1, Item 16) and top (Figure 1, Item 18).
    b. Loosen jam nut (Figure 1, Item 11) and remove tee. Discard O-Ring (Figure 1, Item 13).
    c. Remove four bolts (Figure 1, Item 14) and nuts (Figure 1, Item 15), and remove flange (Figure 1, Item 16) and gasket (Figure 1, Item 17). Discard gasket.
    d. Coat threads of bolts (Figure 1, Item 14) with RTV (WP 0170 00, Item 47).
    e. Install flange (Figure 1, Item 16) and new gasket (Figure 1, Item 17) on top (Figure 1, Item 18) and install bolts (Figure 1, Item 14) and nuts (Figure 1, Item 15).
    f. Install tee (Figure 1, Item 12) with new O-Ring (Figure 1, Item 13), align to match marks, and tighten with jam nut (Figure 1, Item 11).
6. Replace slight glass/temperature gauge (Figure 1, Item 27) as follows:

REPAIR OR REPLACEMENT – CONTINUED

a. Remove nut (Figure 1, Item 22) and spacer (Figure 1, Item 23). Remove nut (Figure 1, Item 25).

b. Remove gauge (Figure 1, Item 27) from reservoir (Figure 1, Item 21) and discard packings and O-Ring (Figure 1, Item 24, 26).

c. Install new packings and O-Ring (Figure 1, Item 24, 26) on gauge (Figure 1, Item 27).

d. Coat threads on top and bottom studs on gauge (Figure 1, Item 27) with RTV (WP 0170 00, Item 47).

e. Install gauge in reservoir (Figure 1, Item 21) using nut (Figure 1, Item 25), and nut (Figure 1, Item 22) and spacer (Figure 1, Item 23).

7. Replace tube assemblies (Figure 1, Item 28) as follows:

a. Loosen nut of tube assembly (Figure 1, Item 28) and remove tube assembly.

b. Install tube assembly (Figure 1, Item 28). Ensure that end of left tube assembly is aligned with center of baffle (Figure 1, Item 29).

8. Replace fittings (Figure 1, Item 32) as follows:

a. Remove tube assembly (Figure 1, Item 28).

b. Remove four bolts (Figure 1, Item 30) and nuts (Figure 1, Item 31).

c. Remove fitting (Figure 1, Item 32) and gasket (Figure 1, Item 33). Discard gasket.

d. Coat threads of four bolts (Figure 1, Item 30) with RTV (WP 0170 00, Item 47).

e. Position fitting (Figure 1, Item 32) with new gasket (Figure 1, Item 33) and install four bolts (Figure 1, Item 30) and nuts (Figure 1, Item 31).

f. Install tube assembly (Figure 1, Item 28). Ensure that end of left tube assembly is aligned with center of baffle (Figure 1, Item 29).

9. Replace fitting (Figure 1, Item 34) as follows:

a. Remove four bolts (Figure 1, Item 30) and nuts (Figure 1, Item 31).

b. Remove fitting (Figure 1, Item 34) and gasket (Figure 1, Item 35). Discard gasket.

c. Coat threads of four bolts (Figure 1, Item 30) with RTV (WP 0170 00, Item 47).

d. Position fitting (Figure 1, Item 34) with new gasket (Figure 1, Item 35) and install four bolts (Figure 1, Item 30) and nuts (Figure 1, Item 31).

INSTALLATION

1. Install reservoir by performing Steps 15. through 36. and Steps 47. through 50. in WP 0130 00.
2. Perform MOC.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

FILTER HEADS

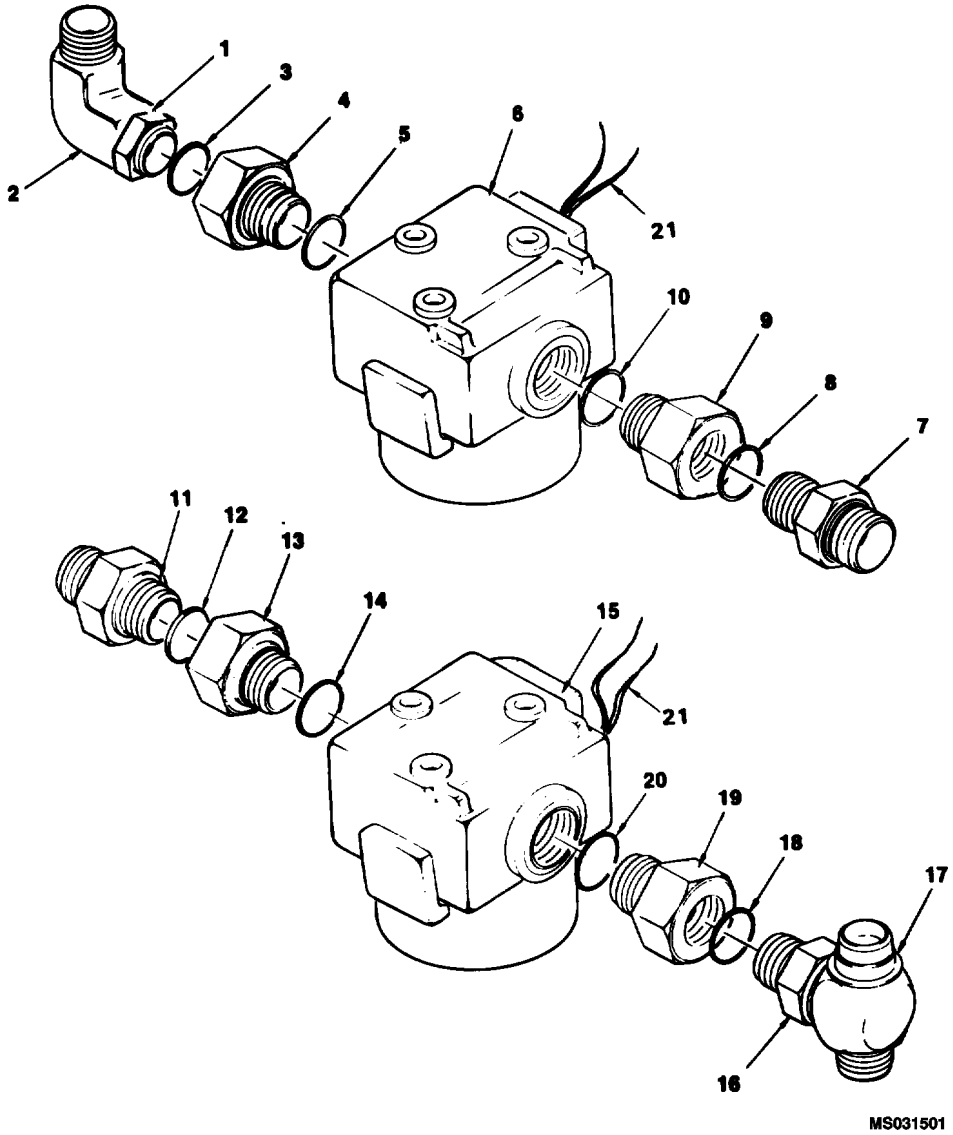
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0129 00
WP 0130 00



1. Nut	8. O-Ring	15. Filter Head, Return
2. Elbow	9. Adapter	16. Nut
3. O-Ring	10. O-Ring	17. Tee
4. Adapter	11. Fitting	18. O-Ring
5. O-Ring	12. O-Ring	19. Adapter
6. Filter Head, High Pressure	13. Adapter	20. O-Ring
7. Fitting	14. O-Ring	21. Wires

Figure 1. Filter Heads.

This manual contains instructions for TASMG (L) and DEPOT (D) maintenance of Multi-Output Aviation Power Unit MEP 83-360A, MEP 83-360D and E models, referred to as the Aviation Ground Power Unit (AGPU). Prior to performing these maintenance procedures, refer to the MAC chart within this TM 1-1730-229-40 if applicable. The contents of this manual will be followed in the event of conflict with any other document referenced herein.

REMOVAL

Remove filter heads (Figure 1, Item 6 and 15) by performing Steps 1. through 31. in WP 0129 00.

INSPECTION OF INSTALLED ITEMS

1. Inspect internal threads on filter head, high pressure (Figure 1, Item 6) and filter head return (Figure 1, Item 15) body for damage. Replace filter head if damaged.
2. Inspect coupling ends of fittings (Figure 1, Item 7, 11) for scratches or gouges. Replace if damaged.
3. Inspect coupling ends of elbow (Figure 1, Item 3) and tee (Figure 1, Item 17) for scratches or gouges. Replace if damaged.
4. Inspect wires (Figure 1, Item 21) to switch body for damaged insulation. Repair by splicing if damaged.
5. Inspect adapters (Figure 1, Item 4, 9, 13, and 19) for worn threads.

REPAIR OR REPLACEMENT

1. Replace elbow (Figure 1, Item 2) and adapter (Figure 1, Item 4).
    a. Match mark elbow (Figure 1, Item 2) and filter head (Figure 1, Item 6). Loosen nut (Figure 1, Item 1) and remove elbow (Figure 1, Item 2) and O-Ring (Figure 1, Item 3). Discard O-Ring.
    b. Remove adapter (Figure 1, Item 4) and O-Ring (Figure 1, Item 5) from filter head (Figure 1, Item 6). Discard O-Ring.
    c. Install adapter (Figure 1, Item 4) with new O-Ring (Figure 1, Item 5).
    d. Back off nut (Figure 1, Item 1) as far as possible, install elbow (Figure 1, Item 2) with new O-Ring (Figure 1, Item 3), align to match marks, and tighten elbow in position with nut (Figure 1, Item 1).
2. Replace fitting (Figure 1, Item 7) and adapter (Figure 1, Item 9).
    a. Remove fitting (Figure 1, Item 7) and O-Ring (Figure 1, Item 8). Discard O-Ring.
    b. Remove adapter (Figure 1, Item 9) and O-Ring (Figure 1, Item 10). Discard O-Ring.
    c. Install adapter (Figure 1, Item 9) with new O-Ring (Figure 1, Item 10).
    d. Install fitting (Figure 1, Item 7) with new O-Ring (Figure 1, Item 8).
3. Replace fitting (Figure 1, Item 11) and adapter (Figure 1, Item 13).
    a. Remove fitting (Figure 1, Item 11) and O-Ring (Figure 1, Item 12). Discard O-Ring.
    b. Remove adapter (Figure 1, Item 13) and O-Ring (Figure 1, Item 14). Discard O-Ring.
    c. Install adapter (Figure 1, Item 13) with new O-Ring (Figure 1, Item 14).
    d. Install fitting (Figure 1, Item 11) with new O-Ring (Figure 1, Item 12).
4. Replace tee (Figure 1, Item 17) and adapter (Figure 1, Item 19).
    a. Match mark tee (Figure 1, Item 17) to filter head (Figure 1, Item 15). Loosen nut (Figure 1, Item 16) and remove tee (Figure 1, Item 17) and O-Ring (Figure 1, Item 18). Discard O-Ring.
    b. Remove adapter (Figure 1, Item 19) and O-Ring (Figure 1, Item 20). Discard O-Ring.
    c. Install adapter (Figure 1, Item 19) with new O-Ring (Figure 1, Item 20).
    d. Back off nut (Figure 1, Item 16) as far as possible, install tee (Figure 1, Item 17) with new O-Ring (Figure 1, Item 18), align to match marks, and tighten tee (Figure 1, Item 17) in position with nut (Figure 1, Item 16).

INSTALLATION

NOTE

New filters must be installed whenever filter heads are removed and installed.

1. Install filter heads by performing Step 4. and Step 5. in WP 0130 00.

INSTALLATION – CONTINUED

2. Perform MOC and check for hydraulic leaks.

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

HYDRAULIC SYSTEM MANIFOLD CHECK VALVES

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK
(WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

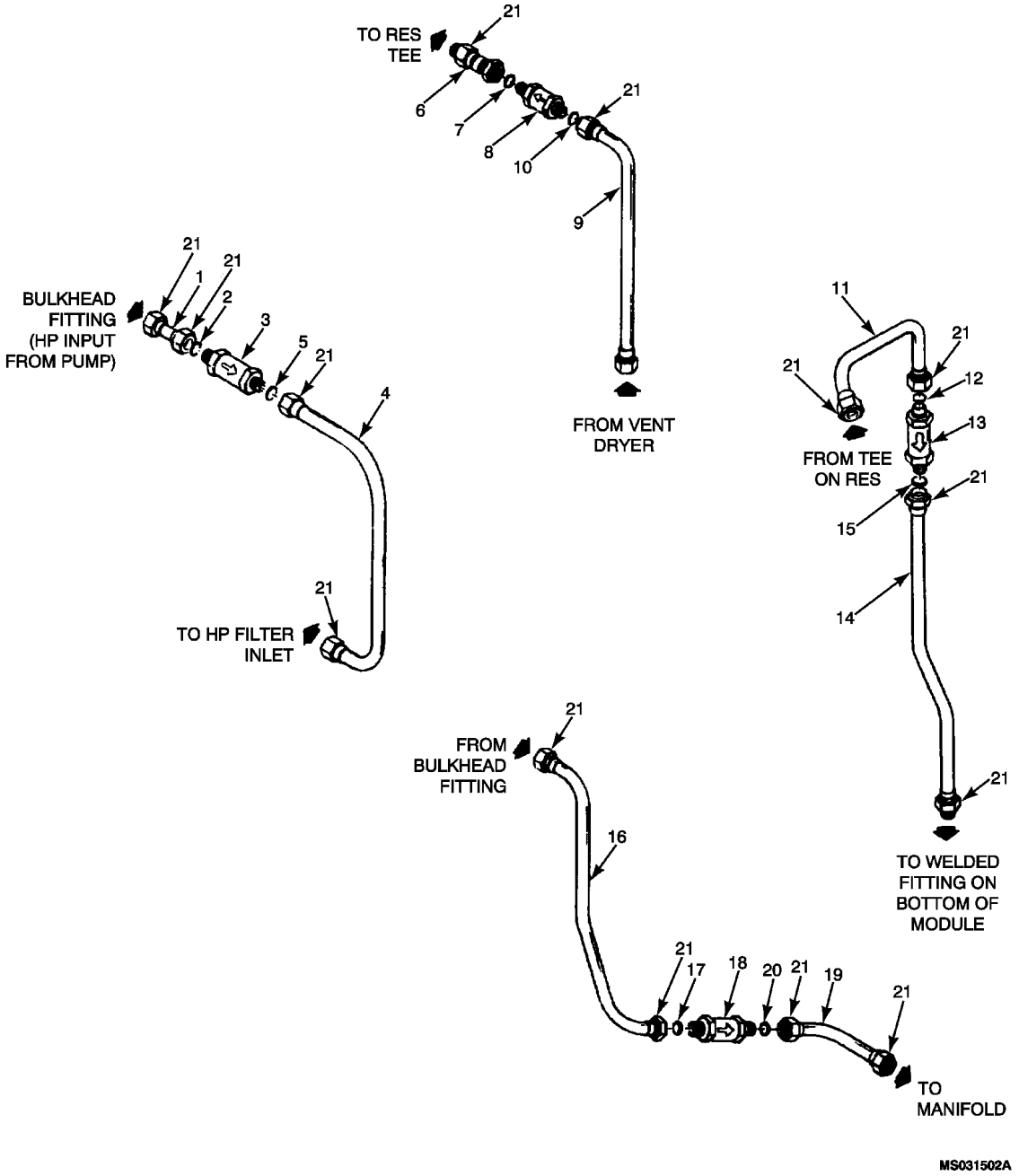
References

WP 0129 00

GENERAL

This manual contains instructions for TASMG (L) and DEPOT (D) maintenance of Multi-Output Aviation Power Unit MEP 83-360A, MEP 83-360D and E models, referred to as the Aviation Ground Power Unit (AGPU). Prior to performing these maintenance procedures, refer to the MAC chart within this TM 1-1730-229-40 if applicable. The contents of this manual will be followed in the event of conflict with any other document referenced herein.

GENERAL – Continued



1. Tube Assembly
2. 7C-10 Seal
3. Check Valve (4000 psi oper)
4. Tube Assembly
5. 7C-10 Seal
6. Tube Assembly
7. 7C-8 Seal
8. Check Valve (0.5 psi)
9. Tube Assembly
10. 7C-8 Seal
11. Tube Assembly
12. 7C-8 Seal
13. Check Valve (6 psi)
14. Tube Assembly
15. 7C-8 Seal
16. Tube Assembly
17. 7C-8 Seal
18. Check Valve (2 psi)
19. Tube Assembly
20. 7C-8 Seal
21. Coupling Nut

Figure 1. Check Valves and Tube Assemblies.

REMOVAL

Remove check valves (Figure 1, Item 3, 8, 13, and 18) and tube assemblies (Figure 1, Item 1, 4, 6, 9, 11, 14, 16 and 19) by performing WP 0129 00, Steps 10. through 13.

INSPECTION OF INSTALLED ITEMS

1. Inspect check valves (Figure 1, Item 3, 8, 13, and 18) for dents, cracks, or leaks. Replace check valves if damaged.
2. Inspect tube assemblies (Figure 1, Item 1, 4, 6, 9, 11, 14, 16 and 19) for cracks, deformation, or damaged coupling nuts (Figure 1, Item 21). Replace tube assemblies if damaged.

INSTALLATION

1. Replace 4000 psi (operating pressure) check valve (Figure 1, Item 3) as follows:
    a. Loosen coupling nuts (Figure 1, Item 21) on tube assemblies (Figure 1, Item 1 and 4). Remove and discard 7C-10 seals (Figure 1, Item 2 and 5).
    b. Install tube assemblies (Figure 1, Item 1 and 4) with new 7C-10 seals (Figure 1, Item 2 and 5) on check valve (Figure 1, Item 3). Ensure that check valve is installed properly in accordance with flow arrow.
    c. Tighten coupling nuts (Figure 1, Item 21) with **650 to 700 inch-pounds** of torque.
2. Replace 0.5 psi check valve (Figure 1, Item 8) as follows:
    a. Loosen coupling nuts (Figure 1, Item 21) on tube assemblies (Figure 1, Item 6 and 9). Remove and discard 7C-8 seals (Figure 1, Item 7 and 10).
    b. Install tube assemblies (Figure 1, Item 6 and 9) with new 7C-8 seals (Figure 1, Item 7 and 10) on check valve (Figure 1, Item 8). Ensure that check valve is Installed properly in accordance with flow arrow.
    c. Tighten coupling nuts (Figure 1, Item 21) with **450 to 500 inch-pounds** of torque.
3. Replace 6 psi check valve (Figure 1, Item 13) as follows:
    a. Match mark tube assemblies (Figure 1, Item 11 and 14).
    b. Loosen coupling nuts (Figure 1, Item 21) on tube assemblies (Figure 1, Item 11 and 14). Remove and discard 7C-8 seals (Figure 1, Item 12 and 15).
    c. Install tube assemblies (Figure 1, Item 11 and 14) with new 7C-8 seals (Figure 1, Item 12 and 15) on check valve (Figure 1, Item 13). Align match marks and ensure that check valve is installed properly in accordance with flow arrow.
    d. Tighten coupling nuts (Figure 1, Item 21) with **450 to 500 inch-pounds** of torque.
4. Replace 2 psi check valve (Figure 1, Item 18) as follows:
    a. Match mark tube assemblies (Figure 1, Item 16 and 19).
    b. Loosen coupling nuts (Figure 1, Item 21) on tube assemblies (Figure 1, Item 16 and 19). Remove and discard 7C-8 seals (Figure 1, Item 17 and 20).
    c. Install tube assemblies (Figure 1, Item 16 and 19) with new 7C-8 seals (Figure 1, Item 17 and 20) on check valve (Figure 1, Item 18). Align match marks and ensure that check valve is installed properly in accordance with flow arrow.
    d. Tighten coupling nuts (Figure 1, Item 21) with **450 to 500 inch-pounds** of torque.
5. Perform MOC and check for leaks.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

MANIFOLD ASSEMBLY

INITIAL SETUP:

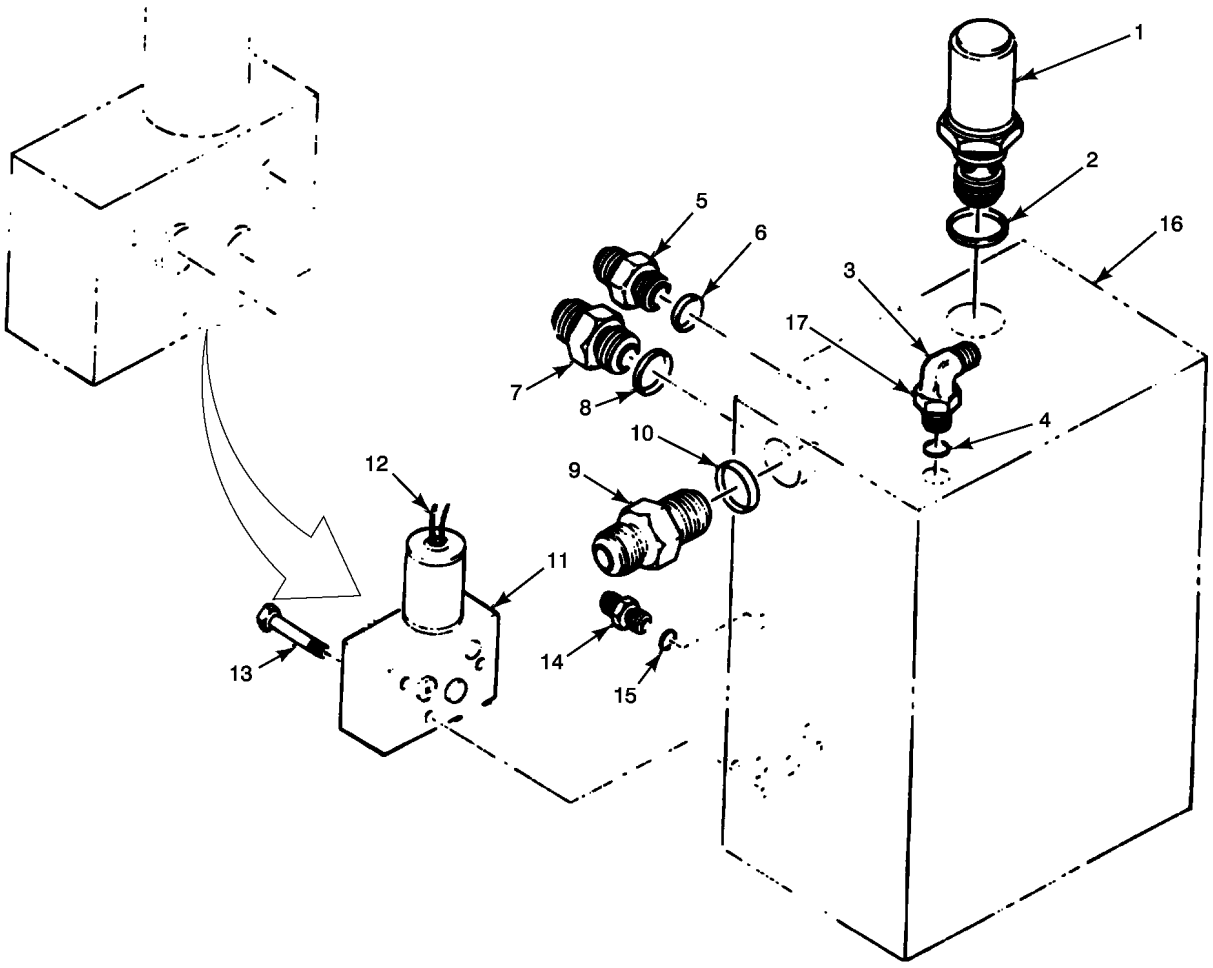
Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0129 00
WP 0130 00
WP 0132 00

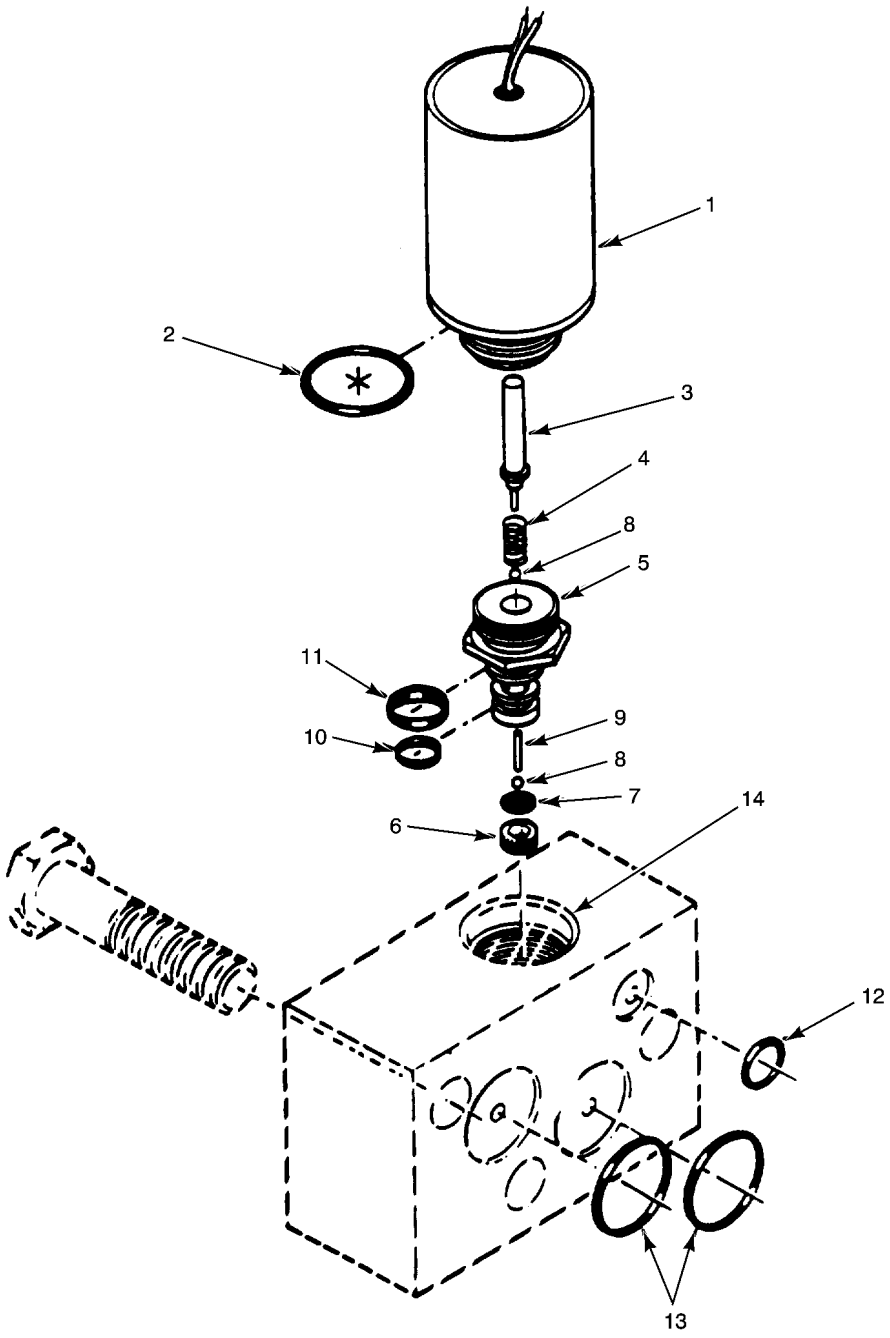
REMOVAL



1. Relief Valve	7. Fitting	13. Bolt
2. O-Ring	8. O-Ring	14. Fitting
3. Elbow	9. Fitting	15. O-Ring
4. O-Ring	10. O-Ring	16. Manifold
5. Fitting	11. Pilot Solenoid Valve Body	17. Nut
6. O-Ring	12. Wiring	

Figure 1. Manifold Assembly.

REMOVAL – CONTINUED



1. Solenoid Assembly	5. Housing	9. Pintle	13. O-Ring
2. O-Ring	6. Retainer	10. Ring	14. Valve Inner Port
3. Pin	7. Screen	11. Ring	
4. Spring	8. Ball	12. O-Ring	

Figure 2. Solenoid Valve, Disassembly and Reassembly.

REMOVAL – CONTINUED

Remove manifold (Figure 1, Item 16) by performing steps Steps 1. through 24.d. in WP 0129 00.

INSPECTION OF INSTALLED ITEMS

1. Inspect coupling ends of fittings (Figure 1, Item 5, 7, 9 and 14) for scratches or gouges. Replace if damaged.
2. Inspect coupling end of elbow (Figure 1, Item 3) for scratches or gouges. Replace if damaged.
3. Inspect relief valve (Figure 1, Item 1) for leaks or dents. Replace if damaged.
4. Inspect pilot solenoid valve body (Figure 1, Item 11) for broken wiring (Figure 1, Item 12), dents, cracks, or leaks. Replace if damaged.

REPAIR OR REPLACEMENT

1. Replace fittings (Figure 1, Item 5, 7, 9 and 14) as follows:
    a. Remove fittings with O-Rings. Discard O-Rings.
    b. Install new fitting, with new O-Rings (Figure 1, Item 6, 8, 10 and 15).
2. Match mark elbow (Figure 1, Item 3) to manifold (Figure 1, Item 16). Replace elbow (Figure 1, Item 3) by loosening nut (Figure 1, Item 17) and removing elbow (Figure 1, Item 3) with O-Ring (Figure 1, Item 4). Discard O-Ring. Back off nut (Figure 1, Item 17) as far as it will go, install elbow (Figure 1, Item 3) with new O-Ring (Figure 1, Item 4), position elbow coupling end to match mark, and tighten with nut (Figure 1, Item 17).
3. Replace relief valve (Figure 1, Item 1) by removing relief valve with O-Ring (Figure 1, Item 2). Discard O-Ring. Install new relief valve (Figure 1, Item 1) with new O-Ring (Figure 1, Item 2).
4. Replace pilot solenoid valve body (Figure 1, Item 11) as follows:
    a. Remove three bolts (Figure 1, Item 13) and remove pilot solenoid valve body (Figure 1, Item 11).
    b. Unscrew solenoid assembly (Figure 2, Item 1) out of the pilot solenoid valve body (Figure 1, Item 11) and replace the O-Ring (Figure 2, Item 2).
    c. Disengage pin (Figure 2, Item 3) and spring (Figure 2, Item 4) from the inner housing.
    d. Remove housing (Figure 2, Item 5) from the valve inner port (Figure 2, Item 14).
    e. Use a proper hydraulic set tool and carefully remove retainer (Figure 2, Item 6), screen (Figure 2, Item 7), balls (Figure 2, Item 8) and pintle (Figure 2, Item 9).
    f. Remove and discard rings (Figure 2, Item 10 and 11).
    g. Inspect items removed for clogged screen and clogged ports, Clean screen; replace damaged items.
    h. Install new rings (Figure 2, Item 10 and 11) on the housing and install pintle (Figure 2, Item 9), balls (Figure 2, Item 8), screen (Figure 2, Item 7) and retainer (Figure 2, Item 6).
    i. Install housing (Figure 2, Item 5) into valve inner port (Figure 2, Item 14).
    j. Engage spring (Figure 2, Item 4) and pin (Figure 2, Item 3).
    k. Install new O-Ring (Figure 2, Item 2) on the solenoid assembly (Figure 2, Item 1) and screw solenoid assembly (Figure 2, Item 1) onto the pilot solenoid valve (Figure 1, Item 11).
    l. After installing new O-Rings (Figure 1, Item 12 and 13), install the assembly onto the manifold (Figure 1, Item 16); secure with bolts (Figure 1, Item 13).

INSTALLATION

1. Test manifold as described In WP 0132 00 and install manifold by performing steps in WP 0130 00.
2. Perform MOC and check for leaks.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

RETURN MANIFOLD ASSEMBLY

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0129 00
WP 0131 00

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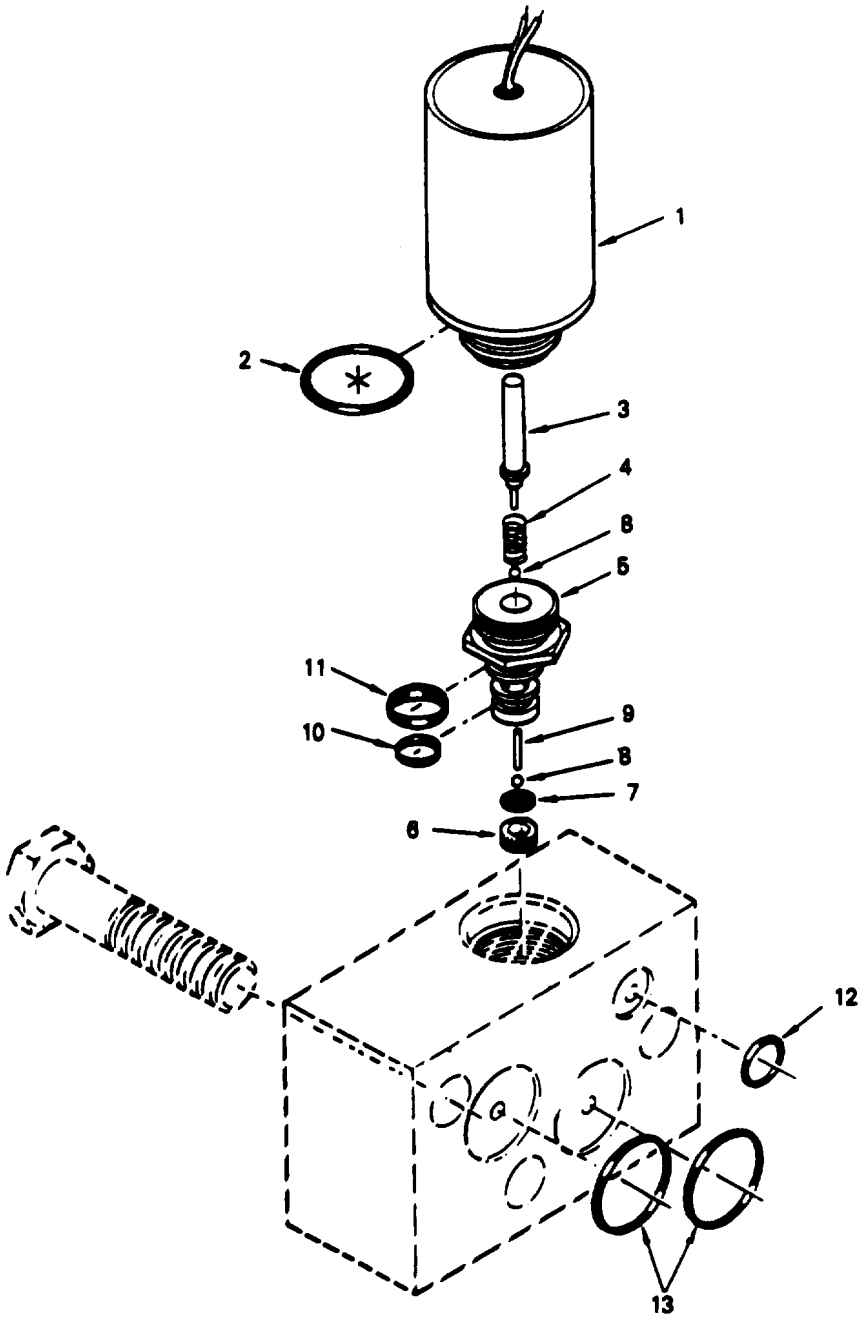
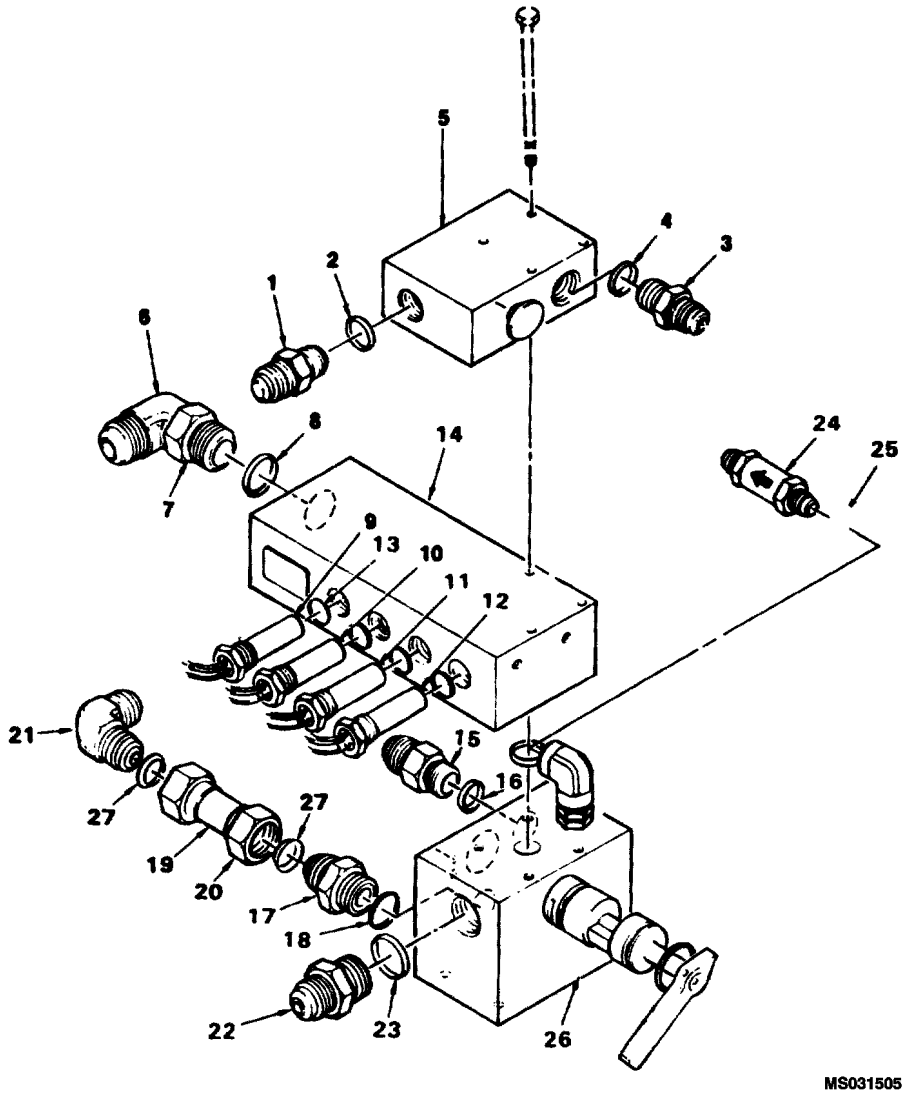


1. Solenoid Assembly	5. Housing	9. Pintle	13. O-Ring
2. O-Ring	6. Retainer	10. Ring	14. Valve Inner Port
3. Pin	7. Screen	11. Ring	
4. Spring	8. Ball	12. O-Ring	

Figure 1. Solenoid Valve, Disassembly and Reassembly.

– Continued



Note: Items 5, 14, and 26 shown exploded for clarity.

1. Fitting
2. O-Ring
3. Fitting
4. O-Ring
5. Fill manifold sub-assembly
6. Elbow
7. Nut
8. O-Ring
9. Sensor, temp (275°F)
10. Sensor, temp (240 °F)
11. Sensor, temp (160 °F)
12. Sensor, temp (70 °F)
13. O-Ring
14. Sensor manifold assembly
15. Fitting
16. O-Ring
17. Fitting
18. O-Ring
19. Tube assembly
20. Coupling nut
21. Elbow
22. Fitting
23. O-Ring
24. Check valve (100 psi)
25. O-Ring
26. Selector manifold subassembly
27. Seal

Figure 2. Return Manifold Assembly.

REMOVAL

Remove return manifold assembly from module by performing all steps of WP 0129 00.

INSPECTION OF INSTALLED ITEMS

1. Inspect coupling ends of fittings (Figure 2, Item 1, 3, 15, 17 and 22) for scratches or gouges. Replace if damaged.
2. Inspect coupling end of elbows (Figure 2, Item 6 and 21) and check valve (Figure 2, Item 24) for scratches or gouges. Replace if damaged.
3. Inspect sensors (Figure 2, Item 9 through 12) for broken wires. Replace sensor if damaged.
4. Inspect tube assembly (Figure 2, Item 19). Replace If damaged.

REPAIR OR REPLACEMENT

1. Replace fittings (Figure 2, Item 1, 3, 15, 17 and 22) as follows:
    a. Remove fittings with O-Rings. Discard O-Rings.
    b. Install new fitting, with new O-Ring (Figure 2, Item 2, 4, 16, 18 and 23).
2. Match mark elbow (Figure 2, Item 6) to sensor manifold assembly (Figure 2, Item 14). Replace elbow (Figure 2, Item 6) by loosening nut (Figure 2, Item 7), and removing elbow with O-Ring (Figure 2, Item 8). Discard O-Ring. Install new elbow (Figure 2, Item 6) with new O-Ring (Figure 2, Item 8), and position elbow coupling end to match mark.
3. Replace check valve (Figure 2, Item 24) by removing check valve. Discard O-Ring. Install new check valve (Figure 2, Item 24).
4. Replace sensors (Figure 2, Item 9, 10, 11, and 12) by removing sensor with O-Ring (Figure 2, Item 13). Discard O-Ring. Install new sensor and new O-Ring (Figure 2, Item 13).
5. Replace elbow (Figure 2, Item 21) or tube assembly (Figure 2, Item 19) by loosening coupling nuts (Figure 2, Item 20). Install new seal (Figure 2, Item 27) on end of tube assembly. Install new elbow (Figure 2, Item 21) on tube assembly (Figure 2, Item 19). Tighten coupling nuts (Figure 2, Item 20) with between 1,200 to 1,400 inch-pounds of torque.
6. Replace fitting (Figure 2, Item 17) by first loosening coupling nut (Figure 2, Item 20) and removing tube assembly (Figure 2, Item 19) with elbow (Figure 2, Item 21). Remove fitting (Figure 2, Item 17) with O-Ring (Figure 2, Item 18). Discard O-Ring. Install new fitting with new O-Ring (Figure 2, Item 18). Install new seal (Figure 2, Item 27) on end of tube assembly (Figure 2, Item 19). Replace tube assembly (Figure 2, Item 19) and tighten coupling nut (Figure 2, Item 20) with between 1,200 and 1,400 inch-pounds of torque.

INSTALLATION

1. Test return manifold as described in WP 0131 00 and install return manifold assembly into module by performing all steps of WP 0127 00.
2. Perform MOC and check for leaks.

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

FRAME

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0116 00
WP 0129 00
WP 0130 00

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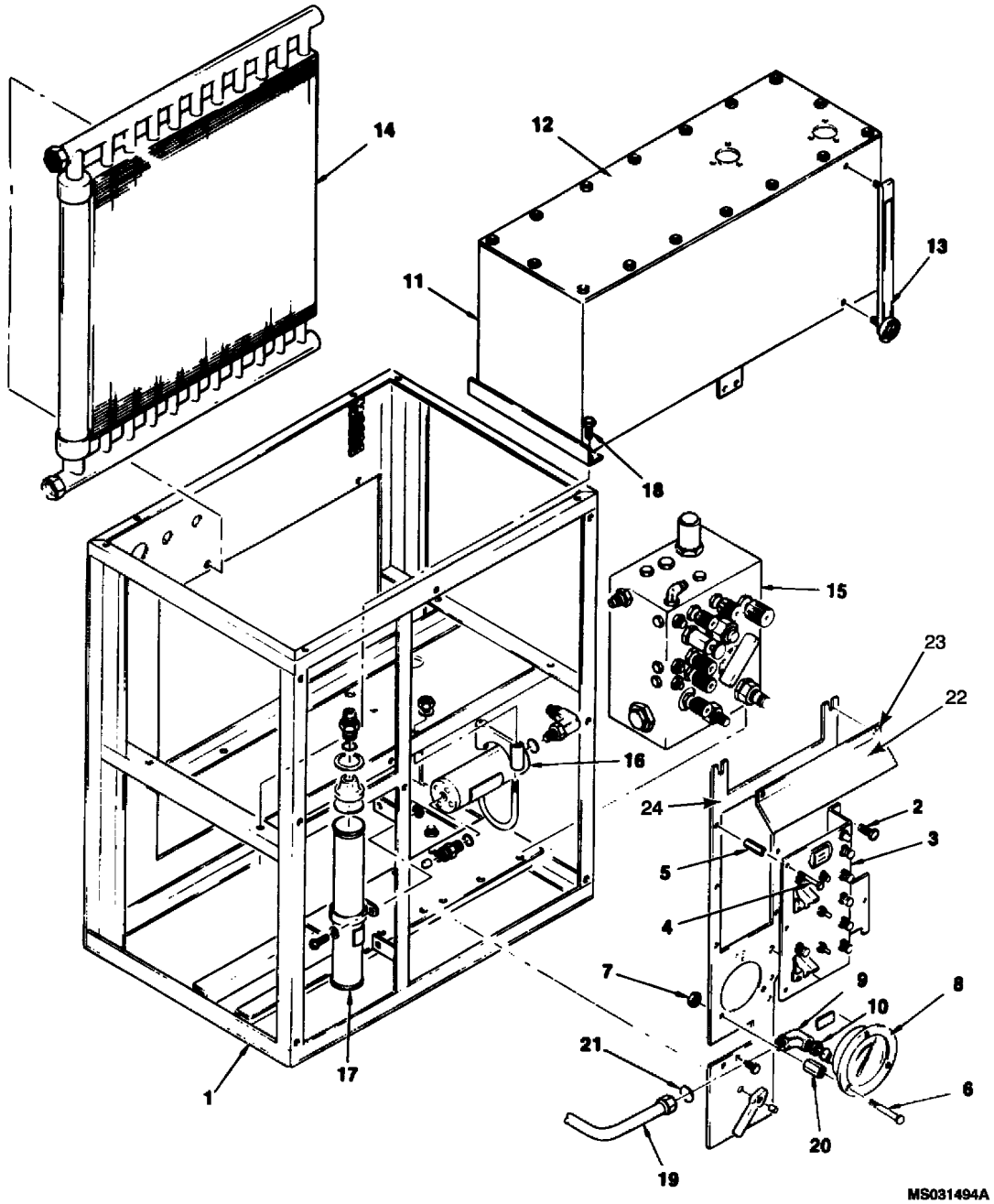
INSPECTION OF INSTALLED ITEMS



1. Frame	7. Nut	13. Temp/Level Gauge	19. Hydraulic Gauge Tube Assembly
2. Screw	8. Gauge	14. Cooler (Heat Exchanger)	20. Standoff
3. Electrical Control Panel	9. Elbow	15. Manifold	21. Seal
4. Screw	10. Jam Nut	16. Accumulator	22. Rain Shield
5. Standoff	11. Reservoir	17. Vent Dryer	23. Bolt
6. Bolt	12. Reservoir Top Cover	18. Bolt	24. Frame

INSPECTION OF INSTALLED ITEMS – CONTINUED

Figure 1. Hydraulic Module Major Components.

1. Remove hydraulic module from AGPU as described in WP 0116 00.
2. Inspect corners of frame (Figure 1, Item 1) for cracked or broken welds.
3. Inspect frame (Figure 1, Item 1) for bending or other distortion.
4. Inspect frame (Figure 1, Item 1) for corrosion.

REPAIR OR REPLACEMENT

1. Remove components and tubing from module by performing all steps of WP 0129 00.
2. Straighten frame (Figure 1, Item 1).
3. Repair cracks by welding.
4. Remove corrosion using wire brush.
5. Touch-up paint as required.
6. Install components and tubing removed in Step 1. by performing all steps of WP 0130 00.
7. Perform MOC and check for leaks.

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
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EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

HYDRAULIC MODULE DISASSEMBLY

INITIAL SETUP:

Tools and Special Tools	References
Aviation Foot Locker, AFL (WP 0171 00, Item 3)	WP 0110 00
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)	WP 0116 00
Tool Set, Aviation Unit (WP 0171 00, Item 42)	

This manual contains instructions for TASMG (L) and DEPOT (D) maintenance of Multi-Output Aviation Power Unit MEP 83-360A, MEP 83-360D and E models, referred to as the Aviation Ground Power Unit (AGPU). Prior to performing these maintenance procedures, refer to the MAC chart within this TM 1-1730-229-40 if applicable. The contents of this manual will be followed in the event of conflict with any other document referenced herein.

INTRODUCTION

This section contains the procedure for total disassembly of the hydraulic module. To gain access to, remove, and re-install certain components, the module must be totally disassembled. With some small variations, there is essentially only one possible sequence for disassembly (and re-assembly) of the module. If the prescribed sequence is not followed it will be difficult, if not impossible, to gain access to and torque hydraulic fittings during re-assembly.

DISASSEMBLY

WARNING

Ensure Hydraulic System is not under pressure before starting.

CAUTION

Always put plastic plugs into connectors and plastic caps over fittings upon disconnection. This protects threads and prevents contamination.

1. Drain fluid from hydraulic module as described in paragraph 4. of WP 0110 00.
2. Remove hydraulic module from unit as described in WP 0116 00.

DISASSEMBLY – CONTINUED

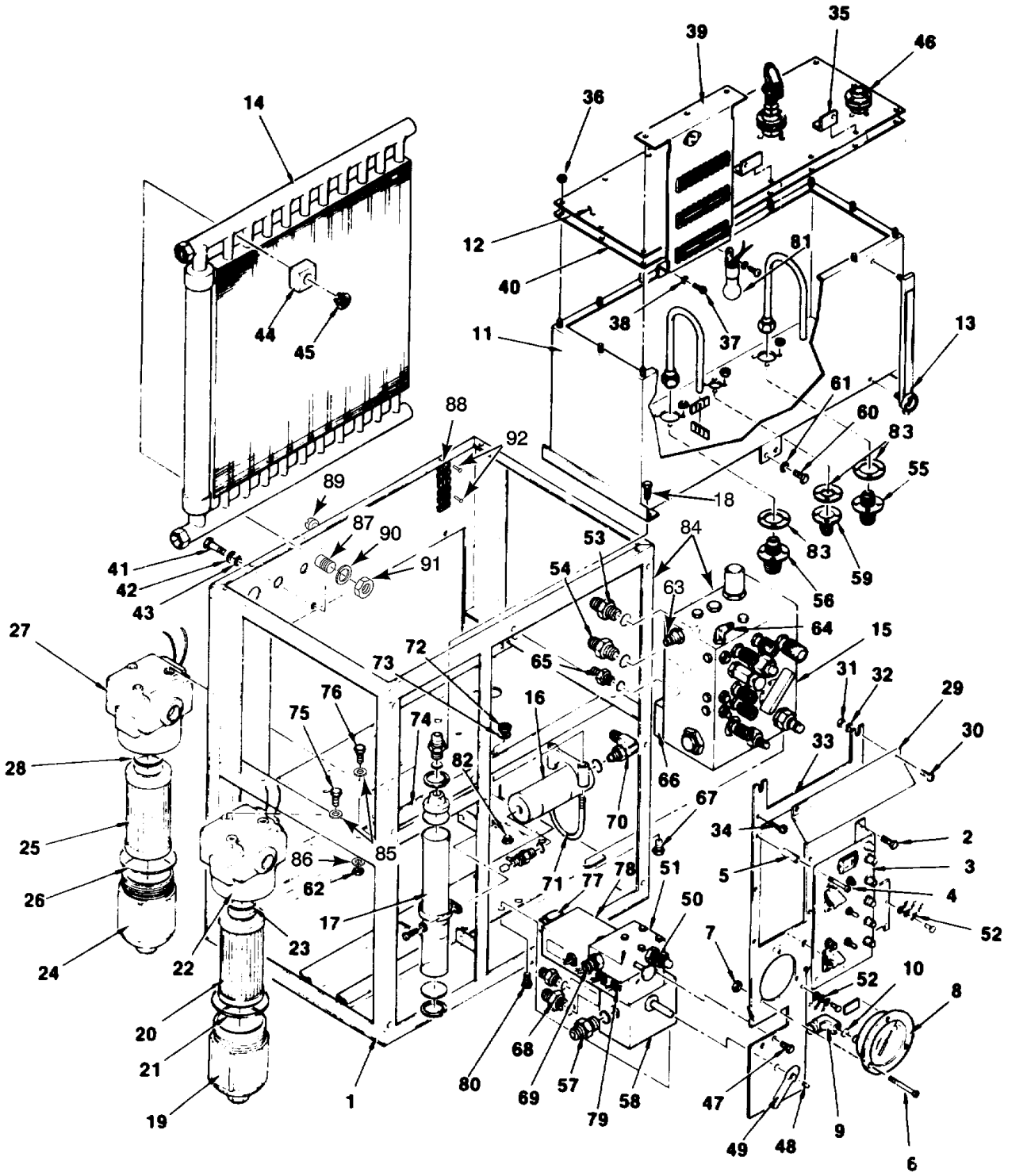
3. Place module in a container that will catch hydraulic fluid that is still trapped in tube assemblies and manifolds.

NOTE

In the procedure that follows, many hydraulic tube assemblies will be removed. To aid in reassembly, label each tube with the figure and item number in the procedure. Also label ends as described (lower, forward, etc.) in the procedure.

4. Remove vent dryer (Figure 1, Item 17) from module as follows:
    a. Remove hydraulic tube assembly (Figure 2, Item 38) connector and copper seal from top of vent dryer. Discard seal.
    b. Loosen hose clamp (Figure 1, Item 19).
    c. Tilt vent dryer (Figure 1, Item 17) forward and lift up and out of module.
5. Remove low pressure filter bowl (Figure 1, Item 19) and element (Figure 1, Item 20) as follows:
    a. Turn filter bowl (Figure 1, Item 19) counterclockwise until free of filter head assembly.
    b. Remove bowl O-Ring (Figure 1, Item 21).
    c. Remove filter element (Figure 1, Item 20) and discard.
6. Remove high pressure filter (Figure 1, Item 24) and filter element (Figure 1, Item 25) as follows:
    a. Turn filter bowl (Figure 1, Item 24) counterclockwise until free of filter head assembly
    b. Remove bowl O-Ring (Figure 1, Item 21).
    c. Remove filter element (Figure 1, Item 25) and discard.
7. Remove top cover (Figure 1, Item 90) of hydraulic module by removing the three remaining bolts (Figure 1, Item 85) (two along front edge and one center rear). All other bolts for top cover were removed when module was taken from unit.
8. Remove tube assemblies (Figure 2, Item 12 and Item 25) as follows:
    a. Remove rear connector of tube assembly (Figure 2, Item 12) from reducer (Figure 2, Item 40). Remove and discard copper seal.
    b. Remove lower connector of tube assembly (Figure 2, Item 25) from adapter (Figure 2, Item 30). Remove and discard copper seal.
    c. Withdraw tube assemblies (with check valve Figure 2, Item 53) from module.
    d. Remove reducer (Figure 2, Item 40) from bulkhead fitting (Figure 2, Item 42). Remove and discard copper seal.
    e. Remove jam nut (Figure 2, Item 46) from bulkhead fitting (Figure 2, Item 42).
    f. Remove bulkhead fitting (Figure 2, Item 42).

DISASSEMBLY – CONTINUED



DISASSEMBLY – CONTINUED

Figure 1. Hydraulic Module Components.

LEGEND TO FIGURE 1

1. Frame
2. Screw
3. Electrical Control Panel
4. Bolt
5. Standoff
6. Bolt
7. Nut
8. Gauge
9. Elbow
10. Seal
11. Reservoir
12. Reservoir Top Cover
13. Temp/Level Gauge
14. Cooler (Heat Exchanger)
15. Manifold Main Control
16. Accumulator
17. Vent Dryer
18. Bolt (4)
19. Low Press, Filter Bowl
20. Low Press, Filter Element
21. Low Press, Bowl O-Ring
22. Low Press, Filter Head Assy
23. Low Press, Element O-Ring
24. High Press, Filter Bowl
25. High Press, Filter Element
26. High Press, Bowl Packing
27. High Press, Filter Head Assy
28. High Press, Element O-Ring
29. Rain Shield
30. Bolt (2)
31. Nut (2)
32. Washer (2)
33. Front Panel
34. Bolt (2)
35. Bracket (2)
36. Nut
37. Bolt (3)
38. Washer (3)
39. Terminal Board Panel
40. Gasket
41. Bolt (6)
42. Lockwasher (6)
43. Flat Washer (6)
44. Rubber Mount (6)
45. Nut (6)
46. Bulkhead Fitting
47. Bolt (2)
48. Set Screw
49. Handle
50. Fill Controls
51. Fill Manifold
52. Dust Cap Chains
53. Fitting (Upper)
54. Fitting (Lower)
55. Bulkhead Fitting
56. Bulkhead Fitting
57. Fitting
58. Reservoir Select Manifold
59. Bulkhead Fitting
60. Bolt (4)
61. Washer (4)
62. Nut (4)
63. Fitting
64. Fitting
65. Fitting
66. Load Valve Solenoid
67. Screw (6)
68. Fitting
69. Fitting
70. Elbow
71. U-Bolt
72. Nut (4)
73. Flat Washer (4)
74. Cradle Brackets (2)
75. Bolt (3)
76. Bolt (3)
77. Elbow
78. Temp Sensor Manifold
79. Temperature Sensor (4)
80. Screw Cap (4)
81. Utility Lamp Socket
82. Welded Fitting
83. Gasket
84. Hydraulic Module
85. Bolt (3)
86. Washer, Flat (3)
87. Cannon Plug (J14)
88. TB4
89. Tube Assembly (2)
90. Top Cover
91. Hose Clamp
92. Rivets

DISASSEMBLY – CONTINUED

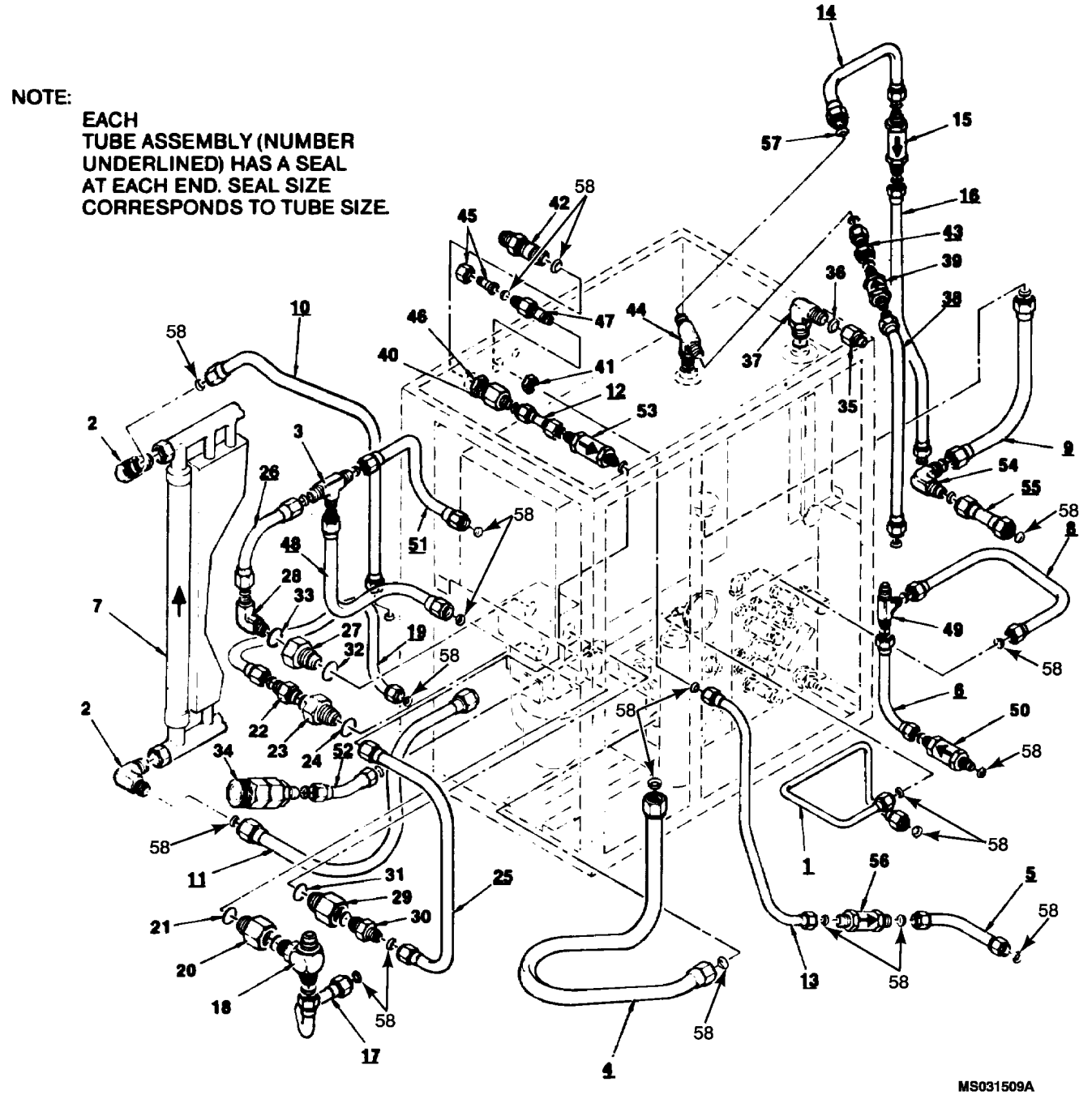


Figure 2. Hydraulic Module Plumbing.

DISASSEMBLY – CONTINUED

Legend for Figure 2

1. Tube assembly	13. Tube assembly	25. Tube assembly	37. Elbow	49. Swivel nut tee
2. Elbow	14. Tube assembly	26. Tube assembly	38. Tube assembly	50. Check valve
3. Tee	15. Check valve	27. Adapter	39. Check valve	51. Tube assembly
4. Tube assembly	16. Tube assembly	28. Adapter	40. Reducer	52. Tube assembly
5. Tube assembly	17. Tube assembly	29. Adapter	41. Jam nut	53. Check valve
6. Tube assembly	18. Tee	30. Adapter	42. Bulkhead fitting	54. Elbow
7. Cooler	19. Tube assembly	31. Packing	43. Tube assembly	55. Tube assembly
8. Tube assembly	20. Adapter	32. Packing	44. Tee	56. Check valve
9. Tube assembly	21. Packing	33. Packing	45. Reducer	57. Seal, copper
10. Tube assembly	22. Adapter	34. Quick disconnect	46. Jam nut	58. Seal, copper
11. Tube assembly	23. Adapter	35. Reducer	47. Bulkhead fitting	
12. Tube assembly	24. Packing	36. Packing	48. Tube assembly	

9. Remove tube assemblies (Figure 2, Item 38 and 43) as follows:
    a. Note that bottom connector of tube assembly (Figure 2, Item 38) is free since it was previously removed from the vent dryer.
    b. Remove rear connector of tube assembly (Figure 2, Item 43) from tee (Figure 2, Item 44) at top of reservoir. Remove and discard copper seal.
    c. Withdraw tube assemblies with check valve (Figure 2, Item 39) from module.
10. Remove tube assemblies (Figure 2, Item 14 and 16) as follows:

NOTE

Do not remove tee connector (Figure 2, Item 44) at this time. It need not be removed for this procedure and must be match marked if it ever is removed.

Remove top connector of tube assembly (Figure 2, Item 14) from tee (Figure 2, Item 44) at top of reservoir. Remove and discard copper seal.

    a. Remove bottom connector of tube assembly (Figure 2, Item 16) from fitting welded to base plate of module. Remove and discard copper seal.
    b. Withdraw tube assemblies, with check valve (Figure 2, Item 15) from module.
11. Remove tube assembly (Figure 2, Item 10) as follows:
    a. Remove lower connector of tube assembly (Figure 2, Item 10) from top of tee (Figure 2, Item 18) at front of low pressure filter head assembly (Figure 1, Item 22). Remove and discard copper seal.
    b. Remove upper connector of tube assembly (Figure 2, Item 10) from elbow (Figure 2, Item 2) at top of cooler (Figure 2, Item 7). Remove and discard copper seal.
    c. Withdraw tube assembly (Figure 2, Item 10) from module.
12. Remove reservoir top cover (Figure 1, Item 12) as follows:
    a. Loosen two nuts (Figure 1, Item 31) on bolts (Figure 1, Item 30) and slide rain shield (Figure 1, Item 29) up and out of slots of front panel (Figure 1, Item 33).

DISASSEMBLY – CONTINUED

b. Remove manual fill reducer (Figure 2, Item 35) from elbow (Figure 2, Item 37) on top of reservoir. Remove and discard copper seal.

c. Remove two bolts (Figure 1, Item 34) that secure front panel (Figure 1, Item 33) to brackets (Figure 1, Item 35) on top of reservoir.

d. Remove two nuts (Figure 1, Item 36) that secure brackets (Figure 1, Item 35) to top of reservoir.

e. Remove two brackets (Figure 1, Item 35).

f. Remove three bolts (Figure 1, Item 37) and washers (Figure 1, Item 38) that secure bottom of terminal board panel (Figure 1, Item 39) to module frame (Figure 1, Item 1).

g. Remove three nuts (Figure 1, Item 36) that secure top of terminal board panel (Figure 1, Item 39) to top of reservoir.

h. Carefully lift terminal board panel (Figure 1, Item 39) over top of reservoir studs and pull panel forward just enough to clear reservoir cover (Figure 1, Item 12). Wiring harness limits motion of terminal board panel. Clip wire ties as necessary when removing panel.

i. Remove remaining eleven nuts (Figure 1, Item 36) that hold top cover (Figure 1, Item 12) on reservoir (Figure 1, Item 11).

j. Carefully pry top cover (Figure 1, Item 12) off of reservoir (Figure 1, Item 11) and withdraw top from module.

k. Scrape reservoir gasket (Figure 1, Item 40) off top edge of reservoir (Figure 1, Item 11). Clean all gasket and gasket cement residue from reservoir (Figure 1, Item 11).

l. Remove tube assemblies (Figure 1, Item 89) inside tank and discard copper seal.

13. Remove tube assemblies (Figure 2, Item 5 and Item 13) as follows:

a. Remove top connector of tube assembly (Figure 2, Item 13) from forward end of bulkhead fitting (Figure 2, Item 47). Remove and discard copper seal.

b. Remove reducer (Figure 2, Item 45) from rear end of bulkhead fitting (Figure 2, Item 47). Remove and discard copper seal.

c. Remove jam nut (Figure 2, Item 41) from bulkhead fitting (Figure 2, Item 47).

d. Withdraw bulkhead fitting (Figure 2, Item 47) from module.

e. Remove bottom connector of tube assembly (Figure 2, Item 5) from fitting (Figure 1, Item 53). Remove and discard copper seal.

f. Withdraw tube assemblies (Figure 2, Item 5 and Item 13), with assembled check valve (Figure 2, Item 56), from module.

14. Remove cooler (Figure 1, Item 14) as follows:

a. Remove lower end of tube assembly (Figure 2, Item 11) from elbow (Figure 2, Item 2) at bottom of cooler. Remove and discard copper seal.

CAUTION

In the following step, the support bolts for the cooler will be removed. Be sure to hold cooler up while removing the last of the six bolts.

b. Remove six bolts (Figure 1, Item 41) with washers (Figure 1, Item 42 and 43) that support cooler (Figure 1, Item 14) on back of module frame (Figure 1, Item 1). The rubber mounts (Figure 1, Item 44) and nuts (Figure 1, Item 45) should stay with the cooler.

DISASSEMBLY – CONTINUED

CAUTION

The cooler fins are fragile and bend easily. When withdrawing cooler from module many obstacles can bend the fins. Use extreme care when taking cooler from module.

c. Lift cooler and withdraw from module frame through the top.

15. Remove tube assembly (Figure 2, Item 48 as follows:
    a. Remove upper connector of tube assembly (Figure 2, Item 48) from tee (Figure 2, Item 3). Remove and discard copper seal.
    b. Remove lower connector of tube assembly (Figure 2, Item 48) from fitting (Figure 1, Item 54) on rear of main control manifold.
    c. Withdraw tube assembly (Figure 2, Item 48) from module.
16. Loosen front panel (Figure 1, Item 33) from module frame (Figure 1, Item 1) as follows:
    a. Remove four bolts (Figure 1, Item 47) two below the blue fill controls (Figure 1, Item 50) on fill manifold (Figure 1, Item 51), one in the middle of panel and one far right middle above system drain valve.
    b. Remove setscrew (Figure 1, Item 48) in RESERVOIR select valve handle (Figure 1, Item 49).
    c. Remove RESERVOIR select valve handle (Figure 1, Item 49).
    d. Remove all four dust caps that have chains (Figure 1, Item 52) riveted to front panel (Figure 1, Item 33).
    e. Remove forward connector of tube assembly (Figure 2, Item 1) from elbow (Figure 1, Item 9) and back of pressure gauge (Figure 1, Item 8). Remove and discard copper seal.
    f. Loosen and remove nut and lock washer on pressure increase/decrease switch on front of panel.
    g. Carefully pull front panel forward and turn it to the left. Wiring harness limits motion of panel. Clip wire ties as necessary when turning panel.
17. Remove tube assembly (Figure 2, Item 9) as follows:
    a. Remove upper connector of tube assembly (Figure 2, Item 9) from bulkhead fitting (Figure 1, Item 55) under reservoir (the fitting on the left when viewed from rear of module (Figure 2, Item 45). Remove and discard copper seal (Figure 2, Item 57).
    b. Remove lower connector of tube assembly (Figure 2, Item 9) from elbow (54). Remove and discard copper seal (Figure 2, Item 58).
    c. Withdraw tube assembly (Figure 2, Item 9) from module.
18. Remove tube assembly (Figure 2, Item 4) as follows:
    a. Remove upper connector of tube assembly (Figure 2, Item 4) from bulkhead fitting (Figure 1, Item 56) under reservoir (the fitting on the right when viewed from rear of module). Remove and discard copper seal (Figure 2, Item 58).
    b. Remove lower connector of tube assembly (Figure 2, Item 4) from fitting (Figure 1, Item 57) on side of reservoir select manifold (Figure 1, Item 58). Remove and discard copper seal (Figure 2, Item 58).
    c. Withdraw tube assembly (Figure 2, Item 4) from module.
19. Remove reservoir (Figure 1, Item 11) from module frame (Figure 1, Item 1) as follows:
    a. Back off swivel nut (on swivel nut tee Figure 2, Item 49) as far back as it will go easily. It may not back off of all the threads of bulkhead fitting (Figure 1, Item 59) until reservoir is raised in a later step.
    b. Remove four bolts (Figure 1, Item 60) and washers (Figure 1, Item 61) that insert horizontally through module frame and into reservoir brackets at center front and center rear.

DISASSEMBLY – CONTINUED

c. Remove four bolts (Figure 1, Item 18) and nuts (Figure 1, Item 62) that insert vertically through reservoir flanges and module frame at each corner of reservoir.

d. Gently pry end (on module's left side) of reservoir up out of frame. While prying, check that swivel nut on swivel nut tee (Figure 2, Item 49) is free of bulkhead fitting (Figure 1, Item 59). If connection is not free, finish backing off swivel nut.

CAUTION

Use extreme care in the following step not to damage threads of bulkhead fittings under reservoir.

e. Withdraw reservoir out through the module's left side.

f. Remove and discard copper seal (Figure 2, Item 58) on bulkhead fitting (Figure 1, Item 59).

g. Remove bulk head fittings from tank (Figure 1, Item 55, 59). Remove and disgard gasket (Figure 1, Item 83).

20. Remove tube assembly (Figure 2, Item 11) as follows:

a. Remove upper connector of tube assembly (Figure 2, Item 11) from fitting (Figure 1, Item 63) on main control manifold's right side.

b. Withdraw tube assembly (Figure 2, Item 11) from module.

21. Remove tube assembly (Figure 2, Item 8) as follows:

a. Remove rear connector of tube assembly (Figure 2, Item 8) from swivel nut tee (Figure 2, Item 49). Remove and discard copper seal (Figure 2, Item 58).

b. Remove forward connector of tube assembly (Figure 2, Item 8) from fitting (Figure 1, Item 64) on top of main control manifold (Figure 1, Item 15). Remove and discard copper seal (Figure 2, Item 58).

c. Withdraw tube assembly (Figure 2, Item 8) from module.

22. Remove tube assembly (Figure 2, Item 1) as follows:

a. Remove lower connector of tube assembly (Figure 2, Item 1) from small fitting (Figure 1, Item 65) on back of main control manifold (Figure 1, Item 15). Remove and discard copper seal (Figure 2, Item 58).

b. Withdraw tube assembly (Figure 2, Item 1) from module.

23. Remove load valve solenoid (Figure 1, Item 66) wires as follows:

a. Trace wires (one black and one white) from load valve solenoid (Figure 1, Item 66) to terminal board panel (Figure 1, Item 39). Clip wire ties between solenoid and terminal board (Figure 1, Item 39) so wires can be removed.

b. Loosen screw and disconnect black lead from TB2-D2.

c. Loosen screw and disconnect white lead from TB2-23.

d. Pull load valve solenoid (Figure 1, Item 66) leads free of module harness.

24. Remove main control manifold (Figure 1, Item 15) from module as follows:

a. Tilt module (about 30 degrees) to the right to gain access to the holes underneath - block module for support and to prevent slippage.

b. Remove six socket head cap screws (Figure 1, Item 67) that hold main control manifold (Figure 1, Item 15) to module frame (Figure 1, Item 1).

c. Remove supports and restore hydraulic module (Figure 1, Item 1) to normal position.

DISASSEMBLY – CONTINUED

WARNING

Manifold weighs approximately 25 to 30 pounds. Take care to prevent injury to personnel or damage to manifold.

d. Slide manifold (Figure 1, Item 15) out of the module's left side.

25. Remove tube assembly (Figure 2, Item 19) as follows:
    a. Remove lower connector of tube assembly (Figure 2, Item 19) from fitting (Figure 1, Item 68) on back of reservoir select manifold (Figure 1, Item 58). Remove and discard copper seal.
    b. Remove upper connector of tube assembly (Figure 2, Item 19) from adapter (Figure 2, Item 22) on rear of low pressure filter head assembly (Figure 1, Item 22). Remove and discard copper seal (Figure 2, Item 58).
    c. Withdraw tube assembly (Figure 2, Item 19) from module.
26. Remove tube assembly (Figure 2, Item 6) as follows:
    a. Remove lower connector of tube assembly (Figure 2, Item 6) from check valve (Figure 2, Item 50). Remove and discard the copper seal (Figure 2, Item 58).
    b. Remove tube assembly (Figure 2, Item 6), with assembled swivel nut tee (Figure 2, Item 49), from module.
27. Remove tube assembly (Figure 2, Item 17) as follows:
    a. Remove upper connector of tube assembly (Figure 2, Item 17) from bottom of tee (Figure 2, Item 18) on front of low pressure filter head assembly (Figure 1, Item 22). Remove and discard copper seal.
    b. Remove lower connector of tube assembly (Figure 2, Item 17) from fitting (Figure 1, Item 69) on side of fill manifold (Figure 1, Item 51). Remove and discard copper seal (Figure 2, Item 58).
    c. Withdraw tube assembly (Figure 2, Item 17) from module.
28. Remove tube assemblies (Figure 2, Item 26 and Item 51), and assembled tee (Figure 2, Item 3), as follows:
    a. Remove lower connector of tube assembly (Figure 2, Item 51) from elbow (Figure 1, Item 70) on end of accumulator (Figure 1, Item 16). Remove and discard copper seal (Figure 2, Item 58).
    b. Remove lower connector of tube assembly (Figure 2, Item 26) from adapter (Figure 2, Item 28) on back of high pressure filter head assembly (Figure 1, Item 27). Remove and discard copper seal (Figure 2, Item 58).
29. Remove accumulator (Figure 1, Item 16) as follows:
    a. Match mark accumulator (Figure 1, Item 16) to u-bolt (Figure 1, Item 71).
    b. Remove four nuts (Figure 1, Item 72) and washers (Figure 1, Item 73) to release u-bolts (Figure 1, Item 71).
    c. Withdraw accumulator (Figure 1, Item 16), two u-bolts (Figure 1, Item 71) and two cradle brackets (Figure 1, Item 74) from module.
30. Remove low pressure filter head assembly (Figure 1, Item 22) as follows:
    a. Trace three blue wires from low pressure filter head assembly (Figure 1, Item 22) to terminal board panel (Figure 1, Item 39). Tag and disconnect leads from terminal board and clip wire ties as needed to free leads from module harness.
    b. Support low pressure filter head assembly (Figure 1, Item 22) to prevent drop and damage.

DISASSEMBLY – CONTINUED

c. Remove three bolts (Figure 1, Item 75) that secure head assembly (Figure 1, Item 22) to frame.

d. Withdraw head assembly (Figure 1, Item 22) from module.

31. Remove high pressure filter head assembly (Figure 1, Item 27) as follows:

a. Trace three blue wires from head assembly (Figure 1, Item 27) to terminal board (Figure 1, Item 39). Tag and disconnect leads from terminal board and clip wire ties as needed to free leads from module harness.

b. Support high pressure filter head assembly (Figure 1, Item 27) to prevent drop and damage.

c. Remove three bolts (Figure 1, Item 76) that secure high pressure head assembly (Figure 1, Item 27) to frame.

d. Withdraw high pressure filter head assembly (Figure 1, Item 27) from manifold.

32. Remove tube assembly (Figure 2, Item 52) as follows:

a. Remove connector of tube assembly (52) from elbow (Figure 1, Item 77) on back of the temperature sensor manifold (78). Remove and discard copper seal (Figure 2, Item 58).

b. Withdraw tube assembly (Figure 2, Item 52), with assembled quick disconnect (Figure 2, Item 34), from module.

33. Detach wiring harness, remove J14 cannon plug (Figure 1, Item 87)

a. Remove four bolts, four nuts, four lock washers from rear of module frame.

b. Remove pop rivets securing TB4 (Figure 1, Item 88).

34. Label (with terminal board and terminal designator) each wire between front panel (Figure 1, Item 33) and terminal board panel (Figure 1, Item 39) and disconnect wires from terminal boards.

35. Remove fill, temperature sensor, and reservoir select manifolds (Figure 1, Item 51, 78 and 58) as follows:

a. Trace each of the three wires from each of the four temperature sensors (Figure 1, Item 79) to the terminal boards on panel (Figure 1, Item 39). Clip wire ties as necessary to separate wire from module harness.

b. Label each wire with the terminal board and terminal designator.

c. Loosen the terminal board (Figure 1, Item 39) screw and remove each temperature sensor wire.

d. Tilt module (Figure 1, Item 15) (about 30 degrees) to its right to gain access to holes underneath - block module for support and to prevent slippage.

e. Remove four socket head capscrews (Figure 1, Item 80) that hold reservoir select manifold (Figure 1, Item 58) to module frame (Figure 1, Item 1).

f. Remove supports and restore hydraulic module (Figure 1, Item 84) to normal position.

g. Withdraw assembled manifold group (Figure 1, Item 51, 78 and 58) from module.

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

HYDRAULIC MODULE ASSEMBLY

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Hydraulic Fluid, Fire Resistant (WP 0170 00, Item 26)

Materials/Parts (cont.)

Hydraulic Fluid, Petroleum Base (WP 0170 00, Item 27)

References

WP 0110 00
WP 0116 00
WP 0133 00

INTRODUCTION

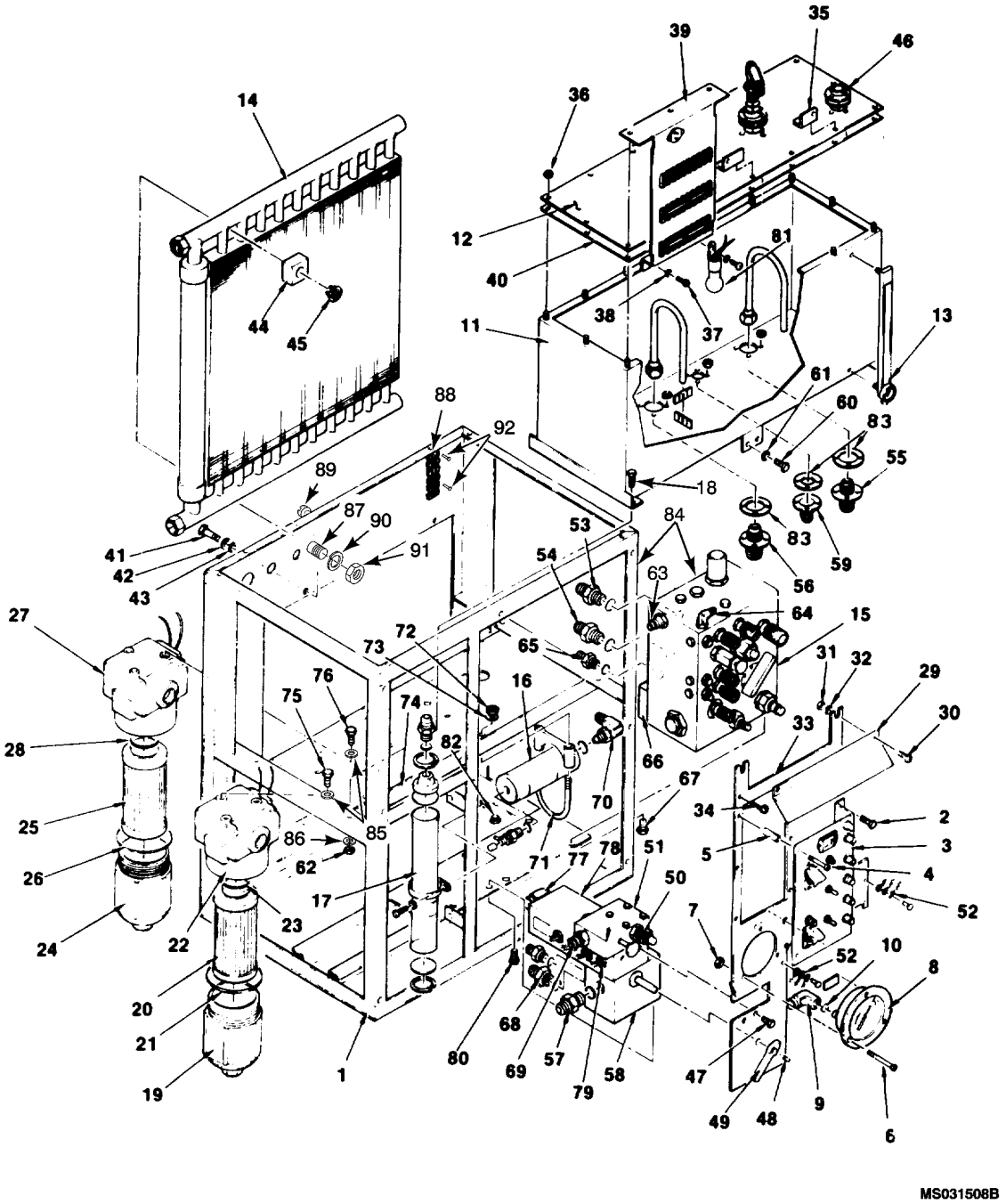


Figure 1. Hydraulic Module Components.

LEGEND TO FIGURE 1

1. Frame
2. Screw
3. Electrical Control Panel
4. Bolt
32. Washer (2)
33. Front Panel
34. Bolt (2)
35. Bracket (2)
63. Fitting
64. Fitting
65. Fitting
66. Load Valve Solenoid

– Continued

– Continued

LEGEND TO FIGURE 1

5. Standoff
6. Bolt
7. Nut
8. Gauge
9. Elbow
10. Seal
11. Reservoir
12. Reservoir Top Cover
13. Temp/Level Gauge
14. Cooler (Heat Exchanger)
15. Manifold, Main Control
16. Accumulator
17. Vent Dryer
18. Bolt (4)
19. Low Press, Filter Bowl
20. Low Press, Filter Element
21. Low Press, Bowl O-Ring
22. Low Press, Filter Head Assy
23. Low Press, Element Packing
24. High Press, Filter Bowl
25. High Press, Filter Element
26. High Press, Bowl Packing
27. High Press, Filter Head Assy
28. High Press, Element O-Ring
29. Rain Shield
30. Bolt (2)
31. Nut (2)
36. Nut
37. Bolt (3)
38. Washer (3)
39. Terminal Board Panel
40. Gasket
41. Bolt (6)
42. Lockwasher (6)
43. Flat Washer (6)
44. Rubber Mount (6)
45. Nut (6)
46. Bulkhead Fitting
47. Bolt (2)
48. Set Screw
49. Handle
50. Fill Controls
51. Fill Manifold
52. Dust Cap Chains
53. Fitting (Upper)
54. Fitting (Lower)
55. Bulkhead Fitting
56. Bulkhead Fitting
57. Fitting
58. Reservoir Select Manifold
59. Bulkhead Fitting
60. Bolt (4)
61. Washer (4)
62. Nut (4)
67. Screw (6)
68. Fitting
69. Fitting
70. Elbow
71. U-Bolt
72. Nut (4)
73. Lockwasher (4)
74. Cradle Brackets (2)
75. Bolt (3)
76. Bolt (3)
77. Elbow
78. Temp Sensor Manifold
79. Temperature Sensor (4)
80. Screw, Cap (4)
81. Utility Lamp Socket
82. Welded Fitting
83. Gasket
84. Module, Hydraulic
85. Lockwasher
86. Washer, Flat
87. Cannon Plug
88. Terminal Board
89. Screw
90. Lockwasher
91. Nut
92. Rivets

ASSEMBLY

CAUTION

When connecting hydraulic parts, ensure that protective caps, plugs, and coverings have been removed. Serious flow blockage can result from leaving these materials in the lines.

1. Install accumulator (Figure 1, Item 16) as follows:
    a. Insert accumulator (Figure 1, Item 16) under horizontal shelf of module frame with two cradle brackets (Figure 1, Item 74) between accumulator and shelf.
    b. Insert two u-bolts (Figure 1, Item 71) under accumulator and up through holes in module shelf.
    c. Install a lock washer (Figure 1, Item 73) on each end of each u-bolt.
    d. Loosely install a nut (Figure 1, Item 72) on each end of each u-bolt.

ASSEMBLY – CONTINUED

e. Turn accumulator (Figure 1, Item 16) to line up match marks between accumulator and u-bolt.

f. Tighten nuts (Figure 1, Item 72) on u-bolts (Figure 1, Item 71).

2. Install fill, temperature sensor, and reservoir select manifolds, (Figure 1, Item 51, 58, 78) as follows:

a. Tilt module frame (about 30 degrees) to its right to gain access to holes underneath - block module frame for support and to prevent slippage.

b. Place assembled manifold group (Figure 1, Item 51, 58, 78) into bottom of module frame over fourth and fifth pair of bolt holes from module's right side.

c. Install and tighten four socket head cap screws (Figure 1, Item 80) that hold reservoir select manifold (Figure 1, Item 58) to module frame (Figure 1, Item 1).

d. Remove supports and restore module to normal position.

3. Install tube assembly (Figure 2, Item 52) and quick disconnect (Figure 2, Item 34) as follows:

a. Insert tube assembly (Figure 2, Item 52) and quick disconnect (Figure 2, Item 34) into module with free end of tube assembly (Figure 2, Item 52) toward elbow (Figure 1, Item 77) on back of temperature sensor manifold (Figure 1, Item 78).

WARNING

Hydraulic fluid under high pressure is generated (up to 3300 psi) as a result of operation of the AGPU. Do not expose any part of the body to a high pressure leak in the hydraulic system. Never attempt to connect or disconnect hydraulic fittings under high pressure.

b. Install copper seal (Figure 2, Item 58) on elbow (Figure 1, Item 77).

c. Coat threads of elbow (Figure 1, Item 77) and free end of tube assembly (Figure 2, Item 52) with hydraulic fluid (MIL-PRF-5606 (WP 0170 00, Item 27) or MIL-PRF-83282 (WP 0170 00, Item 26)).

ASSEMBLY – CONTINUED

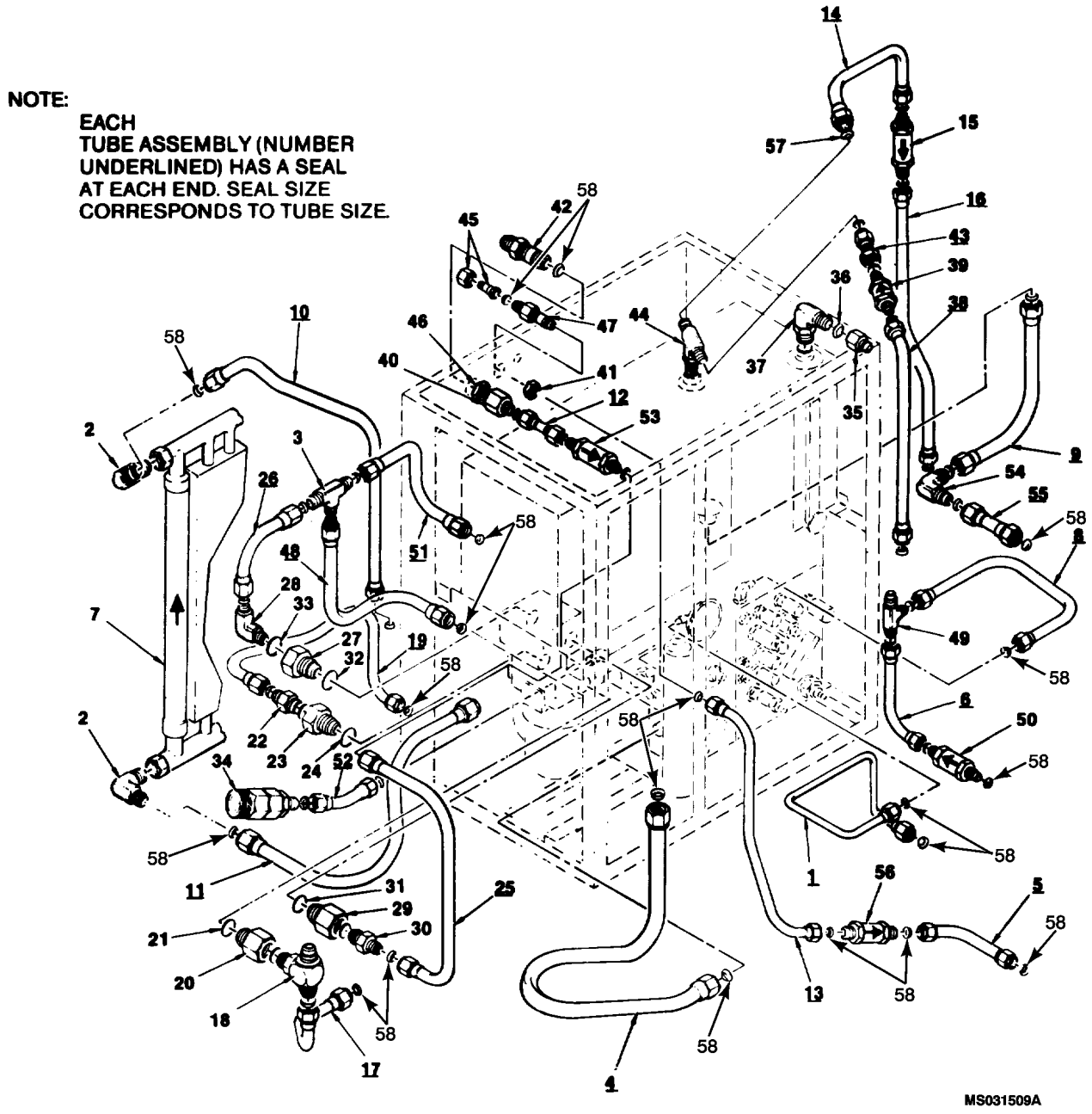


Figure 2. Hydraulic Module Plumbing.

ASSEMBLY – CONTINUED

– Continued

LEGEND TO FIGURE 2

NOTE: Each tube assembly (number underlined) has a seal at each end. Seal size corresponds to tube size.

1. Tube assembly
2. Elbow
3. Tee
4. Tube assembly
5. Tube assembly
6. Tube assembly
7. Cooler
8. Tube assembly
9. Tube assembly
10. Tube assembly
11. Tube assembly
12. Tube assembly
13. Tube assembly
14. Tube assembly
15. Check valve
16. Tube assembly
17. Tube assembly
18. Tee
19. Tube assembly
20. Adapter
21. Packing
22. Adapter
23. Adapter
24. Packing
25. Tube assembly
26. Tube assembly
27. Adapter
28. Adapter
29. Adapter
30. Adapter
31. Packing
32. Packing
33. Packing
34. Quick disconnect
35. Coupling Nut
36. Packing
37. Elbow
38. Tube assembly
39. Check valve
40. Reducer
41. Jam nut
42. Bulkhead fitting
43. Tube assembly
44. Tee
45. Reducer
46. Jam nut
47. Bulkhead fitting
48. Tube assembly
49. Swivel nut tee
50. Check valve
51. Tube assembly
52. Tube assembly
53. Check valve
54. Elbow
55. Tube assembly
56. Check valve
57. Seal, copper
58. Seal, copper

d. While holding quick disconnect (Figure 2, Item 34) in line with suction hose opening in module, install tube assembly (Figure 1, Item 52) on elbow (Figure 1, Item 77). Torque tube assembly (Figure 2, Item 52) to between 1,200 and 1,400 inch-pounds.

4. Install high pressure filter head assembly (Figure 1, Item 27) as follows:

   a. Insert filter head assembly (Figure 1, Item 27) into module under the rear group of three holes in module frame horizontal shelf.

   b. Coat threads of three bolts (Figure 1, Item 76) with hydraulic fluid (MIL-PRF-5606 (WP 0170 00, Item 27) or MIL-PRF-83282 (WP 0170 00, Item 26)).

   c. Install and tighten three bolts (Figure 1, Item 75) and lock washers (Figure 1, Item 85) that secure filter head assembly (Figure 1, Item 27) to frame.

5. Install low pressure filter head assembly (Figure 1, Item 22) as follows:

   a. Insert filter head assembly (Figure 1, Item 22) into module under the forward group of three holes in module frame horizontal shelf.

   b. Coat threads of three bolts (Figure 1, Item 75) with hydraulic fluid (MIL-PRF-5606 (WP 0170 00, Item 27) or MIL-PRF-83282 (WP 0170 00, Item 26)).

ASSEMBLY – CONTINUED

c. Install and tighten three bolts (Figure 1, Item 75) that secure head assembly (Figure 1, Item 22) to frame.

6. Install tube assemblies (Figure 2, Item 26 and Item 51), with assembled tee (Figure 2, Item 3) as follows:
   a. Coat threads of fittings on both ends of tube assemblies with hydraulic fluid (MIL-PRF-5606 (WP 0170 00, Item 27) or MIL-PRF-83282 (WP 0170 00, Item 26)).
   b. Install a copper seal (7C-10) (Figure 2, Item 58) on elbow (Figure 1, Item 70).
   c. Install free (lower) end of tube assembly (Figure 2, Item 51) on accumulator elbow (Figure 1, Item 70). Tighten hand tight.
   d. Install a copper seal (7C-10) (Figure 2, Item 58) on adapter (Figure 2, Item 28) on back of high pressure filter head assembly (Figure 1, Item 27).
   e. Install free (lower) end of tube assembly (Figure 2, Item 26) on adapter (Figure 2, Item 28) at rear of high pressure filter head assembly (Figure 1, Item 27). Tighten hand tight.
7. Install tube assembly (Figure 2, Item 17) as follows:
   a. Coat threads of fittings at both ends of tube assembly (Figure 2, Item 17) with hydraulic fluid (MIL-PRF-5606 (WP 0170 00, Item 27) or MIL-PRF-83282 (WP 0170 00, Item 26)).
   b. Install new copper seal (7C- 12) (Figure 2, Item 58) on bottom of tee (Figure 2, Item 18) on front of low pressure filter head assembly (Figure 1, Item 22).
   c. Install tube assembly (Figure 2, Item 17) on bottom of tee (Figure 2, Item 18) on front of low pressure filter. Tighten hand tight.
   d. Install new copper seal (7C-12) (Figure 2, Item 58) on fitting (Figure 1, Item 69) on side of fill manifold.
   e. Install tube assembly (Figure 2, Item 17) on fitting (Figure 1, Item 69) on side of fill manifold. Tighten hand tight.
   f. Torque connectors on both ends of tube assembly (Figure 2, Item 17) to between 900 and 1,000 inch-pounds.
8. If removed, install check valve (Figure 2, Item 50) on elbow on top of reservoir select manifold (Figure 1, Item 58) as follows:
   a. Inspect threads of both check valve (Figure 2, Item 50) and elbow (Figure 2, Item 54) for damage or contamination.
   b. Coat threads with hydraulic fluid (MIL-PRF-5606 (WP 0170 00, Item 27) or MIL-PRF-83282 (WP 0170 00, Item 26)).
   c. Install new packing on input end (tail of arrow) of check valve (Figure 2, Item 50).
   d. Install input end of check valve (Figure 2, Item 50) into elbow.
   e. With wrench on large hex near input end of check valve (Figure 2, Item 50) tighten connection.
9. Install tube assembly (Figure 2, Item 6), with assembled swivel nut tee (Figure 2, Item 49) as follows:
   a. Coat threads of tube assembly (Figure 2, Item 6) and tee with hydraulic fluid (MIL-PRF-5606 (WP 0170 00, Item 27) or MIL-PRF-83282 (WP 0170 00, Item 26)).
   b. Install new copper seal (7C-8) (Figure 2, Item 58) on output end (head of arrow) of check valve(Figure 2, Item 50).
   c. Install free end of tube assembly (Figure 2, Item 6) on check valve (Figure 2, Item 50). Tighten hand tight.
10. Install tube assembly (Figure 2, Item 19) as follows:

ASSEMBLY – CONTINUED

a. Coat threads on both ends of tube assembly (Figure 2, Item 19) with hydraulic fluid (MIL-PRF-5606 (WP 0170 00, Item 27) or MIL-PRF-83282 (WP 0170 00, Item 26)).

b. Install new copper seal (7C-12) (Figure 2, Item 58) on open fitting (Figure 1, Item 68) (this is not the elbow) on rear of reservoir select manifold (Figure 1, Item 58).

c. Install end of tube assembly (Figure 2, Item 19) that has the longest horizontal section on fitting (Figure 1, Item 68) on rear of reservoir select manifold (Figure 1, Item 58). Tighten hand tight.

d. Install new copper seal (7C-12) (Figure 2, Item 58) on adapter (Figure 2, Item 22) on rear of low pressure filter head assembly (Figure 1, Item 22).

e. Install end of tube assembly (Figure 2, Item 19) on adapter (Figure 2, Item 22) on rear of low pressure filter head assembly. Tighten hand tight.

f. Torque connectors on both ends of tube assembly (Figure 2, Item 19) to between 900 and 1,000 inch-pounds.

11. Install main control manifold (Figure 1, Item 15) in module frame (Figure 1, Item 1) as follows:

WARNING

Manifold weighs approximately 25 to 30 pounds. Take care to prevent injury to personnel or damage to manifold.

a. Slide main control manifold (Figure 1, Item 15) into module's left side.

b. Tilt module (about 30 degrees) to its right to gain access to holes underneath - block module for support and to prevent slippage.

c. Install and tighten six socket head cap screws (Figure 1, Item 67) that hold main control manifold (Figure 1, Item 15) to module frame (Figure 1, Item 1).

d. Remove supports and restore module to normal position.

12. Install tube assembly (Figure 2, Item 1) as follows:

a. Inspect threads of tube assembly (Figure 1, Item 1) and of small fitting (Figure 1, Item 65) on back of main control manifold (Figure 1, Item 15) for damage or contamination.

b. Coat threads on both ends of tube assembly (Figure 2, Item 1) with hydraulic fluid (MIL-PRF-5606 (WP 0170 00, Item 27) or MIL-PRF-83282 (WP 0170 00, Item 26)).

c. Install new copper seal (7C-4) (Figure 2, Item 58) on fitting (Figure 1, Item 65) on back of main control manifold (Figure 1, Item 15).

d. Insert tube assembly (Figure 2, Item 1) into module.

e. Install lower connector of tube assembly (Figure 2, Item 1) on fitting (Figure 1, Item 65) on back of main control manifold (Figure 1, Item 15). Tighten hand tight.

13. Install tube assembly (Figure 2, Item 8) as follows:

a. Inspect threads at both ends of tube assembly (8) and elbow fitting (Figure 1, Item 64) for damage and contamination.

b. Coat threads of both ends of tube assembly (Figure 2, Item 8) with hydraulic fluid (MIL-PRF-5606 (WP 0170 00, Item 27) or MIL-PRF-83282 (WP 0170 00, Item 26)).

c. Install new copper seal (7C-8) (Figure 2, Item 58) on side port of swivel nut tee (Figure 2, Item 49) and another on elbow fitting (Figure 1, Item 64).

ASSEMBLY – CONTINUED

d. Insert tube assembly (Figure 2, Item 8) into module with longest leg near swivel nut tee (Figure 2, Item 49) and shorter leg near elbow fitting (Figure 1, Item 64) on top of main control manifold (Figure 1, Item 15).

e. Install tube assembly (Figure 2, Item 8) connector on swivel nut tee (Figure 2, Item 49). Tighten hand tight.

f. Install tube assembly (Figure 2, Item 8) connector on elbow fitting (Figure 1, Item 64) on top of main control manifold (Figure 1, Item 15). Tighten hand tight.

14. Install tube assembly (Figure 2, Item 11) as follows:

a. Inspect threads of both ends of tube assembly (Figure 2, Item 11) and fitting (Figure 1, Item 63) on main control manifold's right side for damage or contamination.

b. Coat threads of both ends of tube assembly (Figure 2, Item 11) with hydraulic fluid (MIL-PRF-5606 (WP 0170 00, Item 27) or MIL-PRF-83282 (WP 0170 00, Item 26)).

c. Install new copper seal (7C-12) (Figure 2, Item 58) on fitting (Figure 1, Item 63) on main control manifold's right side.

d. Insert tube assembly (Figure 2, Item 11) into module.

e. Install tube assembly (Figure 2, Item 11) connector on fitting (Figure 1, Item 63) on main control manifold's right side. Tighten hand tight.

15. Install reservoir (Figure 2, Item 11) into module frame (Figure 1, Item 1) as follows:

a. Inspect threads on bulkhead fittings (Figure 1, Item 55, 56 and 59) for damage and contamination.

CAUTION

Use extreme care in the following step not to damage threads of bulkhead fittings under reservoir.

b. Carefully insert reservoir (Figure 1, Item 11) into module through module left side.

c. Install and tighten four bolts (Figure 1, Item 18) washers (Figure 1, Item 86) and nuts (Figure 1, Item 62) that insert vertically through reservoir flanges and module frame at each corner of reservoir.

d. Install and tighten four bolts (Figure 1, Item 60) and washers(Figure 1, Item 61) that insert horizontally through module frame and into reservoir brackets at center front and center rear.

e. Install new copper seal (7C-8) (Figure 2, Item 57) on center bulkhead fitting (Figure 1, Item 59) under reservoir(Figure 1, Item 11) .

f. Install nut of swivel tee (Figure 2, Item 49) on center bulkhead fitting (Figure 1, Item 59). Torque swivel nut to between **450 and 500 inch-pounds.**

16. Torque tube assembly (Figure 2, Item 8) on elbow fitting (Figure 1, Item 64) on top of main control manifold (Figure 1, Item 15) to between **450 and 500 inch-pounds.**

17. Torque tube assembly (Figure 2, Item 8) connector on side of swivel nut tee (Figure 2, Item 49) to between **450 and 500 inch-pounds.**

CAUTION

In the following step the check valve must be held stationary. To torque the fitting on one end without holding valve can cause threads to strip.

18. Hold check valve (Figure 2, Item 50) near the tube assembly (Figure 1, Item 6) fitting and torque fitting on tube assembly (Figure 2, Item 6)(6) to between **450 and 500 inch-pounds.**

19. Install tube assembly (Figure 2, Item 4) as follows:

ASSEMBLY – CONTINUED

a. Inspect threads on both ends of tube assembly (Figure 2, Item 4) and on fitting (Figure 1, Item 57) on side of reservoir select manifold (Figure 1, Item 58) for damage and contamination.

b. Coat threads on both ends of tube assembly (Figure 2, Item 4) with hydraulic fluid (MIL-PRF-5606 (WP 0170 00, Item 27) or MIL-PRF-83282 (WP 0170 00, Item 26)).

c. Install a new copper seal (7C-16) (Figure 2, Item 57) on the bulkhead fitting (Figure 1, Item 56) and on the fitting (Figure 1, Item 57) on side of reservoir select manifold (Figure 1, Item 58).

d. Insert tube assembly (Figure 2, Item 4) into module.

e. Install tube assembly (Figure 2, Item 4) (4) upper connector on bulkhead fitting (Figure 1, Item 56) under reservoir. Tighten hand tight.

f. Install lower connector of tube assembly (Figure 2, Item 4) on fitting (Figure 1, Item 57) on side of reservoir select manifold (Figure 1, Item 58). Tighten hand tight.

g. Torque connectors on both ends of tube assembly (Figure 2, Item 4) to between 1,200 and 1,400 inch-pounds.

20. Install tube assembly (Figure 2, Item 9) as follows:

a. Inspect threads on both ends of tube assembly (Figure 2, Item 9) and on elbow (Figure 2, Item 54) for damage and contamination.

b. Coat threads on both ends of tube assembly (Figure 2, Item 9) with hydraulic fluid (MIL-PRF-5606 (WP 0170 00, Item 27) or MIL-PRF-83282 (WP 0170 00, Item 26)).

c. Install a new copper seal (7C-16) (Figure 2, Item 58) on the bulkhead fitting (Figure 1, Item 55) and on the elbow (Figure 2, Item 54).

d. Insert tube assembly (Figure 2, Item 9) into module.

e. Install tube assembly (Figure 2, Item 9) upper connector on bulkhead fitting (Figure 1, Item 55) under reservoir. Tighten hand tight.

f. Install lower connector of tube assembly (Figure 2, Item 9) on elbow (Figure 2, Item 54). Tighten hand tight.

g. Torque connectors on both ends of tube assembly (Figure 2, Item 9) to between **1,200 and 1,400 inch-pounds.**

21. Install tube assembly (Figure 2, Item 48) as follows:

a. Inspect threads on both ends of tube assembly (Figure 2, Item 48), bottom port of tee (Figure 2, Item 3), and fitting (Figure 1, Item 54) on rear of main control manifold for damage and contamination.

b. Coat threads on both ends of tube assembly (Figure 2, Item 48) with hydraulic fluid (MIL-PRF-5606 (WP 0170 00, Item 27) or MIL-PRF-83282 (WP 0170 00, Item 26)).

c. Install a new copper seal (Figure 2, Item 57) on bottom port of tee (Figure 2, Item 3) and one on the fitting (Figure 1, Item 54) on rear of main control manifold.

d. Insert tube assembly (Figure 2, Item 48) into module.

e. Install upper connector of tube assembly (Figure 2, Item 48) onto bottom port of tee (Figure 2, Item 3). Tighten hand tight.

f. Install lower connector of tube assembly (Figure 2, Item 48) onto fitting (Figure 1, Item 54) on rear of main control manifold Figure 1, Item 15). Tighten hand tight.

g. Torque both ends of tube assembly (Figure 2, Item 48) to between **450 and 500 inch-pounds.**

22. Torque lower end of tube assembly (Figure 2, Item 51) on accumulator elbow (Figure 1, Item 70) to between **450 and 500 inch-pounds.**

23. Torque lower end of tube assembly (Figure 2, Item 26) on adapter Figure 2, Item 28) at rear of high pressure filter head assembly (Figure 1, Item 27) to between **450 and 500 inch-pounds.**

ASSEMBLY – CONTINUED

24. Install (Heat Exchanger) cooler (Figure 1, Item 14) as follows:

CAUTION

The cooler fins are fragile and bend easily. When installing cooler in module, many obstacles can bend the fins. Use extreme care when inserting module in cooler.

a. Position cooler (Figure 1, Item 14) as shown in Figure 1 ensuring that the flow arrow on side tube points up.

b. Insert cooler Figure 1, Item 14) into module frame through the top.

c. Install and tighten six bolts (Figure 1, Item 41) with washers (Figure 1, Item 42 and 43) into rubber mounts (Figure 1, Item 44) and nuts (Figure 1, Item 45) to secure cooler (Figure 1, Item 14) to module frame.

d. Inspect threads on elbow (Figure 2, Item 2) on bottom of cooler for damage and contamination.

e. Coat threads of elbow (Figure 2, Item 2) with hydraulic fluid (MIL-PRF-5606 (WP 0170 00, Item 27) or MIL-PRF-83282 (WP 0170 00, Item 26)).

f. Install new copper seal (7C-12) (Figure 2, Item 57) on elbow (Figure 2, Item 2) on bottom of cooler.

g. Install lower connector of tube assembly (Figure 2, Item 11) onto elbow(Figure 2, Item 2) at bottom of cooler. Torque to between 900 and 1,000 inch-pounds.

25. Torque upper connector of tube assembly (Figure 2, Item 11) on fitting (Figure 1, Item 63) on main control manifold's right side to between 900 and 1,000 inch-pounds.

26. Install tube assemblies (Figure 2, Item 5 and Item 13), with assembled components (Figure 1, Item 41, 45, 47 and 56) as follows:

a. Inspect threads on both ends of tube assembly (Figure 2, Item 5 and13), check valve (Figure 2, Item 56), bulkhead fitting (Figure 2, Item 47), two piece reducer (Figure 2, Item 45), and upper fitting (Figure 1, Item 53) on back of main control manifold for damage and contamination.

b. Coat threads on ends of tube assemblies (Figure 2, Item 5 and Item 13) and on both ends of bulkhead fitting (Figure 2, Item 47) with hydraulic fluid (MIL-PRF-5606 (WP 0170 00, Item 27) or MIL-PRF-83282 (WP 0170 00, Item 26)).

c. Insert bulkhead fitting (Figure 2, Item 47) in hole in back of module closest to the electrical connector, long end of fitting goes forward.

d. Install and tighten jam nut (Figure 2, Item 41) on long end of bulkhead fitting (Figure 2, Item 47) on inside of module.

e. Install copper seal (7C-8) (Figure 2, Item 57) on short end of bulkhead fitting (Figure 2, Item 47) on outside of module.

f. Install two piece reducer (Figure 2, Item 45) on short end of bulkhead fitting (Figure 2, Item 47) on outside of module. Torque to between **450 and 500 inch-pounds.**

g. Install copper seals (7C-8) (Figure 2, Item 57) on long (inside module) end of bulkhead fitting (Figure 2, Item 47) and on upper fitting (Figure 1, Item 53) on back of main control manifold.

h. Insert tube assembly (Figure 2, Item 5 and 13) and check valve (Figure 2, Item 56) into module with free end of tube assembly (Figure 2, Item 13) near bulkhead connector (Figure 2, Item 47) and free end of tube assembly (Figure 2, Item 5) near back of main control manifold fitting.

i. Install free end of tube assembly (Figure 2, Item 13) on bulkhead fitting (Figure 2, Item 47). Tighten hand tight.

j. Install free end of tube assembly (Figure 2, Item 5) on upper fitting (Figure 1, Item 53) on back of main control manifold. Tighten hand tight.

ASSEMBLY – CONTINUED

k. Torque both ends of tube assemblies (Figure 2, Item 5 and 13), which were installed in Step 26.i. and Step 26.j., to between **450 and 500 inch-pounds.**

27. Install reservoir top cover (Figure 1, Item 12) as follows:

a. Inspect top flange of reservoir (Figure 1, Item 11) and threads of studs for damage and contamination.

b. Apply thin, uniform coating of High-tack gasket sealant on top flange of reservoir.

c. Install a new gasket (Figure 1, Item 40) on top flange of reservoir (Figure 1, Item 11).

d. Coat top of gasket (Figure 1, Item 40) with High-tack gasket sealant.

e. Place reservoir top cover (Figure 1, Item 12) into module and on reservoir with elbow fitting in top cover (Figure 1, Item 12) near module's left side.

f. Place two brackets (Figure 1, Item 35) over second and fourth studs from forward-left corner of reservoir top.

g. Install and tighten one nut (Figure 1, Item 36) on stud sticking through each bracket (Figure 1, Item 35).

h. Place terminal board panel (Figure 1, Item 39) flange over first three studs from forward-right corner of reservoir top.

i. Install and tighten one nut (Figure 1, Item 36) on each of the three studs sticking through panel (Figure 1, Item 39) flange.

j. Install and tighten one nut (Figure 1, Item 36) on each of the remaining eleven studs that hold top cover (Figure 1, Item 12) on reservoir (Figure 1, Item 11).

k. Install and tighten three bolts (Figure 1, Item 37) with washers (Figure 1, Item 38) through bottom of terminal board panel (Figure 1, Item 39) and into frame (Figure 1, Item 1). Ensure that the utility lamp socket (Figure 1, Item 81) is secured under head of bolt closest to module center.

l. Install a copper seal (7C-10) (Figure 2, Item 57) on elbow (Figure 2, Item 37) on top of reservoir.

m. Coat threads of elbow (Figure 2, Item 37) with hydraulic fluid (MIL-PRF-5606 (WP 0170 00, Item 27) or MIL-PRF-83282 (WP 0170 00, Item 26)).

n. Install coupling nut (Figure 2, Item 35) over packing (Figure 2, Item 36) on elbow (Figure 2, Item 37) on top. of reservoir. Torque coupling nut to between 130 and 150 inch pounds.

28. Install tube assembly (10) as follows:

a. Inspect threads at both ends of tube assembly (Figure 2, Item 10), on elbow (Figure 2, Item 2) at top of cooler (Figure 2, Item 7), and on top of tee (Figure 2, Item 18) on front of low pressure filter head (Figure 1, Item 22) for damage and contamination.

b. Coat threads at both ends of tube assembly (Figure 2, Item 10) with hydraulic fluid (MIL-PRF-5606 (WP 0170 00, Item 27) or MIL-PRF-83282 (WP 0170 00, Item 26)).

c. Install a copper seal (7C-12) (Figure 2, Item 57) on the elbow (Figure 2, Item 2) at the top of cooler (Figure 2, Item 7) and on top of tee (Figure 2, Item 18) on low pressure filter.

d. Insert tube assembly (Figure 2, Item 10) into module.

e. Install upper connector of tube assembly (Figure 2, Item 10) on elbow(Figure 2, Item 2) on top of cooler (Figure 2, Item 7). Tighten hand tight.

f. Install lower connector on tee (Figure 2, Item 18) at front of low pressure filter. Tighten hand tight.

g. Torque both connectors of tube assembly (Figure 2, Item 10) to between 900 and 1,000 inch-pounds.

29. Install tube assemblies(Figure 2, Item 14 and 16) and assembled check valve(Figure 2, Item 15) as follows:

ASSEMBLY – CONTINUED

a. Inspect threads at ends of tube assemblies (Figure 2, Item 14 and 16), on tee (Figure 2, Item 44) on top of reservoir, and on welded fitting (Figure 1, Item 82) on bottom plate of module for damage and contamination.

b. Coat threads on ends of tube assemblies (Figure 2, Item 14 and Item 16) with hydraulic fluid (MIL-PRF-5606 (WP 0170 00, Item 27) or MIL-PRF-83282 (WP 0170 00, Item 26)).

c. Install a copper seal (7C-8) (Figure 2, Item 57) on rear end of tee (Figure 2, Item 44) on top of reservoir.

d. Install a copper seal (7C-8) (Figure 2, Item 57) on welded fitting (Figure 1, Item 82) on bottom plate of module.

e. Insert tube assemblies and assembled check valve into module.

f. Install the connector of the free end of tube assembly (Figure 2, Item 14) on the rear end of tee (Figure 2, Item 44) on top of reservoir. Tighten hand tight.

g. Install the connector of the free end of tube assembly (Figure 2, Item 16) on the welded fitting (Figure 1, Item 82) on bottom plate of module. Tighten hand tight.

h. Torque ends of tube assemblies to between **450 and 500 inch-pounds.**

30. Install tube assemblies (Figure 2, Item 38 and 43) and assembled check valve (Figure 2, Item 39) as follows:

a. Inspect threads on ends of tube assemblies (Figure 2, Item 38 and 43) and on front port of tee (Figure 2, Item 44) on top of reservoir for damage and contamination.

b. Coat threads of tube assemblies with hydraulic fluid (MIL-PRF-5606 (WP 0170 00, Item 27) or MIL-PRF-83282 (WP 0170 00, Item 26)).

c. Install copper seal (7C-8) (Figure 2, Item 57) on forward port of tee (Figure 2, Item 44) on top of reservoir.

d. Insert tube assemblies and assembled check valve into module with upper connector near tee (Figure 2, Item 44) on top of reservoir and lower connector near where top of vent dryer (Figure 1, Item 17) will be (when installed).

e. Install upper connector of tube assembly on tee(Figure 2, Item 44) on top of reservoir. Torque to between **450 and 500 inch-pounds.**

31. Install tube assemblies (Figure 2, Item 12 and Item 25) with assembled components (Figure 2, Item 40, 42, 46 and 53) as follows:

a. Inspect threads on ends of tube assemblies (Figure 2, Item 12 and 25), of bulkhead fitting (Figure 2, Item 42), and of reducer (Figure 2, Item 40) and the front of adapter (Figure 2, Item 30) on front of high pressure filter (Figure 1, Item 27) for damage and contamination.

b. Coat threads on ends of tube assemblies (Figure 2, Item 12 and Item 25) and on both ends of bulkhead fitting (Figure 2, Item 42), with hydraulic fluid MIL-PRF-83282 (WP 0170 00, Item 26).

c. Insert (from rear of module) long end of bulkhead fitting (Figure 2, Item 42) into remaining hole in rear of module.

d. Install and tighten jam nut (Figure 2, Item 46) on long end of bulkhead fitting (Figure 2, Item 42) on inside of module.

e. Install copper seal (7C-12) (Figure 2, Item 57) on long end of bulkhead fitting(Figure 2, Item 42) on inside of module.

f. Install reducer (Figure 2, Item 40) on long end of bulkhead fitting(Figure 2, Item 42) on inside of module.

g. Install one copper seal (7C-10) (Figure 2, Item 57) on reducer (Figure 2, Item 40) and one copper seal (7C-10) (Figure 2, Item 57) on adapter(Figure 2, Item 30) on front of high pressure filter head (Figure 1, Item 27).

ASSEMBLY – CONTINUED

h. Insert tube assemblies (Figure 2, Item 12 and Item 25) and assembled components into module.

i. Install free end of tube assembly (Figure 2, Item 25) on reducer (Figure 2, Item 40). Tighten hand tight.

j. Install free end of tube assembly (Figure 2, Item 25) on adapter (Figure 2, Item 30). Tighten hand tight.

k. Torque ends of tube assemblies (Figure 2, Item 12 and 25) to between 650 and 700 inch-pounds.

32. Reassemble high pressure filter as follows:

a. Install packing (Figure 1, Item 28) on top of labeled HIGH PRESSURE filter element (Figure 1, Item 25).

b. Insert high pressure filter element (Figure 1, Item 25) up into high pressure filter head assembly (Figure 1, Item 27).

c. Install packing (Figure 1, Item 26) into recess in high pressure filter bowl (Figure 1, Item 24).

d. Install high pressure filter bowl (Figure 1, Item 24) into high pressure head assembly (Figure 1, Item 27).

33. Reassemble low pressure filter as follows:

a. Install packing (Figure 1, Item 23) on top of labeled LOW PRESSURE filter element (Figure 1, Item 20).

b. Insert low pressure filter element (Figure 1, Item 20) up into low pressure filter head assembly (Figure 1, Item 22).

c. Install packing (Figure 1, Item 21) into recess in low pressure filter bowl (Figure 1, Item 19).

d. Install low pressure filter bowl (Figure 1, Item 19) into low pressure head assembly (Figure 1, Item 22).

34. Install front panel (Figure 1, Item 33) on module frame (Figure 1, Item 1) as follows:

a. Position front panel (Figure 1, Item 33) on front of module with wires directed toward terminal boards on panel (Figure 1, Item 39).

b. Install and tighten two bolts (Figure 1, Item 47) below blue fill controls (Figure 1, Item 50) on fill manifold (Figure 1, Item 51).

c. Install and tighten two bolts(Figure 1, Item 34) through top of front panel (Figure 1, Item 33) and into brackets (Figure 1, Item 35) at top of reservoir.

d. Put RESERVOIR select valve handle (Figure 1, Item 49) over valve shaft.

e. Insert setscrew (Figure 1, Item 48) in RESERVOIR select valve handle (Figure 1, Item 49).

f. Install dust caps that have chains (Figure 1, Item 52) riveted to front panel(Figure 1, Item 33) on SYSTEM FILL, SYSTEM DRAIN, HIGH PRESSURE, and RETURN connectors.

g. Install new copper seal (7C-4) (Figure 2, Item 57) on elbow (Figure 1, Item 9) on back of pressure gauge (Figure 1, Item 8).

h. Install free end of tube assembly (Figure 2, Item 1) on elbow (Figure 1, Item 9) on back of pressure gauge (Figure 1, Item 8). Tighten hand tight.

i. Torque both ends of tube assembly (Figure 2, Item 1) to between 135 and 150 inch-pounds.

35. Install vent dryer (Figure 1, Item 17) as follows:

a. Slide vent dryer (Figure 1, Item 17) into dryer retaining clamp at front of module.

b. Install a new copper seal (7C- 8)(Figure 2, Item 58) on fitting on top of vent dryer.

c. Install free end of tube assembly (Figure 2, Item 38) on vent dryer fitting. Torque to between **450 and 500 inch-pounds.**

ASSEMBLY – CONTINUED

36. Slide rain shield (Figure 1, Item 29) bolts (Figure 1, Item 30) down into slots in top of front panel (Figure 1, Item 33). Tighten nuts(Figure 1, Item 31).
37. Observe tags installed during disassembly and connect wires from front panel (Figure 1, Item 33) to terminal boards on panel (Figure 1, Item 39).
38. Route wires from temperature sensors (Figure 1, Item 79) along wiring harness to terminal boards on panel (Figure 1, Item 39).
39. Observe tags installed during disassembly and connect temperature sensor wires to terminal boards on panel (Figure 1, Item 39).
40. Route wires from filter head assemblies (Figure 1, Item 22 and 27) along wiring harness to terminal boards on panel (Figure 1, Item 39).
41. Observe tags installed during disassembly and connect filter assembly pressure sensor wires to terminal boards on pane l(Figure 1, Item 39).
42. Route wires from load valve solenoid (Figure 1, Item 66) along wiring harness to terminal boards on panel (Figure 1, Item 39).
43. Observe tags installed during disassembly and connect load valve solenoid wires to terminal boards on panel (Figure 1, Item 39).
44. Install J14 (Figure 1, Item 87) through hole in back of frame (Figure 1, Item 1) with screw (Figure 1, Item 89), washer (Figure 1, Item 90) and nut (Figure 1, Item 91).
45. Install TB4 (Figure 1, Item 88) to back of frame (Figure 1, Item 1) with rivet (Figure 1, Item 92).
46. Install wire ties where needed to hold wiring harness together.
47. Install module top.
48. Fill module with hydraulic fluid as described in WP 0110 00.
49. If required, charge accumulator as follows:
    a. Connect a short pneumatic line between the supply shutoff valve (closed) on a 2,000 psi nitrogen bottle and one end of a tee connector.
    b. Connect a 0 to 2,000 psi gauge to side port of the tee connector.
    c. Connect a longer (6 feet minimum) pneumatic hose to the third port (open end) of the tee connector.
    d. Connect schrader valve connector (P/N 81063-06177) to free end of the longer pneumatic hose connected in Step 49.c.
    e. Open the hydraulic module access door.
    f. Remove plastic screwcap from charging valve (MS28889-2) on end of accumulator (closest to filter assemblies).
    g. Connect the schrader valve connector (Step 49.d.) to the charging valve on the accumulator.
    h. Open the accumulator charging valve using a 3/4 inch open end wrench (turn counterclockwise to open).
    i. Observe the 0 to 2,000 psi gage. If indication is 500 ±50 psig proceed to Step 49.k.. If pressure is low continue with Step 49.j..
    j. While watching the 0 to 2,000 psi gauge for an indication of 500 psi, slowly open the supply shutoff valve on the nitrogen bottle. Close the supply shutoff valve when a 500 psi indication is obtained.
    k. Close the accumulator charging valve using a 3/4 inch open end wrench (turn clockwise to close).
    l. Disconnect shrader valve connector from the accumulator charging valve.
    m. Install plastic screwcap on accumulator charging valve.
    n. Close hydraulic module access door.

ASSEMBLY – CONTINUED

50. Pressure test module as described in WP 0133 00.
51. Install module in unit as described in WP 0116 00, Installation.
52. Perform MOC and check for leaks.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

RETURN MANIFOLD ASSEMBLY PRESSURE TEST

INITIAL SETUP:

NA

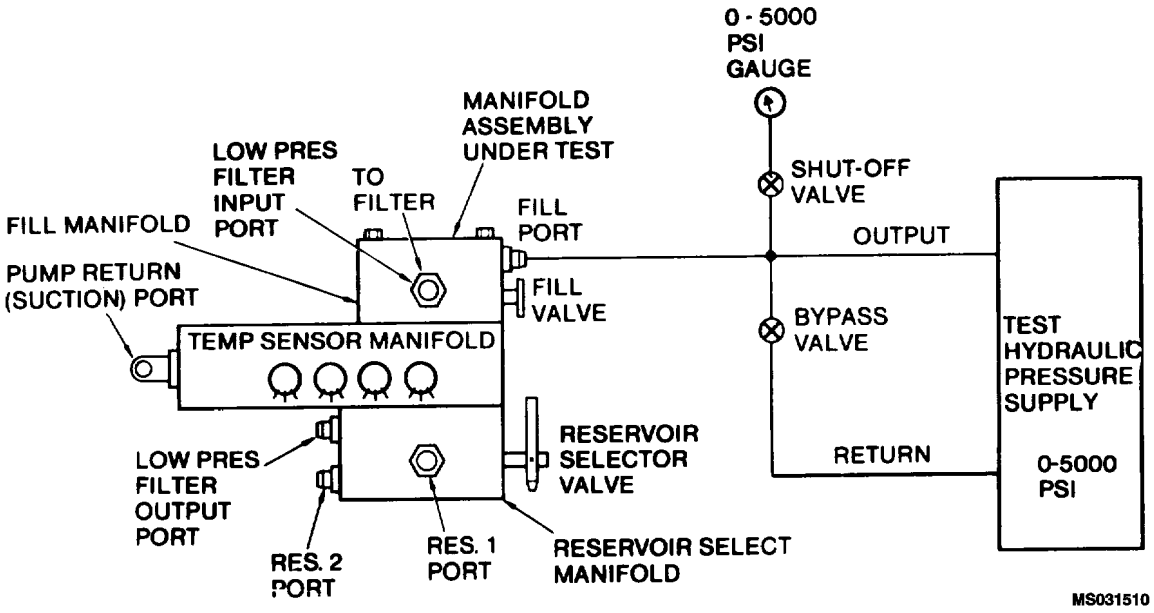


Figure 1. Fill Manifold Test Setup.

– Continued

NOTE

Relief port is on top of reservoir. Select manifold on far side of temperature sensor manifold.

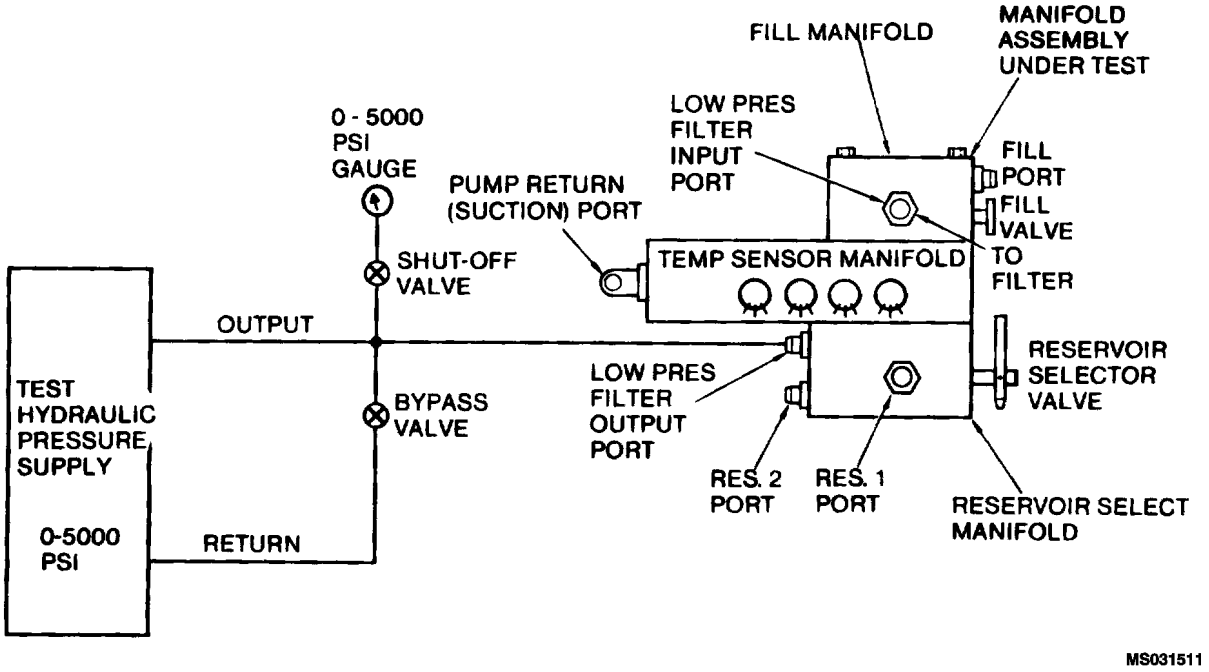


Figure 2. Reservoir Selector Manifold Test Setup.

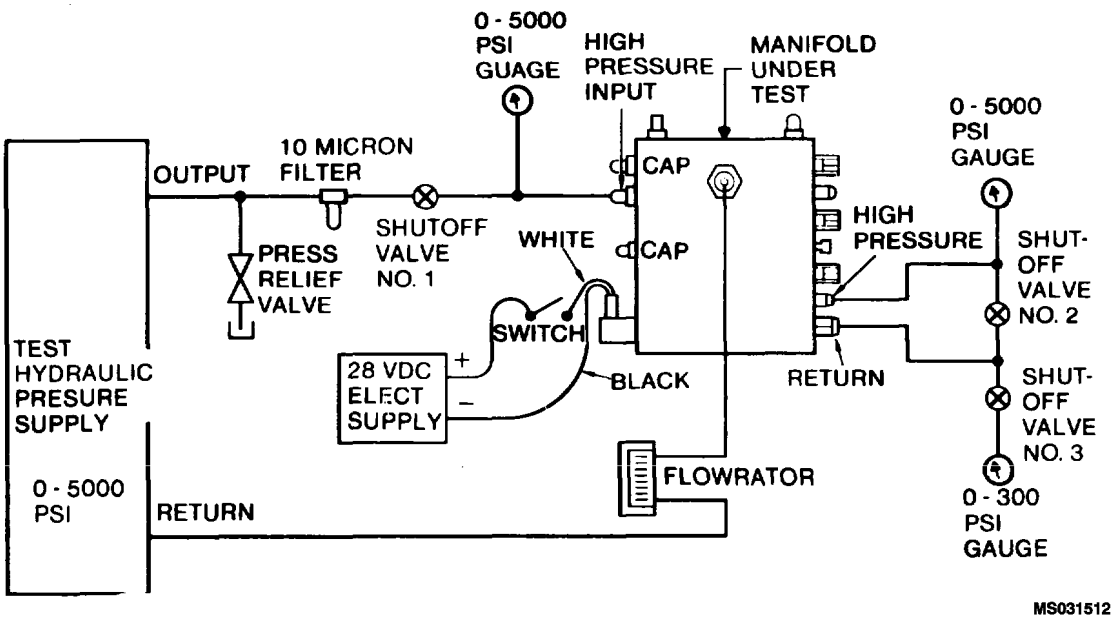


Figure 3. Manifold Test Setup.

INTRODUCTION

This section contains test procedures specified in this work package for test after repair or reassembly.

TESTING

WARNING

Hydraulic fluid under high pressure is generated (up to 3300 psi) as a result of operation of the AGPU. Do not expose any part of the body to a high pressure leak in the hydraulic system. Never attempt to connect or disconnect hydraulic fittings under high pressure.

1. Connect hydraulic fluid source to the fill port (Figure 1) with the filter input port (Figure 1) open to the atmosphere. Depress fill valve (Figure 1) to establish a fluid flow and bleed air. Cap the filter input port (Figure 1), depress the fill valve (Figure 1)and release.
2. Increase pressure to 150 psi and hold for two minutes. There shall not be external leakage or evidence of distortion on manifold assembly.
3. Reduce the pressure to zero and uncap the filter input port (Figure 1). Increase pressure at the fill port (Figure 1) to 3 psi and observe leakage at the to filter input port (Figure 1). Leakage shall not exceed 10 drops per minute.
4. Connect fluid source to filter fill port (Figure 1). Cap the relief res. 1 and res. 2 ports. Bleed unit by cycling the reservoir selector to aircraft and AGPU to pass fluid out to suction port. Then cap the suction port (Figure 1).
5. Increase pressure to 150 psi and hold two minutes. There shall be no external leakage or evidence of distortion of manifold assembly.
6. Reduce the pressure to zero and uncap res. 1 port (Figure 1). Increase pressure at the low pressure filter port (Figure 1) to 3 psi and observe leakage at the res. 1 port (Figure 1), with selector set to AIRCRAFT. Leakage shall not exceed 10 cc/min.
7. Set the reservoir selector valve (Figure 1) to AGPU. Leakage shall not exceed 10 cc/rein.
8. Drain unit, drip dry, and cap ports.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

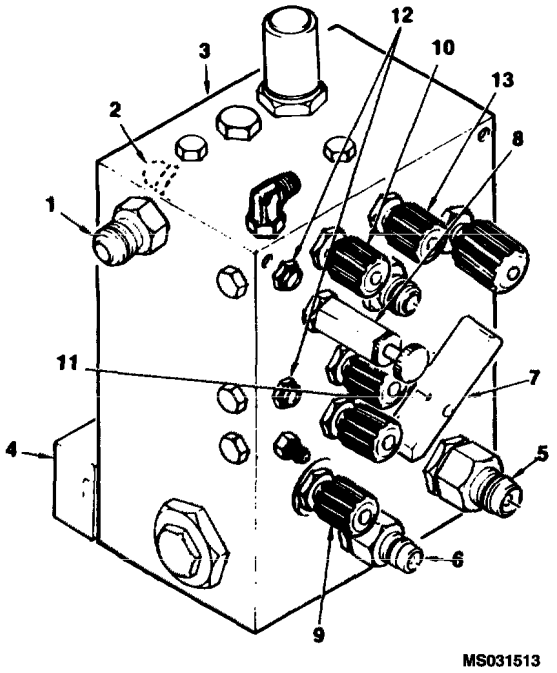
MANIFOLD ASSEMBLY PRESSURE TEST

INITIAL SETUP:

References

WP 0131 00

TESTING



1. Return Port
2. Inlet Connection
3. Manifold
4. Load Valve Solenoid
5. Return Inlet
6. High Pressure Outlet
7. Return Bypass Selector
8. Pressure Relief Valve
9. High Pressure Bypass Valve
10. Return Bleed Valve
11. High Pressure Bleed Valve
12. Sight Glass/Flowrator
13. Reservoir Drain Valve

Figure 1. Manifold Controls/Fittings.

WARNING

Hydraulic fluid under high pressure is generated (up to 3300 psi) as a result of operation of the AGPU. Do not expose any part of the body to a high pressure leak in the hydraulic system. Never attempt to connect or disconnect hydraulic fittings under high pressure.

1. Connect fluid source as shown in WP 0131 00, Figure 3.
2. Check for fluid leaks and correct any fluid leakage.
3. Open HIGH PRESSURE BLEED valve (Figure 1, Item 11) and RETURN BLEED valve (Figure 1, Item 10) to remove air from system, and observe sight glasses. Close bleed valves.
4. With load valve solenoid (Figure 1, Item 4) energized, and all shut-off valves closed, and relief valves set above 4500 psig, apply 4500 psig to inlet connection (Figure 1, Item 2). Hold for two minutes. There shall be no evidence of external leakage, permanent deformation, or subsequent malfunction.
5. Repeat Step 4. with load valve solenoid de-energized.

TESTING – CONTINUED

6. Open the HIGH PRESSURE BYPASS valve (Figure 1, Item 9) and cap the return port (Figure 1, Item 1). Apply 1500 psi to the inlet connection (Figure 1, Item 2) and hold two minutes. There should be no evidence of external leakage, permanent deformation, or subsequent malfunction in the low pressure circuit.
7. Set PRESSURE RELIEF valve (Figure 1, Item 8) at 3700 psi. Crack and reseat the PRESSURE RELIEF valve (Figure 1, Item 8) a few times to observe function. Check unit for external leaks. Energize and reenergize the load valve solenoid (Figure 1, Item 4) a minimum of three times and by observation verify 0.10 second minimum time delay.
8. Open the HIGH PRESSURE BYPASS valve (Figure 1, Item 9). The pressure drop through the manifold at gauge connected to HIGH PRESSURE outlet (Figure 1, Item 6) shall be a minimum of 500 psi.
9. With the flow at 12 gpm energize the load valve solenoid (Figure 1, Item 4). Open shut-off valve no. 2 (WP 0131 00, Figure 3) and check the back pressure. The difference between the back pressure in the RETURN port in the OFF and BYPASS positions of selector (Figure 1, Item 7) should be a minimum of 55 psi. Drain manifold ports and plug or cap all ports for storage or installation.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

HYDRAULIC MODULE PRESSURE TEST

INITIAL SETUP:

References	References (cont.)
WP 0129 00	
WP 0130 00	WP 0132 00

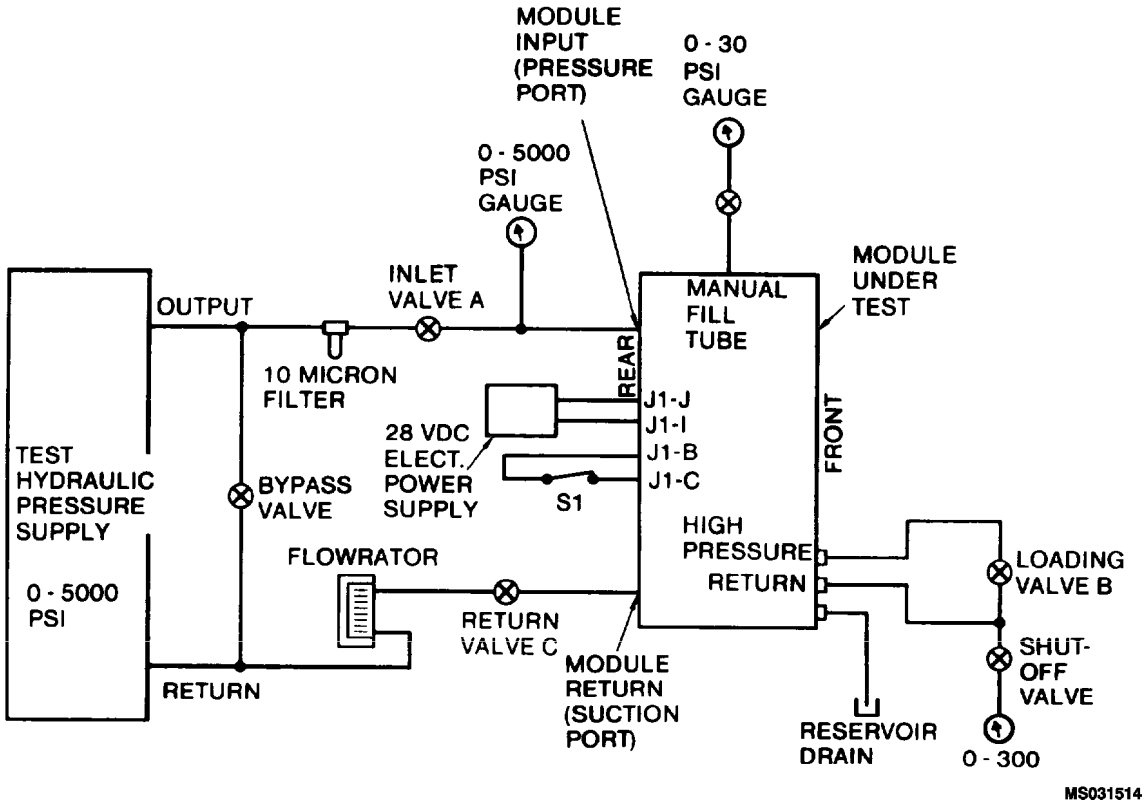


Figure 1. Hydraulic Module Test Setup.

TESTING

PREPARATION FOR HYDRAULIC TEST

WARNING

Hydraulic fluid under high pressure is generated (up to 3300 psi) as a result of operation of the AGPU. Do not expose any part of the body to a high pressure leak in the hydraulic system. Never attempt to connect or disconnect hydraulic fittings under high pressure.

1. Set test pressure supply pump volume at 4 to 5 gpm.
2. Set test pressure supply relief valve at 500 psi.
3. Precharge accumulator in the module being tested to 500 psi with nitrogen.
4. Connect test circuit as shown in Figure 1.
5. Open RETURN VALVE C (Figure 1).
6. Open RESERVOIR DRAIN valve (WP 0132 00, Figure 1, Item 13), and HIGH PRESSURE BYPASS valve (WP 0132 00, Figure 1, Item 9) on the control panel.
7. Set the RESERVOIR selector valve to AIRCRAFT position. Set the RETURN BYPASS (WP 0132 00, Figure 1, Item 7) to BYPASS position.
8. Start the test pressure supply pump.
9. Open HIGH PRESSURE VALVE A (Figure 1) and circulate fluid through the module at 3 to 4 gpm. Open the HIGH PRESSURE BLEED valve (WP 0132 00, Figure 1, Item 11) and RETURN BLEED valve (WP 0132 00, Figure 1, Item 10). Circulate fluid until no evidence of air is noted in the sight glasses (WP 0132 00, Figure 1, Item 12) or flowrator.
10. Close HIGH PRESSURE BYPASS VALVE A (Figure 1) .

TESTING

LOW PRESSURE LEAKAGE

1. Close HIGH PRESSURE BLEED valve (WP 0129 00, Figure 1, Item 11) and RETURN BLEED valve (WP 0132 00, Figure 1, Item 10). Set RESERVOIR selector on module being tested to AGPU. Close return valve C (Figure 1). Close RESERVOIR DRAIN valve (WP 0132 00, Figure 1, Item 13).
2. Establish a pressure of 5 psi minimum/9 psi maximum in the reservoir as follows. Open inlet valve A (Figure 1) and observe the reservoir fluid level and 0-30 psi gauge. When the hydraulic reservoir is approximately 1/3 to 1/2 full the 0-30 psi gauge will indicate 5 psi minimum. Close inlet valve A (Figure 1).
3. Maintain pressure for five minutes and inspect module unit for external leaks.

TESTING

RETURN PROOF AND LEAKAGE

1. Set RESERVOIR select manifold (WP 0130 00, Figure 1, Item 58) on module being tested to AIRCRAFT .
2. Open RESERVOIR DRAIN valve (WP 0132 00, Figure 1, Item 13).
3. Open inlet valve A (Figure 1) and increase pressure to 90 psi.
4. Maintain pressure for two minutes minimum and inspect unit for external leaks.
5. Reduce pressure and close inlet valve A (Figure 1).

TESTING

HIGH PRESSURE PROOF AND LEAKAGE

1. Open the return valve C (Figure 1).
2. Close HIGH PRESSURE BYPASS valve (WP 0132 00, Figure 1, Item 9).
3. Open inlet valve A (Figure 1) and close bypass valve B (Figure 1).
4. Adjust PRESSURE RELIEF valve (WP 0132 00, Figure 1, Item 8) on the module being tested to increase inlet pressure to 4800 psi.
5. Maintain pressure for two minutes and inspect unit for external leaks. None are permitted.
6. Reduce PRESSURE RELIEF valve setting on the module being tested.
7. Close inlet valve A (Figure 1).

TESTING

HIGH PRESSURE OPERATION

1. Open the inlet valve A and increase PRESSURE RELIEF valve (WP 0132 00, Figure 1, Item 8) setting to obtain 3,700 psi.
2. Actuate the OUTPUT switch on module being tested.
3. Open loading valve B (Figure 1) until pressure reduces to 3500 psi.
4. Cycle the module being tested two times utilizing the OUTPUT switch (WP 0111 00), observe actuation. Actuation should take 0.10 second minimum.
5. Open switch S1 (Figure 1). Verify that the OUTPUT switch (WP 0002 00) will not actuate the module being tested. Close S1 (Figure 1).
6. Reduce PRESSURE RELIEF valve (WP 0132 00, Figure 1, Item 8) setting to obtain 750 psi and lock knob.

TESTING

BACK PRESSURE

1. Actuate the OUTPUT switch (WP 0002 00) on module being tested.
2. Open loading valve B (Figure 1) until 600 psi inlet pressure is observed on the low pressure (0-300 psi) gauge.
3. Place the RETURN BYPASS selector (WP 0132 00, Figure 1, Item 7) to OFF. Observe the low pressure (0-300 psi) gauge. The pressure should increase a minimum of 55 psi.
4. Reduce inlet pressure and close inlet valve A (Figure 1).

PREPARATION FOR STORAGE OR SHIPMENT

DRAIN

Drain reservoir, disconnect all lines and fittings, replace all caps and plugs. Remove accumulator precharge. Tag unit to read accumulator has been discharged for storage.

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

AC PHASE SELECT (1S9) AND CURRENT SELECTOR (1S11) SWITCH

INITIAL SETUP:

Tools and Special Tools

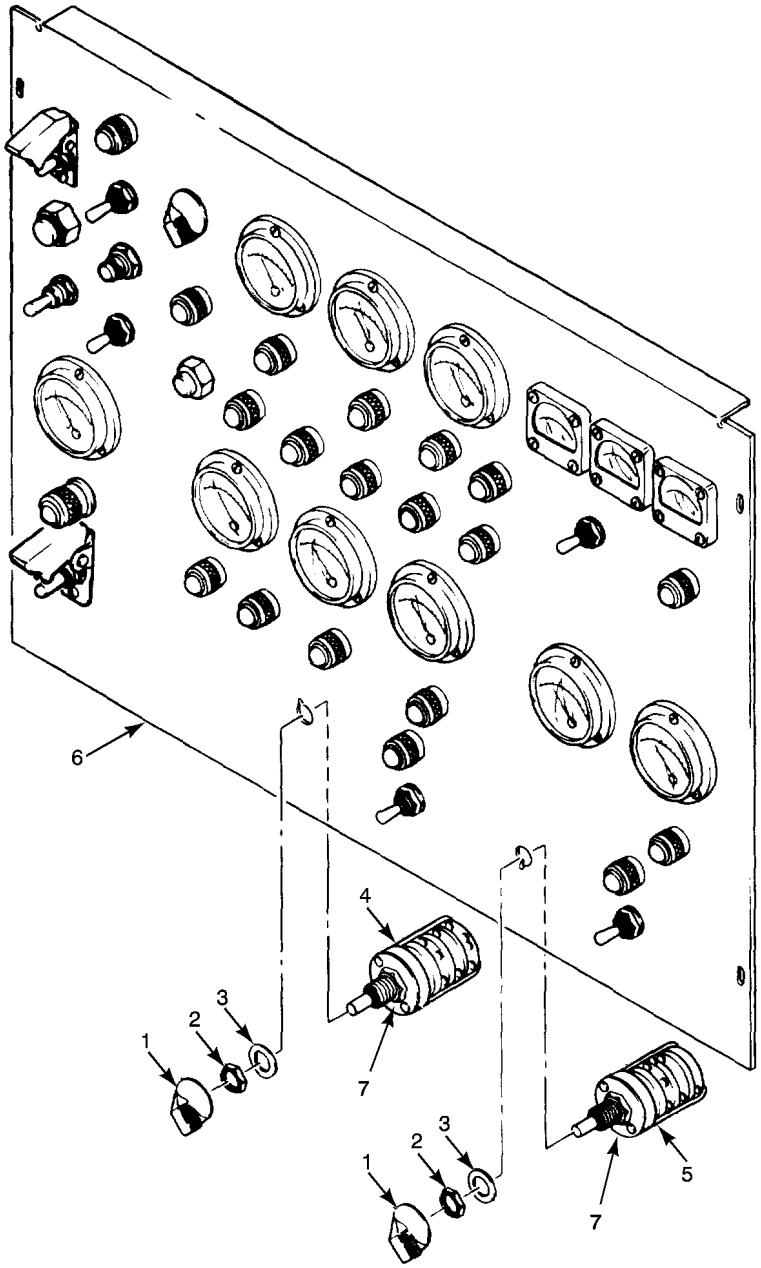
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Solder, Tin Alloy (WP 0170 00, Item 53)

References

WP 0012 00
WP 0034 00
WP 0107 00



MS031381B

1. Knob
2. Nut
3. Lock Washer
4. AC Phase Select Switch (1S9)
5. Switch Assembly Current Limit Selector (1S11)
6. Panel
7. Assembly Nut

Figure 1. Control Panel AC PHASE SELECT and CURRENT SELECTOR Switch.

REMOVAL

NOTE

Refer to WP 0012 00, troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS for test.

NOTE

Procedures in this section require that wires be disconnected from control panel terminals. Before disconnecting wires from more than one terminal, make sure that wire numbers are legible. if not, use tape to identify wires. Refer to FO 16.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
3. Remove control panel (WP 0107 00).
4. Loosen two setscrews in switch knob (Figure 1, Item 1) and remove knob.
5. Un-solder all wires from terminal lugs on back of AC phase select switch (Figure 1, Item 4). Use care not to shorten wires any more than necessary.
6. Remove nut (Figure 1, Item 2), lock washer (Figure 1, Item 3), and AC phase select switch (Figure 1, Item 4).

INSTALLATION

CAUTION

The nut against the switch body is the switch assembly nut (Figure 1, Item 7). Do not remove this nut.

1. Remove nut (Figure 1, Item 2) and lock washer (Figure 1, Item 3) from replacement AC phase select switch (Figure 1, Item 4). If two nuts remain on switch, remove outer nut. Do not remove switch assembly nut (Figure 1, Item 7).
2. Install replacement AC phase select switch (Figure 1, Item 4) from back of panel, and secure with lock washer (Figure 1, Item 3) and nut (Figure 1, Item 2).
3. Solder all wires removed during the removal process to solder lugs on switch.
4. Position knob (Figure 1, Item 1) on shaft of AC phase select switch (Figure 1, Item 4) so that the setscrew opposite knob pointer can be tightened against the flat of the switch shaft. Tighten the setscrew opposite knob pointer first, then tighten other setscrew.
5. Install control panel (WP 0107 00).
6. Reconnect batteries.
7. Perform MOC and adjust switch if needed.

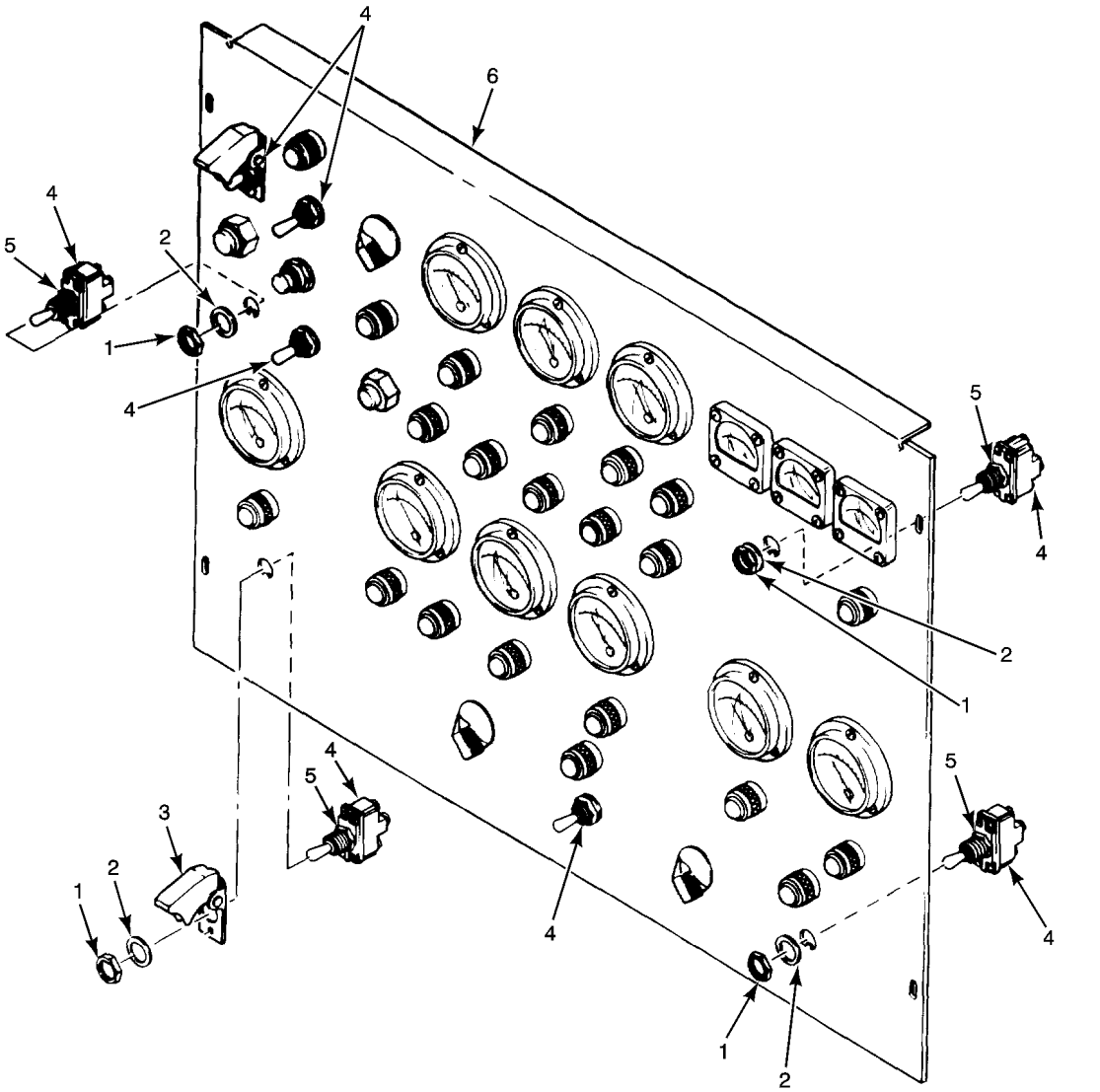
END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

TOGGLE SWITCH

INITIAL SETUP:

Tools and Special Tools	References
Aviation Foot Locker, AFL (WP 0171 00, Item 3)	WP 0012 00
General Mechanics Tool Kit, GMTK	WP 0032 00
(WP 0171 00, Item 16)	WP 0034 00
Tool Set, Aviation Unit (WP 0171 00, Item 42)	WP 0107 00



1. Nut
2. Lock Washer
3. Switch Guard
4. Height Adjustment Nut
5. Switch, Toggle
6. Panel

Figure 1. Control Panel Toggle Switches.

REMOVAL

NOTE

Refer to WP 0012 00, troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS for test.

NOTE

Procedures in this section require that wires be disconnected from control panel terminals. Before disconnecting wires from more than one terminal, make sure that wire numbers are legible. if not, use tape to identify wires. Refer to FO 16.

NOTE

This procedure covers the following switches: MASTER SWITCH 1S2, DRIVE 1S3, BATTERY OUTPUT 1S5, PANEL 1S6, UTILITY 1S1, PNEUMATIC POWER 1S8, AC POWER 1S10, and DC POWER 1S12.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
3. Remove control panel (WP 0107 00).
4. Remove terminal screws and lock washers as required to disconnect all wires from back of toggle switch (Figure 1, Item 4). Replace lock washers and terminal screws.
5. Remove nut (Figure 1, Item 1), lock washer (Figure 1, Item 2), switch guard (Figure 1, Item 3) (applicable to MASTER SWITCH and PNEUMATIC POWER switch only), and toggle switch (Figure 1, Item 4).
6. Note position of height adjustment nut (Figure 1, Item 5) on threaded shaft of switch.

INSTALLATION

1. Remove nut (Figure 1, Item 1), lock washer (Figure 1, Item 2), and keywasher (not shown) from replacement toggle switch (Figure 1, Item 4). The keywasher is not used for switch installation.
2. Set height adjustment nut (Figure 1, Item 5) on replacement toggle switch (Figure 1, Item 4) shaft to same position as adjustment nut on old switch.
3. Install replacement toggle switch (Figure 1, Item 4) from back of panel.
4. On MASTER SWITCH or PNEUMATIC POWER switch, position switch guard (Figure 1, Item 3) on shaft of switch.
5. Secure toggle switch (Figure 1, Item 4) to panel with lock washer (Figure 1, Item 2) and nut (Figure 1, Item 1). One or two threads on shaft of switch should be visible from front of panel. If not, loosen retaining nut (Figure 1, Item 1), reset height adjustment nut (Figure 1, Item 5) as required, and tighten retaining nut.
6. Remove terminal screws and lock washers from switch as required to connect all wires removed during the removal process. Replace lock washers and terminal screws.
7. Install control panel (WP 0107 00).
8. Reconnect batteries.
9. Perform MOC.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

PRESS TO TEST SWITCH (1S4)

INITIAL SETUP:

Tools and Special Tools

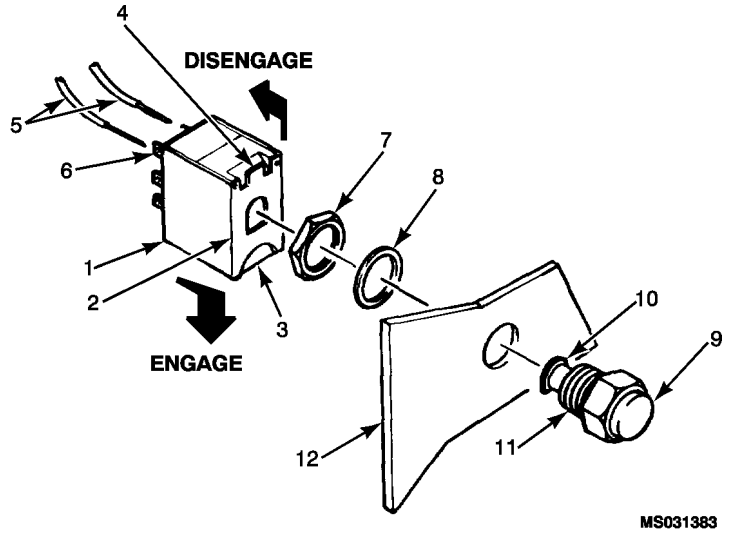
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Solder, Tin Alloy (WP 0170 00, Item 53)

References

WP 0012 00
WP 0034 00
WP 0107 00



1. Switch (1S4)
2. Bracket
3. Spring
4. Adjustment Tab
5. Wire
6. Terminal Posts
7. Nut
8. Lock Washer
9. Push Button
10. Flange
11. Seal
12. Panel

Figure 1. Control Panel PRESS TO TEST Switches.

REMOVAL

NOTE

Refer to WP 0012 00, troubleshooting procedure 105. CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS for test.

NOTE

Procedures in this section require that wires be disconnected from control panel terminals. Before disconnecting wires from more than one terminal, make sure that wire numbers are legible, tag wires that are to be removed from terminals. If not, use tape to identify wires. Refer to FO 16.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
3. Remove control panel (WP 0107 00).
4. Pull switch spring (Figure 1, Item 3) away from switch bracket (Figure 1, Item 2), and move switch (Figure 1, Item 1) in direction indicated to disengage switch bracket from push button flange (Figure 1, Item 10). Slight rotation of switch may be necessary. Mark all wires before removing solder from wires.
5. Un-solder all wires (Figure 1, Item 5) from terminal posts (Figure 1, Item 6) on switch. Use care not to shorten wires any more than necessary.
6. Remove nut (Figure 1, Item 7), lock washer (Figure 1, Item 8), and push button (Figure 1, Item 9).

INSTALLATION

1. Remove nut (Figure 1, Item 7) and lock washer (Figure 1, Item 8) from replacement push button (Figure 1, Item 9).
2. Install push button (Figure 1, Item 9) with seal (Figure 1, Item 11) from front of panel, and secure with lock washer (Figure 1, Item 8) and nut (Figure 1, Item 7).
3. Solder all wires (Figure 1, Item 5) previously removed to terminal posts (Figure 1, Item 6) on replacement switch (Figure 1, Item 1).

CAUTION

Do not rotate switch against push button more than a few degrees during assembly. Greater rotation may damage push button.

4. Align hole in switch bracket (Figure 1, Item 2) with push button flange (Figure 1, Item 10). Press switch against push button so that push button flange (Figure 1, Item 10) engages hole in bracket (Figure 1, Item 2), and slide switch in direction indicated to lock in place. Slight rotation of switch may be necessary.
5. If switch does not work, check for excessive looseness between switch and push button. To eliminate looseness, remove switch, bend adjustment tab (Figure 1, Item 4) on switch bracket slightly toward push button, and reinstall switch.
6. Install control panel (WP 0107 00).
7. Reconnect batteries.
8. Perform MOC.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

CONTROL PANEL METERS (1M1, 1M2, 1M3, 1M4, 1M5, 1M6, 1M7, 1M8, 1M9, 1M10, 1M11, 1M12)

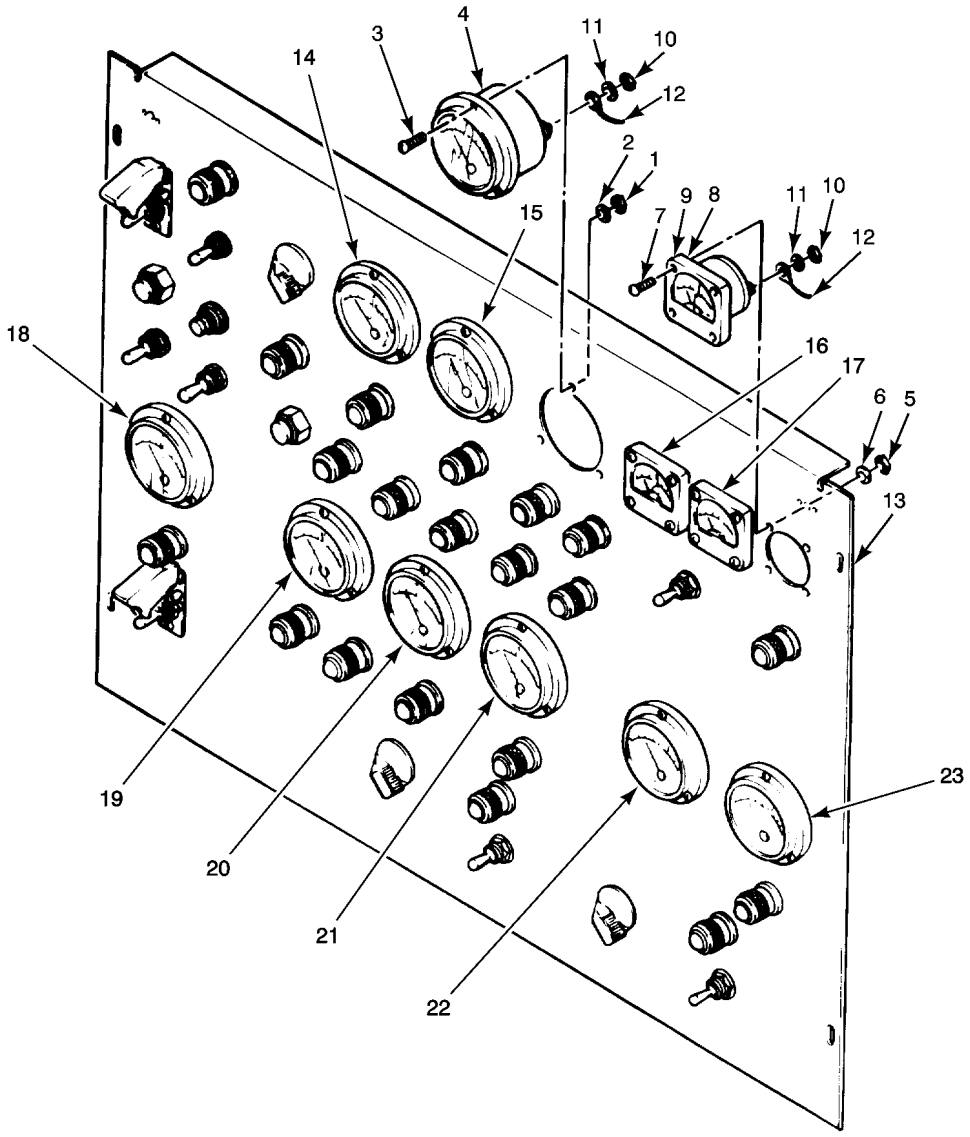
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0034 00
WP 0107 00



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1. Nut	7. Screw	13. Panel	19. Meter (1M8) (AC Volts)
2. Lock Washer	8. Gasket	14. Meter (1M1) (EGT)	20. Meter (1M9) (AC %Load)
3. Screw	9. Meter (1M6), (Battery Charge/ Discharge)	15. Meter (1M2) (%RPM)	21. Meter (1M10) (AC Hertz)
4. Meter (1M3), (Fuel)	10. Nut, Terminal	16. Meter (1M4) (Battery Voltage)	22. Meter (1M11) (DC Volts)
5. Nut	11. Washer, Terminal	17. Meter, (1M5) (Starter Current)	23. Meter (1M12) (DC Amps)
6. Lock Washer	12. Wire (+)	18. Meter, (1M7) (Pneumatic PSI)	

Figure 1. Control Panel Meters.

REMOVAL

ROUND (LARGE) METERS (1M1, 1M2, 1M3, 1M7, 1M8, 1M9, 1M10, 1M11 AND 1M12)

NOTE

All round meter installations are the same as shown for 1M3 and all square meter installations are the same as shown for 1M6.

NOTE

This procedure covers the following meters: 1M1 (EGT),1M2 (%RPM), 1M3 (FUEL), 1M7 (PSIG PNEUMATIC), 1M8 (AC VOLTS), 1M9 (AC %LOAD), 1M10 (AC HERTZ), 1M11 (DC VOLTS) , and 1M12 (DC AMPS).

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
3. Remove control panel (WP 0107 00).
4. Tag wires. Remove two terminal nuts (Figure 1, Item 10) and terminal washers (Figure 1, Item 11) as required to disconnect all wires (Figure 1, Item 12) from back of meters (Figure 1, Item 4, 14, 15, 18, 19, 20, 21, 22 and 23). Replace washers and nuts.
5. Remove three nuts (Figure 1, Item 1), three lock washers (Figure 1, Item 2), three screws (Figure 1, Item 3), and meters (Figure 1, Item 4, 14, 15, 18, 19, 20, 21, 22 and 23).

INSTALLATION

1. Install meters (Figure 1, Item 4, 14, 15, 18, 19, 20, 21, 22 and 23) from front of panel and secure with three screws (Figure 1, Item 3), three lock washers (Figure 1, Item 2), and three nuts (Figure 1, Item 1).
2. Remove nuts and washers from terminals on back of meter (Figure 1, Item 4, 14, 15, 18, 19, 20, 21, 22 and 23). Connect all wires (Figure 1, Item 12) disconnected in Step 1. Replace two terminal washers (Figure 1, Item 11) and terminal nuts (Figure 1, Item 10).
3. Install control panel (WP 0107 00).
4. Reconnect batteries.
5. Perform MOC.

REMOVAL

SQUARE (SMALL) METERS (1M4, 1M5 AND 1M6)

NOTE

All round meter installations are the same as shown for 1M3 and all square meter installations are the same as shown for 1M6.

NOTE

This procedure covers the following meters: BATTERY VOLTAGE 1M4, STARTER CURRENT 1M5, and BATTERY CHG/DISCH 1M6.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
3. Remove control panel (WP 0107 00).

REMOVAL – CONTINUED

SQUARE (SMALL) METERS (1M4, 1M5 AND 1M6) – CONTINUED

4. Tag wires. Remove two terminal nuts (Figure 1, Item 10) and terminal washers (Figure 1, Item 11) as required to disconnect all wires (Figure 1, Item 12) from back of meters (Figure 1, Item 9, 16 and 17). Replace washers and nuts.
5. Remove four nuts (Figure 1, Item 5), four lock washers (Figure 1, Item 6), four screws (Figure 1, Item 7), and meters (Figure 1, Item 9, 16 and 17).

INSTALLATION

1. Install meters (Figure 1, Item 9, 16 and 17) with gasket (Figure 1, Item 8) from front of panel and secure with four screws (Figure 1, Item 7), four lock washers (Figure 1, Item 6), and four nuts (Figure 1, Item 5).
2. Remove nuts and washers from terminals on back of meters (Figure 1, Item 9, 16 and 17). Connect all wires (Figure 1, Item 12) disconnected in Step 1. Replace two terminal washers (Figure 1, Item 11) and nuts (Figure 1, Item 10).
3. Install control panel (WP 0107 00).
4. Reconnect batteries.
5. Perform MOC.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

CONTROL PANEL METERS (1M4, 1M5, 1M6)

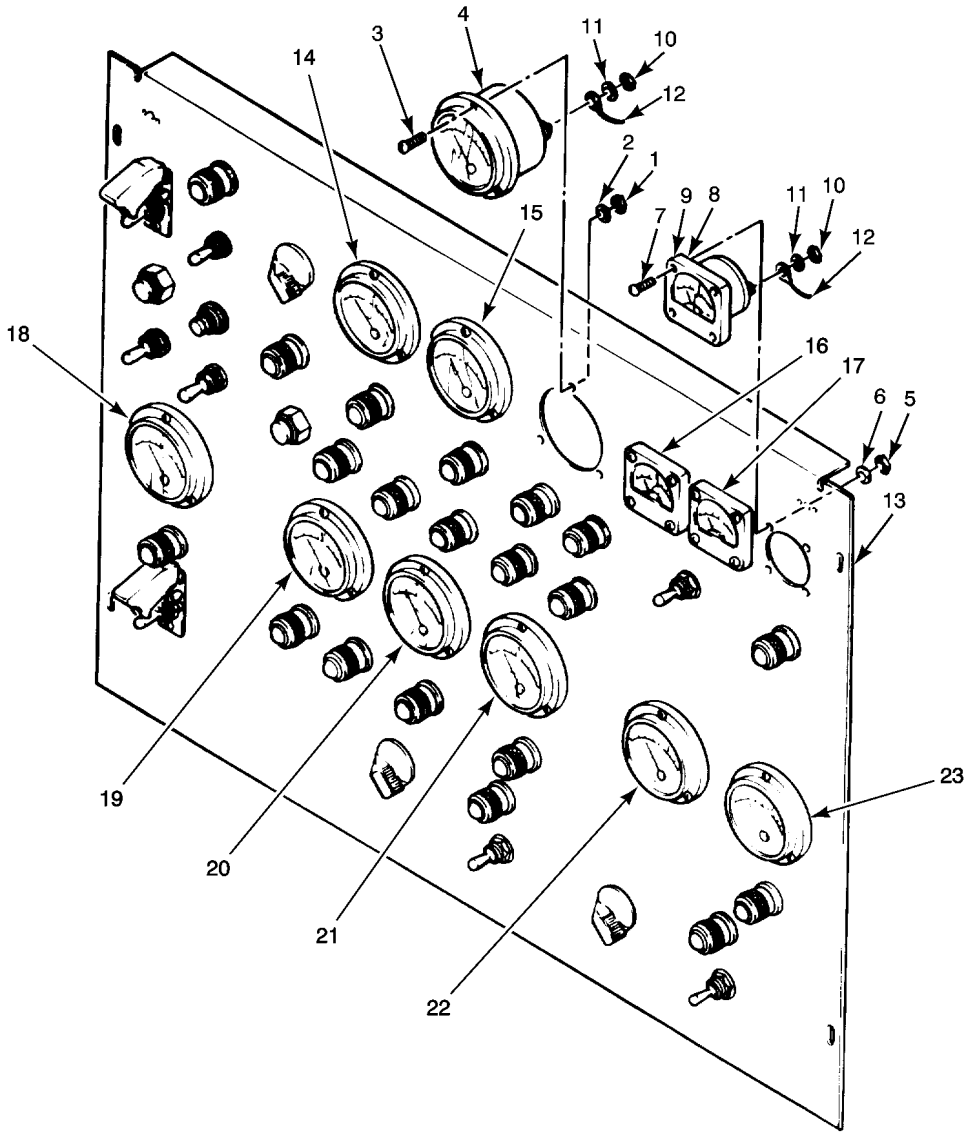
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0034 00
WP 0107 00



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1. Nut	7. Screw	13. Panel	19. Meter (1M8) (AC Volts)
2. Lock Washer	8. Gasket	14. Meter (1M1) (EGT)	20. Meter (1M9) (AC % Load)
3. Screw	9. Meter (1M6), (Battery Charge/ Discharge)	15. Meter (1M2) (%RPM)	21. Meter (1M10) (AC Hertz)
4. Meter (1M3), (Fuel)	10. Nut, Terminal	16. Meter (1M4) (Battery Voltage)	22. Meter (1M11) (DC Volts)
5. Nut	11. Washer, Terminal	17. Meter, (1M5) (Starter Current)	23. Meter (1M12) (DC Amps)
6. Lock Washer	12. Wire (+)	18. Meter, (1M7) (Pneumatic PSI)	

Figure 1. Control Panel Meters.

REMOVAL

NOTE

All round meter installations are the same as shown for 1M3 and all square meter installations are the same as shown for 1M6.

NOTE

This procedure covers the following meters: BATTERY VOLTAGE 1M4, STARTER CURRENT 1M5, and BATTERY CHG/DISCH 1M6.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
3. Remove control panel (WP 0107 00).
4. Tag wires with wire numbers and location. Remove two terminal nuts (Figure 1, Item 10) and terminal washers (Figure 1, Item 11) as required to disconnect all wires (Figure 1, Item 12) from back of meter (1M3) (Figure 1, Item 4). Replace washers and nuts.
5. Remove four nuts (Figure 1, Item 5), four lock washers (Figure 1, Item 6), four screws (Figure 1, Item 7), and meter (1M6) (Figure 1, Item 9).

INSTALLATION

1. Install meter (1M6) (Figure 1, Item 9) with gasket (Figure 1, Item 8) from front of panel and secure with four screws (Figure 1, Item 7), four lock washers (Figure 1, Item 6), and four nuts (Figure 1, Item 5).
2. Remove nuts and washers from terminals on back of meter (1M6) (Figure 1, Item 9). Connect all wires (Figure 1, Item 12) disconnected previously. Replace two terminal washers (Figure 1, Item 11) and nuts (Figure 1, Item 10).
3. Install control panel (WP 0107 00).
4. Reconnect batteries.
5. Perform MOC.

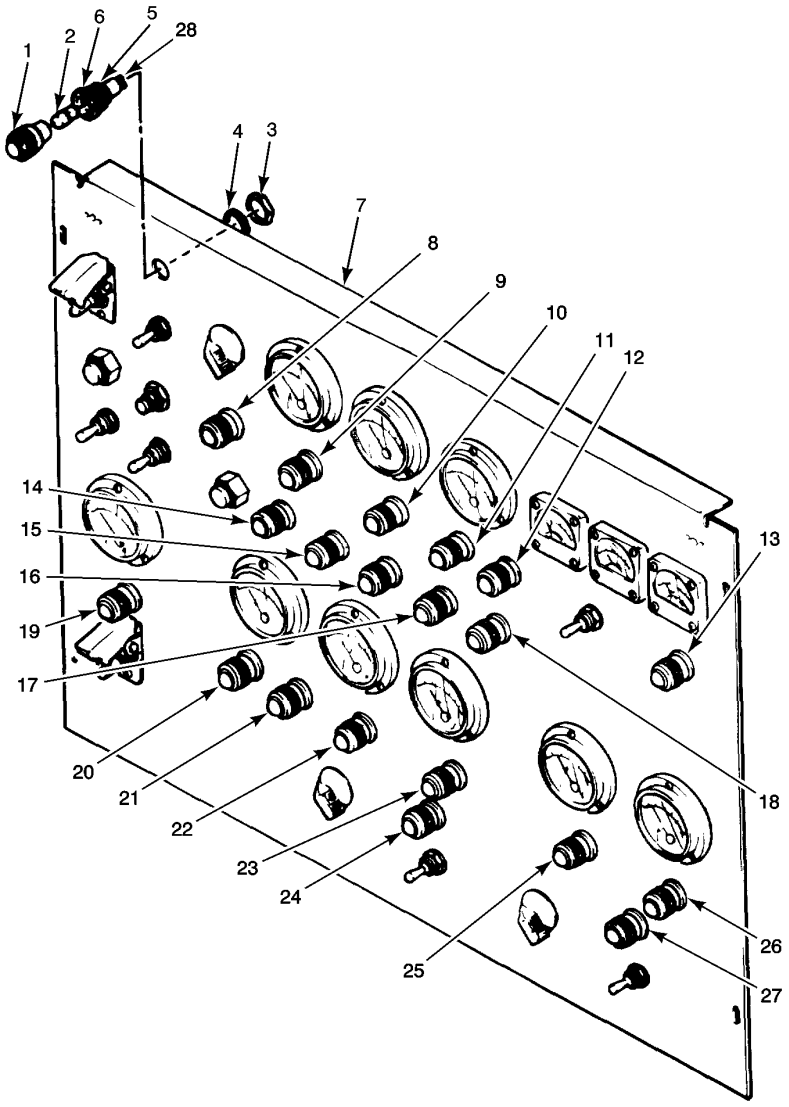
END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

CONTROL PANEL INDICATOR LAMP SOCKETS (1DS1 - 1DS21)

INITIAL SETUP:

Tools and Special Tools	References
Aviation Foot Locker, AFL (WP 0171 00, Item 3)	WP 0012 00
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)	WP 0016 00
Tool Set, Aviation Unit (WP 0171 00, Item 42)	WP 0034 00
	WP 0107 00



1. Lens
2. Lamp, 1DS1/Drive
3. Nut
4. Lock Washer
5. Lamp Socket
6. Seal
7. Control Panel
8. Lamp, 1DS2 (STARTER ON)
9. Lamp, 1DS3 (HIGH EGT)
10. Lamp, 1DS4 (OVERSPEED)
11. Lamp, 1DS5 (LOW FUEL)
12. Lamp, 1DS6 (LOW FUEL PRESS)
13. Lamp, 1DS7 (CHARGE/BAT FAULT)
14. Lamp, 1DS8 (INLET FILTER BLOCKED)
15. Lamp, 1DS9 (HI OIL TEMP)
16. Lamp,1 DS10 (LOW OIL PRESS)
17. Lamp, 1DS11 (COMPT/GEN HI TEMP)
18. Lamp, 1DS12 (CONTROL SHORT)
19. Lamp, 1DS13 (PNEUMATIC POWER ON)
20. Lamp, 1DS14 (AC OVER VOLTAGE)
21. Lamp, 1DS15 (AC UNDER VOLTAGE)
22. Lamp, 1DS16 (OVER CURRENT)
23. Lamp, 1DS17 (UNDER FREQUENCY)
24. Lamp, 1DS20 (AC POWER ON)
25. Lamp, 1DS18 (DC VOLTAGE FAULT) (MEP 83-360A and MEP 83-360D only)
26. Lamp, 1DS19 (DC OVER CURRENT)
27. Lamp, 1DS21 (DC POWER ON)
28. Terminal Screw

Figure 1. Control Panel Indicator Lamps/Sockets .

REMOVAL

NOTE

DS18 (Figure 1, Item 25) is not used on MEP 83-360D and MEP 83-360E models.

NOTE

Refer to WP 0012 00, troubleshooting procedures 58. CONTROL PANEL INDICATOR LIGHT TEST FAILS - ONE INDICATOR DOES NOT LIGHT and 59. CONTROL PANEL INDICATOR LIGHT TEST FAILS - NO INDICATORS LIGHT for test.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
3. Remove control panel (WP 0107 00).
4. Remove lens (Figure 1, Item 1) by turning counterclockwise.
5. Remove lamp (Figure 1, Item 2) by pushing in and turning counterclockwise.
6. Remove terminal screws (Figure 1, Item 28) and disconnect all wires from lamp socket (Figure 1, Item 5).
7. Remove nut (Figure 1, Item 3), lock washer (Figure 1, Item 4) and lamp socket (Figure 1, Item 5) from control panel (Figure 1, Item 7).

INSTALLATION

1. Remove nut (Figure 1, Item 3) and lock washer (Figure 1, Item 4) from replacement lamp socket (Figure 1, Item 5).
2. Install replacement lamp socket (Figure 1, Item 5) with seal (Figure 1, Item 6) from front of panel. Position socket so that positive terminal is to left (as viewed from back of socket). Secure socket to panel with lock washer (Figure 1, Item 4) and nut (Figure 1, Item 3).
3. Connect all wires removed previously and replace terminal screws.
4. Place lamp (Figure 1, Item 2) in lamp socket (Figure 1, Item 5). Press lamp and turn clockwise to lock in place.
5. Install lens (Figure 1, Item 1) in lamp socket (Figure 1, Item 5) by turning lens clockwise. Turn lens until force required increases. Any further clockwise rotation of lens will cause lamp to dim.
6. Install control panel (WP 0107 00).
7. Reconnect batteries.
8. Perform MOC to ensure indicator lamps work (WP 0016 00).

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

CONTROL PANEL CIRCUIT BREAKERS (1CB1 AND 1CB2)

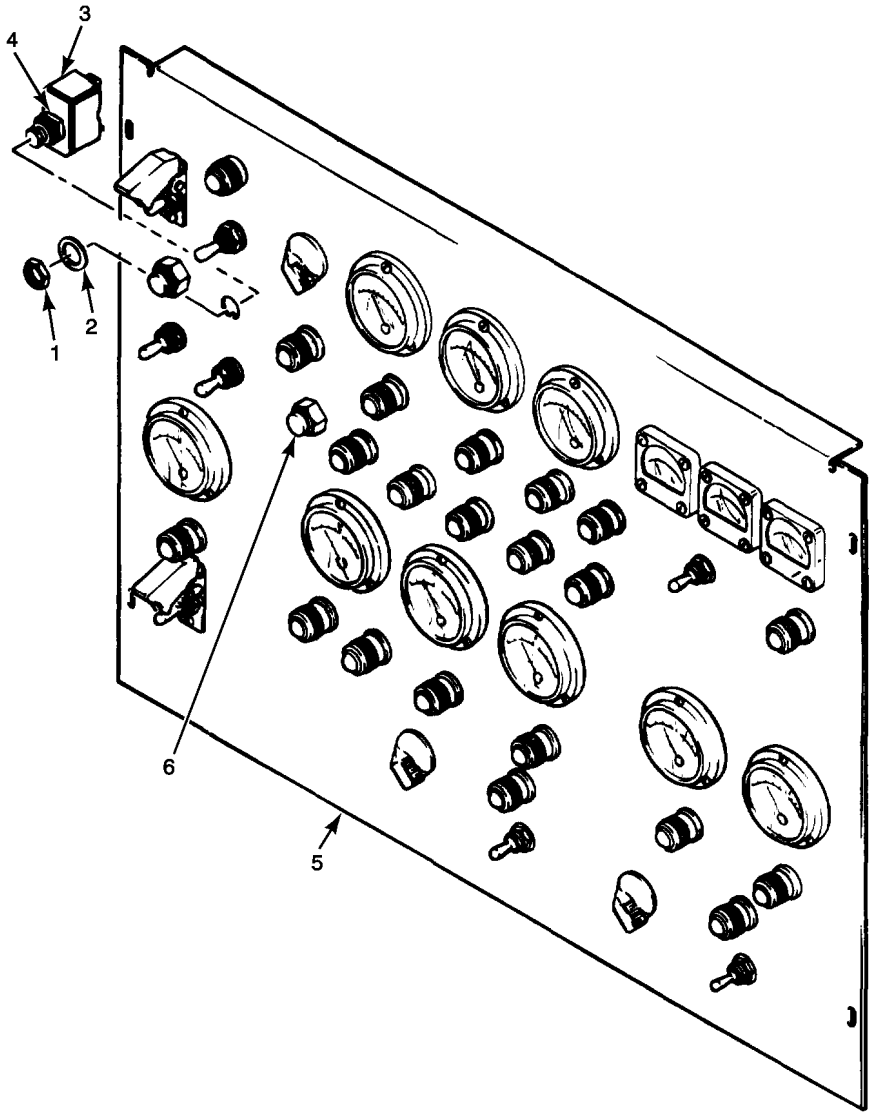
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0016 00
WP 0034 00
WP 0107 00



1. Nut
2. Lock Washer
3. Circuit Breaker (1CB1)
4. Height Adjustment Nut
5. Panel
6. Circuit Breaker (1CB2)

Figure 1. Control Panel Circuit Breakers.

REMOVAL

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
3. Remove control panel (WP 0107 00).
4. Remove terminal screws and lock washers as required to disconnect all wires from back of circuit breaker (Figure 1, Item 3 or 6). Replace lock washers and terminal screws.
5. Remove nut (Figure 1, Item 1), lock washer (Figure 1, Item 2), and circuit breaker (Figure 1, Item 3 or 6).
6. Note position of height adjustment nut (Figure 1, Item 4) on threaded shaft of switch.

INSTALLATION

1. Remove nut (Figure 1, Item 1) and lock washer (Figure 1, Item 2), and keywasher (not shown) from replacement circuit breaker (Figure 1, Item 3 or 6). The keywasher is not used for circuit breaker installation.
2. Set height adjustment nut (Figure 1, Item 4) on replacement circuit breaker shaft to same position as adjustment nut on old circuit breaker.
3. Install replacement circuit breaker (Figure 1, Item 3 or 6) from back of panel and secure with lock washer (Figure 1, Item 2) and nut (Figure 1, Item 1). One or two threads on shaft of circuit breaker should be visible from front of panel. If not, loosen retaining nut (Figure 1, Item 1), reset adjustment nut (Figure 1, Item 4) as required, and tighten retaining nut.
4. Remove terminal screws and lock washers from circuit breaker as required to connect all wires removed in previous step. Replace lock washers and terminal screws.
5. Install control panel (WP 0107 00).
6. Reconnect batteries.
7. Perform MOC (WP 0016 00).

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

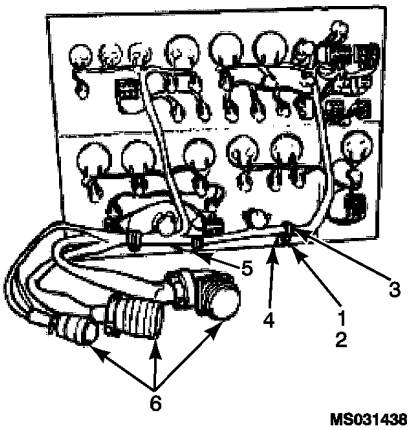
CONTROL PANEL WIRING HARNESS

INITIAL SETUP:

Tools and Special Tools
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References
TM 1-1500-323-24-1

References (cont.)
MWO 1-1730-229-50-4
WP 0021 00
WP 0034 00
WP 0107 00
FO 16



1. Screw
2. Lock Washer
3. Cable Clamp
4. Spacer
5. Harness
6. Connectors, P5, P6, P7

Figure 1. Control Panel Wiring Harness.

TEST AND INSPECTION

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
3. Remove control panel (WP 0107 00).
4. Inspect wiring harness (Figure 1, Item 5) for damaged insulation and broken wires.

TEST AND INSPECTION – CONTINUED

5. Check that cable clamps (Figure 1, Item 3) are secure. Tighten clamp screws (Figure 1, Item 1) if required.
6. Check that all terminal connections are secure.
7. Inspect harness connectors (Figure 1, Item 6) for damage.

REPAIR OR REPLACEMENT

1. For repair of wiring harnesses, refer to TM 1-1500-323-24-1, Installation and Repair Practices, Aircraft Electric and Electronic Wiring.
2. If a diode is defective, cut defective diode from wire and install new diode using splices. Install diode with cathode (black band) toward terminal lug end of wire. Use heat shrinkable sleeving over diode and splices to prevent shorting. Refer to TM 1-1500-323-24-1, Installation and Repair Practices, Aircraft Electric and Electronic Wiring for splicing instructions.

REMOVAL

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Remove battery charger access cover (WP 0021 00).
3. Disconnect mating connectors from control panel connectors P5, P6, and P7 (Figure 1, Item 6).
4. Remove four screws, washers, and lower control panel that panel is supported by cable.
5. Remove nut and washer from support cable.
6. If a work space is available, remove control panel and move to work space.
7. Note routing of wire bundles for reference.
8. Disconnect wires from control panel terminals. As wires are disconnected, replace terminal washers, screws, and nuts to prevent loss.
9. Remove screws (Figure 1, Item 1), lock washers (Figure 1, Item 2), and cable clamps (Figure 1, Item 3).

INSTALLATION

1. Position control panel with lower edge of panel resting on ledge beneath panel opening in rear of AGPU.
2. Layout harness on panel with wire bundles routed as noted in step 3 of the removal process.
3. Connect harness wires to control panel terminals (For 83-360A refer to FO 16. For 83-360D/E (only) with MWO 1-1730-229-50-4 incorporated refer to Table 14, Control Panel Harness Wire List MWO 1-1730-229-50-4).
4. Install cable clamps (Figure 1, Item 3) on harness (Figure 1, Item 5). Attach clamps to spacers (Figure 1, Item 4) with lock washers (Figure 1, Item 2) and screws (Figure 1, Item 1).
5. Connect control panel and mate control panel harness connectors P5, P6 and P7 (Figure 1, Item 6) with main wiring harness.
6. Attach support cable to control panel using washer and nut.
7. Raise panel into position and secure with four washers and screws.
8. Install control panel (WP 0107 00).
9. Reconnect batteries.
10. Install battery charger access cover.
11. Perform MOC and check operation of control panel.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

FRONT AXLE STEERING AND TOW BAR ADJUSTMENTS

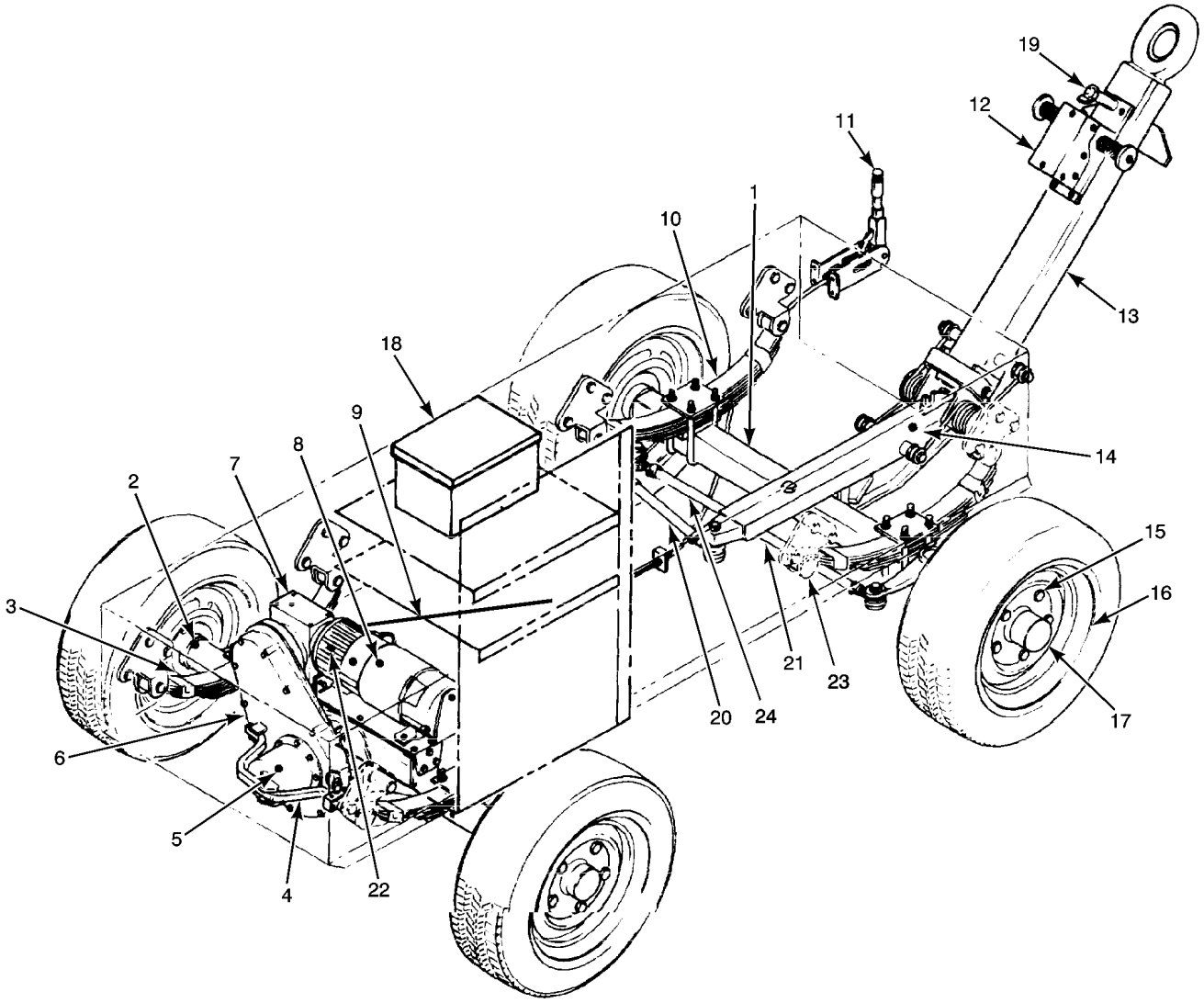
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0034 00



MS031317A

1. Front Axle	9. Brake Cable	17. Hub
2. Rear Axle	10. Front Leaf Spring	18. Controller (Located On Upper Tray In Electrical Compartment)
3. Rear Leaf Spring	11. Brake Lever	19. Dead Man Switch
4. Clutch Lever	12. Speed/Direction Control Assembly	20. Steering Rod
5. Clutch Housing	13. Tow Bar	21. Tie Rod
6. Chain Drive Housing	14. Tongue	22. Electric Brake
7. Gearcase	15. Nut, Lug	23. Clamp
8. Traction Motor	16. Wheel	24. Steering Rod Barrel

Figure 1. Propulsion System.

ADJUSTMENT

NOTE

Perform tow in adjustment after steering rod has been adjusted.

Steering Rod Adjustment and Toe-in Adjustment

Before toe-in adjustment, it may be necessary to adjust the steering rod to center the steering.

1. Ensure parking brake is set and rear wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Do not disconnect J-1 and P-1 connector.
3. Release and lower tow bar (Figure 1, Item 13) and lower tow bar to floor and hold in place. Center on AGPU body.
4. Measure from left and right outside corners of AGPU chassis wheel wells to front end of tow bar lunette eye.
5. Move tow bar until both measurements of step 2 are the same. Tow bar is now centered with AGPU chassis/body.
6. Measure distance from AGPU chassis to inside edge of each tire bead.
7. If measurements made in step 4 are unequal, adjust steering rod (Figure 1, Item 20) until equal measurements are obtained.
8. If original tie-rod (Figure 1, Item 21) length is unknown, it will be necessary to perform toe-in adjustment. To adjust toe-in, the AGPU should be sitting on a level surface. The tires should be properly inflated. Using a steel tape measure, measure and record the exact distance from the front center bead of the left tire tread to the front center bead of the right tire tread.
9. Now measure and record the same measurement between the rear center beads of the tires. If the front measurement is longer, the long tie-rod connecting the two front wheels must be lengthened by unscrewing the tie-rod ends.
10. Adjust steering rod (Figure 1, Item 21) by loosening two clamps (Figure 1, Item 23) and turning steering rod barrel (Figure 1, Item 24) to obtain proper toe-in/toe-out measurements.
11. If the front measurement is shorter, the tie-rod must be shortened by screwing the tie-rod ends a few turns and measuring the toe-in distances again. Several adjustments may be necessary in order to equalize the front and rear distances.
12. The proper toe-in adjustment of the AGPU is zero degrees, or an equal distance between front and rear of the tires. Tighten steering rod (Figure 1, Item 21) by tightening two clamps (Figure 1, Item 23).
13. Ensure drive gear is disengaged from propulsion.
14. Tow AGPU and have someone watch to see if AGPU tracks with tow vehicle.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

WHEELS AND TIRES

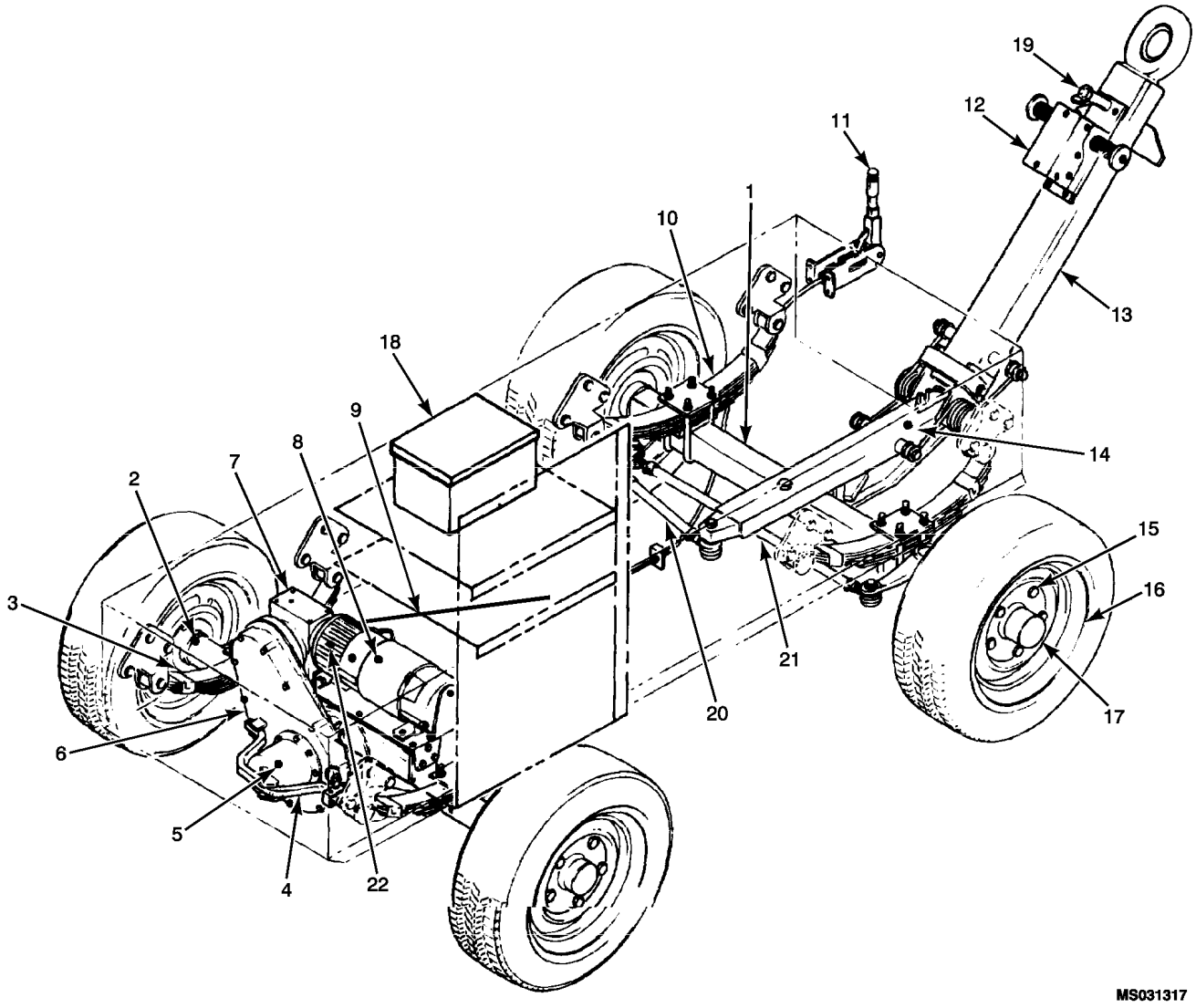
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK
(WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0034 00



1. Front Axle	9. Brake Cable	17. Hub
2. Rear Axle	10. Front Leaf Spring	18. Controller (Located On Upper Tray In Electrical Compartment)
3. Rear Leaf Spring	11. Brake Lever	19. Dead Man Switch
4. Clutch Lever	12. Speed/Direction Control Assembly	20. Steering Rod
5. Clutch Housing	13. Tow Bar	21. Tie Rod
6. Chain Drive Housing	14. Tongue	22. Electric Brake
7. Gearcase	15. Nut, Lug	23. Clamp
8. Traction Motor	16. Wheel	24. Steering Rod Barrel

Figure 1. Propulsion System.

REMOVAL

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.

REMOVAL – CONTINUED

3. Loosen lug nuts (Figure 1, Item 15) on wheels (Figure 1, Item 16) to be removed. Nuts should be loosened no more than one full turn.

NOTE

If all four wheels are to be removed, support the AGPU with jack stands at each corner prior to removing wheels.

4. Raise AGPU with floor jack until the wheels (Figure 1, Item 16) to be removed are off the ground.
5. Remove the five lug nuts (Figure 1, Item 15) per wheel. Remove the wheel (Figure 1, Item 16).

INSTALLATION

1. Position the wheel (Figure 1, Item 16) against the hub so that the five lug bolts protrude through the wheel. Install the five lug nuts (Figure 1, Item 15) and tighten to 45 foot pounds.
2. Raise the AGPU with floor jack. Remove jack stands and lower AGPU.
3. Reconnect batteries.
4. Perform MOC.
5. Remove wheel chocks.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

TOW BAR BEAM ASSEMBLY

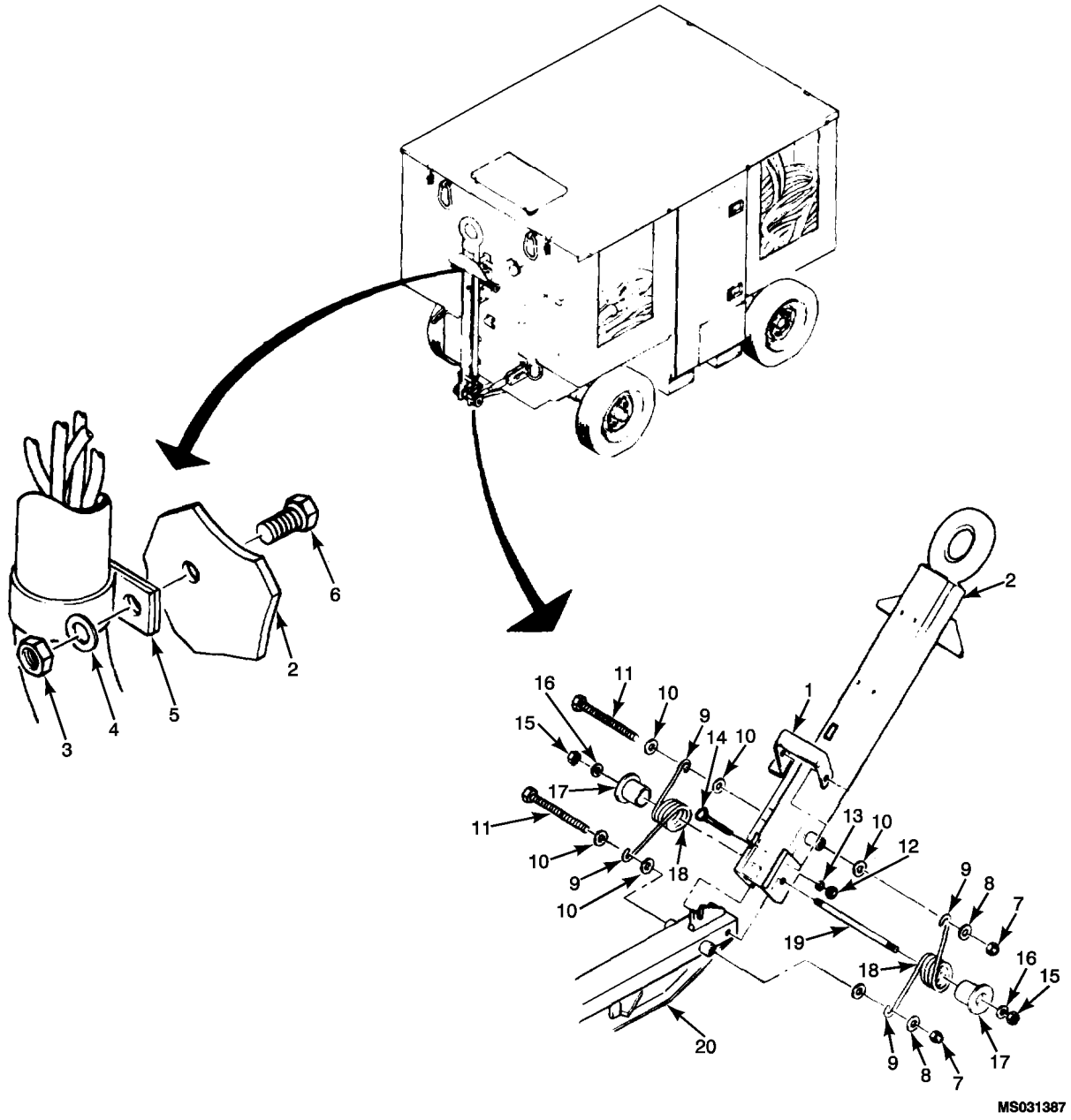
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0034 00
WP 0147 00



1. Latch Assembly
2. Tow Bar Beam
3. Nut
4. Flat Washer
5. Clamp, Rubber
6. Bolt
7. Lock Nut
8. Flat Washer
9. Spring Loops
10. Flat Washer
11. Bolt
12. Nut
13. Washer
14. Bolt
15. Lock Nut
16. Washer
17. Sleeve
18. Spring
19. Shaft
20. Tongue

Figure 1. Tow Bar.

WARNING

Eye protection should be worn prior to performing the following steps.

REMOVAL

TOW BAR BEAM REMOVAL

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
3. Depress tow bar release latch assembly (Figure 1, Item 1) while supporting tow bar assembly (Figure 1, Item 2). Lower tow bar.
4. Remove speed/directional control assembly (WP 0147 00).
5. Raise tow bar assembly (Figure 1, Item 2) to vertical position to relieve tension from springs (Figure 1, Item 18).
6. Remove two nuts (Figure 1, Item 3), two flat washers (Figure 1, Item 4), two clamps (Figure 1, Item 5), and two bolts (Figure 1, Item 6) securing wiring harness to underside of tow bar assembly (Figure 1, Item 2).
7. On tow bar assembly (Figure 1, Item 2) and tongue (Figure 1, Item 20), remove lock nuts (Figure 1, Item 7) and flat washers (Figure 1, Item 8) from bolts (Figure 1, Item 11).
8. Remove bolts (Figure 1, Item 11), and flat washers (Figure 1, Item 10) to release spring loops (Figure 1, Item 9).
9. Remove nut (Figure 1, Item 12), washer (Figure 1, Item 13), and bolt (Figure 1, Item 14) that lock shaft (Figure 1, Item 19) in place.
10. Remove two lock nuts (Figure 1, Item 15), two washers (Figure 1, Item 16), two sleeves (Figure 1, Item 17), and two springs (Figure 1, Item 18) from shaft (Figure 1, Item 19).
11. Support tow bar (Figure 1, Item 2) and remove shaft (Figure 1, Item 19). Remove tow bar.

TEST AND INSPECTION

Tow Bar Beam

1. Check the beam for physical damage. Dents, bends or twists may be repaired using a hydraulic arbor press or heavy clamps and hammers.
2. Inspect lunette eye for proper alignment and secure welds. Minor lunette eye misalignment may be corrected by placing the tow bar beam in a heavy vise and twisting the eye with a large bar inserted through the eye.
3. Major misalignment may require heating of the entire lunette eye. Reweld the tube joints if necessary.
4. Inspect the tow bar pivot bolt alignment and repair as necessary.
5. Correct by bending the beam in a hydraulic press. Excessive wear of the pivot bolt mounting holes requires replacement of the tow bar beam.
6. Spot paint tow bar beam as necessary after heating for alignment corrections refer to WP 0027 00, 4..
7. If major misalignment cannot be corrected replace tow bar beam.

TEST AND INSPECTION – CONTINUED

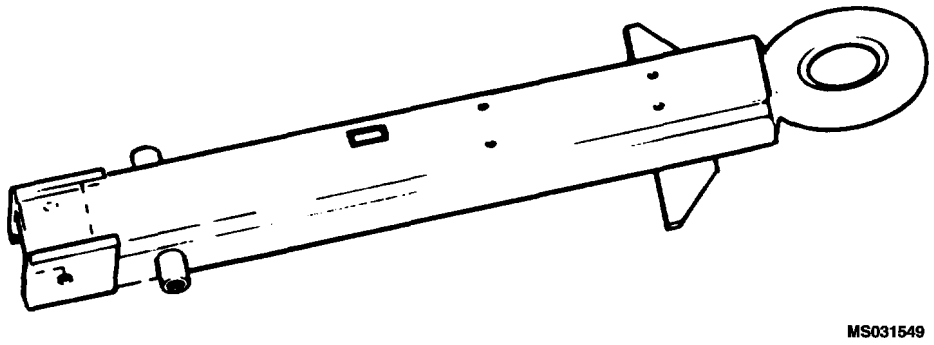


Figure 2. Tow Bar Beam.

INSTALLATION

1. Raise tow bar and install shaft (Figure 1, Item 19) through holes in tow bar assembly (Figure 1, Item 2), aligning with holes in tongue (Figure 1, Item 20). Lock shaft in place with bolt (Figure 1, Item 14), washer (Figure 1, Item 13), and nut (Figure 1, Item 12).
2. Place springs (Figure 1, Item 18), sleeves (Figure 1, Item 17), washers (Figure 1, Item 16) and lock nuts (Figure 1, Item 15) onto shaft (Figure 1, Item 19).
3. Raise tow bar to vertical position to remove tension from springs (Figure 1, Item 18).
4. On tow bar (Figure 1, Item 2) and tongue (Figure 1, Item 20) install bolts (Figure 1, Item 11), and flat washers (Figure 1, Item 10) to secure spring loops (Figure 1, Item 9).
5. Install washers (Figure 1, Item 8), and lock nuts (Figure 1, Item 7) on bolts (Figure 1, Item 11).
6. Secure wire harness with clamps (Figure 1, Item 5) to tow bar (Figure 1, Item 2) with two bolts (Figure 1, Item 6), two washers (Figure 1, Item 4), and two nuts (Figure 1, Item 3).
7. Install speed/direction control assembly (WP 0147 00).
8. Connect battery.
9. Perform MOC to ensure tow bar movement and travel stop.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
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PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

BRAKE CABLE ASSEMBLY

INITIAL SETUP:

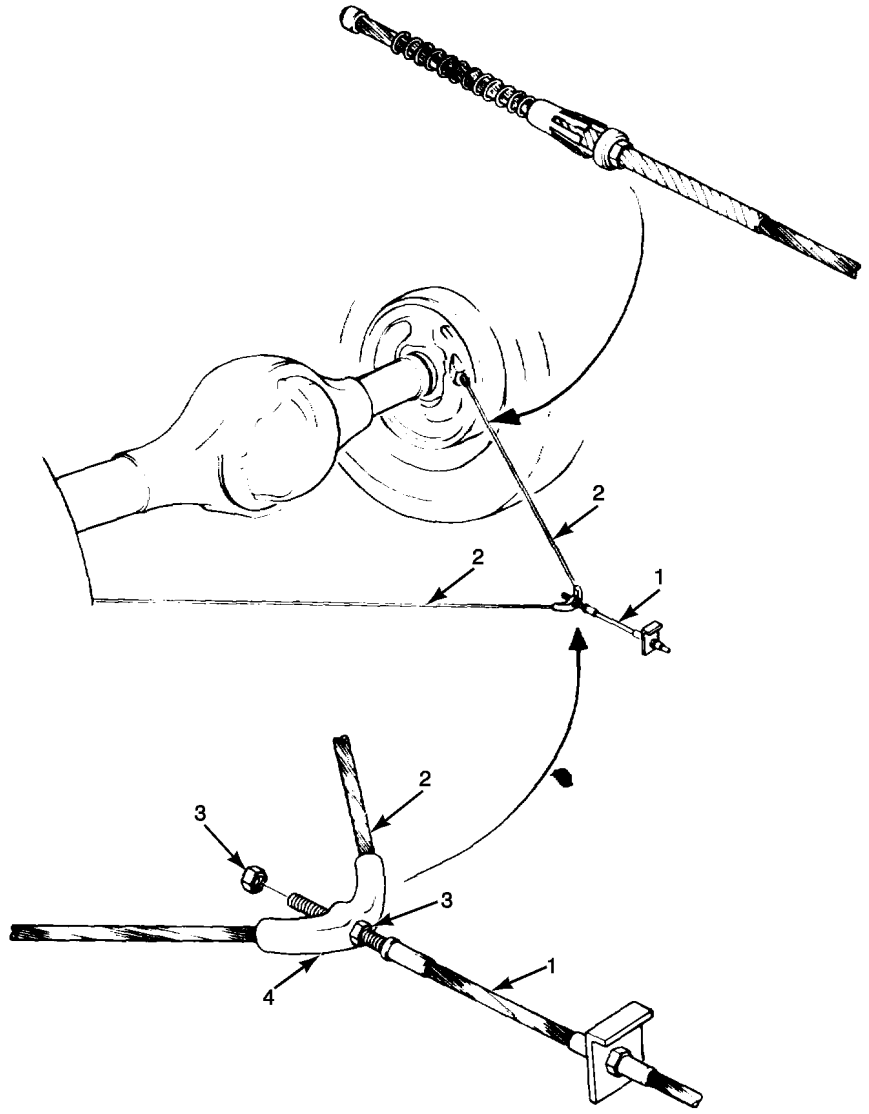
Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0034 00
WP 0143 00
WP 0146 00

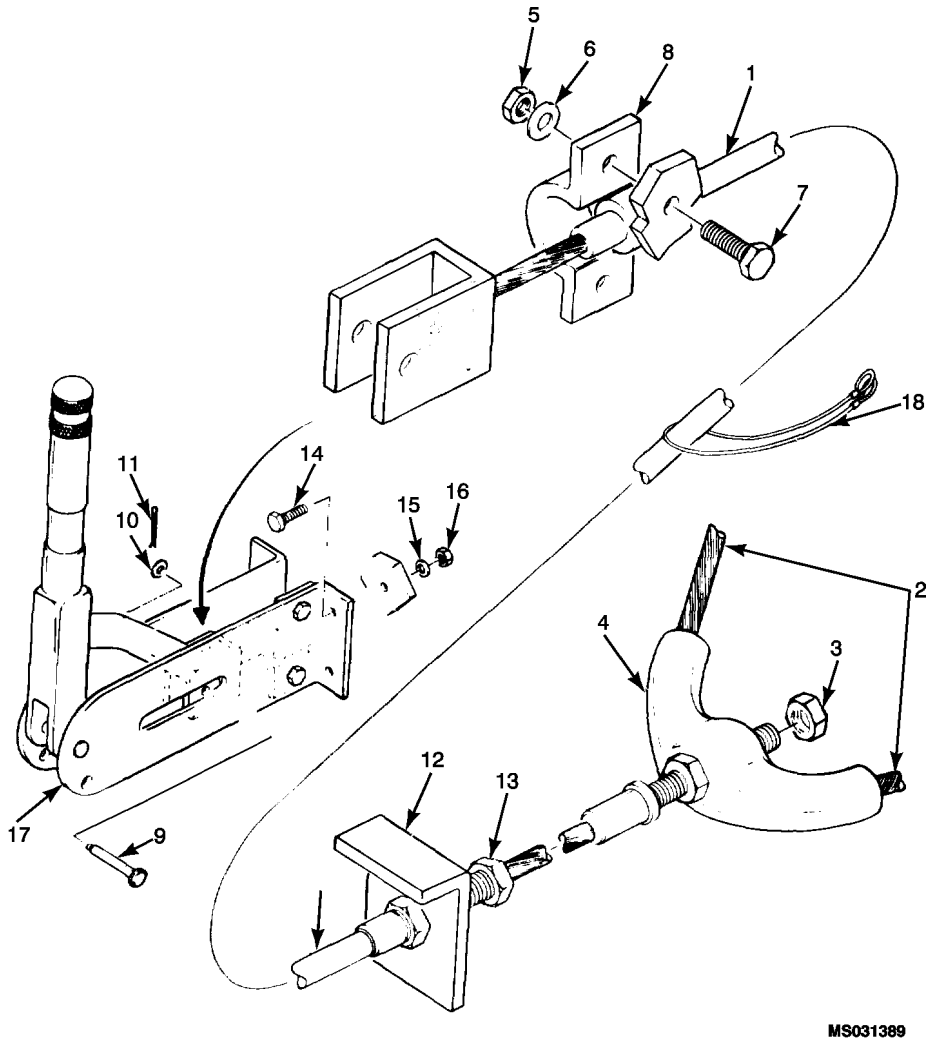
TEST AND INSPECTION



1. Front Brake Cable
2. Rear Brake Cable
3. Adjustment Nut
4. Cable Fixture

Figure 1. Brake Cable Assembly.

TEST AND INSPECTION – CONTINUED



1. Cable, Front	7. Bolt	13. Nut
2. Cable Rear	8. Clamp	14. Bolt
3. Nut	9. Pin	15. Lockwasher
4. Cable Fixture	10. Washer, Flat	16. Nut
5. Nut	11. Cotter Pin	17. Brake Lever Assembly
6. Lockwasher	12. L-Bracket	18. Lanyard

Figure 2. Brake Lever Assembly.

CAUTION

Chock front wheels prior to removal of rear wheels. Support the AGPU with jack stands prior to work in the brake assembly.

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Inspect front and rear brake cables (Figure 1, Item 1 and 2) and cable fixture (Figure 1, Item 4) for broken strands, missing or loose fasteners or mounting hardware and improper operation.

TEST AND INSPECTION – CONTINUED

3. Inspect brake lever assembly (Figure 2, Item 17) for bent or broken components, loose or missing fasteners, improper operation and corrosion.
4. Remove rear wheels and tires (WP 0143 00).
5. Inspect rear wheels brake assembly (WP 0146 00 for removal) for loose fasteners, broken components, worn shoes and corrosion.

REMOVAL

1. Chock front wheels, raise AGPU rear wheels and place jack stands under rear axle.
2. Release front brake and remove parking brake lever assembly (Figure 2, Item 17). Pull front brake cable (Figure 2, Item 1) from cable fixture (Figure 2, Item 4).
3. To remove brake lever assembly (Figure 2, Item 17), remove nuts (Figure 2, Item 16), lock washers (Figure 2, Item 15), and bolst (Figure 2, Item 14).
4. Disconnect rear brake cables (Figure 1, Item 2) from brake lever assembly on each rear wheel.
5. Remove front brake cable (Figure 1, Item 1) from brake lever assembly (Figure 2, Item 17) by removing nut (Figure 2, Item 5), lock washer (Figure 2, Item 6) bolt (Figure 2, Item 7) cotter pin (Figure 2, Item 11), washer (Figure 2, Item 10) and pin (Figure 2, Item 9).
6. Remove nut (Figure 2, Item 13) from front brake cable (Figure 2, Item 1) and remove from L-bracket (Figure 2, Item 12).

INSTALLATION

1. Position brake lever assembly (Figure 2, Item 17) and install bolts (Figure 2, Item 14), lock washers (Figure 2, Item 15) and nuts (Figure 2, Item 16).
2. Position front brake cable (Figure 2, Item 1) on brake lever assembly (Figure 2, Item 17) and install pin (Figure 2, Item 9), clamp (Figure 2, Item 8), bolts (Figure 2, Item 7), lock washers (Figure 2, Item 6), nuts (Figure 2, Item 5) and cotter pin (Figure 2, Item 11).
3. Position front brake cable (Figure 2, Item 1) through hole in L-bracket (Figure 2, Item 12) and install nut (Figure 2, Item 13).
4. Connect rear brake cables (Figure 1, Item 2) to brake levers (WP 0146 00). on each rear wheel.
5. Position front brake cable (Figure 1, Item 1) through cable fixture (Figure 1, Item 4) and install nut (Figure 1, Item 3).
6. Install brake assembly (WP 0146 00).

NOTE

Do not remove from jack stands.

7. Position the wheel (Figure 1, Item 16) against the hub so that the five lug bolts protrude through the wheel. Install the five lug nuts (Figure 1, Item 15) and tighten to 45 foot pounds.
8. Tighten nut (Figure 1, Item 3) a few turns at a time, checking the rear wheels for free rotation each time. When the cable has been tightened sufficiently to begin engaging the rear brakes, loosen the adjustment nut three full turns. Engage parking brake lever assembly (Figure 2, Item 17) to ensure brakes will lock rear wheels.
9. Raise AGPU. Remove jack stands and lower AGPU.
10. Reconnect batteries.
11. Perform MOC on brake system. Adjust as needed.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

BRAKE ASSEMBLY

INITIAL SETUP:

Tools and Special Tools

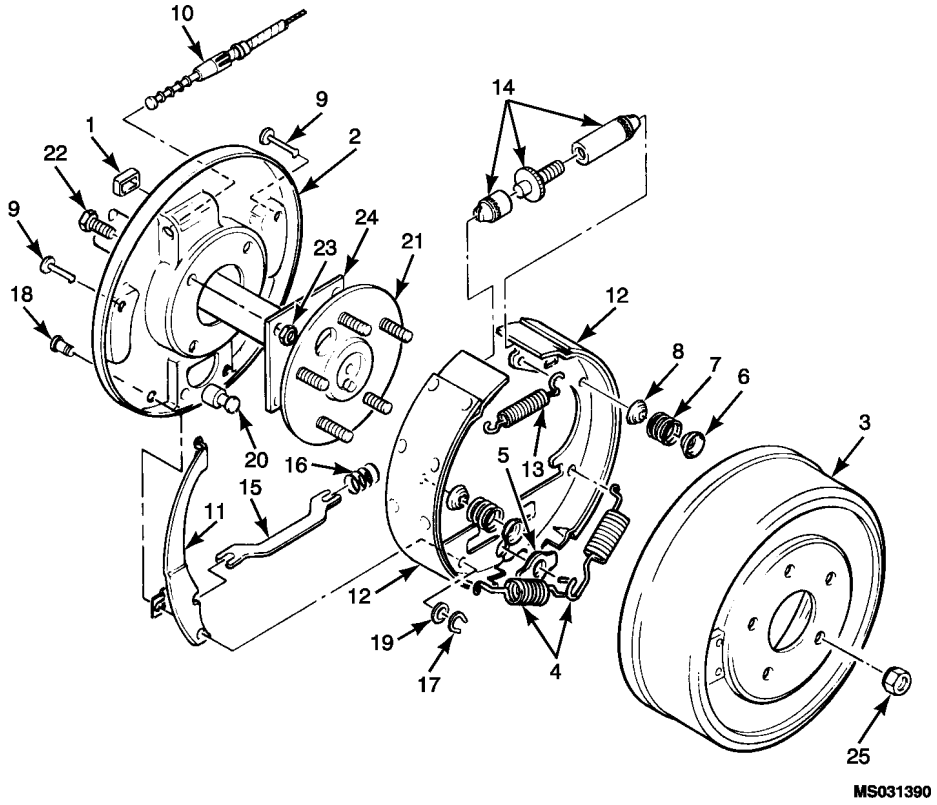
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Cleaning Compound, Solvent (WP 0170 00, Item 5)

References

WP 0034 00
WP 0143 00



1. Dust Cap	10. Brake Cable	19. Washer
2. Backing Plate	11. Brake Lever	20. Backing Plate Stud
3. Brake Drum	12. Brake Shoe	21. Axle
4. Return Spring	13. Spring	22. Bolt
5. Washer	14. Adjustment Assembly	23. Nut
6. Spring Retainer	15. Brake Link	24. Retainer Plate
7. Spring	16. Brake Link Spring	25. Nut
8. Spring Retainer	17. Retainer Clip	
9. Pin	18. Pin	

Figure 1. Brake Assembly (MEP 83-360a and MEP 83-360D/E).

DISASSEMBLY

WARNING

During this procedure, face/eye protection is required.

1. Chock front wheels with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
3. Remove rear wheels and tires (WP 0143 00).
4. Remove plastic dust cap (Figure 1, Item 1) from backing plate (Figure 1, Item 2). Adjust brake shoes for maximum clearance from brake drum by placing adjusting spoon in slot located on backing plate (Figure 1, Item 2). Move adjusting spoon in an upward motion until adjusting assembly will no longer turn.

DISASSEMBLY – CONTINUED

5. Mark the drums so they are replaced on the same side as removed. Remove brake drum (Figure 1, Item 3) by tapping with a mallet until drum is loose. If drum will not break loose by tapping with mallet, use a wheel puller to remove drum.
6. Remove return spring (Figure 1, Item 4), washer (Figure 1, Item 5), spring retainers (Figure 1, Item 6), springs (Figure 1, Item 7), spring retainers (Figure 1, Item 8) and pins (Figure 1, Item 9).
7. Remove brake cable (Figure 1, Item 10) from brake lever (Figure 1, Item 11). Compress the brake cable captive fittings and pull the brake cables out of the rear wheel backing plates (Figure 1, Item 2).
8. Spread brake shoes (Figure 1, Item 12) leaving spring (Figure 1, Item 13) and adjustment assembly (Figure 1, Item 14) in place. Remove brake link (Figure 1, Item 15) and brake link spring (Figure 1, Item 16). Remove brake shoes (Figure 1, Item 12).
9. Remove retainer clip (Figure 1, Item 17), pin (Figure 1, Item 18), and washer (Figure 1, Item 19) to remove brake lever (Figure 1, Item 11) from brake shoes (Figure 1, Item 12).

CLEANING

WARNING

Avoid inhaling dust and residue from the brake shoe lining. The linings are made of asbestos, a known cancer-causing substance. Cover the mouth and nose with a fabric mask or respirator when cleaning the brake assembly.

WARNING

Cleaning compound solvent (MIL-PRF-680) is combustible and toxic to eyes, skin, and respiratory tract. Wear protective gloves and goggles/face shield. Avoid repeated or prolonged contact. Use only in well ventilated areas (or use approved respirator as determined by local safety/industrial hygiene personnel). Keep away from open flames or other sources of ignition.

1. Blow dust and contamination from backing plates using a maximum of 125 psi air pressure. Use cleaning solvent (MIL-PRF-680) and a stiff bristle brush to clean the backing plates and brake components of grease, oil and dirt.
2. Before installing new parts, remove any preservative materials such as rust-prevention compound or protective grease. Remove glaze from the faces of brake shoe linings with a coarse file. If brake shoes are replaced, slightly bevel the edges of the linings with a fine file before the shoes are installed.

TEST AND INSPECTION

1. Inspect brake components for physical damage. Check brake surface of drum for scoring, cracks, and being out-of-round. If drum scoring is minor, the drums may be turned on a brake lathe. If scoring is deep, the drum must be replaced. If brake linings are excessively worn, they must be replaced.
2. Check brake springs for cracks or other physical damage. If springs are weak or worn, they should be replaced. Check brake lever and link for cracks or other damage. Inspect adjustment components for damaged threads. Replace if damaged.

ASSEMBLY

1. Position brake lever (Figure 1, Item 11) on brake shoe (Figure 1, Item 12) and install washer (Figure 1, Item 19), pin (Figure 1, Item 18) and retainer clip (Figure 1, Item 17).

ASSEMBLY – CONTINUED

2. Lay brake shoes (Figure 1, Item 12) on flat surface and install adjustment assembly (Figure 1, Item 14) and spring (Figure 1, Item 13) on brake shoes.
3. Pull brake cable (Figure 1, Item 10) through hole in backing plate (Figure 1, Item 2) until spring fingers released on outer side off backing plate and lock cable in place. Hook the brake cable to the brake lever (Figure 1, Item 11).
4. Position brake shoes (Figure 1, Item 12) on backing plate (Figure 1, Item 2). Spread brake shoes and install brake link spring (Figure 1, Item 16), brake link (Figure 1, Item 15) in slots on brake shoes. Connect parking brake cable (Figure 1, Item 10) to brake lever (Figure 1, Item 11).
5. Install brake shoe pins (Figure 1, Item 9) through backing plate (Figure 1, Item 2) and brake shoes (Figure 1, Item 12). Secure with spring retainers (Figure 1, Item 6), springs (Figure 1, Item 7), and spring retainers (Figure 1, Item 8).
6. Install washer (Figure 1, Item 5) and connect return springs (Figure 1, Item 4) to backing plate stud (Figure 1, Item 20). Check brake shoes (Figure 1, Item 12) for alignment and security. Install brake drum (Figure 1, Item 3).
7. Position brake adjustment spoon into slot on backing plate (Figure 1, Item 2). With downward motion adjust brake shoes while rotating the tire by hand until the brake shoes drag on the brake drum. Back off three clicks on adjustment. Install dust cap (Figure 1, Item 1).
8. Install wheel and tires (WP 0143 00).
9. Reconnect batteries.
10. Perform MOC.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

SPEED/DIRECTION CONTROL ASSEMBLY

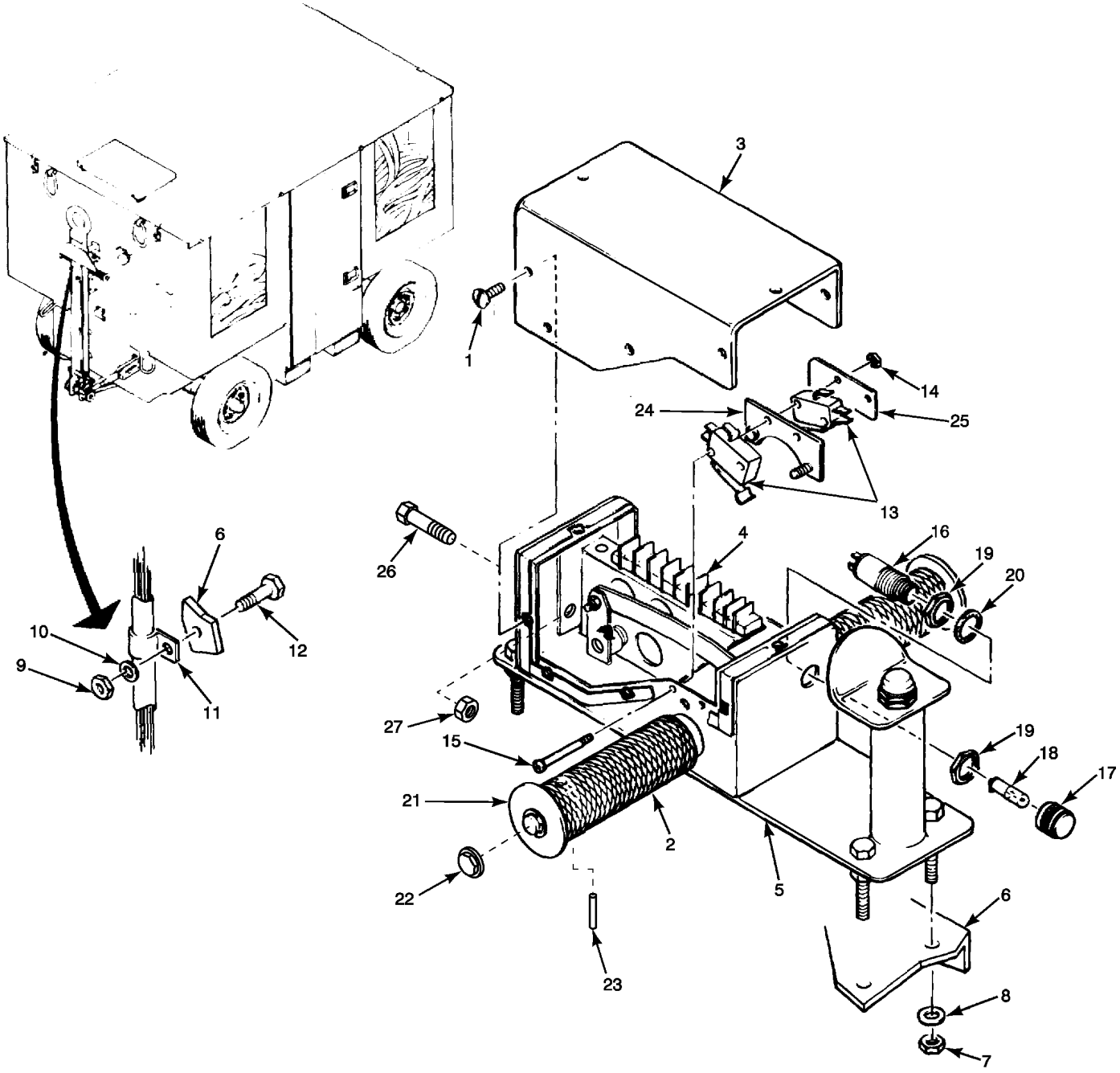
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK
(WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0034 00



1. Screw
2. Twist Grip
3. Cover
4. Terminal Board
5. Speed/Direction Control Assembly
6. Tow Bar
7. Nut
8. Lockwasher
9. Nut
10. Washer
11. Clamp
12. Screw
13. Micro Switch
14. Nut, Lock
15. Screw
16. Light Assembly
17. Lens
18. Bulb
19. Nut
20. Washer
21. End Washer
22. E-Clip
23. Roll Pin
24. Spring Stopper
25. Spring Guard
26. Bolt
27. Nut, Lock

– Continued

Figure 1. Speed/Direction Control Assembly.

1. Controller
2. Socket, Light Amber
3. Bulb 28Volt
4. Switch, Boot Pushbutton.
5. Switch, Pushbutton Brake
6. Screw
7. Cover
8. Gasket Cover
9. Screw
10. Screw
11. Nut, Lock
12. Spacer
13. Alarm
14. Diode
15. Micro Switch
16. Grommet
17. Lug, Terminal
18. Tubing, Heat Shrink
19. Resistor, Variable

Figure 2. Control Propulsion System Handle.

1. Shaft
2. Twist Grip
3. Fiber Washer
4. Shaft Bushing
5. Shaft Collar
6. Linkage
7. Tension Spring
8. Key

Figure 3. Speed Directional Control Shaft Assembly.

Figure 4. .

Figure 5. .

REMOVAL

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
3. Remove screws (Figure 1, Item 1) and cover (Figure 1, Item 3) from speed/direction control assembly.
4. Inspect cover (Figure 2, Item 7) and inner gasket (Figure 2, Item 8) for serviceability. Replace if necessary.
5. Remove side wiring harness by tagging and disconnecting wires from left side of terminal board (Figure 1, Item 4).

NOTE

Do not lose two jumper wires located on terminal board.

6. Tag and remove black, white, and brown (KWN) wire at splice.
7. Remove wiring harness from speed/direction control assembly (Figure 1, Item 5) by pulling harness through hole on underside of tow bar (Figure 1, Item 6).
8. Remove speed/direction control assembly (Figure 1, Item 5) by removing nuts (Figure 1, Item 7) and , lock washers (Figure 1, Item 8).

DISASSEMBLY

NOTE

Instructions on disassembly are given with the hand control positioned on the work bench with the handle and thumb guard facing away from the technician.

1. Remove and tag wires. Remove two micro switches (Figure 1, Item 13), spring guard (Figure 1, Item 25) and spring stopper (Figure 1, Item 24) by removing two lock nuts (Figure 1, Item 14), and screws (Figure 1, Item 15) from speed/direction control assembly (Figure 1, Item 5).
2. Remove and tag wires. Remove light assembly (Figure 1, Item 16) and tow bar (Figure 1, Item 6) by removing light lens (Figure 1, Item 17) with 1/4" wrench and #1 screwdriver, bulb (Figure 1, Item 18), nut (Figure 1, Item 19), and washer (Figure 1, Item 20) with a 3/4" wrench and from speed/direction control assembly (Figure 1, Item 5) with a 1/4" wrench and #1 screwdriver.
3. Remove rear right bottom lock nut (Figure 1, Item 27) and bolt using a 7/16" wrench and ratchet.
4. Through the hole where bolt was removed in Step 3., loosen set screw on twist grip linkage at variable resistor (Figure 2, Item 19) using a 3/32" allen wrench.
5. Remove the remaining bolt (Figure 1, Item 26) and lock nut (Figure 1, Item 27) in the rear of the speed/direction control assembly (Figure 1, Item 5) using a 7/16" wrench or racket. Remove bracket by moving bracket assembly forward and up, slide variable resistor (Figure 2, Item 19) off, remove terminal board (Figure 1, Item 4) with mounting bracket and remaining wiring.
6. Remove push button brake switch (Figure 2, Item 5) and push button boot switch (Figure 2, Item 4) with 3/4" wrench.
7. Remove end E-clips (Figure 1, Item 21) and side washers (Figure 1, Item 22) from twist grip (Figure 1, Item 2) .
8. Remove roll pin (Figure 1, Item 23) on right hand twist grip (Figure 1, Item 2) using 1/4" punch.
9. Remove right side hand twist grip (Figure 1, Item 2).
10. Loosen set screw on shaft collar (Figure 3, Item 5) with 1/8" allen wrench.
11. Slide left side twist grip (Figure 3, Item 2) and shaft to the left while holding shaft linkage so the shaft linkage key is released from the shaft and linkage.
12. Remove key (Figure 3, Item 8) from shaft (Figure 3, Item 1).
13. Slide left side twist grip (Figure 1, Item 2) and shaft (Figure 3, Item 1) out of speed/direction control assembly (Figure 1, Item 5) allowing fiber washers (Figure 3, Item 3), tension spring (Figure 3, Item 7), linkage (Figure 3, Item 6) and shaft collar (Figure 3, Item 5) to fall into controller.
14. Remove fiber washers (Figure 3, Item 3), tension spring (Figure 3, Item 7), linkage (Figure 3, Item 6) and shaft collar (Figure 3, Item 5) from speed/direction control assembly (Figure 1, Item 5.
15. Remove twist grip shaft bushings (Figure 3, Item 4).
16. Remove wiring harness grommet (Figure 2, Item 16).

ASSEMBLY

NOTE

Instructions on assembly are given with the hand control positioned on the work bench with the handle and thumb guard facing away from the technician.

1. Install shaft bushings (Figure 3, Item 4) into speed/direction control assembly (Figure 1, Item 5) housing shaft ports.

NOTE

Fiber washers may be added or removed to allow the shaft to spin freely.

2. Slide two fiber washers (Figure 3, Item 3) on shaft (Figure 3, Item 1) behind left twist grip (Figure 3, Item 2). Slide shaft into speed/direction control assembly (Figure 1, Item 5) housing through other side. Slide on two fiber washers (Figure 3, Item 3) on right side of shaft (Figure 3, Item 1) and right side twist grip (Figure 3, Item 2). Verify the shaft spins freely and the clearance between shaft bushings and twist grip is limited to smaller than the clearance of an additional fiber washer. Remove shaft and twist grip.
3. Slide left side twist grip (Figure 3, Item 2) and shaft (Figure 3, Item 1) into speed/direction control assembly (Figure 1, Item 5) just through left side bushing. Slide on 1/2" shaft collar (Figure 3, Item 5) and linkage (Figure 3, Item 6) with extruding spring stopper (Figure 1, Item 24) pointing to the right, one fiber washer (Figure 3, Item 3), tension spring (Figure 3, Item 7) with both spring legs pointed toward you and fiber washer (Figure 3, Item 3). Slide the remaining shaft through the right side of shaft bushing.
4. Position shaft (Figure 3, Item 1) and inner parts so the keyway is exposed, facing up, between the shaft collar (Figure 3, Item 5) and linkage (Figure 3, Item 6). Insert key (Figure 3, Item 8) into keyway, slide linkage (Figure 3, Item 6) over key (Figure 3, Item 8), securing it's position on the shaft. Verify linkage is slid over key to provide adequate clearance between the left twist grip (Figure 3, Item 2) and speed/direction control assembly (Figure 1, Item 5) is minimal.
5. Slide shaft collar (Figure 3, Item 5) beside linkage (Figure 3, Item 6), tighten set screw on shaft collar (Figure 3, Item 5). Slide shaft assembly left, sit tension spring (Figure 3, Item 7) on linkage (Figure 3, Item 6) by picking up right spring leg, rotating it behind linkage stopper. Slide shaft assembly to the right, install fiber washers (determined in Step 2.), and right side twist grip (Figure 3, Item 2). Align twist grip (Figure 3, Item 2) and shaft (Figure 3, Item 1) with roller pin port. Press or tap in new roll pin (Figure 1, Item 23).
6. Install micro switches (Figure 1, Item 13), spring stopper (Figure 1, Item 24) and spring guard (Figure 1, Item 25) with screw (Figure 1, Item 15). Ensuring that the spring stopper (Figure 1, Item 24) is on top of spring, allowing spring to come up high enough to set both micro switches (Figure 1, Item 13) in the neutral position. Verify that spring stoppers (Figure 1, Item 24) and switches are aligned by twisting twist grip controller forward and reverse. Listen for micro switches (Figure 1, Item 13) to click.
7. Install alarm (Figure 2, Item 13) with screw (Figure 2, Item 10), lock nut (Figure 2, Item 11) and spacer (Figure 2, Item 12) at right side of mounting hole. Position wiring to top and angle alarm (Figure 2, Item 13) to provide room to adjust and set the variable resistor (Figure 2, Item 19) on the terminal board (Figure 1, Item 4) mounting bracket.
8. Stand shaft linkage up, slide dial of variable resistor (Figure 2, Item 19) into linkage mount. Lower terminal board mounting bracket while folding linkage till it sits into speed/direction control assembly (Figure 1, Item 5). Slide terminal board mounting bracket to the rear and align mounting holes. Install top left bolt (Figure 1, Item 26) and lock nut (Figure 1, Item 26) to ensure that lower right bolt hole is aligned.
9. Set variable resistor (Figure 2, Item 19) using a multimeter set to OHMS with leads on terminal board (Figure 1, Item 4) terminals 2 and 3. Using a flat tip screwdriver reach behind tow bar alarm (Figure 2, Item 13) to the variable resistor dial slot, turn dial until multimeter reads a **closed circuit.** Tighten linkage set screw with a 3/32" allen wrench. Remove tools and check reading on variable resistor (Figure 2, Item 19). Variable

ASSEMBLY – CONTINUED

resistor (Figure 2, Item 19) should read closed at the neutral position of the twist grips (Figure 1, Item 2). Turning the twist grips controller in either direction will add resistance to the circuit but the variable resistor (Figure 2, Item 19) will return to the closed position when the twist grips (Figure 1, Item 4) are released.

10. Install remaining terminal board (Figure 1, Item 4) with bolt (Figure 1, Item 26) and lock nut (Figure 1, Item 26).
11. Install lamp using 3/4" wrench. Insert new bulb (Figure 1, Item 18) and lens cap.
12. Install harness grommet (Figure 2, Item 16) and push button brake switch (deadman switch) (Figure 2, Item 5) using a 3/4" wrench. Install push button switch boot (Figure 2, Item 4).
13. Install any remaining wiring in accordance with Figure 4 to include both jumper wires. Ensure that all wires are properly labeled.
14. Perform Bench Test Procedures to ensure all components are properly wired and operational.
15. Secure lose wiring with tie straps.
16. Secure cover gasket (Figure 2, Item 8) on cover (Figure 2, Item 7) with gasket adhesive. Install on speed/direction control assembly (Figure 1, Item 5) with 10 screws (Figure 1, Item 12).
17. Verify twist grip (Figure 1, Item 2) still works and rotates freely after cover installation.
18. Install twist grip (Figure 1, Item 2), end washers (Figure 1, Item 21) with retaining E-clips (Figure 1, Item 22).
19. Mount speed/direction controller onto towbar assembly.
20. Reconnect propulsion wiring harness into controller.

TEST AND INSPECTION

1. Inspect speed/direction control assembly (Figure 1, Item 5) housing for damaged welds, rust and serviceability. Blast, repair and paint before reassembly as required.
2. Inspect terminal board (Figure 1, Item 4) and terminal board mounting bracket for corrosion or rust. Repair and replace as required.
3. Inspect wiring harness and terminal connectors for serviceability and condition. Clean, repair or replace as required.
4. Inspect all hardware for rust and corrosion. Clean or replace as required.
5. Inspect cover (Figure 2, Item 7) and gasket (Figure 2, Item 8) for serviceability. Repair or replace as required.
6. Inspect lamp, mercury switch, micro switches (Figure 2, Item 15), variable resistor (Figure 2, Item 19), tow alarm (Figure 2, Item 13) and push button brake switch (deadman) (Figure 2, Item 5) for serviceability. Clean, repair or replace as required.
7. Inspect and clean tension spring (Figure 3, Item 7), spring stoppers (Figure 1, Item 24), shaft (Figure 3, Item 1), shaft collar (Figure 3, Item 5), twist grips (Figure 3, Item 2) and linkage (Figure 3, Item 6). Repair or replace as required.

INSTALLATION

1. Position the speed/direction control assembly (Figure 1, Item 5) on the tow bar (Figure 1, Item 6) and secure with lock washers (Figure 1, Item 8) and nuts (Figure 1, Item 7).
2. Insert wiring harness through hole in bottom of tow bar (Figure 1, Item 6) into speed/direction control assembly (Figure 1, Item 5).
3. Connect wires on terminal board (Figure 5) and splice the KWN wire to marked wire.
4. Install cover (Figure 1, Item 3) and screws (Figure 1, Item 1) on speed/direction control assembly (Figure 1, Item 5).
5. Reconnect batteries.
6. Install P-1 and J-1 at batteries and perform MOC on propulsion system.

TESTING

BENCH TEST PROCEDURES

NOTE

Power supply with 24-32 VDC output needed to perform test. Internal wiring harness must be connected to include both jumper wires. Harness should be inspected prior to test.

1. Connect 24-32 VDC power supply to speed/direction control assembly (Figure 1, Item 5) at terminal board (Figure 1, Item 4). Positive to terminal 6 and negative to terminal 4.
2. Hold speed/direction control assembly (Figure 1, Item 5) in upright position and apply 24 VDC from power supply. There will not be any noticeable change.
3. Press lens (Figure 1, Item 17) to test and verify operation. If light assembly (Figure 1, Item 16) does not illuminate then bulb may need replacing. If new bulb does not illuminate replace light assembly (Figure 1, Item 16).
4. Tilt speed/direction control assembly (Figure 1, Item 5) down so it lays flat on the work table. Verify power to the tow bar alarm and light assembly (Figure 1, Item 16), indicating the mercury switch is operational. At this time the alarm should be ringing and the light assembly (Figure 1, Item 16) illuminated.
5. Test the forward and reverse micro switches (Figure 1, Item 13) by pacing multimeter to VDC with the positive lead on terminal 8 and negative on terminal 4. Twist handle grips forward and reverse, voltage should only be present in the forward position. Place multimeter positive lead on terminal 7 and the negative lead on terminal 4, twist handle grips forward and reverse, voltage should only be present in the reverse position.
6. Return the speed/direction control assembly (Figure 1, Item 5) to the upright position and turn off the power supply. Disconnect power supply.
7. Set multimeter on OHMS and place leads on terminal 2 and 3 to test the variable resister (Figure 2, Item 19). With the twist grip in the neutral position the meter should read full continuity. Slowly turning the twist grip forward or reverse should gradually decrease (with no dead spots) to no less than 3.8k OHMS. If reading is different replace the variable resistor (Figure 2, Item 19).
8. Reassemble speed/direction controller.

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

MAINTENANCE OF PROPULSION SYSTEM

INITIAL SETUP:

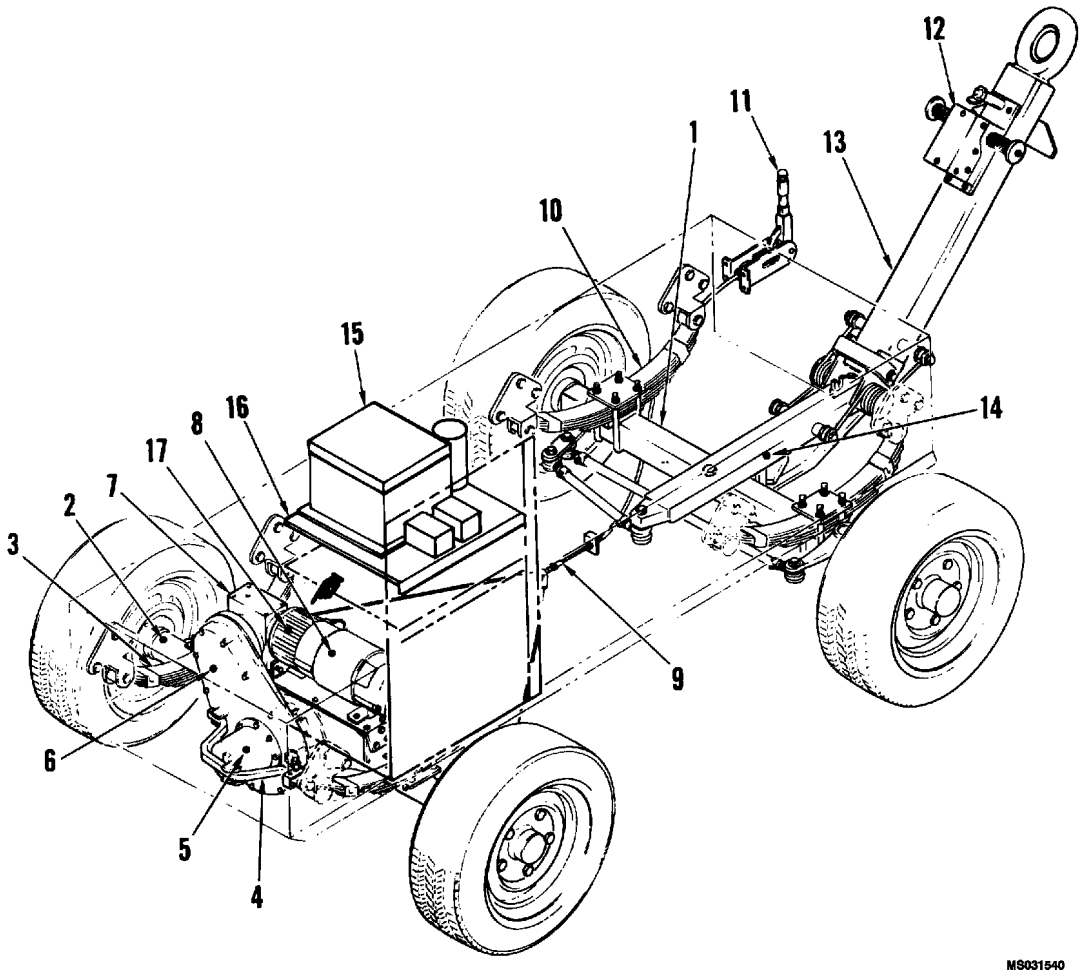
NA

GENERAL

The propulsion system, Figure 1, consists of the following major components/assemblies:

Motor controller
Brake assembly
Front axle assembly
Tow bar assembly
Rear axle assembly
Chain drive assembly
Clutch assembly
Traction motor
Gear drive assembly
Speed/direction control assembly

GENERAL – Continued



1. Front Axle
2. Rear Axle
3. Rear Leaf Spring
4. Clutch Lever
5. Clutch Assembly
6. Chain Drive Assembly
7. Gear Case
8. Traction Motor
9. Brake Cable
10. Front Leaf Spring
11. Brake Lever
12. Speed/Direction Control Assembly
13. Tow Bar
14. Tongue
15. Motor Controller
16. Upper Electrical Tray
17. Electric Brake

Figure 1. Propulsion System.

Electric Brake

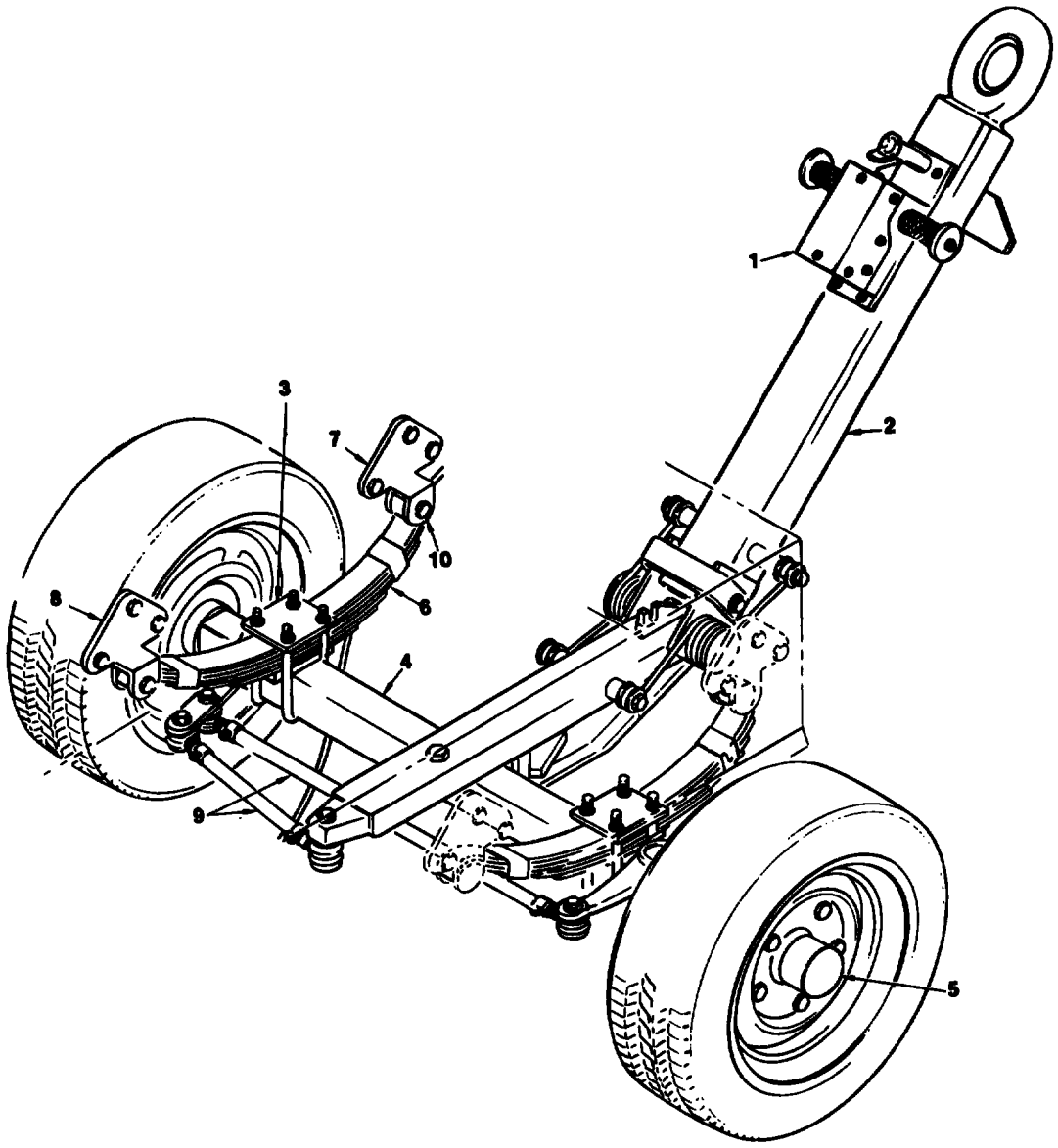
The electric brake (Figure 1, Item 17) consists of a rotor between two friction disks. A spring-loaded flapper applies pressure to the brake assembly braking the rotor between the friction disks. When 28 VDC is applied to the brake coil, a magnetic field lifts the flapper against spring pressure compressing the springs and releasing the electric brake.

Motor Controller

The motor controller (Figure 1, Item 15) and the forward and reverse relays are mounted on the upper tray in the electrical compartment. The motor controller receives +28 VDC from the control panel and control signals from the speed/direction control unit. It sends DC drive voltage to the traction motor armature and speed control signals to the traction motor field windings. The control signals from the speed/direction control assembly consist of forward or reverse relay activation signals from internal micro switches and variable speed control signals from the internal variable resistors. Both sets of signals are selected by the twist grips.

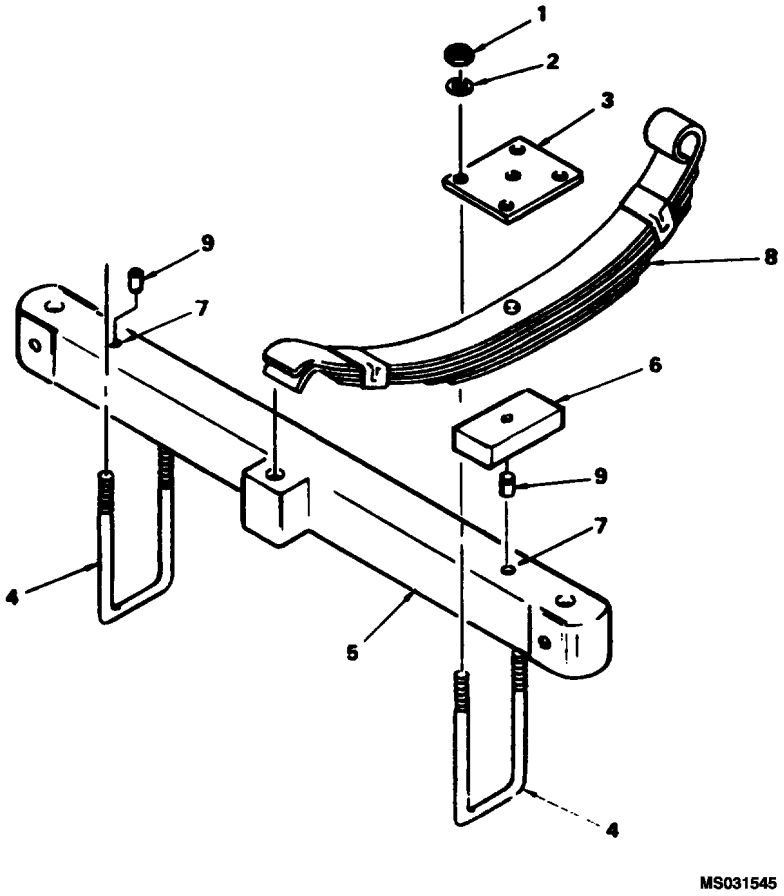
Brake Assembly

The AGPU uses rear-wheel brakes (Figure 1, Item 11) that are controlled by an operator-activated mechanical lever connected to the brakes on a cable. The brakes are standard, automotive-type drum units using replaceable brake shoes.



1. Speed/Direction Control Assembly
2. Tow Bar
3. Spring Mounting Hardware
4. Front Axle
5. Hub
6. Spring
7. Front Hanger
8. Rear Hanger
9. Tie Rods
10. Spring Hanger Mounting Bolt

Figure 2. Front Axle/Tow Bar Assembly.

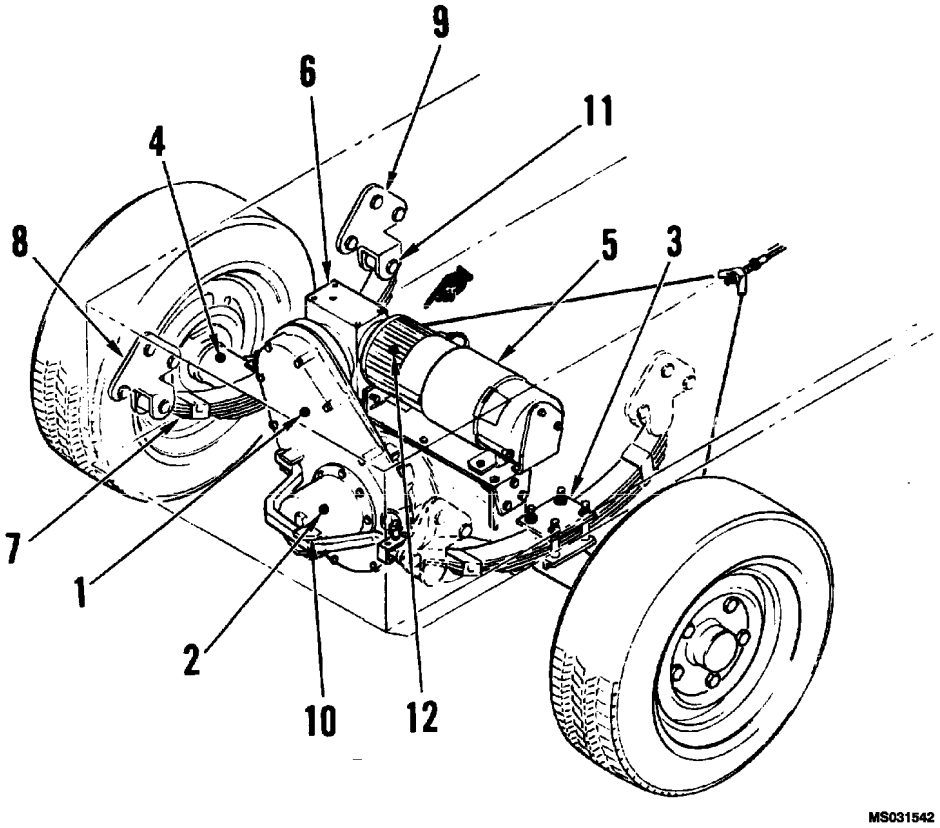


1. Mounting Nut	4. U-Bolt	7. Alignment Hole
2. Washer	5. Front Axle (Beam)	8. Spring
3. Plate, Upper	6. Spacer	9. Alignment Pin

Figure 3. Front Spring Assembly.

Front Axle Assembly/Tow Bar Assembly

The front axle (Figure 2, Item 4) is a solid-beam, kingpin type assembly. It is composed of a center axle beam, two kingpin supported spindle assemblies mounting roller bearing wheel hubs/wheels/tires, tow bar assembly, tie-rod assembly, and a tow bar mounted speed/direction control assembly. The front axle assembly supports the AGPU by two multi-leaf springs that allow approximately 3 inches of suspension travel. The tow bar assembly provides AGPU steering/towing and allows the unit to turn in a diameter of approximately 21 feet. The axle assembly provides approximately 12 inches of ground clearance.



1. Chain Drive Assembly
2. Clutch Assembly
3. Spring Mounting Hardware
4. Rear Axle
5. Traction Motor
6. Gear Drive Assembly
7. Spring
8. Rear Hanger
9. Front Hanger
10. Engaged/Disengaged Microswitch
11. Spring Hanger Mounting Bolt
12. Electric Brake

Figure 4. Rear Axle Assembly.

Rear Axle Assembly

The rear axle (Figure 4, Item 4) is a solid banjo-housing hypoid assembly containing a differential gear assembly with a 4.88:1 drive ratio. The drive pinion is straddle-mounted in two opposed tapered roller bearing supports. The pinion shaft and gear are assembled in a pinion retainer that is bolted to the carrier housing. Two carrier and differential cases are used to accommodate the two bearings and differential pinion gears. The ring gear is bolted to the differential case with 7/16 x 2-inch bolts. Right and left axle shafts are not interchangeable since the right shaft is shorter than the left. The axle assembly provides AGPU drive and braking capabilities. The axle assembly is mounted to the AGPU by two leaf springs that are identical to the springs used on the front axle. The springs allow approximately 3 inches of suspension travel. The rear axle provides approximately 7 inches of ground clearance at lowest point. The rear axle flanged input shaft mates to the remainder of the drive system, consisting of the chain drive and gear drive assemblies and the traction motor. Braking is accomplished by rear wheel mounted drum-type brake assemblies that are actuated by an operator controlled lever and cable assembly.

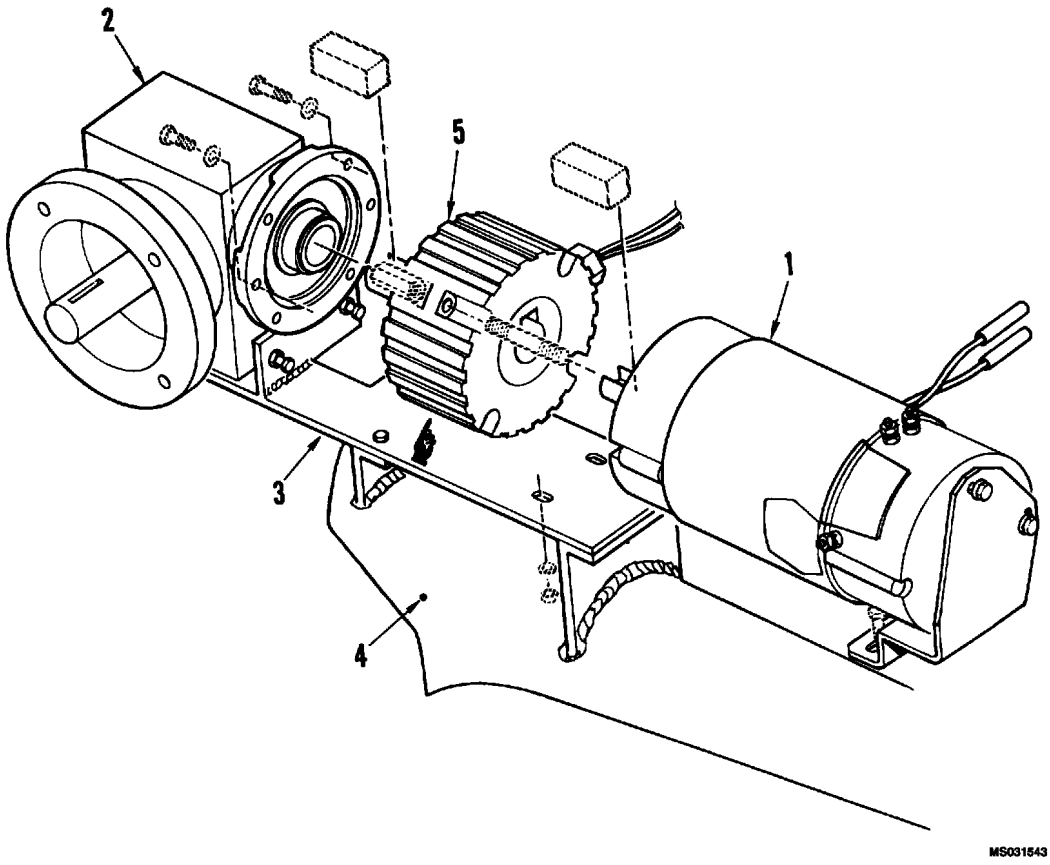
Chain Drive Assembly

The chain drive assembly (Figure 4, Item 1) mounts on the AGPU rear axle and transfers traction motor/gear drive energy through the clutch assembly to the rear axle differential. The chain is a silent running, 98 pitch, double roller-link type chain. It is driven by a 20 tooth, key-mounted sprocket gear connected to the gear drive assembly. The chain

drives an 81 tooth circular sprocket gear that is connected to the rear axle differential by the manipulation of the clutch lever. The chain drive ratio is 5.4:1. The entire chain drive assembly is contained in a cast aluminum housing that is secured to the gearbox adapter plate. The chain is lubricated by running in an oil bath contained in the lower portion of the chain drive assembly.

Clutch Assembly

The clutch assembly (Figure 4, Item 2) is a lever operated, mechanical device used to transfer traction motor/chain drive energy directly to the AGPU rear axle. The clutch mating device consists of a shifter cup and hub assembly that drives the rear axle pinion gear via a geared sleeve. The clutch assembly is operator controlled by an engagement lever mounted directly to the clutch assembly. A clutch mounted microswitch activates an indicator light mounted on the speed/direction control assembly. The light indicates the status of the clutch lever engagement. An external adjustment turnbuckle is provided on the clutch assembly to allow engaged/disengaged adjustments.



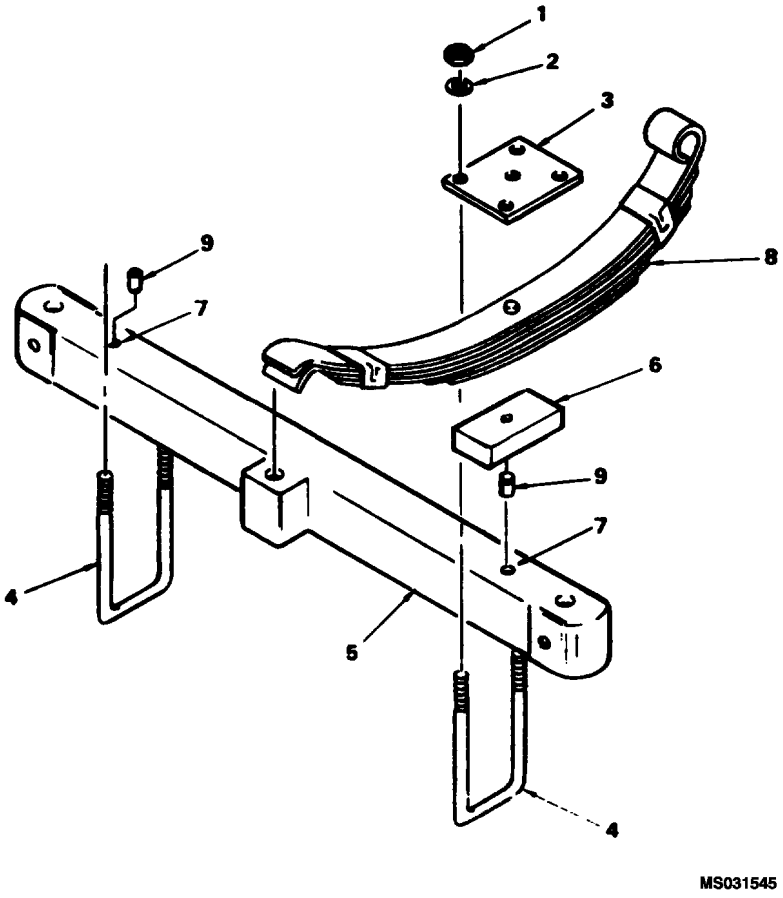
1. Traction Motor
2. Gear Drive
3. Support Plate
4. Rear Axle
5. Electric Brake

Figure 5. Traction Motor/Drive Gear.

Traction Motor/Gear Drive

The traction motor (Figure 5, Item 1) provides propulsion power to maneuver the AGPU. The motor will drive the AGPU in forward and reverse at a speed of 3 miles per hour on flat ground and at 1/2 mile per hour on a 15 degree slope. The motor is a high torque, 28 VDC unit that operates at a maximum speed of 5,000 rpm. The motor mounts to the electric brake assembly by a standard NEMA “C” face and transfers power via a 3/4 inch diameter keyed output shaft. Motor control is accomplished by voltage changes that are determined by the motor controller. The motor controller responds

to operator manipulation of the speed/direction controls. The motor is protected from overheating by a thermal switch which disconnects the input power to the motor.



1. Speed/Direction Control Assembly
2. Deadman Switch
3. Do Not Tow Indicator Light
4. Twist Grip

Figure 6. Tow Bar Controls.

Speed/Direction Control Assembly

The speed/direction control assembly (Figure 6, Item 1) provides both the direction (forward and reverse) and the speed commands to the AGPU propulsion motor. The assembly mounts on the tow bar, close to the lunette eye. It is connected to the motor by a wiring harness that runs under the tow bar and is protected by the tow bar channel. Forward and reverse selection as well as speed are determined by the position of the control twist grips. The grips have a motorcycle type accelerator that can be actuated from either side of the tow bar. The grips are spring loaded to a neutral, no-propulsion position. The grips rotate in either direction, one way controlling forward direction and speed, and the other way reverse direction and speed. The controller contains an emergency dead-man switch that must be depressed to operate the speed/direction controls. Release of the switch disconnects all power to the traction motor. A mercury switch is in the same line as the dead-man switch. The mercury switch opens the power system supply when the tow bar is raised to approximately 60 degrees or more from horizontal. The assembly also incorporates an indicator light with a press-to-test feature that is illuminated when the propulsion motor clutch is engaged.

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

FRONT AXLE ASSEMBLY

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

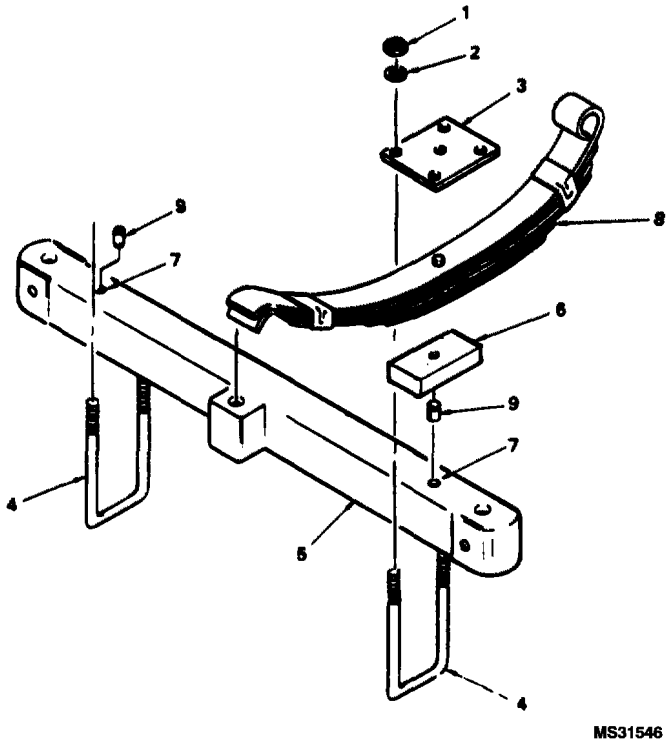
References

WP 0015 00
WP 0143 00
WP 0144 00
WP 0147 00

Materials/Parts

Cleaning Compound, Solvent (WP 0170 00, Item 5)
Grease, Automotive and Artillery, GAA (WP 0170 00, Item 22)

GENERAL



1. Mounting Nut	4. U-Bolt	7. Alignment Hole
2. Lockwasher	5. Front Axle (Beam)	8. Spring
3. Plate, Upper	6. Spacer	9. Alignment Pin

Figure 1. Front Spring Assembly.

REMOVAL

1. Position AGPU on level surface. Place chocks against rear wheels and apply parking brake.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
3. Remove speed/direction control (WP 0147 00).
4. Remove tow bar assembly (WP 0144 00).
5. Raise the front of the AGPU body with a floor jack until the front wheels are approximately 2-1/2 inches above the ground. Support the AGPU with jack stands.
6. Remove front wheels (WP 0143 00).
7. Place two jack stands under front axle beam (Figure 1, Item 5) to support axle when U-bolts (Figure 1, Item 4) are removed.
8. Remove mounting nuts (Figure 1, Item 1), lockwashers (Figure 1, Item 2), U-bolts (Figure 1, Item 4), upper plates (Figure 1, Item 3), spacers (Figure 1, Item 6), and alignment pin (Figure 1, Item 9).
9. Lower and remove front axle beam (Figure 1, Item 5).

DISASSEMBLY

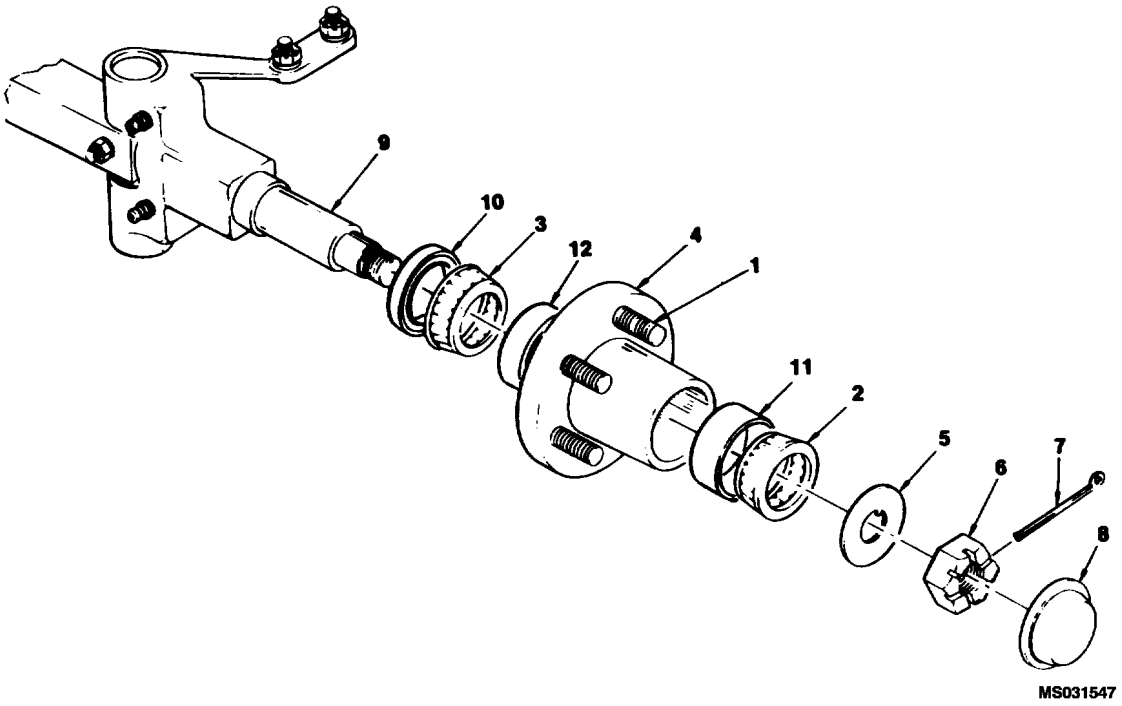
Disassembly of Spindle and Hub Assembly

1. Remove dust cap (Figure 2, Item 8).
2. Remove cotter pin (Figure 2, Item 7), nut (Figure 2, Item 6), flat washer (Figure 2, Item 5), and outer wheel bearing (Figure 2, Item 2).

DISASSEMBLY – CONTINUED

3. Slide hub assembly (Figure 2, Item 4) off of spindle (Figure 2, Item 9).
4. Remove grease seal (Figure 2, Item 10) and inner wheel bearing (Figure 2, Item 3).
5. Remove outer bearing race (Figure 2, Item 11) and inner bearing race (Figure 2, Item 12).
6. If lug bolts are damaged perform the following:
    a. Removal. Press lug bolts (Figure 2, Item 1) and hub assembly (Figure 2, Item 4).
    b. Installation. Press new lug bolts (Figure 2, Item 1) into hub assembly (Figure 2, Item 4).
7. Remove four grease fittings (Figure 3, Item 1) from tie rod ends (Figure 3, Item 2, 3, 4 and 5).
8. Remove four cotter pins (Figure 3, Item 6) and nuts (Figure 3, Item 7) from tie rod ends (Figure 3, Item 2, 3, 4 and 5). Mark tie rod and tie rod ends so they are matched when installed.
9. Remove tie rods (Figure 3, Item 8 and 9) from spindle (Figure 3, Item 10). Remove tie rod (Figure 3, Item 9) from spindle (Figure 3, Item 11). Remove tie rod (Figure 3, Item 8) from tongue (Figure 3, Item 12).
10. Remove tongue (Figure 3, Item 12) from axle (Figure 3, Item 13) by removing cotter pin (Figure 3, Item 14), nut (Figure 3, Item 15) and bolt (Figure 3, Item 16).
11. Remove tie rod ends (Figure 3, Item 2, 3, 4 and 5) by removing nut (Figure 3, Item 17), lockwasher (Figure 3, Item 18), and bolts (Figure 3, Item 19) from clamps (Figure 3, Item 20).
12. Remove grease fittings (Figure 3, Item 21) from spindles (Figure 3, Item 10 and 11).
13. Remove tapered pins (Figure 3, Item 22) from axle (Figure 3, Item 13) by removing nuts (Figure 3, Item 24) and flat washers (Figure 3, Item 23).
14. Remove the top expansion plugs (Figure 3, Item 25) from the two spindles (Figure 3, Item 10 and 11) by drilling a 3/8 inch hole in each of the plugs. Pry plugs out.
15. Press king pins (Figure 3, Item 26) from axle (Figure 3, Item 13) and spindles (Figure 3, Item 10 and 11). This will also remove the two bottom expansion plugs (Figure 3, Item 27).
16. Remove two shims (Figure 3, Item 28) and bearings (Figure 3, Item 29) from each spindle (Figure 3, Item 10 and 11).
17. Press top and bottom bushings (Figure 3, Item 30) from spindle (Figure 3, Item 10 and 11).
18. Remove guide pins (Figure 3, Item 31) from axle (Figure 3, Item 13).

DISASSEMBLY – CONTINUED



1. Lug Bolt	5. Flat Washer	9. Spindle
2. Wheel Bearing, Outer	6. Nut	10. Seal, Grease
3. Wheel Bearing, Inner	7. Cotter Pin	11. Bearing Race, Outer
4. Hub Assembly	8. Dust Cap	12. Bearing Race, Inner

Figure 2. Spindle and Hub.

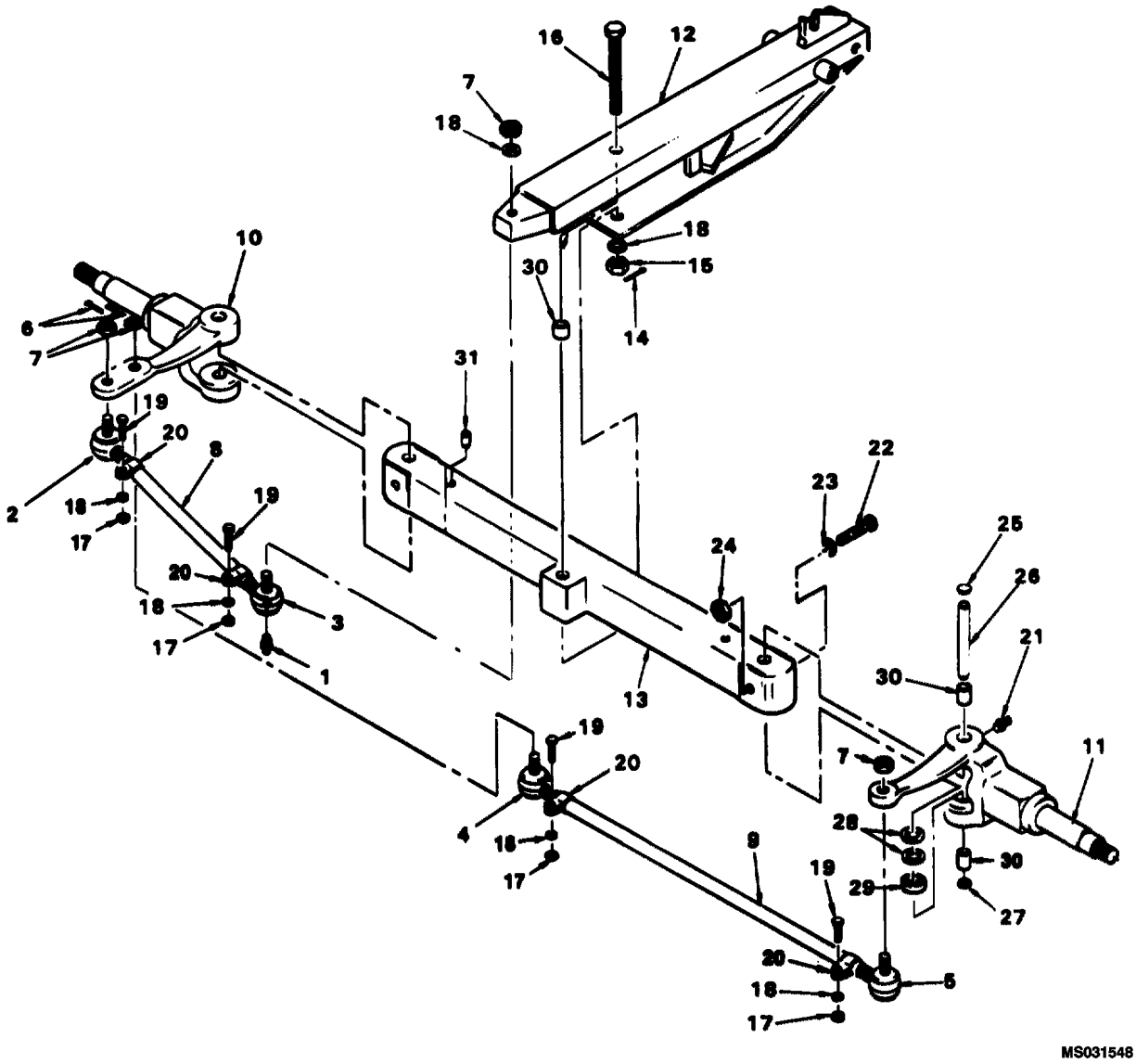
CLEANING

WARNING

Degreasing Solvent, MIL-PRF-680, is combustible and toxic to eyes, skin, and respiratory tract. Wear protective gloves and goggles/face shield. Avoid repeated or prolonged contact. Use only in well-ventilated areas (or use approved respirator as determined by local safety/industrial hygiene personnel). Keep away from open flames or other sources of ignition.

1. Use solvent MIL-PRF-680 to clean or wash grease or oil from all parts of the axle assembly.
2. After cleaning, apply a light grade oil to all polished metal surfaces to prevent rusting.

CLEANING – CONTINUED



1. Grease Fitting
2. Tie Rod R/H
3. Tie Rod L/H
4. Tie Rod R/H
5. Tie Rod L/H
6. Cotter Pin
7. Nut
8. Tie Rod 14-1/2 inch
9. Tie Rod 31 inch
10. Spindle L/H
11. Spindle R/H
12. Tongue
13. Axle
14. Cotter Pin
15. Nut
16. Bolt
17. Nut
18. Lock Washer
19. Bolt
20. Clamp
21. Grease Fitting
22. Pin, Taper
23. Flat Washer
24. Nut
25. Top Expansion Plug
26. King Pin
27. Bottom Expansion Plug
28. Shims
29. Bearing
30. Bushing
31. Pin, Guide

Figure 3. Front Axle Assembly.

CLEANING – CONTINUED

3. Before installing new parts, remove any preservative materials such as rust-preventive compound or protective grease.

REPAIR OR REPLACEMENT

1. Axle Beam. Check axle beam for damage. Replace beam if twisted, distorted or cracked. Inspect beam for worn or damaged king pin mounting holes and tongue pivot mounting hole. Excessive wear or damage to mounting holes will require axle beam replacement. Smooth machined surfaces that are nicked or burred with a fine file and stone.
2. Spindles. Check for distortion or damage. Inspect spindles for cracks around tie-rod mounting holes, king pin holes, grease fittings and hub mounting shaft. Check for damaged wheel bearing mounting surfaces. Check spindle for thread damage. Replace spindle assembly if cracked or if bearing surfaces are damaged. Repair thread damage by running a thread cutting die down the old threads.
3. Tie-Rods. Inspect tie-rods for bends or damage. Check inner threads and expansion slots for damage. Slight bends may be straightened with a hydraulic press. Severely bent or kinked tie-rods must be replaced. Damaged threads may be repaired by running a thread cutting tap down the old threads. The expansion slots must show uniform distance for their entire length. Adjustments may be made by closing the slot with a hydraulic press or soft-faced mallet or by opening with a large screwdriver blade. Check tie-rod ends for damaged seals, damaged zerk fittings, and damaged stud threads. A good tie-rod end will have no play in the mounting stud. If the stud can be rocked back and forth easily with little resistance, the tie-rod end must be replaced.
4. Hubs. Inspect hubs for cracks or damage. Check the inner bearing mounting surfaces for damage or signs of overheating. Check lug bolts for proper mounting and damaged threads. Check dust cap mounting surface for physical damage. Check wheel bearings for physical damage. Replace the hub if cracked or if bearing surfaces are damaged beyond repair. Minor damage may be repaired by carefully cleaning and polishing the machined surface with fine emery paper or a fine stone. The wheel bearings must seat accurately in the hub without binding or twisting. Any loose lug bolts must be pressed into the hub until the bolt heads are flush with the hub flange. The dust cap recess must be clean and undamaged. Smooth the area with a fine file or stone to remove burrs and nicks. Wheel bearings and bearing races must show no signs of wear, galling, chipping, cracking, or overheating. Replace faulty bearings. Refer to the lubrication order for proper wheel bearing lubrication procedures.

ASSEMBLY

1. Align holes in two bushings (Figure 3, Item 30) with hole in spindle (Figure 3, Item 10 and 11), press into place.
2. Lubricate king pin (Figure 3, Item 26) and spindle axle beam king pin mounting holes (WP 0015 00, Lubrication) for lubrication instructions.
3. With grease slot toward bearing, align the king pin (Figure 3, Item 26) with the spindle and axle beam king pin holes.
4. Press the king pin (Figure 3, Item 26) half way through the spindle (Figure 3, Item 10 and 11) axle beam (Figure 3, Item 13).
5. Install two shims (Figure 3, Item 28) and bearing (Figure 3, Item 29) between spindle and axle beam king pin holes.
6. Press the king pin (Figure 3, Item 26) through until there is equal distance from either end of king pin to lip of spindle (Figure 3, Item 10 and 11).
7. Install tapered pin (Figure 3, Item 22) into axle (Figure 3, Item 13) so that the flat surface of the tapered pin is facing the king pin and recessed so that flat washer (Figure 3, Item 23) and nut (Figure 3, Item 24) can be installed. Tighten nut securely.
8. Place an top expansion plug (Figure 3, Item 25) over both spindle (Figure 3, Item 10 and 11) king pin holes and tap into place.

ASSEMBLY – CONTINUED

9. Install two grease fittings (Figure 3, Item 21). Lubricate spindle grease fittings in accordance with Lubrication Order (WP 0015 00, Lubrication).
10. Thread tie rod ends (Figure 3, Item 2, 3, 4 and 5) into tie rods (Figure 3, Item 8 and 9). Adjust tie rod length by moving the ends into the tie rods until the rods are the same length as when removed.
11. Assemble the tie rods to the axle assembly by placing the tie rod end studs (Figure 3, Item 4 and 5) of the 31-inch tie rod (Figure 3, Item 9) up through the spindle mounting hole of the right-hand spindle (Figure 3, Item 11) and through the inner spindle mounting hole of the left-hand spindle (Figure 3, Item 10). Tighten nut (Figure 3, Item 7), then back off the nut to the next spot where the slots in the nut are lined up with the cotter pin hole in the spindle. Install a new cotter pin (Figure 3, Item 6) and bend the ends of the cotter pin back to lay close to the nut. The remaining tie rod end will be connected to the tongue (Figure 3, Item 12) when the two units are reassembled. (Figure 3, Item 20).
12. Install tie rod end, clamp (Figure 3, Item 20), bolt (Figure 3, Item 19), lockwasher (Figure 3, Item 18) and nut (Figure 3, Item 17).
13. Install tongue (Figure 3, Item 12) on to axle (Figure 3, Item 13) and secure with bolt (Figure 3, Item 16), nut (Figure 3, Item 15), and cotter pin (Figure 3, Item 14). Make sure tongue moves freely.
14. Connect 14-1/2 inch tie rod (Figure 3, Item 8) to tongue (Figure 3, Item 12) with nut (Figure 3, Item 7) and cotter pin (Figure 3, Item 6).
15. Install four grease fittings (Figure 3, Item 1) into four tie rods (Figure 3, Item 2, 3, 4 and 5).
16. Lubricate wheel bearings in accordance with instructions contained in the Lubrication Order (WP 0015 00, Lubrication).
17. Install outer bearing race (Figure 2, Item 11) and inner bearing race (Figure 2, Item 12).
18. Install inner wheel bearing (Figure 2, Item 3).
19. Install grease seal (Figure 2, Item 10) into hub assembly (Figure 2, Item 4). Slide the hub assembly (Figure 2, Item 4) onto the spindle (Figure 2, Item 9) until the grease seal (Figure 2, Item 10) seats.
20. Hold the hub in position while installing the outer wheel bearing (Figure 2, Item 2) over the spindle shaft. Slide the outer wheel bearing (Figure 2, Item 2) into the hub assembly (Figure 2, Item 4) as far as it will go.
21. Place the flat washer (Figure 2, Item 5) over the spindle shaft and against outer wheel bearing (Figure 2, Item 2). Thread the spindle nut (Figure 2, Item 6) onto the shaft finger tight. Then, while turning the hub assembly (Figure 2, Item 4), tighten the nut slowly with a wrench until the hub assembly (Figure 2, Item 4) begins to bind.
22. Back off the nut (Figure 2, Item 6) to the next spot where the slots in the nut are lined up with the cotter pin hole in the spindle. Install a new cotter pin (Figure 2, Item 7) and bend the ends of the cotter pin back to lay close to the nut. This procedure adjusts the tapered roller bearings for zero end-play with no preload.
23. Place dust cap (Figure 2, Item 8) on end of hub assembly (Figure 2, Item 4). Tap in place.

INSTALLATION

1. Position front axle beam (Figure 1, Item 5) under AGPU body with floor jack.
2. Raise front axle beam (Figure 1, Item 5) within two inches (2") of spring (Figure 1, Item 8). Support axle beam (Figure 1, Item 5) with two jack stands, leaving floor jack in position.
3. Install alignment pin (Figure 1, Item 9) into alignment hole (Figure 1, Item 7) on axle beam (Figure 1, Item 5).
4. Position spacer (Figure 1, Item 6) on axle beam (Figure 1, Item 5) so that center hole in spacer is aligned with pin (Figure 1, Item 9).
5. Raise axle beam (Figure 1, Item 5) with floor jack until alignment pin on bottom of spring (Figure 1, Item 8) engages spacer's (Figure 1, Item 6) alignment hole.
6. Position upper plate (Figure 1, Item 3) on top of spring (Figure 1, Item 8).

INSTALLATION – CONTINUED

7. Install U-bolts (Figure 1, Item 4) around axle beam (Figure 1, Item 5) and through holes in upper plate (Figure 1, Item 3). Install lockwashers (Figure 1, Item 2) and nuts (Figure 1, Item 1) on U-bolts (Figure 1, Item 4). Torque U-bolts to 60 foot-pounds.
8. Install wheels (WP 0143 00).
9. Raise AGPU, remove jack stands, lower AGPU.
10. Install tow bar (WP 0144 00).
11. Install speed/direction control assembly (WP 0147 00).
12. Reconnect batteries.
13. Perform MOC.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

GEAR DRIVE ASSEMBLY

INITIAL SETUP:

Tools and Special Tools

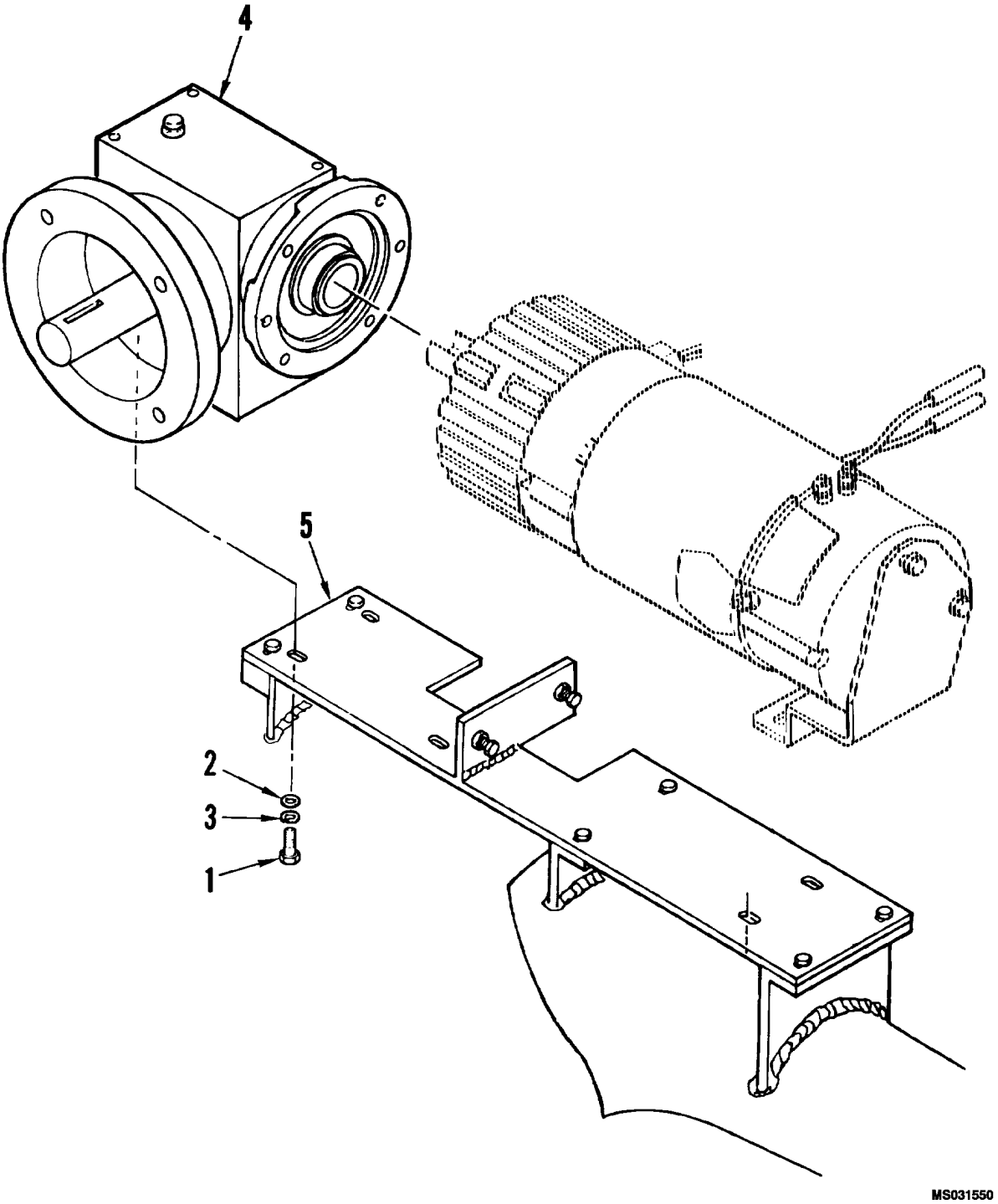
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0151 00
WP 0153 00
WP 0156 00

GENERAL

GENERAL – Continued



1. Bolt
2. Lock Washer
3. Washer
4. Gear Drive Assembly
5. Motor Mounting Plate

Figure 1. Gear Drive Mounting.

REMOVAL

1. Remove rear axle assembly (WP 0153 00).
2. Remove traction motor (WP 0155 00).
3. Remove chain drive assembly (WP 0151 00).
4. Remove bolt (Figure 1, Item 1), lockwashers (Figure 1, Item 2) and washers (Figure 1, Item 3) securing gear drive assembly (Figure 1, Item 4) to motor mounting plate (Figure 1, Item 5). Remove gear drive assembly.

INSTALLATION

1. Mount gear drive assembly (Figure 1, Item 4) on motor mounting plate (Figure 1, Item 5). Secure with washers (Figure 1, Item 3), lockwashers, (Figure 1, Item 2) and bolts (Figure 1, Item 1).
2. Install traction motor (WP 0155 00).
3. Install chain drive assembly (WP 0151 00).
4. Install rear axle assembly (WP 0153 00).

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

CHAIN DRIVE ASSEMBLY

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

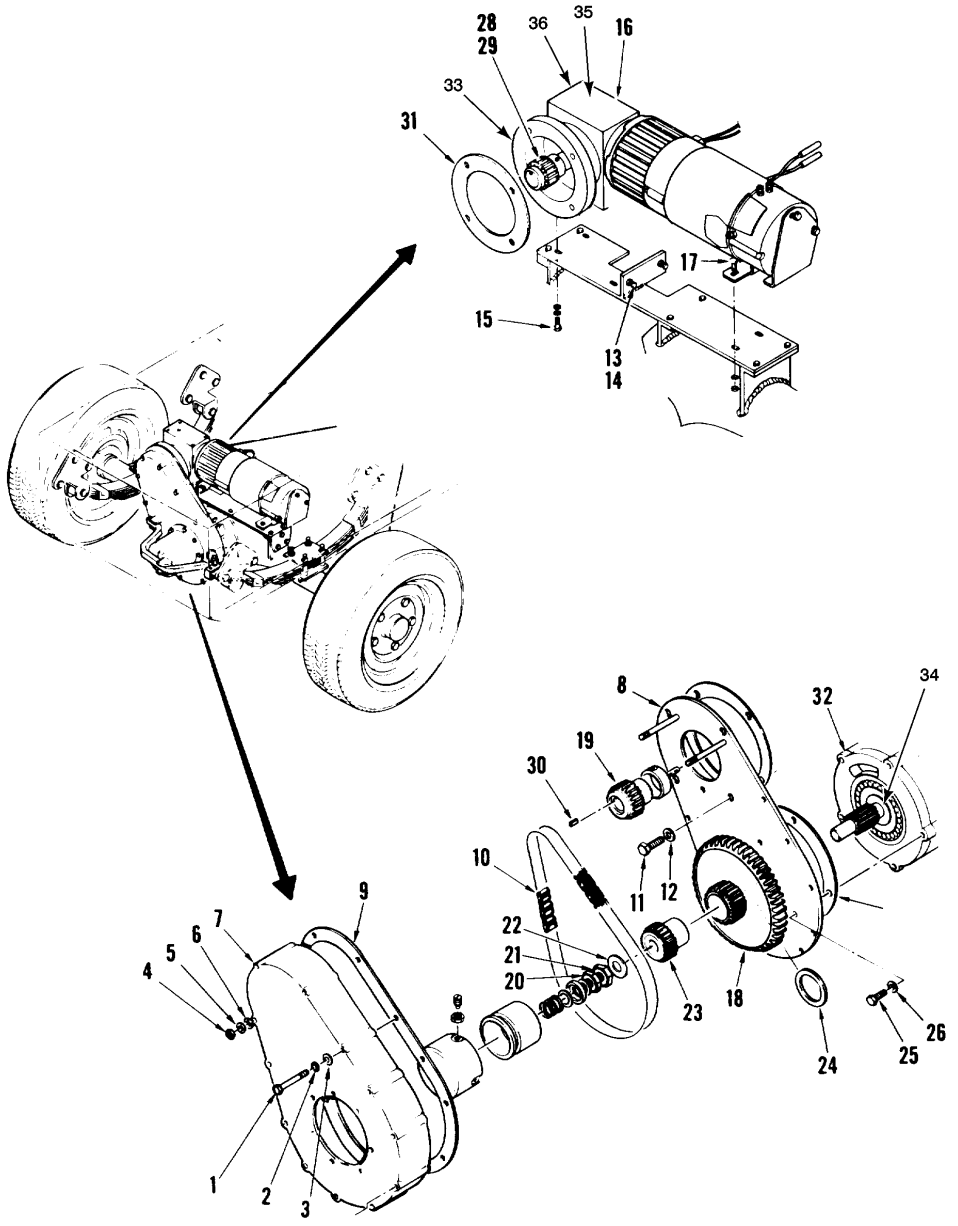
References

WP 0015 00
WP 0039 00
WP 0152 00
WP 0153 00

Materials/Parts

Cleaning Compound, Solvent (WP 0170 00, Item 5)
Sealing Compound (WP 0170 00, Item 49)

GENERAL



MS031551A

1. Bolt
2. Lockwasher
3. Washer, Flat
4. Nut
5. Lockwasher
6. Washer, Flat
7. Chain Case
8. Gear Box Support
9. Gasket
10. Drive Chain
11. Bolt
12. Washer, Flat
13. Nut, Jam
14. Bolt
15. Bolt
16. Gear drive Case
17. Bolt
18. Gear, 81 Tooth
19. Gear, 20 Tooth
20. Nut, Jam
21. Nut
22. Washer, Flat
23. Drive Sleeve
24. Spacer
25. Bolt
26. Washer
27. Gasket
28. Allen Set Screw
29. Collar, Front/Rear
30. Key, Woodruff
31. Gasket
32. Pinion Drive
33. Output Shaft Cap
34. Bearing
35. Vent Plug
36. Full Level Opening

GENERAL – Continued

Figure 1. Traction Motor, Gear Drive, and Chain Drive Assembly.

REMOVAL

1. Remove rear axle assembly (WP 0153 00).
2. Remove clutch drive assembly (WP 0152 00).
3. Drain chain case oil reservoir (WP 0015 00).
4. Remove nine mounting bolts (Figure 1, Item 1), lockwashers (Figure 1, Item 2), flat washers (Figure 1, Item 3), three mounting nuts (Figure 1, Item 4) and lockwashers (Figure 1, Item 5), flat washers (Figure 1, Item 6), securing chain case (Figure 1, Item 7) to gearbox adapter plate (Figure 1, Item 8). Remove chain case cover. Remove gasket (Figure 1, Item 9).

DISASSEMBLY

1. Loosen allen set screw (Figure 1, Item 28) from front collar (Figure 1, Item 29) and remove collar.
2. Pull 22 sprocket (Figure 1, Item 19) as far forward as possible
3. Remove nut (Figure 1, Item 21), remove Jam nut (Figure 1, Item 20) and flat washer (Figure 1, Item 22) using bearing separator and 4 inch bearing puller.
4. Remove drive sleeve (Figure 1, Item 23).
5. Remove 81 tooth gear (Figure 1, Item 18).
6. Remove drive chain (Figure 1, Item 10).
7. Remove 20 tooth gear (Figure 1, Item 19).
8. Remove woodruff key (Figure 1, Item 30).
9. Remove rear collar (Figure 1, Item 29).
10. Remove metal gasket (Figure 1, Item 31).
11. Remove four mounting bolts (Figure 1, Item 11). Do not remove mounting bolts.
12. Loosen two jam nuts (Figure 1, Item 13) and loosen bolts (Figure 1, Item 14).
13. Loosen three bolts (Figure 1, Item 15) from gear drive case (Figure 1, Item 16), and two bolts (Figure 1, Item 17) from motor back plate mount. Do not remove bolts.
14. Slide gear drive case (Figure 1, Item 16).
15. Remove jam nut (Figure 1, Item 20), nut (Figure 1, Item 21), flat washers (Figure 1, Item 22), from drive sleeve (Figure 1, Item 23). Remove 81 tooth sprocket gear (Figure 1, Item 18), spacer (Figure 1, Item 24).
16. Remove the four upper gearbox support mount bolts (Figure 1, Item 11) and flat washers (Figure 1, Item 12). Remove the five lower mount bolts (Figure 1, Item 25) and flat washers (Figure 1, Item 26). Remove gearbox adapter plate (Figure 1, Item 8) and metal gasket (Figure 1, Item 27).
17. Remove two spacer (Figure 1, Item 24), pinion drive (Figure 1, Item 32) bearing (Figure 1, Item 34) and o-ring.
18. Remove seven bolts from output shaft cap (Figure 1, Item 33) and remove output shaft and cap.

CLEANING

WARNING

Cleaning Solvent, MIL-PRF-680, is combustible and toxic to eyes, skin, and respiratory tract. Wear protective gloves and goggles/face shield. Avoid repeated or prolonged contact. Use only in well-ventilated areas (or use approved respirator as determined by local safety/industrial hygiene personnel). Keep away from open flames or other sources of ignition.

1. Use cleaning solvent to clean or wash grease and oil from all parts of the chain drive assembly.
2. Before installing new parts, remove any preservative materials such as rust-preventive compound or protective grease.

INSPECTION OF INSTALLED ITEMS

1. Inspect the 20-tooth and 81-tooth gears for physical damage. The gear teeth should be free of chips, burrs, and broken teeth. Minor flaws may be removed with a fine file and stone. Major defects will require gear replacement. Check the gears for cracks. Lay the 81-tooth gear on a flat surface and check for twists or distortion. Check the inside of the driven sleeve mounting hole. The inside surface should be clean and smooth. Minor flaws may be removed with fine emery paper. Check the 20-tooth gear keyway for cracks, chips, or burrs. Minor flaws may be repaired with a fine file and stone.
2. Carefully inspect the chain for broken or damaged links. Lay the chain on edge on a flat surface and check for twists or distortion. Replace the chain if damaged. All links should move freely with no binding or catching.
3. Inspect the housing for physical damage. Check for dents, cracks, sharp edges or worn mounting holes. Minor housing damage may be repaired using normal metal-working methods. Major damage will require housing replacement. Inspect the housing mating surface by laying the housing on a flat, true surface and checking for gaps. Check the threads inside the drain and fill holes. Minor thread damage may be repaired by running the correct tap down the threads.

ASSEMBLY

1. Install new o-ring on pinion drive (Figure 1, Item 32) and reinstall pinion drive.
2. Install bearing (Figure 1, Item 34) and two spacers (Figure 1, Item 24).
3. Install new o-ring or gasket onto output shaft cap (Figure 1, Item 33) and install new seal for output shaft cap and install output shaft cap into gear drive case (Figure 1, Item 16).
4. Install seven bolts into output shaft cap (Figure 1, Item 33).
5. Position gasket (Figure 1, Item 27) on gear box support (Figure 1, Item 8) using sealer on both sides of gasket.
6. Position metal gasket (Figure 1, Item 31) on gear box support (Figure 1, Item 8) using sealer on both sides of gasket.
7. Position gear box support (Figure 1, Item 8) on gear drive case (Figure 1, Item 16) and gear box support (Figure 1, Item 8), Install four upper gear box support plate mount bolts (Figure 1, Item 11) and flat washer (Figure 1, Item 12). Do not tighten bolts (Figure 1, Item 11). Install five lower mount bolts (Figure 1, Item 25) and lockwashers (Figure 1, Item 26). Torque five bottom mount bolts to 35-40 foot-pounds.
8. Position rear collar (Figure 1, Item 29) so that front of collar is at rear of keyway, tighten allen set screw (Figure 1, Item 28).
9. Install woodruff key (Figure 1, Item 30) on shaft of gear drive case (Figure 1, Item 16), with larger end of woodruff key towards front of shaft.
10. Install 20 tooth gear (Figure 1, Item 19) flush with end of shaft.

ASSEMBLY – CONTINUED

11. Place drive chain (Figure 1, Item 10) onto 81 tooth gear (Figure 1, Item 18) and place drive chain onto 20 tooth gear (Figure 1, Item 19) and slide 81 tooth over pinion drive (Figure 1, Item 32).
12. Install drive sleeve (Figure 1, Item 23) through 81 tooth gear (Figure 1, Item 18) onto pinion drive (Figure 1, Item 32). Install flat washer (Figure 1, Item 22), nut (Figure 1, Item 21) and tighten nut to 45-50 ft lbs. Install jam nut (Figure 1, Item 20).
13. Slide 20 tooth gear (Figure 1, Item 19) back against rear collar (Figure 1, Item 29).
14. Install front collar (Figure 1, Item 29) onto shaft of gear drive case (Figure 1, Item 16). Flush mount front collar and tighten allen set screw (Figure 1, Item 28).
15. Adjust chain tension by sliding the gear drive case (Figure 1, Item 16) to tighten the drive chain (Figure 1, Item 10). The chain should be as tight as possible, using hand pressure. Install two jam nuts (Figure 1, Item 13) and bolts (Figure 1, Item 14) onto gear drive case (Figure 1, Item 16). Secure the chain by torquing the adjusting bolts (Figure 1, Item 14) to 25 inch-pounds, tighten jam nuts (Figure 1, Item 13). Tighten four upper gear drive support mount bolts (Figure 1, Item 11), Torque four mount bolts to 35-40 foot-pounds.
16. Tighten three gear drive case bolts (Figure 1, Item 15).

NOTE

Ensure lube oil is refilled (WP 0039 00) after adjustment. If new chain is installed, it should be installed loosely and run-in for about 20 minutes at a low speed to remove any burrs and to seat the chain to the sprocket gears. After run-in, tighten the chain as outlined above.

17. Position new gasket (Figure 1, Item 9), using sealer on both sides of gaskets, onto gear box adapter plate (Figure 1, Item 8). Position chain case (Figure 1, Item 7) against gear box adapter plate gasket and secure the case to the adapter plate using flat washers (Figure 1, Item 6), lockwashers (Figure 1, Item 5), nuts (Figure 1, Item 4), and flat washers (Figure 1, Item 3), lockwashers (Figure 1, Item 2), and bolts (Figure 1, Item 1).
18. Install clutch drive assembly (WP 0152 00).
19. Install safety wire on four gear box support mount bolts (Figure 1, Item 11).
20. Fill chain case oil reservoir (WP 0039 00).
21. Fill differential oil reservoir (WP 0039 00).
22. Fill Gear drive case (Figure 1, Item 16)
23. Install rear axle assembly (WP 0153 00).

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

CLUTCH ASSEMBLY

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

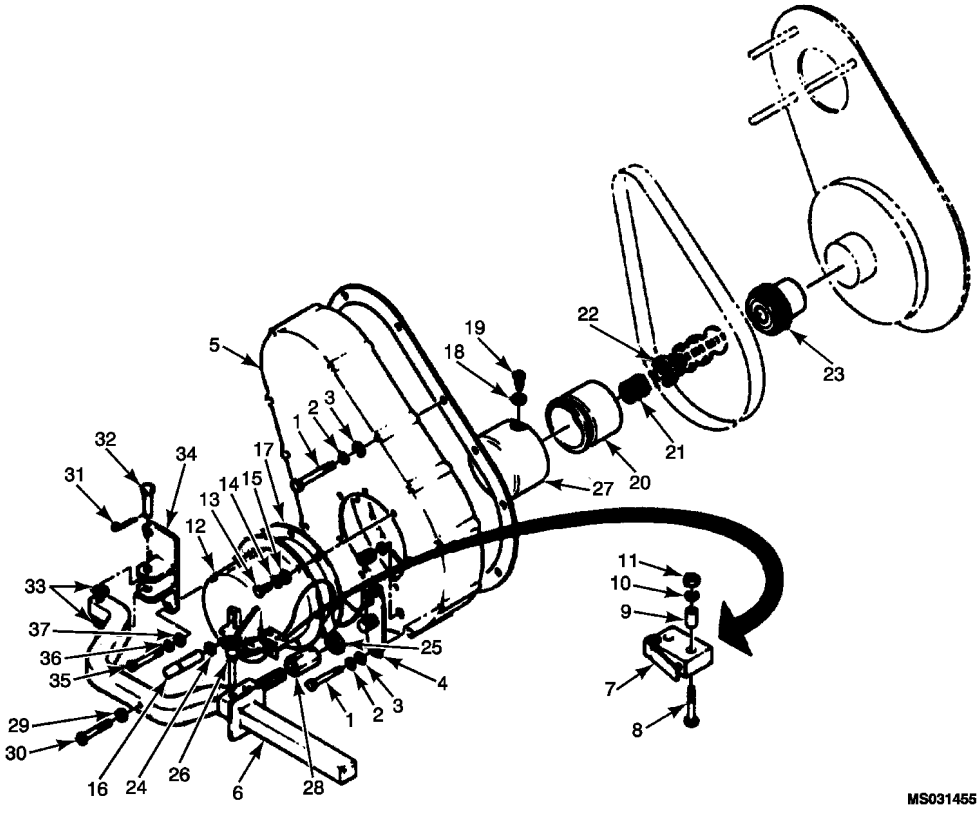
Materials/Parts

Cleaning Compound, Solvent (WP 0170 00, Item 5)

References

WP 0036 00

GENERAL



1. Bolt	11. Nut	21. Spring	31. Pin, Cotter
2. Washer, Flat	12. Clutch Housing	22. Bushing, Spring	32. Pin
3. Lockwasher	13. Bolt	23. Gear Drive Sleeve	33. Washer
4. Mounting Bracket	14. Washer, Flat	24. Packing, Spring	34. Bracket
5. Chain Drive Housing	15. Lockwasher	25. Nut Jam	35. Bolt
6. Clutch Lever, Push/Pull	16. Push Rod	26. Turnbuckle	36. Lockwasher
7. Micro Switch	17. Gasket	27. Shifter Cup	37. Washer, Flat
8. Screw	18. Nut, Jam	28. Pin, Locking	
9. Spacer	19. Screw, Set	29. Nut, Jam	
10. Washer, Flat	20. Hub Shifter	30. Bolt	

Figure 1. Clutch Assembly.

REMOVAL

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Remove bolt (Figure 1, Item 30) and jam nut (Figure 1, Item 29).
3. Remove two bolts (Figure 1, Item 1), flat washers (Figure 1, Item 2), and lockwashers (Figure 1, Item 3) that secure the turnbuckle mounting bracket (Figure 1, Item 4) to the right side of the chain drive housing (Figure 1,

REMOVAL – CONTINUED

Item 5). Remove the mounting bracket. Swing the push/pull lever (Figure 1, Item 6), with turnbuckle attached, out and away from the clutch housing (Figure 1, Item 12). Remove loop clamp securing microswitch lead (Figure 1, Item 7).

4. Remove the two phillips head screws (Figure 1, Item 8), spacers (Figure 1, Item 9), flat washers (Figure 1, Item 10), and nuts (Figure 1, Item 11) that secure the engage/disengage microswitch (Figure 1, Item 7). Remove the microswitch (Figure 1, Item 7) and pull the wiring harness away from the clutch housing (Figure 1, Item 12) area.
5. Remove the seven bolts (Figure 1, Item 13), flat washers (Figure 1, Item 14), and lockwashers (Figure 1, Item 15) that secure the clutch housing (Figure 1, Item 12) to the chain case housing (Figure 1, Item 5). Remove the clutch housing (Figure 1, Item 12) and gasket (Figure 1, Item 17). Remove the push rod (Figure 1, Item 16) from the housing. Remove packing (Figure 1, Item 24) and discard.
6. Hold the outer clutch shifter cup (Figure 1, Item 27) and loosen the three jam nuts (Figure 1, Item 18) and set screws (Figure 1, Item 19) that secure the shifter cup (Figure 1, Item 27) to the shifter hub (Figure 1, Item 20). Slowly remove the shifter cup (Figure 1, Item 27) from around the shifter hub (Figure 1, Item 20) until the spring pressure is released. Remove the shifter cup (Figure 1, Item 27), drive engage spring (Figure 1, Item 21), and spring bushing (Figure 1, Item 22).
7. Remove the shifter hub (Figure 1, Item 20) by pulling the hub straight off the drive sleeve gear (Figure 1, Item 23).

CLEANING

WARNING

Cleaning solvent, MIL-PRF-680, is combustible and toxic to eyes, skin, and respiratory tract. Wear protective gloves and goggles/face shield. Avoid repeated or prolonged contact. Use only in well-ventilated areas (or use approved respirator as determined by local safety/industrial hygiene personnel). Keep away from open flames or other sources of ignition.

1. Use cleaning solvent to clean or wash grease or oil from all parts of the clutch assembly.
2. Before installing new parts, remove any preservative materials such as rust-preventive compound or protective grease.

REPAIR OR REPLACEMENT

1. Inspect the shifter hub (Figure 1, Item 20) for damage. Internal splines must be free of large chips or broken teeth. Check for cracks in the hub housing. The engagement groove in the front of the hub must be free of gouges or burrs that could hinder proper operation. Use a fine file and stone to smooth minor nicks and burrs. Major damage will require hub replacement.
2. Inspect the shifter cup (Figure 1, Item 27) for damage. The clutch mating surface must be smooth and free of distortion. The threaded set screw holes must be clean and undamaged. Minor thread damage may be repaired by running the proper size tap down the threads. Check for cracks in the cup housing. Use a fine file and stone to smooth minor nicks and burrs. Major damage will require hub replacement. Mate the cup and hub assemblies by hand and press them together while turning to check for smooth operation. The two assemblies should operate smoothly without catching or binding.
3. Check the drive engage spring (Figure 1, Item 21) for cracks or nicks. Correct spring length is two inches. If old spring is shorter or damaged, replace spring.
4. Check the clutch housing (Figure 1, Item 12) for damage. Check switch housing casting for bends or cracks. Mating surface of housing should be flat and true. Minor housing damaged may be repaired with a fine file and stone. Major damage will require housing replacement. Check push rod (Figure 1, Item 16) operation.

REPAIR OR REPLACEMENT – CONTINUED

Rod should slide easily through the push rod hole. The packing groove should be clean and undamaged. Replace push rod if damaged. Scratches on galling inside the push rod hole may be repaired by polishing the hole with a rolled up piece of fine emery paper.

5. Inspect the clutch lever (Figure 1, Item 6) and its mounting hardware for physical damage. Lever should be free of dents, chips, and bends. The pivot hole and mounting hardware should allow smooth operation when the lever is moved back and forth from the engaged and disengaged positions. The turnbuckle assembly should operate freely with no binding or catching. The threads should be clean and free from damage. Replace any damaged turnbuckle components. Inspect the clutch lever locking pin (Figure 1, Item 28) for proper operation. The top-mounted pushbutton should operate smoothly and release the pin retainers completely. Replace the pin if defective. Check microswitch (Figure 1, Item 7) operation with an ohmmeter. Replace the switch if faulty. Inspect switch housing for cracks and other damage. Replace switch if damaged.

INSTALLATION

1. Place the shifter hub (Figure 1, Item 20) over the gear driven sleeve (Figure 1, Item 23) so that the gear teeth mesh. Press in on the hub until the hub gears disengage from the driven sleeve gears. Install the spring bushing (Figure 1, Item 22) over the end of the differential drive shaft so that it Is against the shaft hex hut.
2. Position the drive engage spring (Figure 1, Item 21) inside the shifter cup (Figure 1, Item 27) and carefully install the shifter cup (Figure 1, Item 27) over the shifter hub (Figure 1, Item 20). Make certain that the drive spring is centered inside the shifter cup (Figure 1, Item 27) during the assembly. Maintain pressure on the shifter cup (Figure 1, Item 27) with one hand while inserting the set screws (Figure 1, Item 19) through the shifter cup (Figure 1, Item 27) with the other hand. Turn the set screws In until hand-tight. Place a jam nut (Figure 1, Item 18) on each set screw and tighten.
3. Lightly lubricate a new push rod (Figure 1, Item 16) packing (Figure 1, Item 24). Insert the push rod into the clutch housing mounting hole. Place a new gasket (Figure 1, Item 17) against the clutch housing (Figure 1, Item 12) mating surface. Place the clutch housing (Figure 1, Item 12) in position against the chain case housing (Figure 1, Item 5) and secure it with seven bolts (Figure 1, Item 13), flat washers (Figure 1, Item 14), and lockwashers (Figure 1, Item 15).
4. Install the engaged/disengaged microswitch (Figure 1, Item 7) to the clutch housing (Figure 1, Item 12) with two small phillips head screws (Figure 1, Item 8), spacers (Figure 1, Item 9), flat washers (Figure 1, Item 10) and nuts (Figure 1, Item 11). Secure microswitch lead by installing loop clamp.
5. Swing the clutch lever (Figure 1, Item 6) back into its normal operating position and place the mounting bracket (Figure 1, Item 4) against the chain case. Secure the bracket with two bolts (Figure 1, Item 1), flat washers (Figure 1, Item 2) and lockwashers (Figure 1, Item 3).
6. Adjust Push/Pull Clutch Lever (Figure 1, Item 6) by turning Jam Nut (Figure 1, Item 25) counterclockwise to loosen, then turn turnbuckle (Figure 1, Item 26) clockwise until there is 1/4 inch clearance between clutch lever (Figure 1, Item 6) and clutch housing (Figure 1, Item 12). Tighten jam nut (Figure 1, Item 25) by turning clockwise and torque to 10 foot pounds. If a clicking noise is heard during testing of the drive system, loosen jam nut (Figure 1, Item 25) and adjust clutch turnbuckle counterclockwise until there is no clicking noise. Tighten and torque jam nut (Figure 1, Item 25) to 10 foot pounds.
7. Install jam nut (Figure 1, Item 29) and bolt (Figure 1, Item 30) onto clutch lever (Figure 1, Item 6) until bolt (Figure 1, Item 30) is flush with back side of clutch lever. Remove locking pin (Figure 1, Item 28), place the clutch lever in the tow position by pushing inward, install locking pin (Figure 1, Item 28). With tow bar about half way down, adjust bolt (Figure 1, Item 30) inward or clockwise until tow bar DO NOT TOW light goes out. Remove locking pin (Figure 1, Item 28), pull clutch outward and install locking pin. With tow bar about half way down, check tow bar DO NOT TOW light is on. Tighten jam nut (Figure 1, Item 29) and torque to 160-190 inch pounds.
8. Check lube level of gear case and drive system.
9. Reconnect batteries.

INSTALLATION – CONTINUED

10. Perform MOC.

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

REAR AXLE

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Grease, Ball and Roller Bearing (WP 0170 00, Item 23)

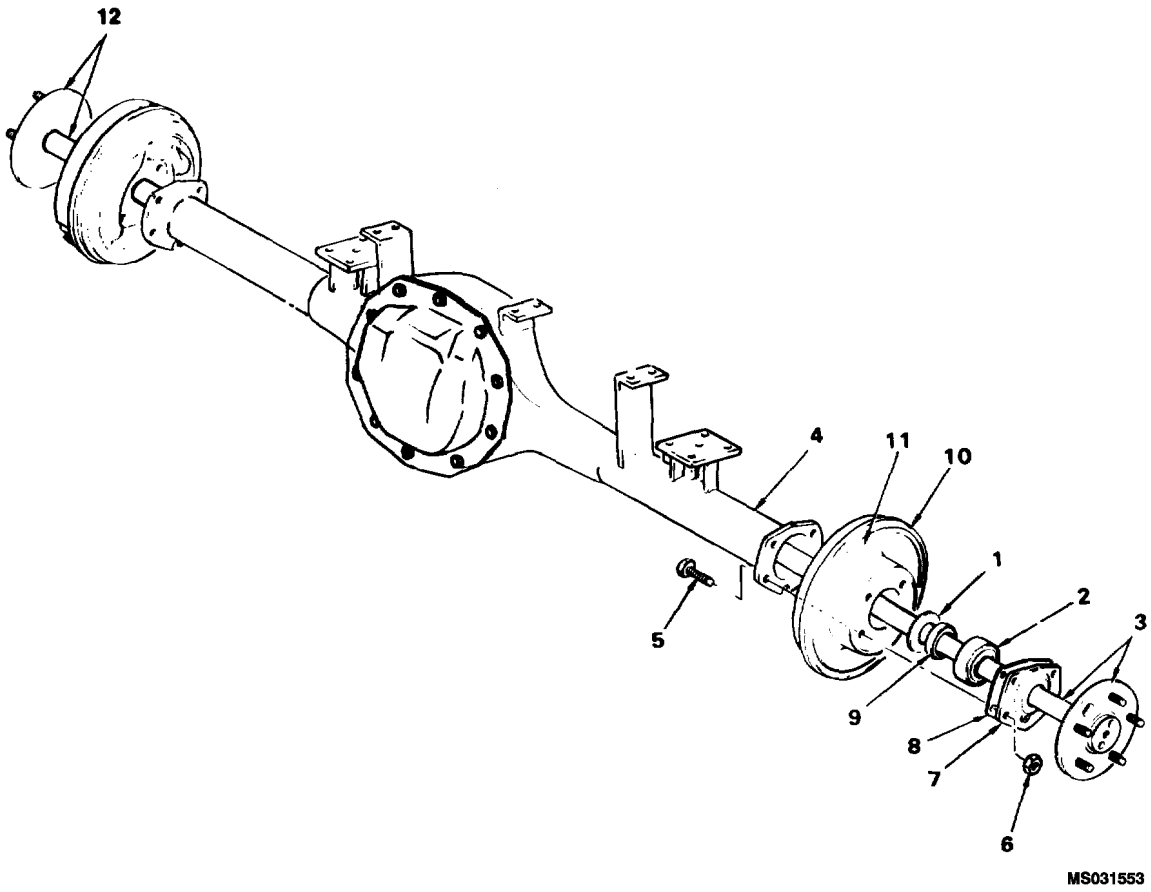
References

WP 0143 00
WP 0144 00
WP 0145 00
WP 0146 00
WP 0148 00
WP 0152 00

GENERAL

NOTE

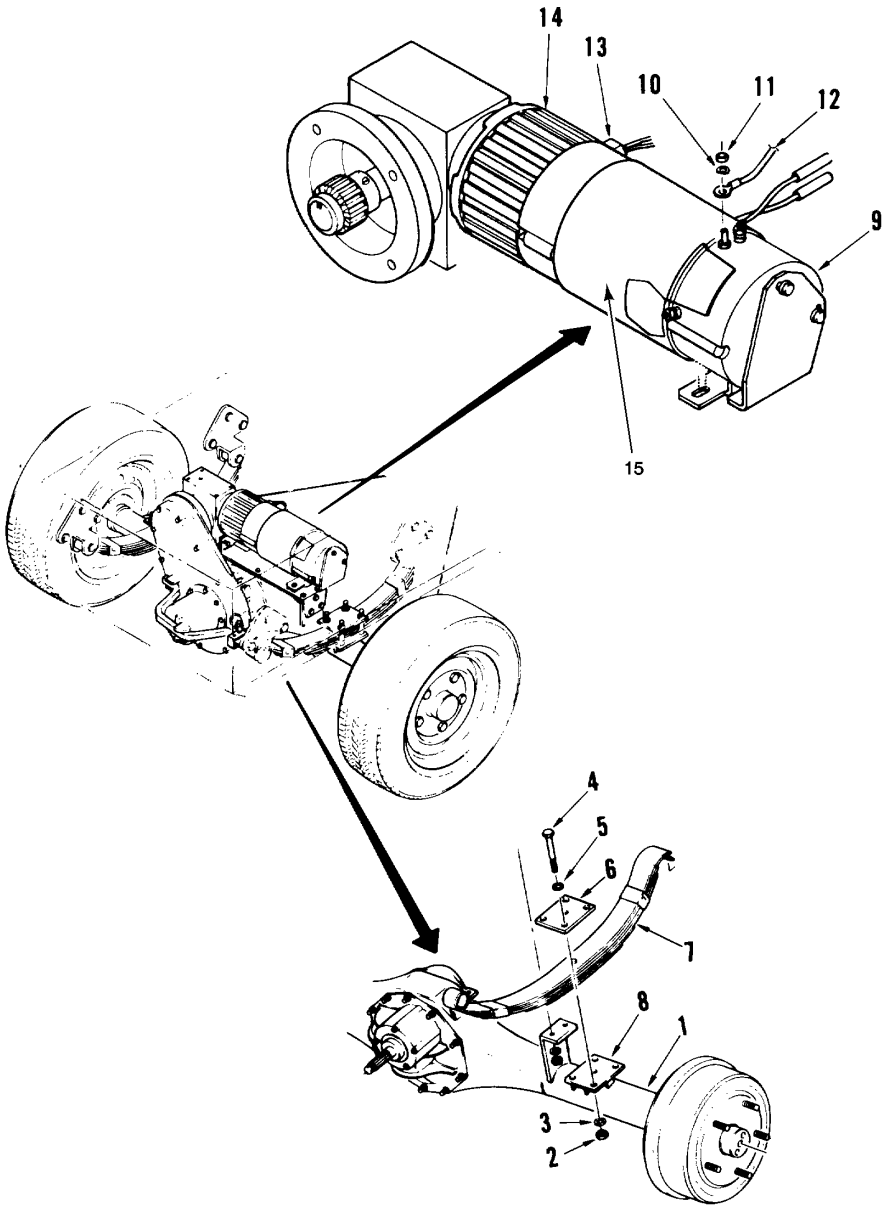
Position AGPU on level surface. Place chocks against front wheels.



1. Seal	5. Bolt	9. Bearing Retainer
2. Bearing	6. Locknut	10. Backing Plate
3. Axle (R/H)	7. Axle Retainer Plate	11. Backing Plate Stud
4. Housing	8. Gasket	12. Axle (L/H)

Figure 1. Rear Axle Replacement.

GENERAL – Continued



1. Rear Axle Assembly	6. Plate	11. Nut
2. Nut	7. Spring	12. Hardwires
3. Washer	8. Pad, Mounting	13. Strain Relief Connector
4. Bolt	9. Traction Motor	14. Electric Brake
5. Washer	10. Lockwasher	15. Thermal Overload

Figure 2. Rear Axle Assembly.

REMOVAL

REAR AXLE

1. Position AGPU on level surface Place chocks against front wheels.
2. Disconnect battery. (MEP 83-360E only) Disconnect J-1 and P-1 connector.
3. Support the weight of the AGPU using a suitable hoist and sling attached to rear lifting eyes. **Do not** raise rear wheels off ground.
4. Disconnect parking brake (WP 0145 00).
5. Remove clutch assembly engage/disengage microswitch (WP 0152 00). Reinstall clutch lever.
6. Disconnect and tag four hardwires (Figure 2, Item 12) from traction motor (Figure 2, Item 9) by removing nuts (Figure 2, Item 11) and lockwashers (Figure 2, Item 10). Remove two thermal overload hardwires at butt splices.
7. Remove the hardwires to electric brake (Figure 2, Item 13).

WARNING

The rear axle assembly is top heavy and will rotate on wheel bearings when removed. To prevent injury to personnel or damage to equipment, ensure rear axle assembly is fully supported during the following procedures.

8. Remove nuts (Figure 2, Item 2) and washers (Figure 2, Item 3).
9. Remove bolts (Figure 2, Item 4) and plate (Figure 2, Item 6).
10. Place a suitable length of 2 x 4 between motor mounting plate and rear axle assembly. Ensure load is not applied to clutch lever.
11. Ensuring that rear axle assembly is fully supported and not obstructed, slowly raise rear of AGPU until sufficient clearance is obtained for removal of rear axle assembly.
12. While continuing to support rear axle assembly, remove rear axle assembly and support on 2 x 4 with clutch lever uppermost.
13. Position supports lift beams under fork lift beams.

REPAIR OR REPLACEMENT

REAR AXLE

1. Disconnect batteries.
2. Remove wheels and tires (WP 0143 00).
3. Remove brake drum and brakes (WP 0146 00).
4. Remove four lock nuts (Figure 1, Item 6) securing axle retainer plate (Figure 1, Item 7).
5. Remove axle (Figure 1, Item 3) from housing (Figure 1, Item 4).
6. Remove gasket (Figure 1, Item 8) from axle (Figure 1, Item 3).
7. Remove seal (Figure 1, Item 1) from housing (Figure 1, Item 4).
8. Remove backing plate (Figure 1, Item 10) and bolts (Figure 1, Item 5).

REPAIR OR REPLACEMENT

BEARING REPLACEMENT

1. Using arbor press, press bearings (Figure 1, Item 2) and bearing retainers (Figure 1, Item 9) free of axle (Figure 1, Item 3).

REPAIR OR REPLACEMENT – CONTINUED

BEARING REPLACEMENT – CONTINUED

2. Remove axle retainer plate (Figure 1, Item 7) from axle (Figure 1, Item 3).
3. Inspect axle shaft for damage, warping, cracks or spline damage.
4. Install axle retainer plate (Figure 1, Item 7) with concave side toward axle spline.
5. Using arbor press, press bearing (Figure 1, Item 2) and retainers (Figure 1, Item 9) onto axle (Figure 1, Item 3).
6. Lubricate bearing (Figure 1, Item 2).

INSTALLATION

REAR AXLE

1. Install seal (Figure 1, Item 1) into housing (Figure 1, Item 4).
2. Install gasket (Figure 1, Item 8) onto axle (Figure 1, Item 3).
3. Install backing plate (Figure 1, Item 10) and bolts (Figure 1, Item 5) onto housing (Figure 1, Item 4). Ensure backing plate stud (Figure 1, Item 11) is on the top.
4. Install axle (Figure 1, Item 3) with bearing (Figure 1, Item 2) and axle retaining plate (Figure 1, Item 7) into housing (Figure 1, Item 4).
5. Slide axle retaining plate (Figure 1, Item 7) over bolts (Figure 1, Item 5). Install lock nuts (Figure 1, Item 6).
6. Install brake shoes and brake drum (WP 0146 00).
7. Install wheels and tires (WP 0144 00).

INSTALLATION

REAR AXLE ASSEMBLY

WARNING

The rear axle assembly is top heavy and will rotate on wheel bearings when removed. To prevent injury to personnel or damage to equipment, ensure rear axle assembly is fully supported during the following procedures.

1. Ensuring there is no obstruction, position rear axle assembly under AGPU aligning mounting pad (Figure 2, Item 8) with rear springs.
2. Remove supports and slowly lower AGPU and ensure spring center bolts engage center hole in mounting pad (Figure 2, Item 8).
3. Install plates (Figure 2, Item 6) ensuring center hole in plate engages spring center bolt. Secure rear axle assembly by installing bolts (Figure 2, Item 4), washers (Figure 2, Item 3) and nuts (Figure 2, Item 2).
4. Remove support 2 x 4 fitted in Removal, Step 10.
5. Connect two hardwires to electric brake with butt splices.

NOTE

In connecting electric brake, observance of polarity is not required.

6. Connect four hardwires (Figure 2, Item 12) to traction motor (Figure 2, Item 9) by installing lockwashers (Figure 2, Item 10) and nuts (Figure 2, Item 11). Remove tags. Connect two thermal overload hardwires with butt splices.

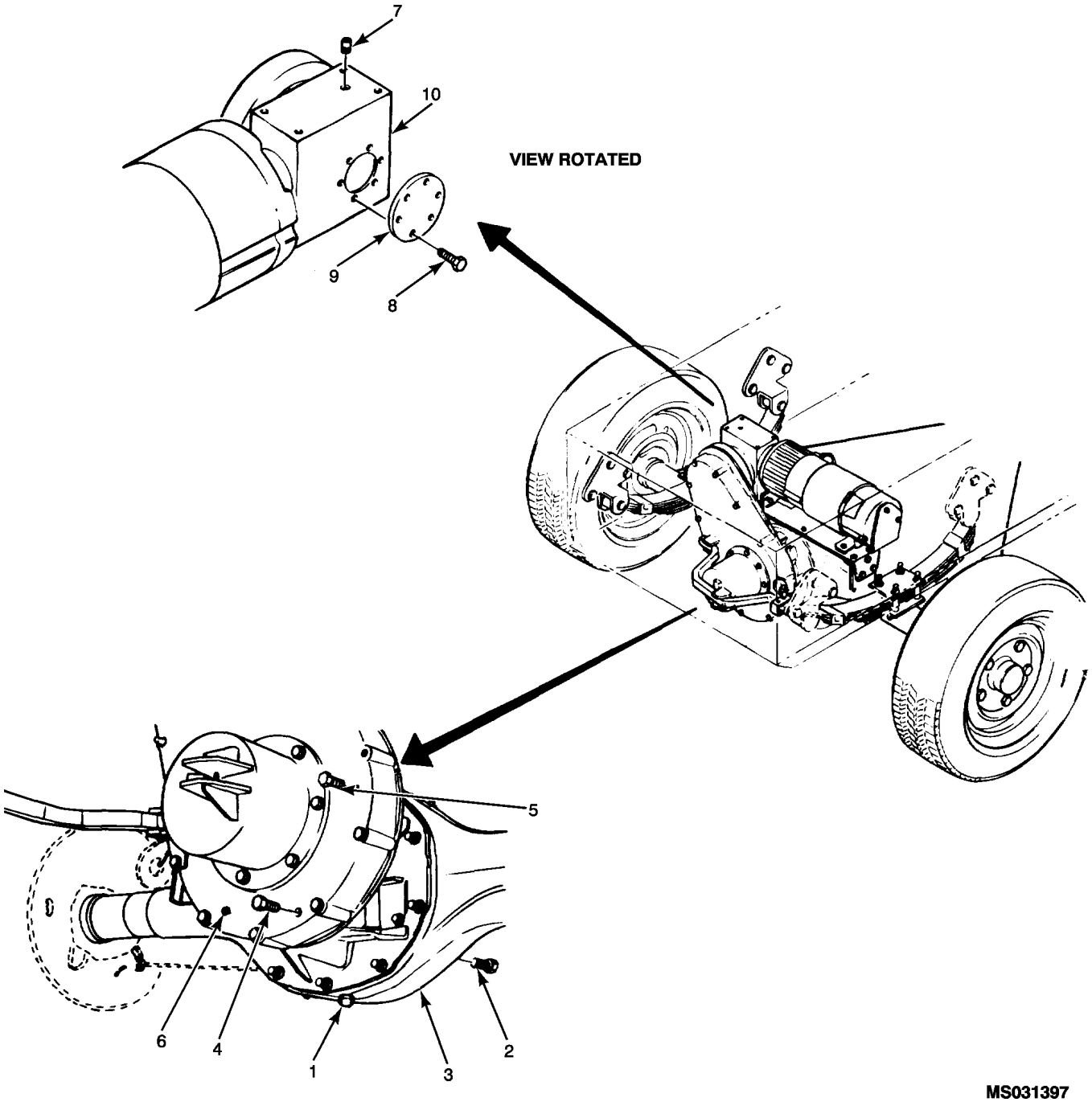
INSTALLATION – CONTINUED

REAR AXLE ASSEMBLY – CONTINUED

7. Install clutch assembly engage/disengage microswitch (WP 0152 00).
8. Connect parking brake (WP 0145 00).
9. Reconnect batteries.
10. Apply power to the drive system in the alternate propulsion mode (WP 0148 00). Functionally check electric brake by pressing dead-man switch and listening for an audible click from electric brake.
11. Remove AGPU from jack stands.
12. Perform MOC.

INSTALLATION – CONTINUED

Propulsion System Lubrication



1. Drain Plug
2. Fill Plug
3. Axle Housing
4. Drain Plug
5. Fill Plug
6. Chain Drive Housing
7. Fill Plug
8. Bolt
9. Inspection Plate
10. Gear Drive

Figure 3. Propulsion System Lubrication.

INSTALLATION – CONTINUED

1. Change lubricant in rear axle housing (Figure 3, Item 3).
    a. Place container under rear fill plug (Figure 3, Item 2) and drain plug (Figure 3, Item 1).
    b. Drain housing.
    c. Install drain plug (Figure 3, Item 1), and add lubricant per L.O. (WP 0015 00, Lubrication).
    d. Install fill plug (Figure 3, Item 2).
2. Change lubricant in chain drive housing (Figure 3, Item 6).
    a. Place container under chain drive housing (Figure 3, Item 6) and remove fill plug (Figure 3, Item 5) and drain plug (Figure 3, Item 4).
    b. Drain housing.
    c. Install drain plug (Figure 3, Item 4) and add lubricant per L.O. (WP 0015 00, Lubrication).
    d. Install fill plug (Figure 3, Item 5).
3. Change lubricant in gear drive (Figure 3, Item 10).
    a. Place container under gear drive (Figure 3, Item 10) and remove fill plug (Figure 3, Item 7). Loosen six bolts (Figure 3, Item 8) so inspection plate (Figure 3, Item 9) can be pried open at bottom to drain lubricant.
    b. Tighten six bolts (Figure 3, Item 8) and add lubricant per L.O. (WP 0015 00, Lubrication).
    c. Install fill plug (Figure 3, Item 7).
4. Wipe up any spilled lubricant and check for leaks.
5. Reconnect batteries.
6. Perform MOC.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

SPRING ASSEMBLY, FRONT/REAR

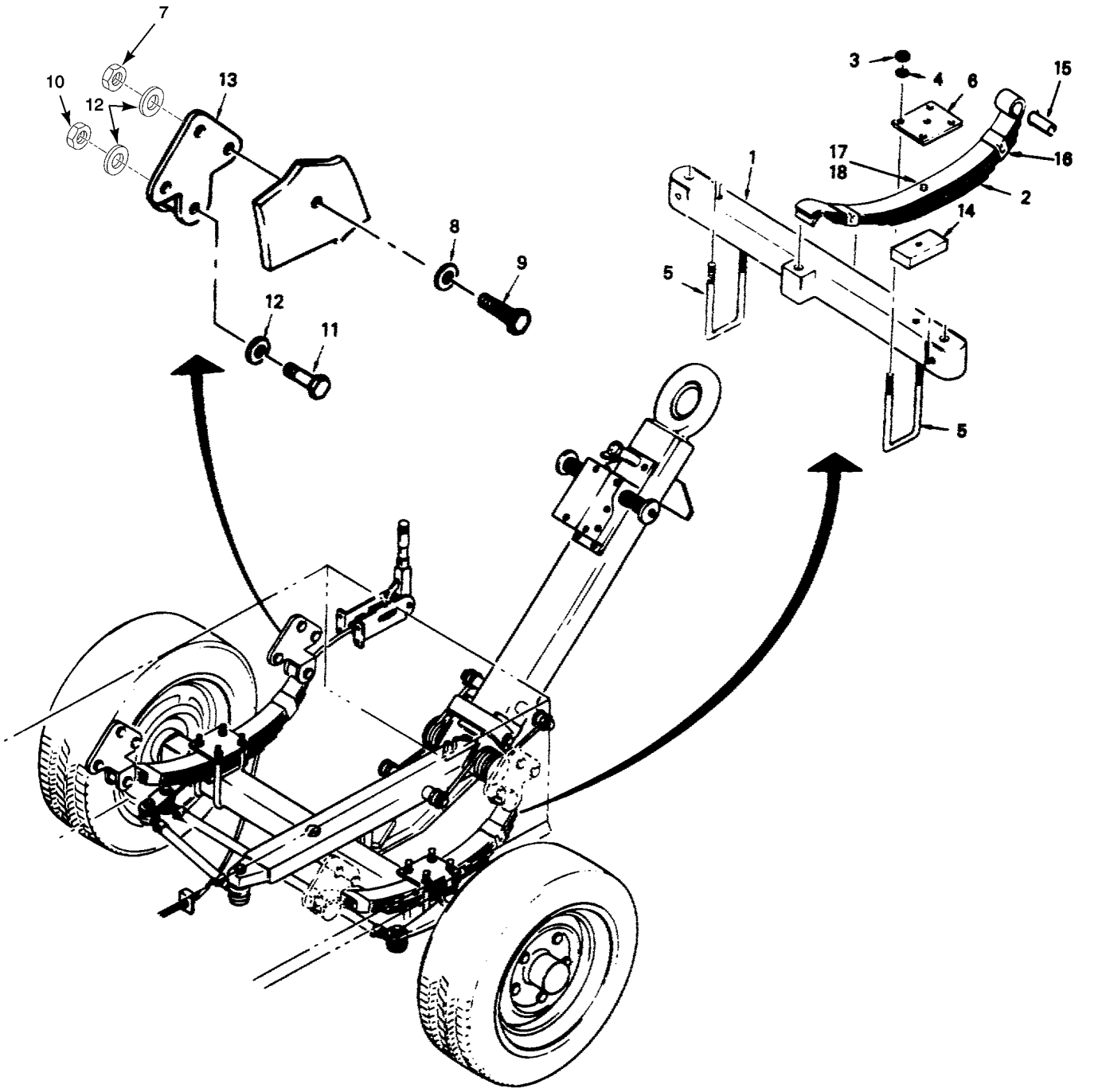
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK
(WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0143 00



MS031555A

1. Front Axle	5. U-Bolt	9. Bolt	13. Hanger	17. Nut
2. Spring, Front	6. Plate, Upper	10. Nut, Lock	14. Spacer	18. Bolt
3. Nut	7. Nut, Lock	11. Bolt	15. Bushing	
4. Lockwasher	8. Washer, Flat	12. Washer, Flat	16. Retainer Clip	

Figure 1. Front Axle and Spring Assembly.

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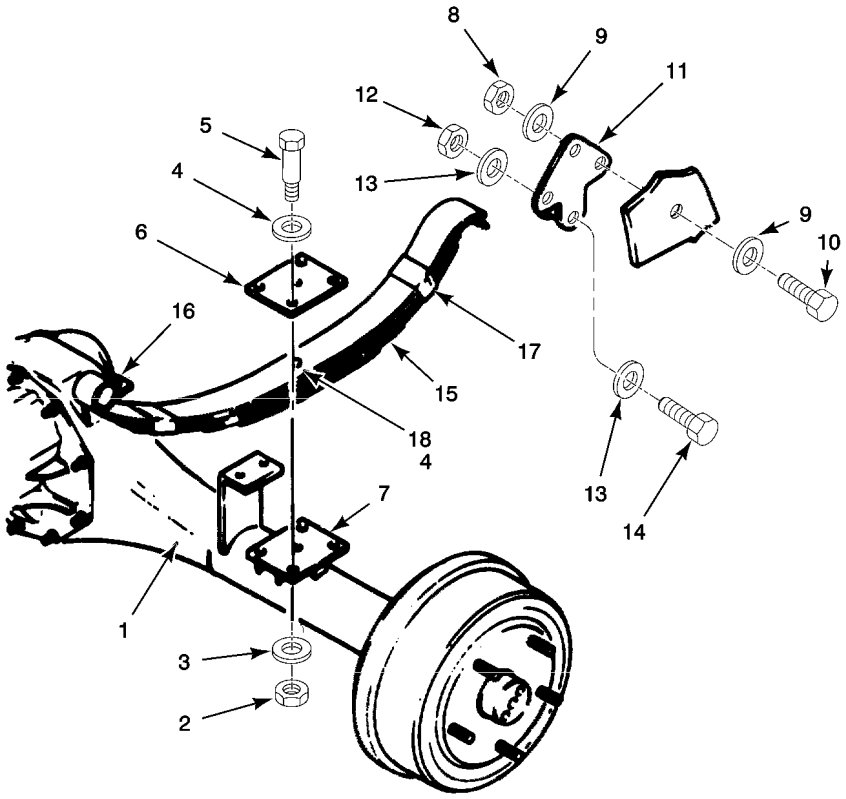


1. Rear Axle Assembly	8. Nut, Lock	15. Spring
2. Nut, Lock	9. Washer, Flat	16. Bushing
3. Lockwasher	10. Bolt	17. Retainer Clip
4. Washer, Flat	11. Hanger	18. Nut
5. Bolt	12. Locknut	
6. Plate, Upper	13. Washer, Flat	
7. Axle Mounting Pad	14. Bolt	

Figure 2. Rear Axle Housing and Spring Assembly.

REMOVAL

FRONT AXLE

Remove Front Spring Assembly

1. Position AGPU on level surface. Chock rear wheels.
2. Remove front wheels (WP 0143 00).

REMOVAL – CONTINUED

FRONT AXLE – CONTINUED

WARNING

Support front axle with two jack stands to prevent injury to personnel when front springs are removed. If front springs are removed with two bar installed, then tow bar must be secured in the down position.

3. Remove four nuts (Figure 1, Item 3) and lockwashers (Figure 1, Item 4) from two U-bolts (Figure 1, Item 5) securing front axle (Figure 1, Item 1) to front springs (Figure 1, Item 2). Remove upper plate (Figure 1, Item 6). Lower axle to clear springs.
4. Remove six lock nuts (Figure 1, Item 7), flat washers (Figure 1, Item 8), and bolts (Figure 1, Item 9). Remove front spring (Figure 1, Item 2).
5. Remove lock nuts (Figure 1, Item 10), bolts (Figure 1, Item 11) and flat washers (Figure 1, Item 12) to remove hangers (Figure 1, Item 13) from front spring (Figure 1, Item 2).
6. Gently tap bushings (Figure 1, Item 15) out of springs, pry retainer clips (Figure 1, Item 16) off springs and remove center nuts (Figure 1, Item 17) and bolts (Figure 1, Item 18) holding spring leafs together.

INSTALLATION

Install Front Spring Assembly

1. Secure spring leafs with bolts (Figure 1, Item 18) and nuts (Figure 1, Item 17). Install retainer clips (Figure 1, Item 16) and bushings (Figure 1, Item 15).
2. Install front springs (Figure 1, Item 2) onto hangers (Figure 1, Item 13) by installing flat washers (Figure 1, Item 12), bolts (Figure 1, Item 11) and lock nuts (Figure 1, Item 10).
3. Position front springs (Figure 1, Item 2) and hangers (Figure 1, Item 13) under AGPU and install six flat washers (Figure 1, Item 8) and bolts (Figure 1, Item 9) through AGPU housing and hangers. Install six look nuts (Figure 1, Item 7).
4. Position front axle (Figure 1, Item 1) under AGPU body. Raise axle until alignment pin on bottom of front spring (Figure 1, Item 2) engages alignment hole on spacer (Figure 1, Item 14).
5. Position upper plates (Figure 1, Item 6) on top of front springs (Figure 1, Item 2). Install four lockwashers and nuts (Figure 1, Item 3) on U-bolts (Figure 1, Item 5).
6. Install front wheels (WP 0143 00).
7. Remove from jack stands.
8. Perform MOC.

REMOVAL

REAR AXLE

1. Position AGPU on level surface. Chock front wheels.
2. Remove rear wheels (WP 0143 00).
3. Support rear axle assembly (Figure 2, Item 1), remove eight mounting lock nuts (Figure 2, Item 2), lock washers (Figure 2, Item 3), flat washers (Figure 2, Item 4) and bolts (Figure 2, Item 5). Lower axle to clear springs (Figure 2, Item 15). Remove upper plate (Figure 2, Item 6).
4. Remove six locknuts (Figure 2, Item 8), flat washers (Figure 2, Item 9) and bolts (Figure 2, Item 10). Remove spring (Figure 2, Item 15).

REMOVAL – CONTINUED

REAR AXLE – CONTINUED

5. Remove lock nuts (Figure 2, Item 12), bolts (Figure 2, Item 14) and flat washers (Figure 2, Item 13) to remove hangers (Figure 2, Item 11) from spring (Figure 2, Item 15).
6. Tap bushings (Figure 2, Item 16) gently from leaf spring loops, work retainer clips (Figure 2, Item 17) off springs and then remove center nuts (Figure 2, Item 18) and bolts (Figure 2, Item 4).

INSTALLATION

1. Install bolts (Figure 2, Item 4) through spring leafs and secure with nuts (Figure 2, Item 18); then, install retainer clips (Figure 2, Item 17) and bushings (Figure 2, Item 16).
2. Install rear spring (Figure 2, Item 15) onto hangers (Figure 2, Item 11) by installing two flat washers (Figure 2, Item 13), bolts (Figure 2, Item 14), and locknuts (Figure 2, Item 12).
3. Position rear spring (Figure 2, Item 15) and hangers (Figure 2, Item 11) under AGPU and install six flat washers (Figure 2, Item 9) and bolts (Figure 2, Item 10) through AGPU housing and hangers, install six locknuts (Figure 2, Item 8).
4. Position rear axle assembly (Figure 2, Item 1) under AGPU body. Raise axle assembly until alignment pin on bottom of spring (Figure 2, Item 15) engages alignment hole on axle mounting pad (Figure 2, Item 7).
5. Position upper plates (Figure 2, Item 6) on top of springs (Figure 2, Item 15). Install eight flat washers (Figure 2, Item 4) and bolts (Figure 2, Item 5). Install eight lock washers (Figure 2, Item 3) and lock nuts (Figure 2, Item 2).
6. Install rear wheels (WP 0143 00).
7. Remove from jack stands.
8. Perform MOC.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

TRACTION MOTOR

INITIAL SETUP:

Tools and Special Tools

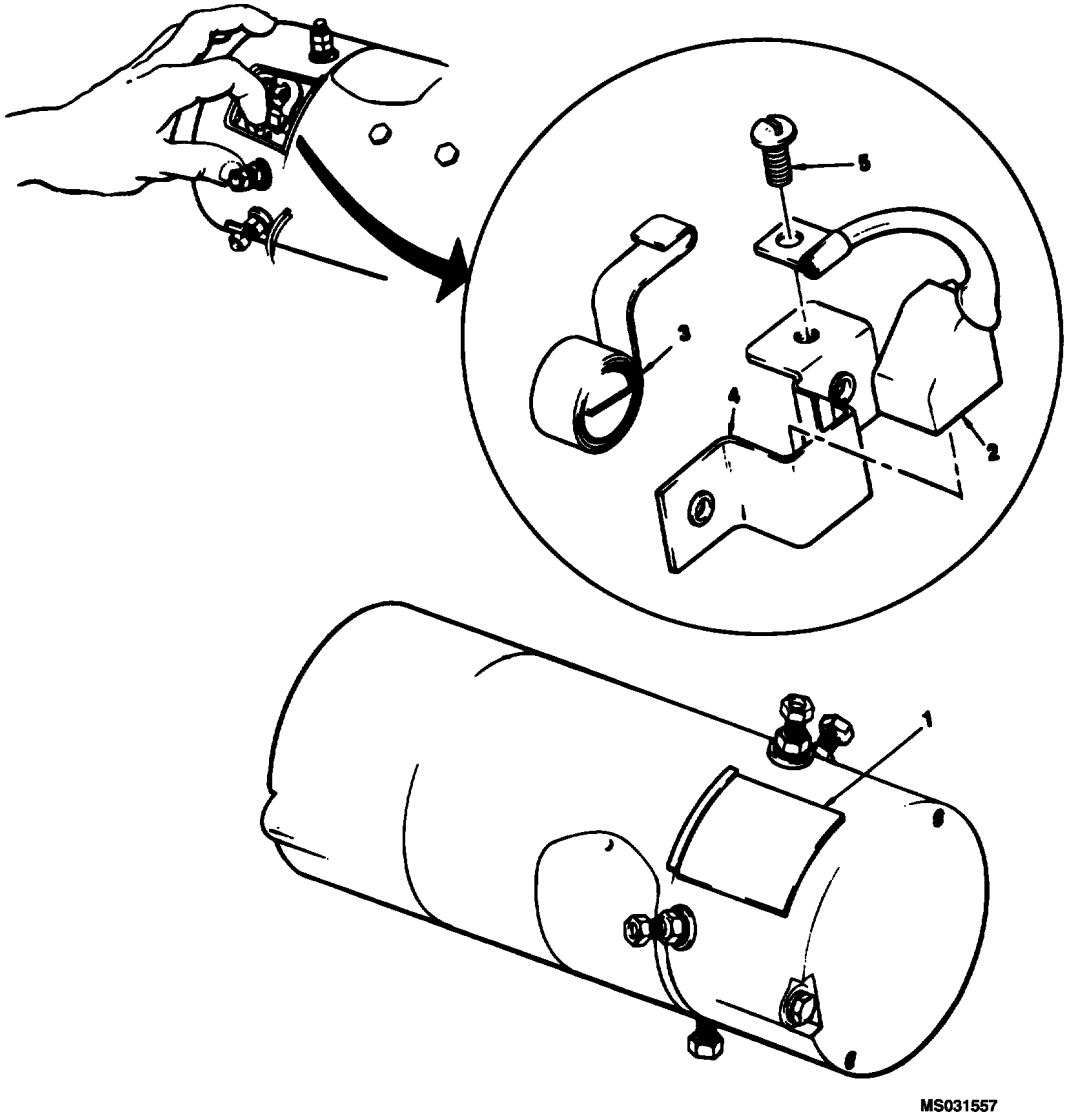
Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Lockwire (WP 0170 00, Item 30)

References

WP 0153 00
WP 0156 00



1. Brush Cover
2. Armature Brush
3. Pressure Spring
4. Brush Holder
5. Screw

Figure 1. Traction Motor Brush Replacement.

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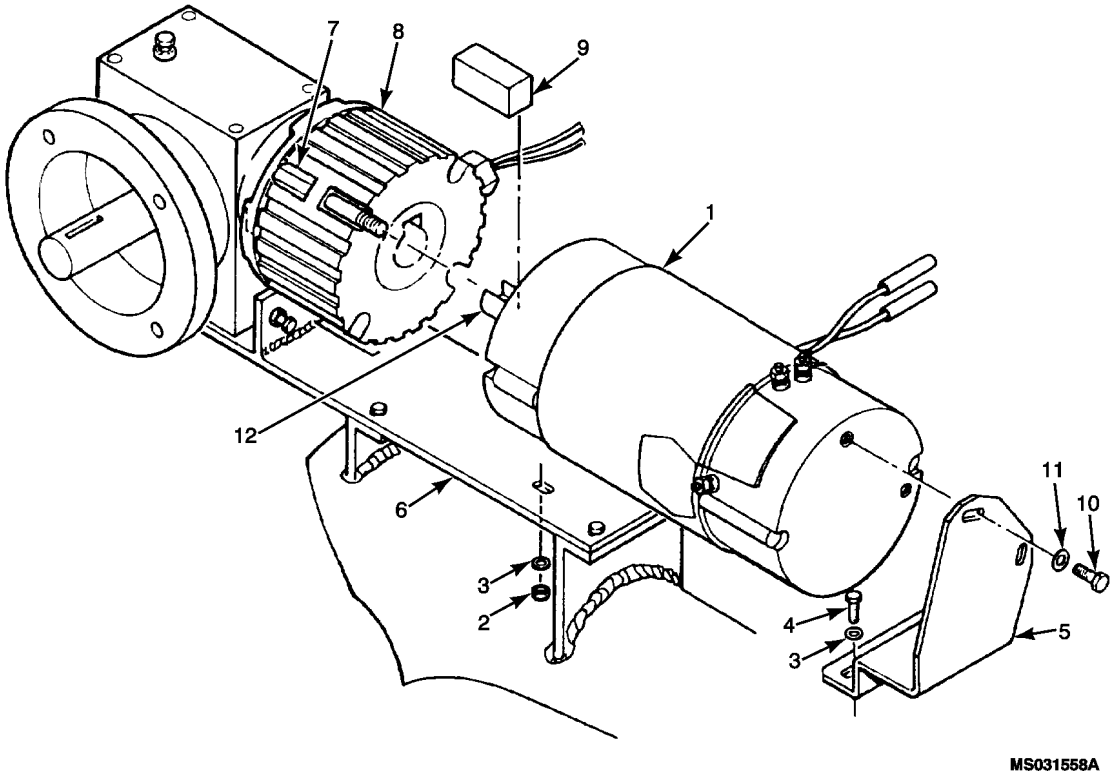

1. Traction Motor
2. Lock Nut
3. Washer
4. Capscrew
5. Motor Support Bracket
6. Motor Mount Plate
7. Turnbuckle
8. Electric Brake
9. Square Key
10. Capscrew
11. Washer
12. Traction Motor Driveshaft

Figure 2. Traction Motor Mounting.

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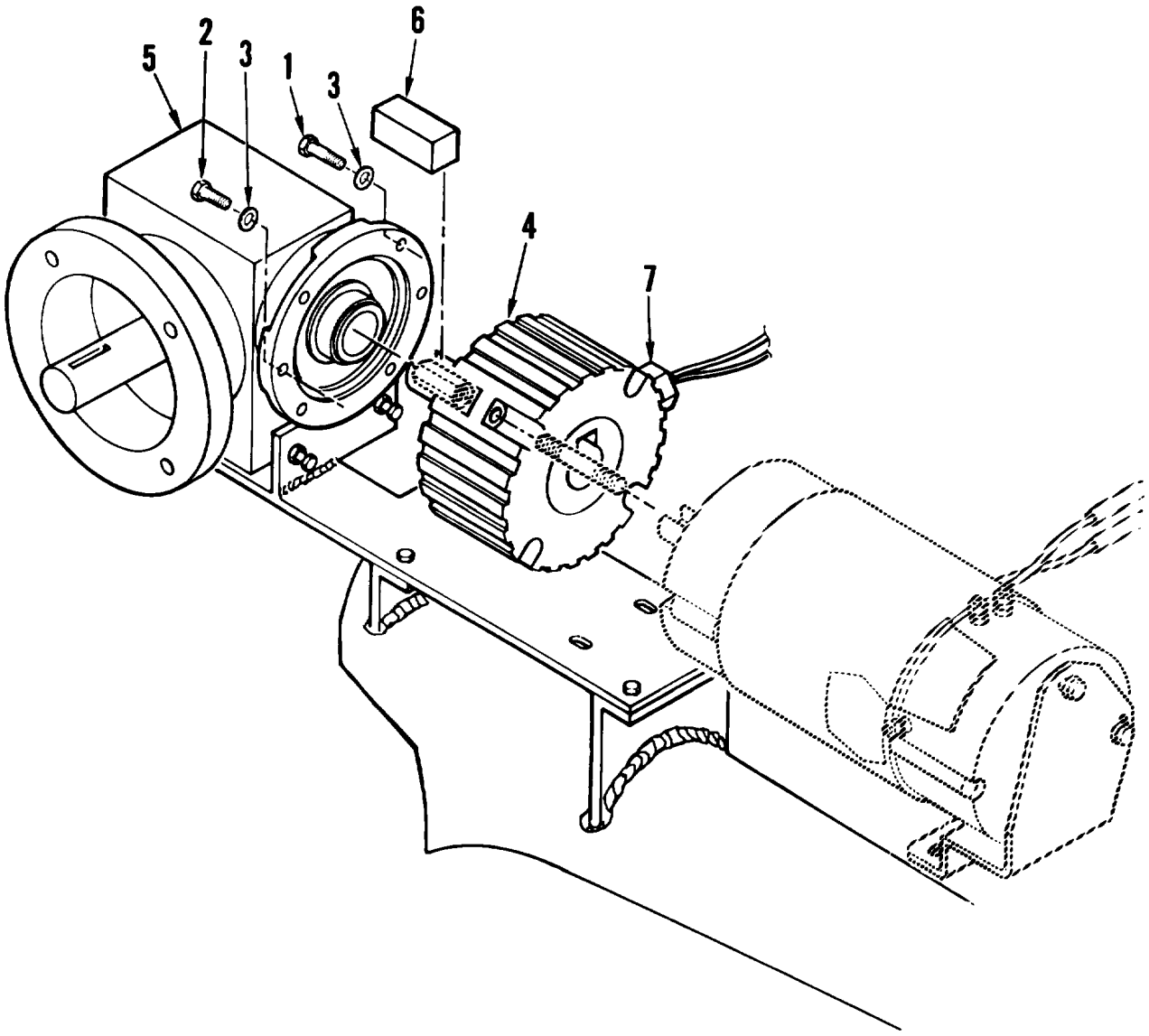


1. Cap Screw
2. Cap Screw
3. Washer
4. Electric Brake
5. Worm Gear Reducer Gearbox
6. Drive Key
7. Strain Relief
8. Drive Shaft
9. Drive Input
10. Drive Flange

Figure 3. Electric Brake - Removal and Installation.

REPAIR OR REPLACEMENT

1. Remove rear axle assembly (WP 0153 00).
2. Remove brush cover (Figure 1, Item 1) and inspect the traction motor armature brushes.

REPAIR OR REPLACEMENT – CONTINUED

3. If brushes are broken or excessively worn, replace them by lifting the pressure spring (Figure 1, Item 3) and pulling the brush out of the brush holder (Figure 1, Item 4).
4. Loosen the screw (Figure 1, Item 5) that connects the brush wire to the brush holder (Figure 1, Item 4).
5. Install new armature brushes (Figure 1, Item 2) by lifting the pressure spring (Figure 1, Item 3) and inserting the brush into the brush holder.
6. Connect the brush wire to the brush holder (Figure 1, Item 4) with screw (Figure 1, Item 5). Replace the brush cover (Figure 1, Item 1).

REMOVAL

1. Remove rear axle assembly (WP 0153 00).
2. Remove lock nuts (Figure 2, Item 2), washers (Figure 2, Item 3) and cap screws (Figure 2, Item 4) securing motor support bracket (Figure 2, Item 5) to motor mounting plate (Figure 2, Item 6).
3. Remove traction motor (Figure 2, Item 1) with electric brake (Figure 2, Item 8) as an assembled unit. Remove and retain square drive key (Figure 2, Item 9).
4. Remove cap screws (Figure 2, Item 10) and washers (Figure 2, Item 11) securing traction motor (Figure 2, Item 1) and motor support bracket (Figure 2, Item 5). Remove motor support bracket.

INSTALLATION

1. Locate square key (Figure 2, Item 9) in keyway of traction motor driveshaft (Figure 2, Item 12).
2. Position traction motor (Figure 2, Item 12) /electric brake (Figure 2, Item 8) assembly into drive input (Figure 3, Item 9). Align turnbuckle (Figure 2, Item 7) with correct holes on drive flange (Figure 3, Item 10). If required rotate traction motor (Figure 2, Item 1) to ensure electrical connectors S1 and A2 are upper most.
3. Install four bolts (Figure 3, Item 1 and 2), washers (Figure 3, Item 3) and tighten. Safety wire bolts.
4. Install motor support bracket (Figure 2, Item 5) on traction motor (Figure 2, Item 1). Secure with washers (Figure 2, Item 11) and two bolts (Figure 2, Item 10). safety wire bolts using lockwire (WP 0170 00, Item 30).
5. Secure motor support bracket (Figure 2, Item 5) to motor mounting plate (Figure 2, Item 6) with bolts (Figure 2, Item 4), washers (Figure 2, Item 3) and lock nuts (Figure 2, Item 2).
6. Install rear axle assembly (WP 0153 00).
7. Apply power to the drive system in the alternate propulsion mode (WP 0148 00). Functionally check electric brake (Figure 2, Item 8) by pressing dead-man switch and listening for an audible click from electric brake.
8. Remove from jack stands.
9. Perform MOC.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

ELECTRIC BRAKE

INITIAL SETUP:

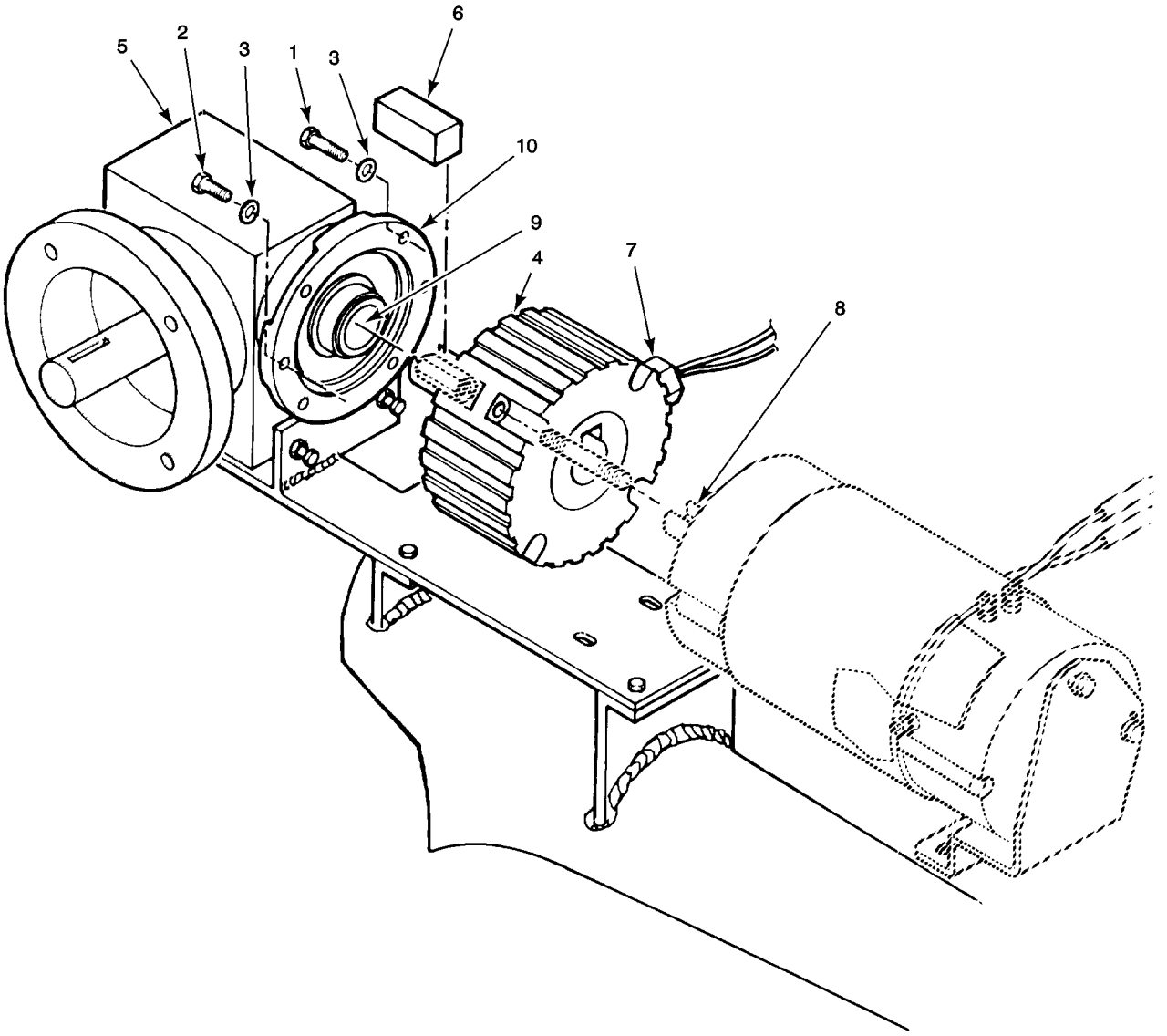
Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0148 00
WP 0155 00

GENERAL



1. Cap Screw	5. Worm Gear Reducer Gearbox	9. Traction Motor
2. Cap Screw	6. Drive Key	10. Turnbuckle
3. Washer	7. Strain Relief	11. Drive Key
4. Electric Brake	8. Drive Shaft	12. Drive Shaft

Figure 1. Electric Brake - Removal and Installation.

REMOVAL

NOTE

In the following step it is not necessary to remove the motor support bracket from the traction motor.

1. Remove traction motor (WP 0155 00).
2. Separate electric brake (Figure 1, Item 4) from traction motor (Figure 1, Item 9) by loosening four turnbuckles (Figure 1, Item 10) and separate brake from traction motor saving the drive key (Figure 1, Item 11)

INSTALLATION

1. Locate square drive key (Figure 1, Item 6) in keyway of traction motor (Figure 1, Item 9) driveshaft (Figure 1, Item 8). Install electric brake (Figure 1, Item 4) onto traction motor and install four turnbuckles (Figure 1, Item 10). Tighten turnbuckles until top is flush with top of electric brake.
2. Install drive key (Figure 1, Item 6) into drive shaft (Figure 1, Item 12)
3. Install traction motor (WP 0155 00).
4. Reconnect batteries.
5. Remove AGPU from jack stands.
6. Perform MOC.

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
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EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

RADIO INTERFERENCE SUPPRESSION

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)

Tools and Special Tools (cont.)

Tool Set, Aviation Unit (WP 0171 00, Item 42)

RADIO INTERFERENCE SUPPRESSION

GENERAL METHODS USED TO ATTAIN PROPER SUPPRESSION

Essentially, suppression is attained by providing a low resistance path to ground for stray currents. The methods used include shielding the ignition and high frequency wires, grounding the frame with bonding straps, and using filtering systems.

INTERFERENCE SUPPRESSION COMPONENTS

Primary Suppression Components

The primary suppression components are those whose primary function is to suppress radio interference. These components include:

1. Bonding straps to frame.
2. Shielded ignition unit and ignition wire to igniter plug.
3. Shielded generator control unit and battery charger.
4. Filter unit installed on generator.
5. Welded one-piece frame and housing assembly with latching access door.
6. Ground stud on frame to ground via ground strap.

Secondary Suppression Components

These components have radio interference suppression functions which are incidental or secondary to their primary function. They are the lock washers used on the fuel pump, electronic control unit, generator control unit, and battery charger.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

EXHAUST EJECTOR ASSEMBLY

INITIAL SETUP:

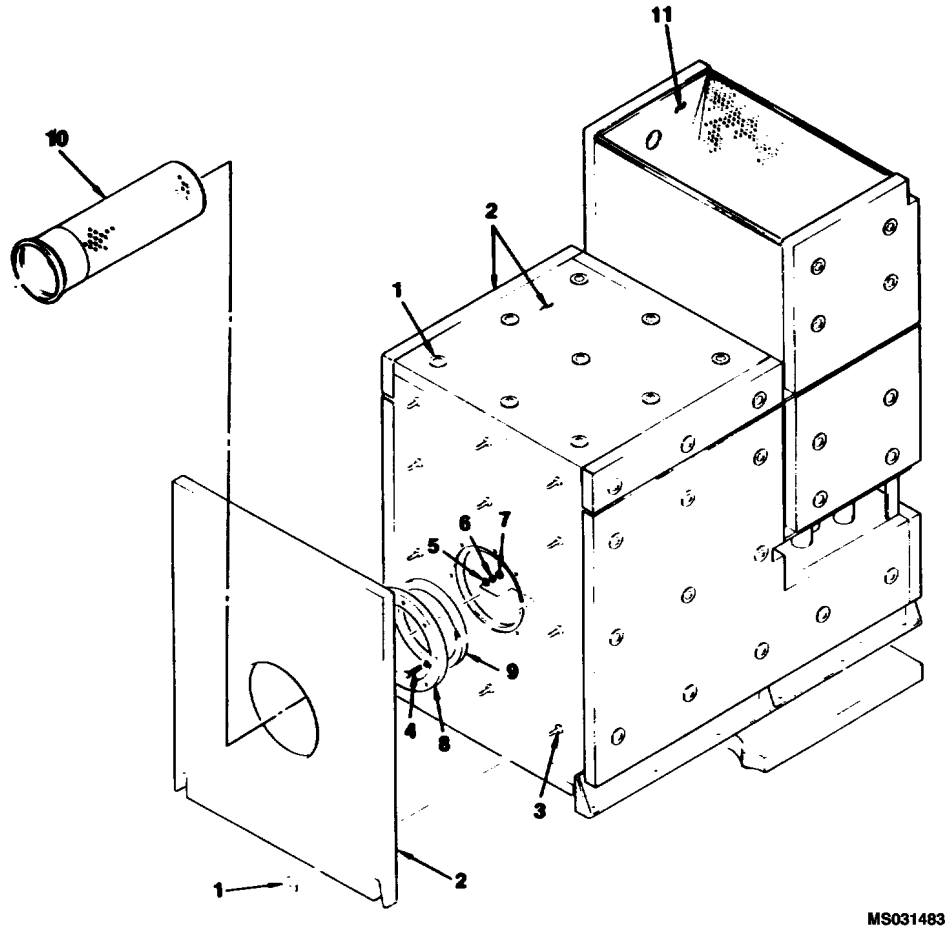
Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK
(WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

WP 0021 00

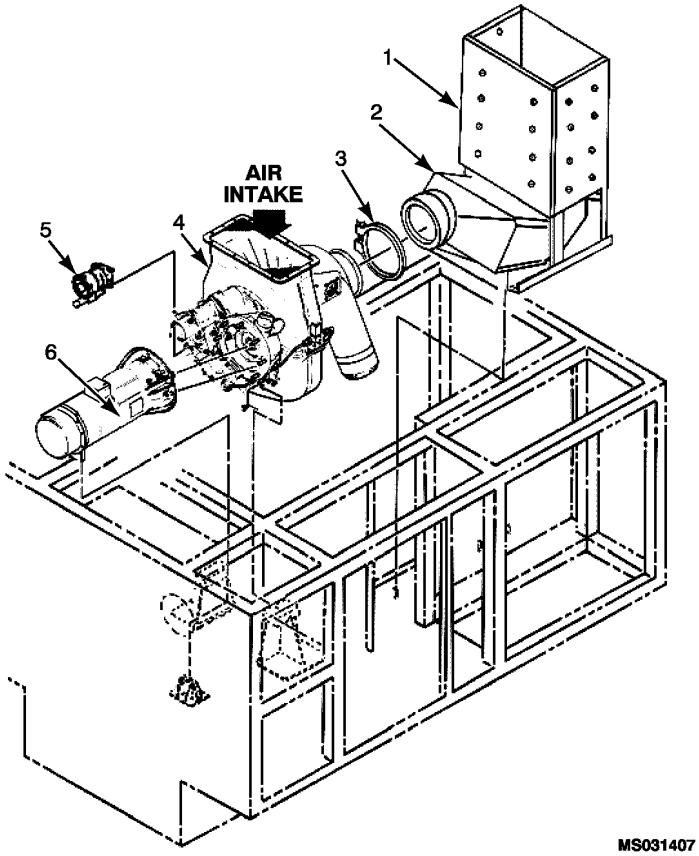
INSPECTION OF INSTALLED ITEMS



1. Washer, Self-locking
2. Insulation, Thermal
3. Weld Pin
4. Bolt
5. Washer, Flat
6. Lockwasher
7. Nut
8. Cover Plate
9. Spacer
10. Exhaust Ejector Inlet Tube
11. Outlet

Figure 1. Exhaust Ejector Assembly (MEP 83-360A only).

INSPECTION OF INSTALLED ITEMS – CONTINUED



1. Exhaust Ejector
2. Exhaust Plenum
3. Ring, Coupling Clamp
4. Gas Turbine Engine (GTE)
5. Hydraulic Pump
6. Alternator

Figure 2. Exhaust Ejector Assembly (MEP 83-360D/E only).

1. Open engine access door (WP 0021 00, Figure 2).
2. Inspect exhaust ejector assembly (Figure 1 and Figure 2) for security of installation, damaged insulation, and missing or loose insulation retaining washers. Small cracks, dents, and cuts in insulation are not acceptable. Open exhaust flapper and use flashlight to inspect the interior of exhaust ejector assembly for damage, cracks, and eroded housing.

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
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EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

EXHAUST EJECTOR

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Wire, Nonelectrical (WP 0170 00, Item 61)

References

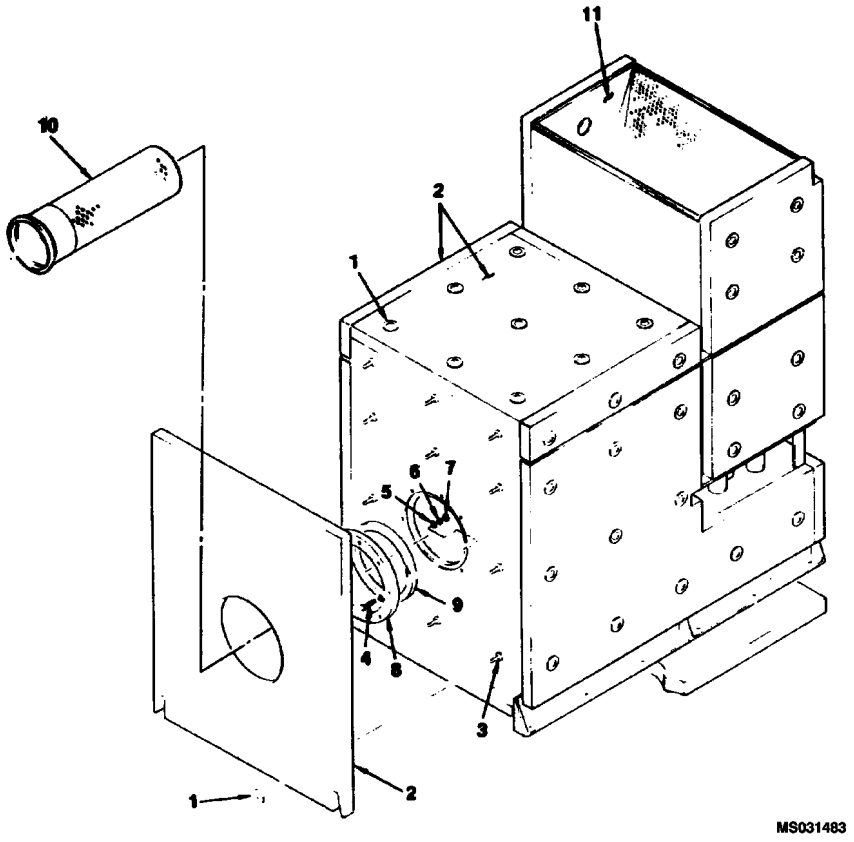
TB 1-1730-229-30
WP 0016 00
WP 0021 00
WP 0022 00
WP 0034 00
WP 0025 00
WP 0116 00

TEST AND INSPECTION

General

NOTE

Old Type Exhaust System. During inspection if exhaust system is defective, replace with New Type exhaust system (NSN 2990-01-325-1868) IAW TB 1-1730-229-30.



1. Washer, Self-Locking
2. Insulation, Thermal
3. Weld Pin
4. Bolt
5. Washer, Flat
6. Lockwasher
7. Nut
8. Cover Plate
9. Spacer
10. Ejector Inlet Tube
11. Outlet

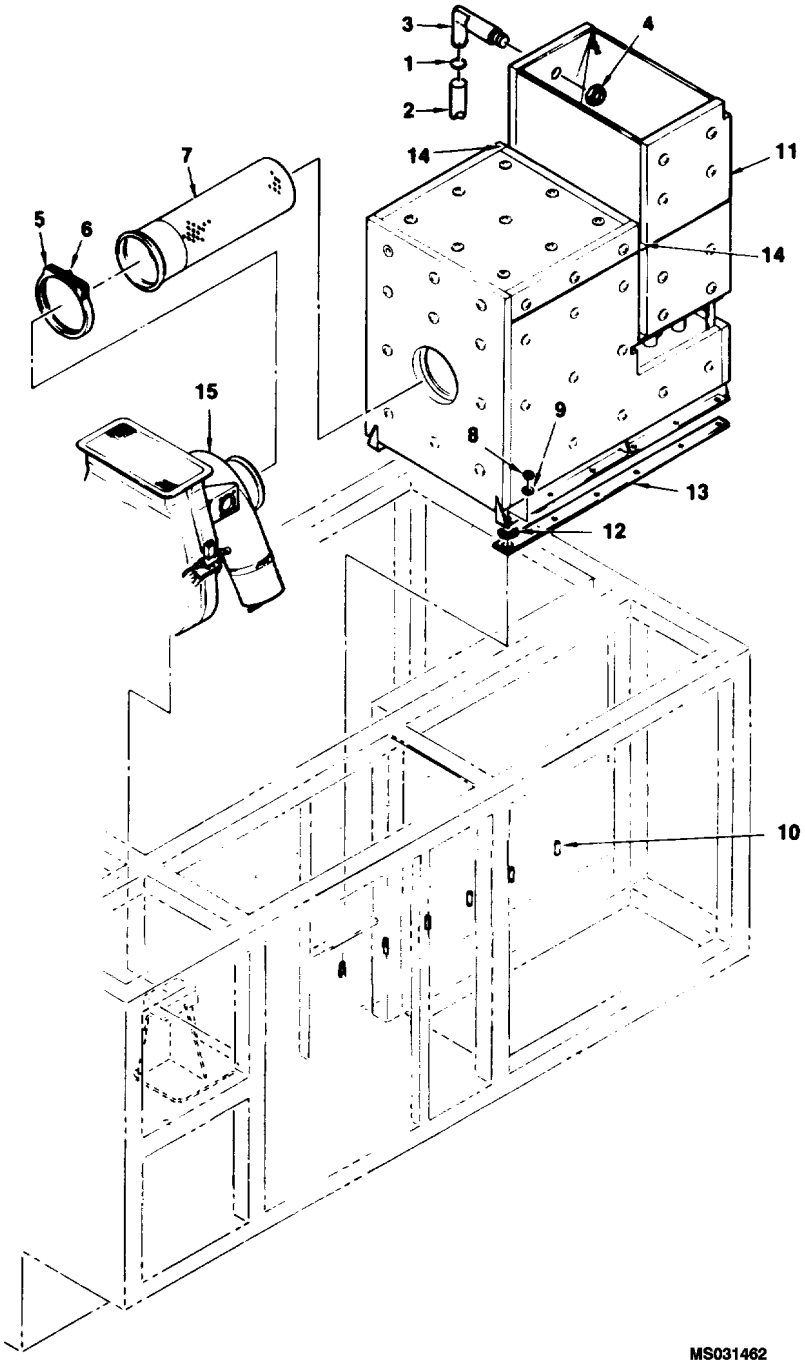
Figure 1. Exhaust Ejector (Old Type).

1. Inspect ejector inlet tube (Figure 1, Item 10) for cracks, or severe erosion (part of body worn away). Replace if damaged.
2. Inspect exhaust ejector outlet (Figure 1, Item 11) for severe damage. Replace if part of interior surface is severely worn (holes in surface).
3. Inspect thermal insulation (Figure 1, Item 2) for split cracks through insulation. Replace if damaged. Minor dents, gouges, or splits are acceptable.

TEST AND INSPECTION – CONTINUED

4. Inspect thermal insulation (Figure 1, Item 2) for signs of leaking exhaust gases (discoloration, burned insulation). Remove thermal insulation and inspect metal for holes or cracks. Replace exhaust ejector if metal is severely worn away. Repair if cracked.

REMOVAL



1. Clamp, Hose
2. Pneumatic Hose
3. Elbow
4. Nut
5. Clamp, V-Band Coupling
6. Nut, V-Band Coupling
7. Inlet Tube
8. Nut
9. Lockwasher Star
10. Stud
11. Exhaust Ejector
12. Washer, Flat Body
13. Strip, Rubber Insulation
14. Sling/Rope Lift Points
15. Engine Output

Figure 2. Exhaust Ejector Removal/Installation (Old Type).

REMOVAL – CONTINUED

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
3. Remove hydraulic module (refer to WP 0116 00).
4. Loosen hose clamp (Figure 2, Item 1) and disconnect pneumatic hose (Figure 2, Item 2) from elbow (Figure 2, Item 3).
5. Remove nut (Figure 2, Item 4) and elbow (Figure 2, Item 3).
6. Remove screws (Figure 3, Item 1) and washers (Figure 3, Item 2) and remove drain tube cover (Figure 3, Item 3). Remove ejector drain tube (Figure 3, Item 4).
7. Remove V-band coupling nut (Figure 2, Item 6), and slide V-band coupling clamp (Figure 2, Item 5) back toward exhaust ejector (Figure 4, Item 2).
8. Remove exhaust access cover (Figure 4, Item 3) by removing twelve screws (Figure 4, Item 1), and washers (Figure 4, Item 2).
9. Slide ejector inlet tube (Figure 2, Item 7) into exhaust ejector (Figure 2, Item 11).
10. Remove twelve nuts (Figure 2, Item 8) and lockwashers (Figure 2, Item 9) from studs (Figure 2, Item 10).

CAUTION

Ensure that exhaust ejector clears AGPU frame and insulation when removing or installing. Insulation weld pins on exhaust ejector can shred housing insulation.

11. Attach a rope or sling to lift points (Figure 2, Item 14). Remove exhaust ejector by carefully lifting straight up.

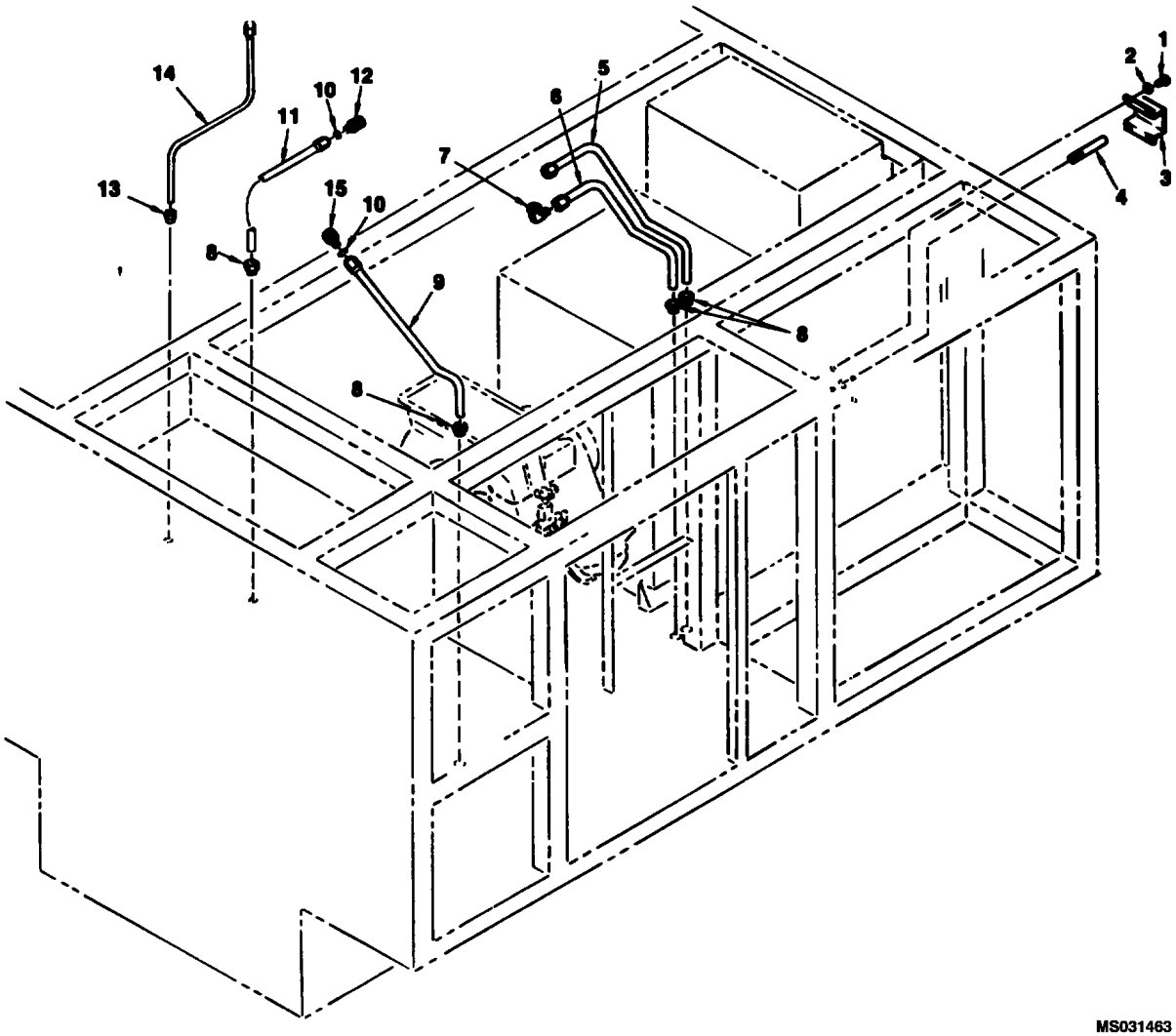
INSTALLATION

NOTE

When removing the exhaust system, the hydraulics module must be removed, this will allow air to be induced into the hydraulic system that must be removed prior to putting system back into operation by performing hydraulic purge operation (TM 1-1730-229-13, Operator Instructions).

1. Inspect installation area, floor of AGPU. Remove all signs of corrosion or rust. Use touch up paint on floor if required (refer toWP 0027 00, 4.).
2. Inspect two silicone rubber strips (Figure 2, Item 13). Replace if torn. Ensure that two silicone rubber strips and twelve flat washers (Figure 2, Item 12) are in position over twelve studs (Figure 2, Item 10) (old type exhaust).
3. Attach a rope or sling to lift points (Figure 2, Item 14) and carefully lower exhaust ejector (Figure 2, Item 11) into position on AGPU floor over studs (Figure 2, Item 10).

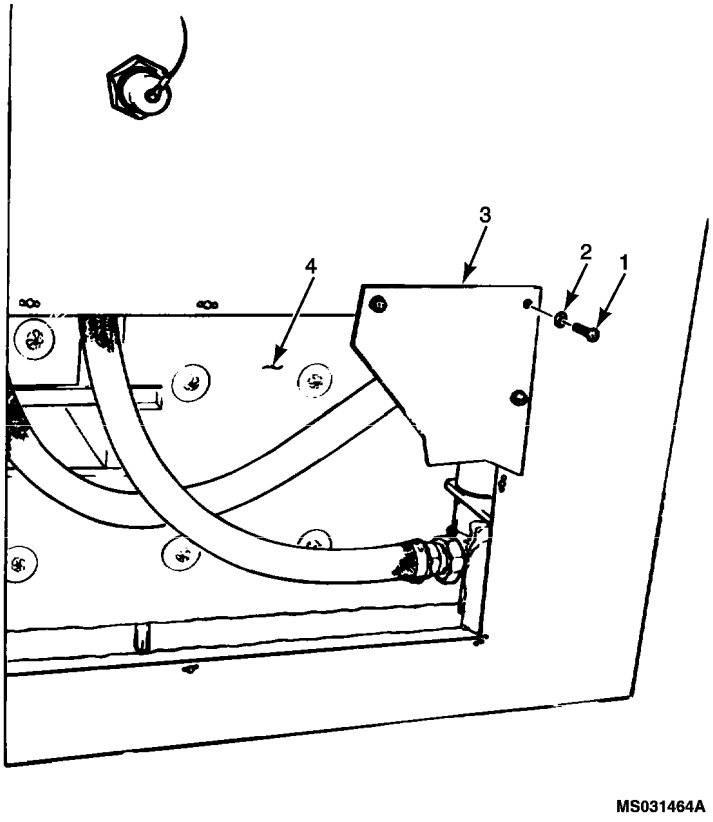
INSTALLATION – CONTINUED



1. Screw
2. Washer
3. Cover, Drain Tube
4. Drain Tube, Exhaust Ejector
5. Drain Tube, Turbine Housing
6. Drain Tube, Combustor Cap
7. Swivel Cap (Instl on Combustor Cap)
8. Grommet, Rubber
9. Drain Tube, FCU
10. O-Ring
11. Drain Tube, Gearcase
12. Hose Fitting
13. Grommet, Rubber
14. Drain Tube, Hyd Pump
15. Nipple

Figure 3. Exhaust Ejector, Engine/Gearcase Drain Tubes Removal/Installation.

INSTALLATION – CONTINUED



1. Screw	3. Access cover, exhaust	5. Surge Valve and Muffler Location
2. Washer	4. Exhaust ejector	6. 5/16" Self-Tapping Screw with Lock Washer Location

Figure 4. Exhaust Ejector Access.

NOTE

Add or remove flat body washers (Figure 2, Item 12) if necessary to align exhaust ejector inlet tube with engine exhaust.

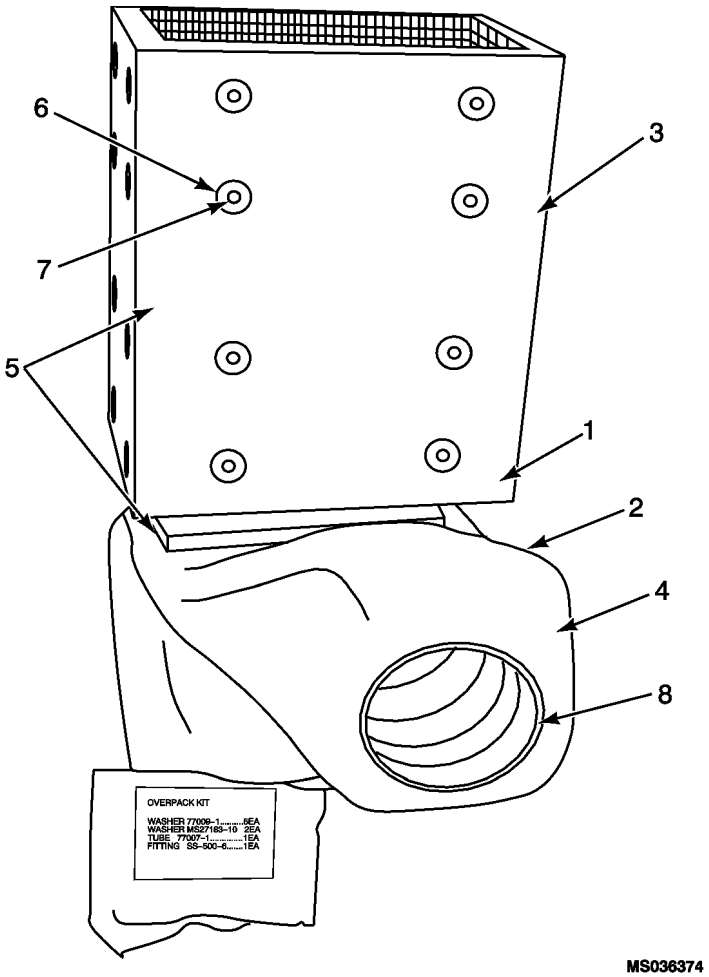
4. Align inlet tube (Figure 2, Item 7) with engine exhaust and install V-band coupling clamp (Figure 2, Item 5). Install nut (Figure 2, Item 6) and tighten.
5. Install twelve nuts (Figure 2, Item 8) and lock star washers (Figure 2, Item 9) and tighten on studs (Figure 2, Item 10).
6. Install ejector drain tube (Figure 3, Item 4). Replace drain tube cover (Figure 3, Item 3) and install screws (Figure 3, Item 1), and washers (Figure 3, Item 2).
7. Attach pneumatic hose (Figure 2, Item 2) to elbow (Figure 2, Item 3) with hose clamp (Figure 2, Item 1).
8. Install elbow (Figure 2, Item 3) on exhaust ejector and secure with nut (Figure 2, Item 4).
9. Replace exhaust access cover (Figure 4, Item 3) using twelve screws (Figure 4, Item 1), and washers (Figure 4, Item 2).
10. Install hydraulic module (WP 0116 00).
11. Reconnect batteries.

INSTALLATION – CONTINUED

12. Perform MOC and check for exhaust and oil leaks.

TEST AND INSPECTION

NEW TYPE EXHAUST SYSTEM



1. New Exhaust Assemblies
2. Plenum
3. Exhaust Ejector (Flue)
4. Tape
5. Thermal Insulation
6. Retainers
7. Pins
8. Plenum Inlet from GTE

Figure 5. New Exhaust Un-installed.

NOTE

The exhaust system is the main device that provides cooling for the Electrical, GTE, and the hydraulics system. Any signs of exhaust leakage may cause over heating of the AGPU and hydraulics system.

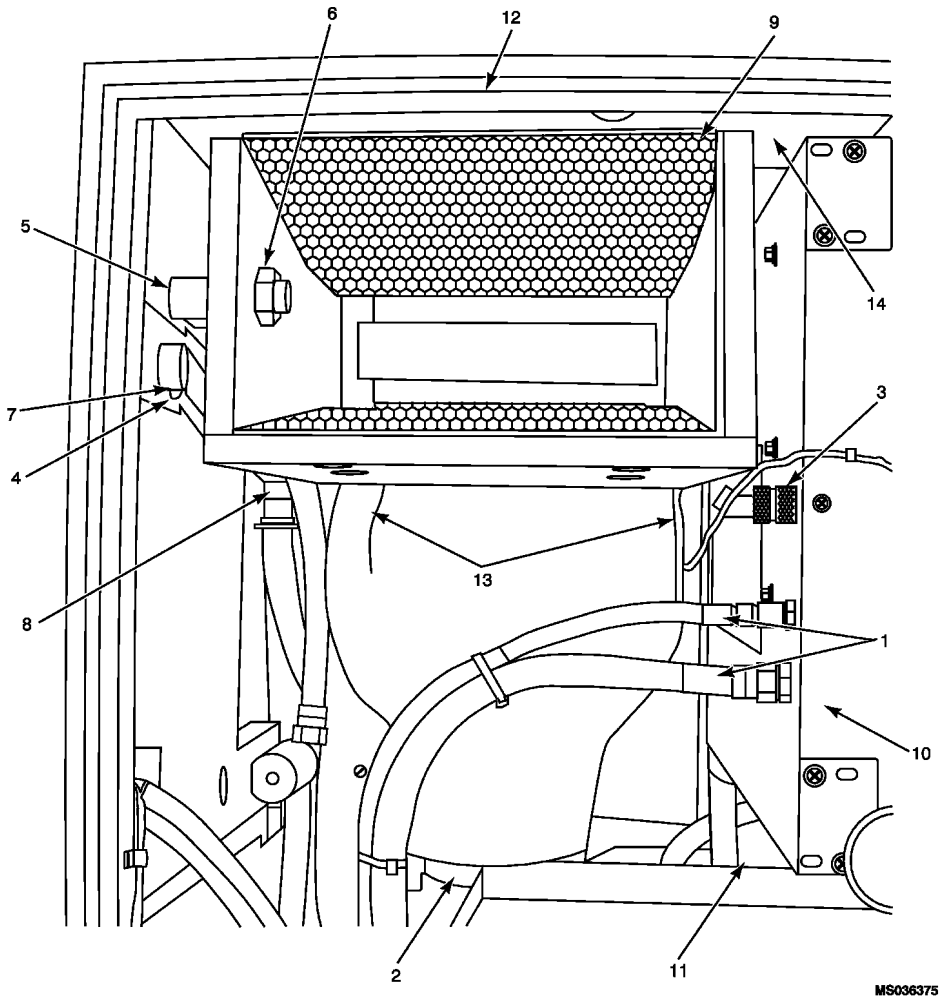
1. For the inspection of the exhaust system, it is required the roof and exhaust access panel in the A/C cable storage area be removed. Refer to WP 0021 00 and WP 0022 00.

TEST AND INSPECTION – CONTINUED

NEW TYPE EXHAUST SYSTEM – CONTINUED

2. Inspect plenum (Figure 5, Item 2) and exhaust ejector (flue) (Figure 5, Item 3) for any missing tape (Figure 5, Item 4) or thermal insulation (Figure 5, Item 5).
3. Inspect exhaust ejector (flue) (Figure 5, Item 3) for any missing insulation retainers (Figure 5, Item 6) or pins (Figure 5, Item 7).
4. Inspect the mounting hardware and mounts (Figure 11, Item 1) for security, there should be 8 each ¼ " nuts (Figure 2, Item 8), 8 each star washers (Figure 2, Item 9) and 8 each flat body washers (Figure 2, Item 12) placed on AGPU floor above rubber insulator strip (Figure 2, Item 13).
5. Inspect that the V-band coupling clamp (Figure 2, Item 5) at engine (GTE) output end is tight and secured with lacing wire, at least .032 in. thick.
6. Inspect exhaust system for signs of leakages at engine (GTE) output (Figure 2, Item 15) , black suit at V-Band Coupling clamp location or any other area around or under the exhaust plenum (Figure 5, Item 2) and exhaust ejector (flue) (Figure 5, Item 3) could be exhaust leakage. No leakage should be permitted, and must be repaired if found.
7. Inspect the surge valve muffler (Figure 4, Item 5) for emplacement and security.
8. Inspect the 5/16-inch self-tapping screw and lock washer (Figure 4, Item 6) located at the nipple (Figure 6, Item 8) connecting the surge valve to the pass air system and exhaust (flue) (Figure 6, Item 9) for emplacement and security.
9. Inspect frame welds (Figure 11, Item 3) with flashlight and mirror of exhaust assembly for cracks in all welds and that support struts (Figure 11, Item 4) are secure all sides.
10. After the inspection process is complete, and no faults are noted replace roof and panels removed. Refer to WP 0021 00 and WP 0022 00.

REMOVAL



1. High Pressure and Low Pressure Hydraulic Lines
2. V-band Clamp
3. Electrical Cannon Plug P-14
4. Clamp
5. Elbow
6. Nut
7. Pneumatic Hose
8. Surge Nipple
9. Top of Flue
10. Hydraulic Module
11. Engine Compartment
12. AGPU Frame
13. Lift Points
14. Insulation

Figure 6. New Exhaust Installed into AGPU.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
3. For the removal of the exhaust system, it is necessary to remove the roof and exhaust access panel in the A/C cable storage area. Refer to WP 0021 00 and WP 0022 00 .
4. Remove hydraulic module (WP 0116 00) .
5. Loosen hose clamp (Figure 6, Item 4) and disconnect pneumatic hose (Figure 6, Item 7) from elbow (Figure 6, Item 5) from exhaust flue (top of flue) (Figure 6, Item 9).
6. Remove nut (Figure 6, Item 6) and elbow (Figure 6, Item 5) from exhaust flue (top of flue) (Figure 6, Item 9).
7. Remove screws (Figure 3, Item 1) and washers (Figure 3, Item 2) and remove drain tube cover (Figure 3, Item 3) and remove exhaust ejector drain tube (Figure 3, Item 4).

REMOVAL – CONTINUED

8. Remove V-band clamp coupling (Figure 2, Item 5) and nut (Figure 2, Item 6) from engine (GTE) output (Figure 2, Item 15), and slide V-band coupling clamp (Figure 2, Item 5) and nut back toward exhaust (Figure 5, Item 1). Discard V-band clamp, **do not** reuse clamp.
9. Remove the exhaust mounting hardware (Figure 2, Item 7, 8, 9 and 12), there should be 8 each 7/16" nuts (Figure 2, Item 8), 8 each star washers (Figure 2, Item 9) and 8 each flat body washers (Figure 2, Item 12), placed on AGPU floor above rubber insulator strip (Figure 2, Item 13).
10. Remove water drain tube (Figure 3, Item 4) and cover (Figure 3, Item 3) from front of AGPU located behind tow bar by removing 4 each screws (Figure 3, Item 1) and washers (Figure 3, Item 2), place in a secure place for re-use.
11. Remove drain tube (Figure 3, Item 4) with a 9/16" wrench.
12. Secure and cap high pressure and low pressure hydraulic lines (Figure 6, Item 1) to side frame (Figure 6, Item 12) of AGPU engine (GTE) compartment.
13. Cap hydraulic ports for high pressure and low pressure lines (Figure 6, Item 1) on hydraulic module (Figure 6, Item 10).
14. Disconnect the pump suction hydraulic quick disconnect (QC) at lower left base of hydraulic module and place out of the way of the hydraulic module frame.
15. Remove electrical cannon plug P-14 (Figure 6, Item 3) from hydraulic module and secure to side of AGPU engine (GTE) compartment (Figure 6, Item 11).

CAUTION

Ensure that exhaust ejector clears AGPU frame (Figure 6, Item 12) and insulation (Figure 6, Item 14) when removing or installing. Insulation weld pins (Figure 5, Item 7) on exhaust ejector can shred engine (GTE) housing insulation (Figure 6, Item 14).

16. Attach a rope or sling to lift points (Figure 6, Item 13). Remove exhaust plenum and ejector (flue) (Figure 5, Item 2 and 3) by carefully lifting exhaust assemblies (Figure 5, Item 1) straight up and out of AGPU.

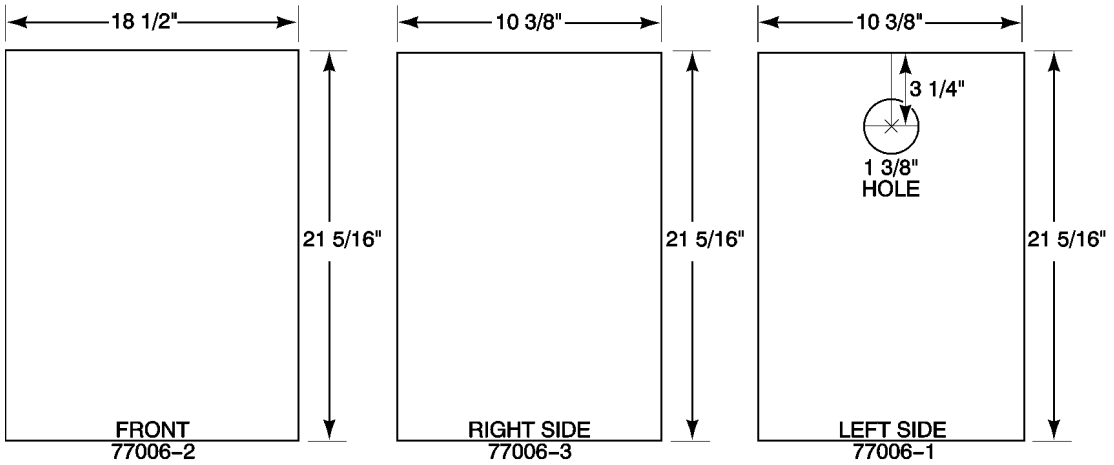
REPAIR OR REPLACEMENT

REPAIR OF INSULATION FOR EXHAUST EJECTOR (NEW TYPE EXHAUST ONLY)

1. Remove new type exhaust system from AGPU (Removal Steps 1-14).
2. Remove old insulation from all three sides of Exhaust Ejector by removing retainers (Figure 5, Item 6) and clean surface of ejector as needed.
3. Inspect retaining pins (Figure 5, Item 7) to ensure security and straightness.
4. To replace insulation board, cut new pieces from Dura Board insulation (part number 739741102, NSN 5640-01-441-0284) per dimensions listed in (Figure 8), (Figure 9) and (Figure 10).
5. Install the exhaust ejector and Plenum into the AGPU (Installation steps 1-15).

REPAIR OR REPLACEMENT – CONTINUED

REPAIR OF INSULATION FOR EXHAUST EJECTOR (NEW TYPE EXHAUST ONLY) – CONTINUED



PN 739741102 DURA BOARD INSULATION
NSN 5640–01–441–0284

MS037778

Figure 7. Dura Board Insulation.

REPAIR OR REPLACEMENT – CONTINUED

REPAIR OF INSULATION FOR EXHAUST EJECTOR (NEW TYPE EXHAUST ONLY) – CONTINUED

Figure 8. Front.

REPAIR OR REPLACEMENT – CONTINUED

REPAIR OF INSULATION FOR EXHAUST EJECTOR (NEW TYPE EXHAUST ONLY) – CONTINUED

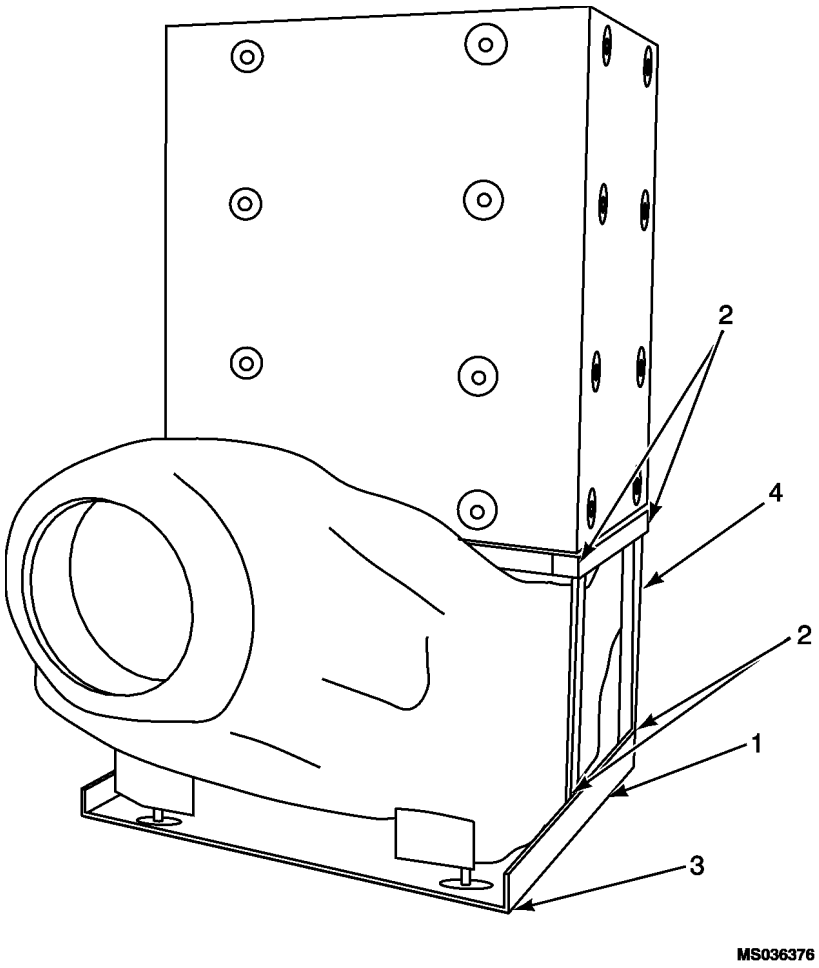
Figure 9. Left Side.

REPAIR OR REPLACEMENT – CONTINUED

REPAIR OF INSULATION FOR EXHAUST EJECTOR (NEW TYPE EXHAUST ONLY) – CONTINUED

Figure 10. Back.

INSTALLATION



1. Mounts
2. Exhaust Frame
3. Frame Welds
4. Support Struts

Figure 11. New Exhaust Frame Un-installed.

NOTE

When removing the exhaust system, the hydraulics module must be removed, this will allow air to be induced into the hydraulic system that must be removed prior to putting system back into operation by performing hydraulic purge operation (TM 1-1730-229-13, Operator Instructions).

1. Attach a rope or sling to lift points (Figure 6, Item 13). Install exhaust plenum and ejector (flue) assemblies (Figure 5, Item 1) by carefully lowering exhaust plenum and exhaust ejector (flue) straight down into AGPU engine (GTE) compartment floor.
2. Align the exhaust plenum with the engine (GTE) exhaust output (Figure 2, Item 15) and install the exhaust ejector (flue) (Figure 5, Item 3).
3. Install mounting hardware, that consists of 8 each 7/16 " nuts (Figure 2, Item 8), 8 each star washers (Figure 2, Item 9) and 8 each flat body washers (Figure 2, Item 12) placed on AGPU floor above rubber insulator strip (Figure 2, Item 13). Don't tighten nut until new V-Band clamp coupling (Figure 2, Item 5 and 6) on exhaust and engine (GTE) has been tightened.

INSTALLATION – CONTINUED

4. Install water drain tube (Figure 3, Item 4) and cover (Figure 3, Item 3) in front of AGPU located behind tow bar with 4 each screws (Figure 3, Item 1) and washers (Figure 3, Item 2).
5. Tighten drain tube to plenum with a 9/16” wrench.
6. After alignment of exhaust plenum with the engine (GTE) exhaust engine output and the installation of the exhaust ejector (flue) new V- band Clamp coupling, tighten all mounting hardware to the AGPU floor studs (Figure 2, Item 10).
7. Install hydraulic module (WP 0116 00).
8. Uncap and install high pressure and low pressure hydraulic lines (Figure 6, Item 1) with new 37 degree flare seals to hydraulic module.
9. Reconnect the pump suction hydraulic quick disconnect (QC) at base of hydraulic module (WP 0116 00).

NOTE

New 37 degree flare seals must be used, never use old seals, if old seals are re-used leakage of hydraulic fluid will occur.

10. Reconnect electrical cannon plug P-14 (Figure 6, Item 3) to hydraulic module.
11. Connect pneumatic hose (Figure 6, Item 7) to elbow (Figure 6, Item 5) at exhaust flue (top of flue) (Figure 6, Item 9) tighten hose clamp (Figure 6, Item 4).
12. Install nut (Figure 6, Item 6) and elbow (Figure 6, Item 5) from pneumatic system to exhaust flue (Figure 6, Item 9).
13. Reconnect batteries.
14. Install roof and exhaust access panel in the A/C cable storage area. Refer to WP 0021 00 and WP 0022 00.
15. Perform MOC and PMCS (WP 0016 00).
16. Perform hydraulic purge operation in TM 1-1730-229-13, Operator Instructions and check for exhaust and fluid leakage.

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

EXHAUST EJECTOR AND PLENUM REPAIR

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

References

TB 1-1730-229-30
WP 0002 00
WP 0021 00
WP 0022 00
WP 0116 00
WP 0159 00

GENERAL

For description of frame and housing components, refer to WP 0002 00.

REPAIR OR REPLACEMENT

PLENUM INSULATION WRAPPING INSTRUCTIONS

Figure 1. Plenum Insulation Wrapping Instructions.

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Table Tool List

1. Spectrum razor blade 6 ½ “
2. Tape measure
3. Sharpie black marker
4. Luma-Tape 2” wide NSN 751005029147
5. Luma-Tape ½” wide NSN 7510005029147
6. Windex Cleaner
7. Paper Towels

Figure 2. Tools Required For Exhaust Insulation Taping.

KEYS TO A QUALITY EXHAUST INSULATION AND TAPING

Be sure that your metal is very clean. There should be no residual oil, water, or dirt on the exhaust.
Make sure that your tape is clean. While working with the insulation there will be small particles that will flake off, don’t let them on the unit while trying to tape.
Be sure to overlap the tape. A good rule of thumb is overlap by half of the piece you are taping to. So if the tape is 1” wide, overlap it by 1/2”.
Lightly compress the insulation while taping.

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Remember that the tape will only stick to metal or to other pieces of tape that are attached to metal. So you cannot put a piece of tape onto a piece of insulation and expect it to stay in place if it is not secured to a piece of metal or tape.

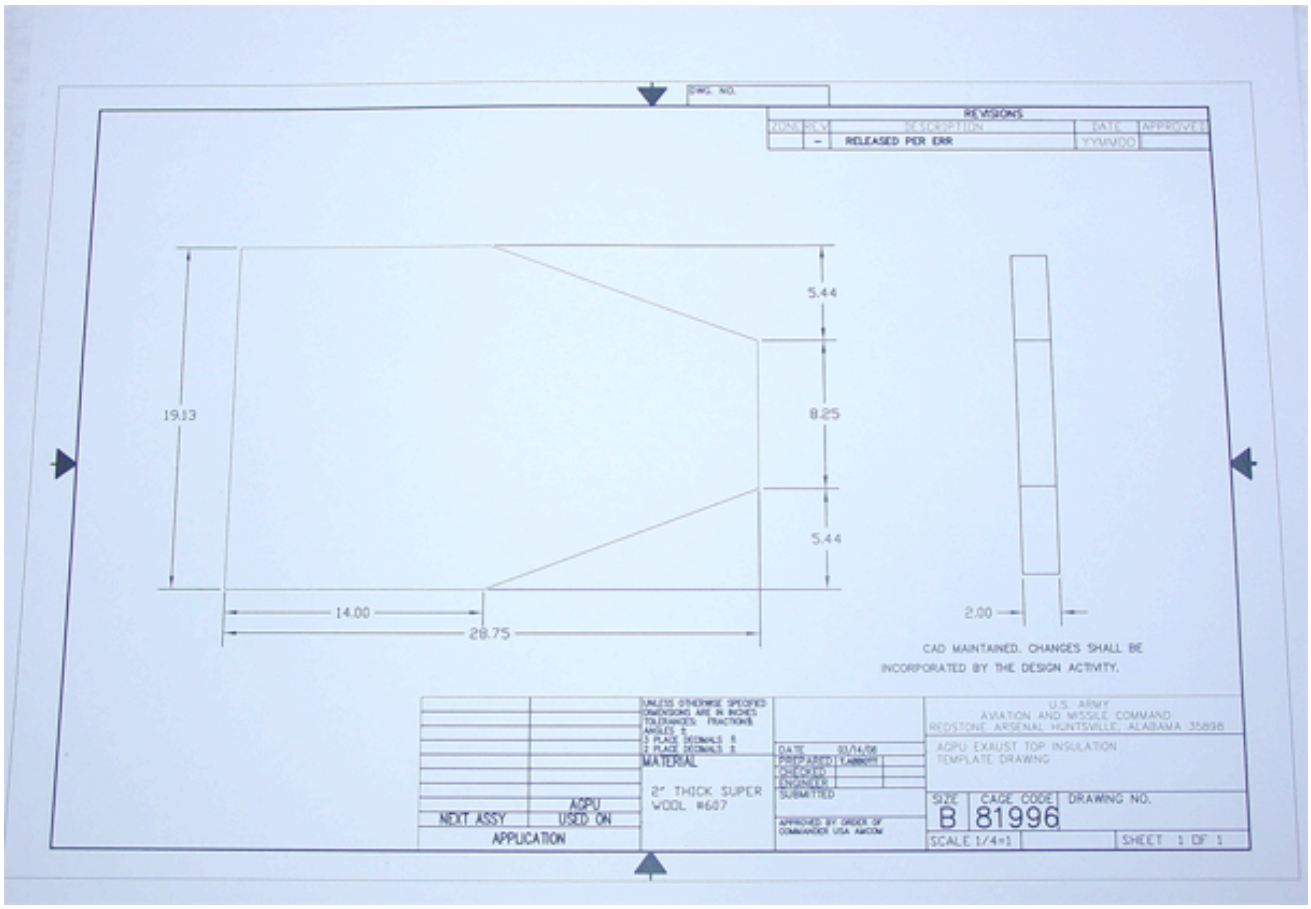


Figure 3. Template Drawing for Top Insulation .

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

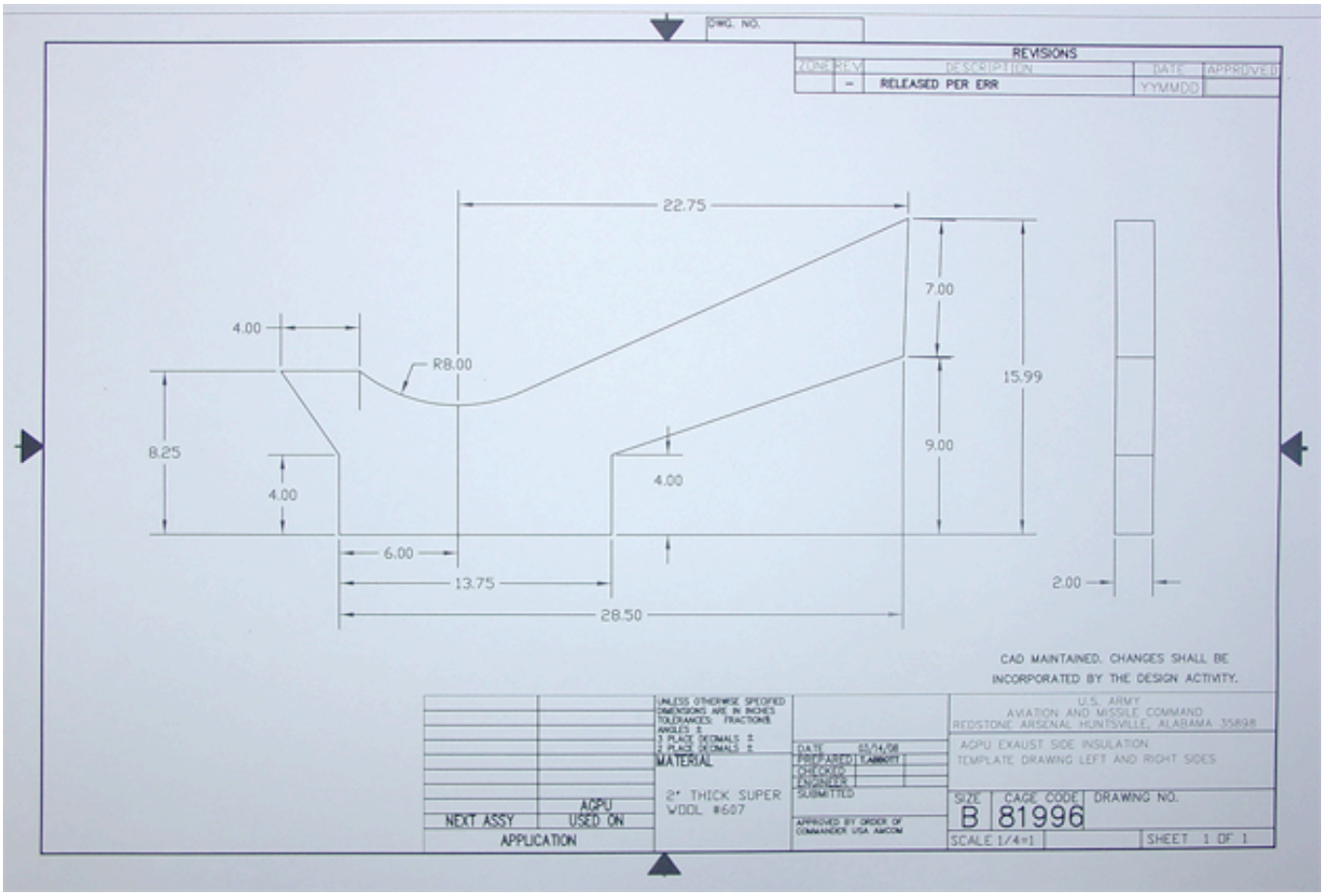


Figure 4. Template Drawing for Left and Right Side Insulation. .

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

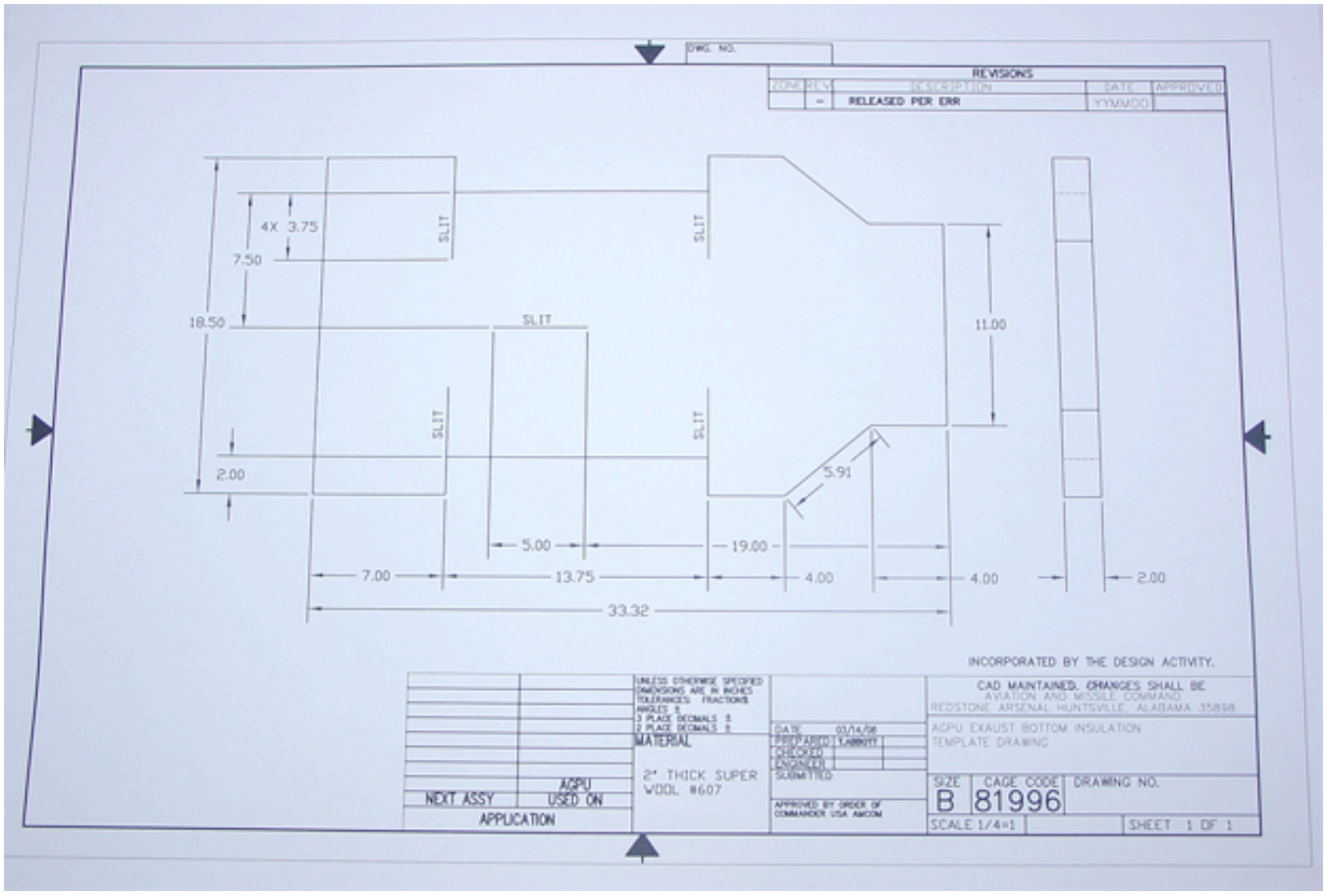


Figure 5. Template Drawing for Bottom Insulation.

After creating a template from the schematics provided , cut the insulation to the template size. Remember you will need to cut two pieces of insulation for the sides left and right.

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

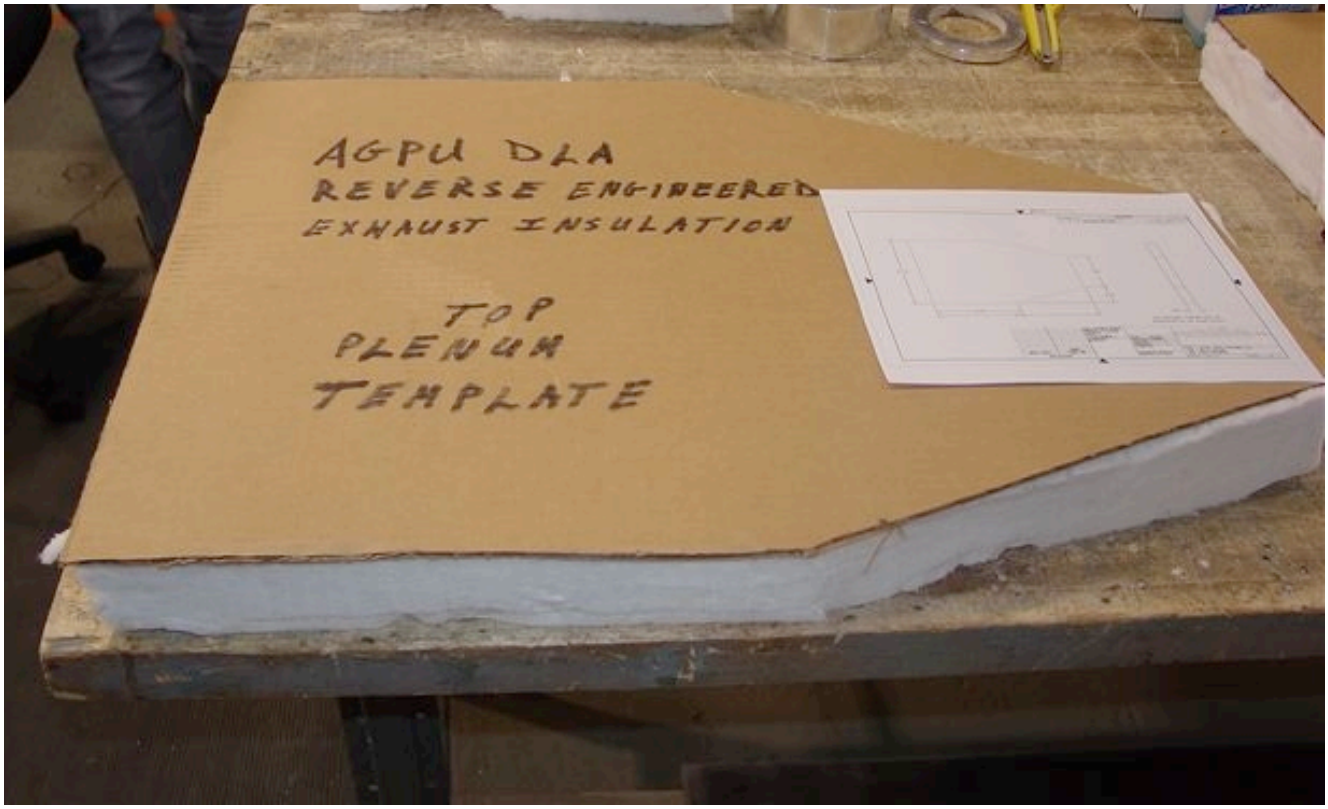


Figure 6. Plenum Template (Sheet 1 of 3).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 6. Plenum Template (Sheet 2 of 3).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 6. Plenum Template (Sheet 3 of 3).

Be sure to put the extension tube coupler on the drain tube for the exhaust. This will prevent the tube form getting damage during the process.

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

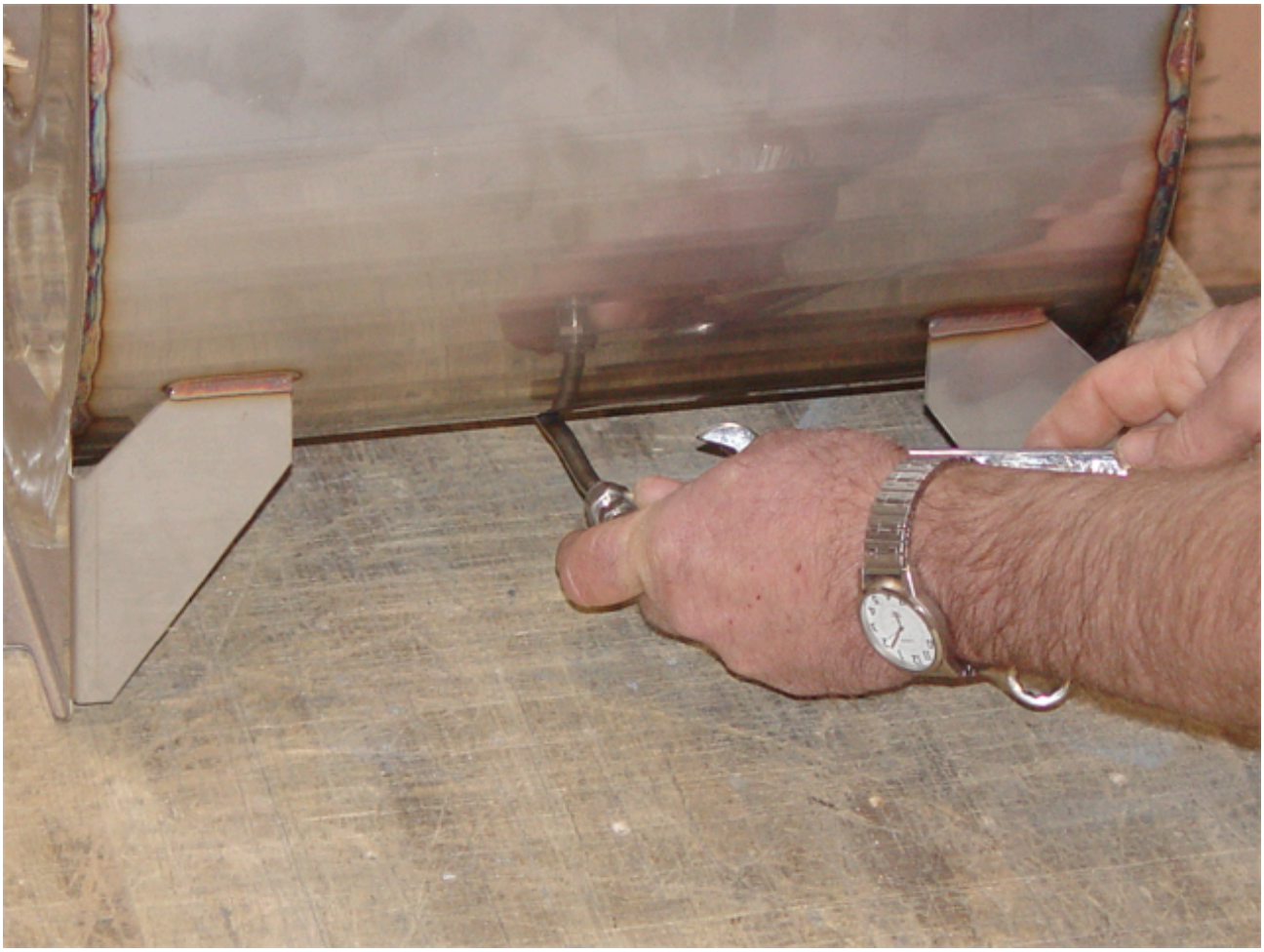


Figure 7. Moisture Ejector Drain Tube.

Measure down the plenum to be sure you don't have the insulation too high to prevent airflow for venturi cooling. You should mark 3 ½ " down from the opening, this will give you a good reference guide for later.

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 8. Measuring the Plenum.

To prepare the exhaust for insulating later, and to ensure the insulation tape doesn't stick to the metal around the inlet, place a piece 2" of tape around the inlet to get the proper measurement. Then you will remove it and safeguard for future use.

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 9. Exhaust Measurements.

Place another piece of tape on the work bench, on top of the original piece from the inlet so the adhesive sides are together. Add small overlapping pieces of tape , approximately 4”, to the piece that has been made to go around the inlet.

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 10. Measuring Tape (Sheet 1 of 2).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 10. Measuring Tape (Sheet 2 of 2).

Place the inlet piece that you have created back onto the exhaust plenum and this will be used at a later time.

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 11. Inlet Taping.

Now you can begin on the side insulation. It is important to get the insulation situated where you need it (Left Picture) and put a good solid piece of tape that will hold it down during the process (right picture). Note the mark that was made on the plenum earlier. You should be sure the insulation lines up with that mark when starting.

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 12. Insulation (Sheet 1 of 2).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 12. Insulation (Sheet 2 of 2).

When doing the sides, start at the bottom leg area of the plenum to make a good base for the side and always make sure to use the side metal as your overlap. If you use the insulation it will not stick , run tape to metal surface with an overlap of no less than 1”.

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 13. Wrapping of the Plenum.

This shows how to use the metal edges to tape properly so the insulation does not slip around. This will ensure the tape bonds with the metal surfaces, not the insulation.

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 14. Taping of the Plenum (Bottom).

Install the insulation on the other side of plenum as previously directed, before starting to insulate the bottom.

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

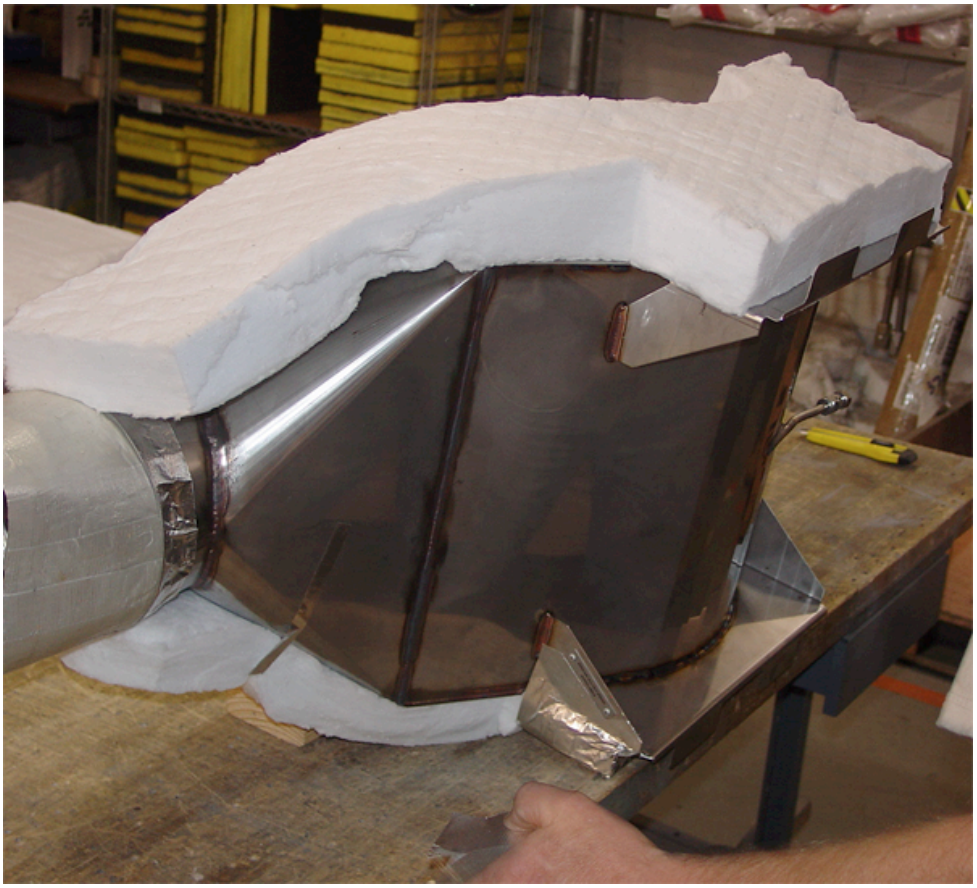


Figure 15. Preparing Insulation for Taping (Sheet 1 of 2).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

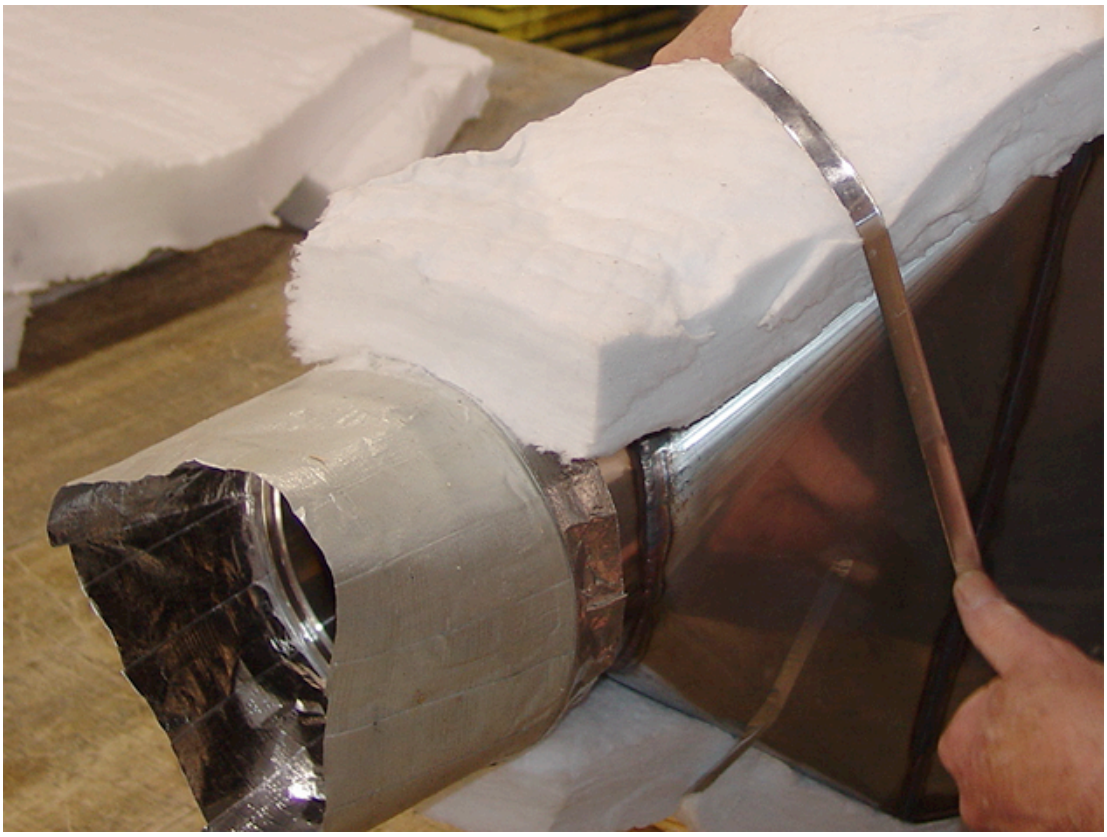


Figure 15. Preparing Insulation for Taping (Sheet 2 of 2).

The sides now have the base taped up and installed. The next step is to put the insulation on the bottom of the plenum.

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 16. Placing Insulation on Bottom of the Plenum.

When you add the insulation to the bottom of the plenum, make sure to put it on, and have the extension tube coupler come through the insulation.

Figure 17. Placing Insulation on the Bottom of the Plenum Showing the Extension Tube.

You can now trim the left and right sides of the plenum and start to tape the bottom to the sides. Again remember to tape to either metal or other pieces of tape, so that it adheres.

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 18. Trimming Insulation on the Plenum (Sheet 1 of 2).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 18. Trimming Insulation on the Plenum (Sheet 2 of 2).

Now the process begins of taping around the plenum to keep the pieces of insulation together.

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 19. Taping Down the Insulation (Sheet 1 of 2).

Figure 19. Taping Down the Insulation (Sheet 2 of 2).

This part of the taping is important to the end product. You do not want to miss the small area around the extension tube coupler on the exhaust plumbing.

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

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Figure 20. Taping Down the Insulation Around the Extension Tube (Sheet 1 of 3).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 20. Taping Down the Insulation Around the Extension Tube (Sheet 2 of 3).

Figure 20. Taping Down the Insulation Around the Extension Tube (Sheet 3 of 3).

Trimming of the insulation is very important at this phase. If you have a good idea of what the finished product will look like it will help in making the decision what can be trimmed. The more insulation you trim from the plenum, the more symmetrical it will look and fit in the ejector when finished.

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

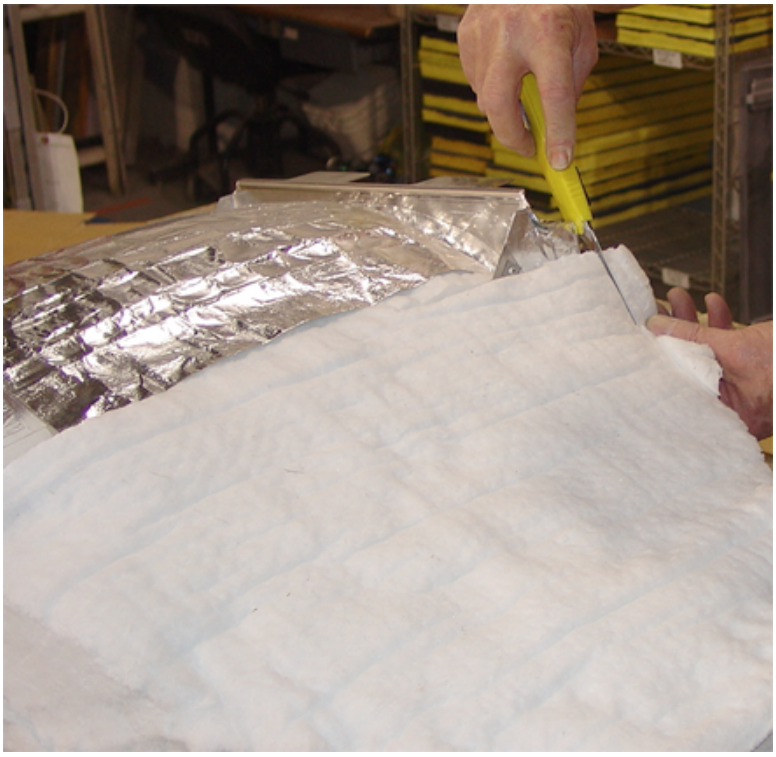

Figure 21. Trimming Insulation from Plenum (Sheet 1 of 2).

Figure 21. Trimming Insulation from Plenum (Sheet 2 of 2).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Take notice that around the inlet it is important to have a narrowing trim toward the inlet and that the inlet has a flat face edge around it as well.

Figure 22. Trimming Insulation Around the Inlet (Sheet 1 of 2).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 22. Trimming Insulation Around the Inlet (Sheet 2 of 2).

Cut the inlet tape into small slices that can be folded back around the inlet (L). This piece was made to keep the tape and insulation around the inlet from sticking to the inlet. While also allowing the insulation to have some give, so that the tape doesn't rip during the installation process.

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 23. Inlet Tape Cut into Small Slices (Sheet 1 of 2).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 23. Inlet Tape Cut into Small Slices (Sheet 2 of 2).

Run three pieces of tape from the inlet back to the base that already had been taped (L). Then do the rest of the bottom and be sure to have some overlap onto the side to allow for the final taping and wrapping of the plenum.

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 24. Insulating the Top Snug (Sheet 1 of 2).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

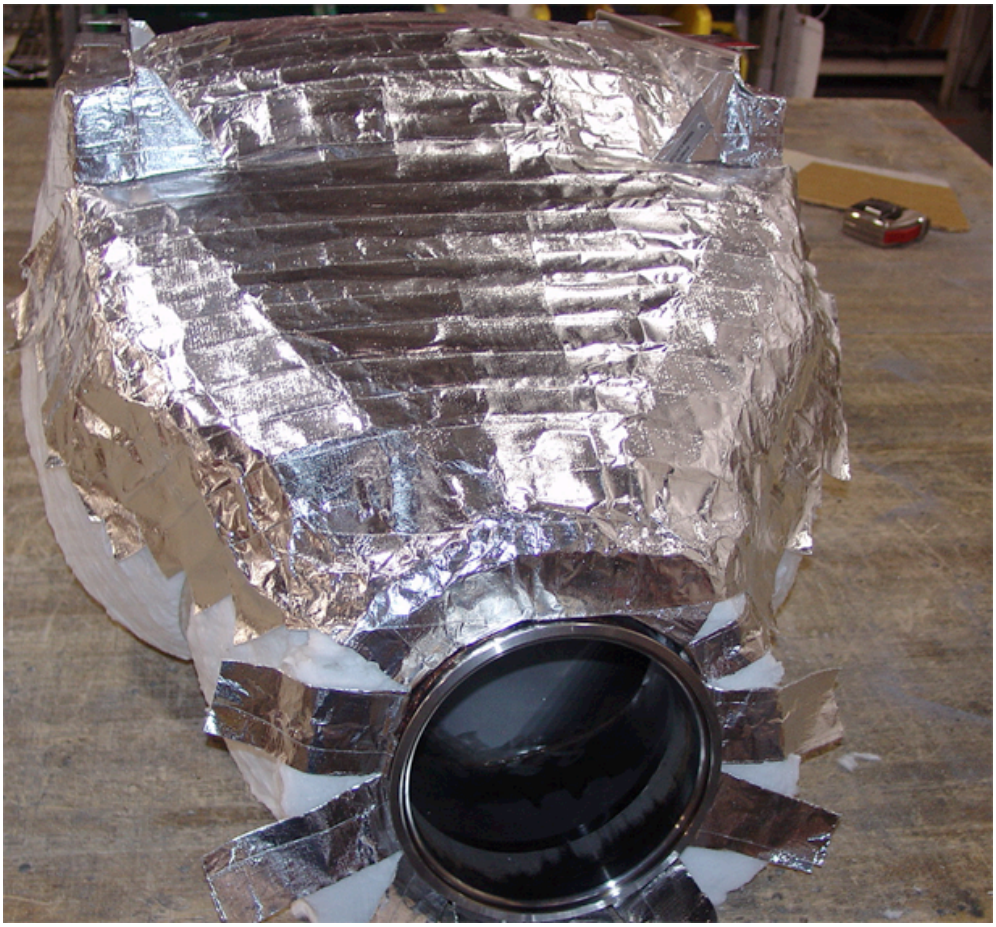

Figure 24. Insulating the Top Snug (Sheet 2 of 2).

Now it is time to insulate the top. Be sure to snug the insulation into the bend in the plenum.

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 25. Snugging Insulation into the Bend (Sheet 1 of 2).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 25. Snugging Insulation into the Bend (Sheet 2 of 2).

Put your holding piece of tape directly into the bend to keep it in place. Now you should trim the insulation around the plenum. This should be trimmed down to the 3 ½"point that you marked at the beginning of the process (see arrows).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 26. Taping Bend to Keep it in Place (Sheet 1 of 2).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

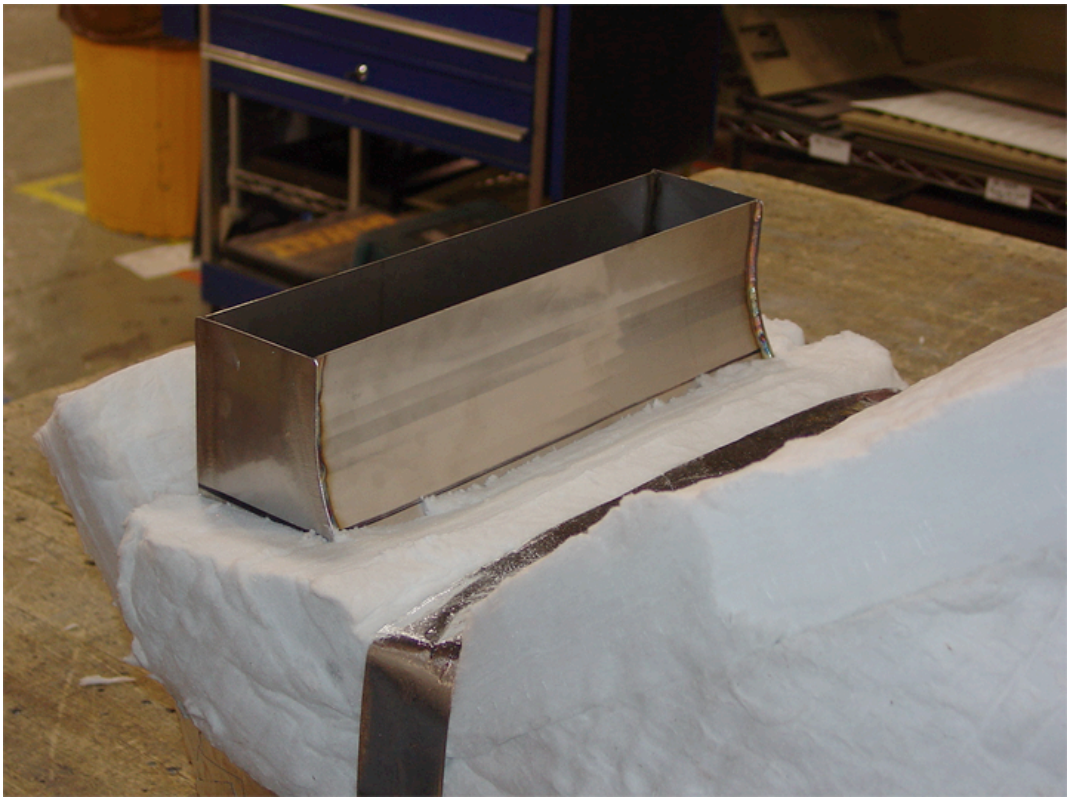

Figure 26. Taping Bend to Keep it in Place (Sheet 2 of 2).

Now you will begin to attach the top piece of insulation to the rest of the insulation. This should be secured to the entire diameter of the exhaust, be sure to secure the tape on tape or tape on metal, to ensure it will hold in place well.

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 27. Attaching Top Piece of Insulation to the Rest of the Insulation (Sheet 1 of 2).

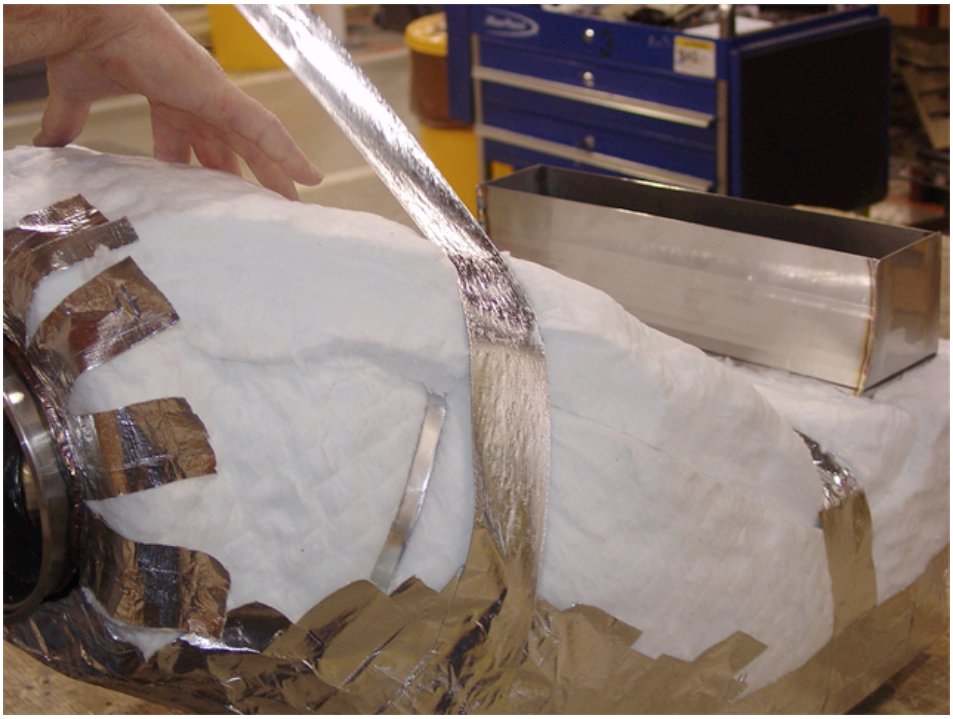

Figure 27. Attaching Top Piece of Insulation to the Rest of the Insulation (Sheet 2 of 2).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Now take the tape from the bottom of the unit, to the top holding piece of tape that is used to secure the top of insulation. This will give you a method to continue taping the whole top of the unit .

Figure 28. Taping the Top of the Unit (Sheet 1 of 2).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

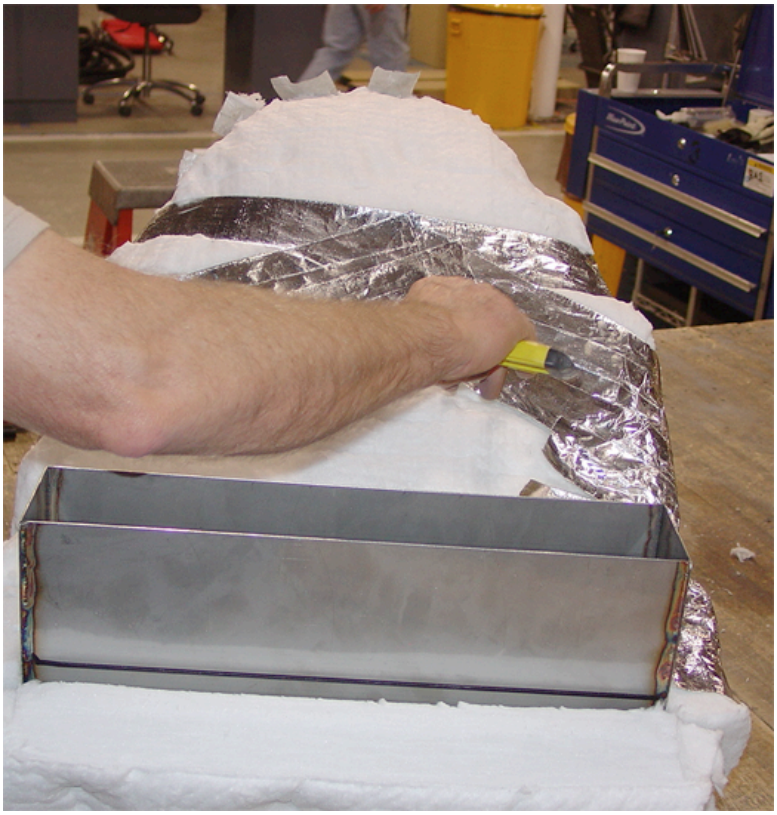

Figure 28. Taping the Top of the Unit (Sheet 2 of 2).

Now you can continue to do your final taping of the plenum towards the top and the sides. Continue overlapping tape half of the width of the other installed tape.

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

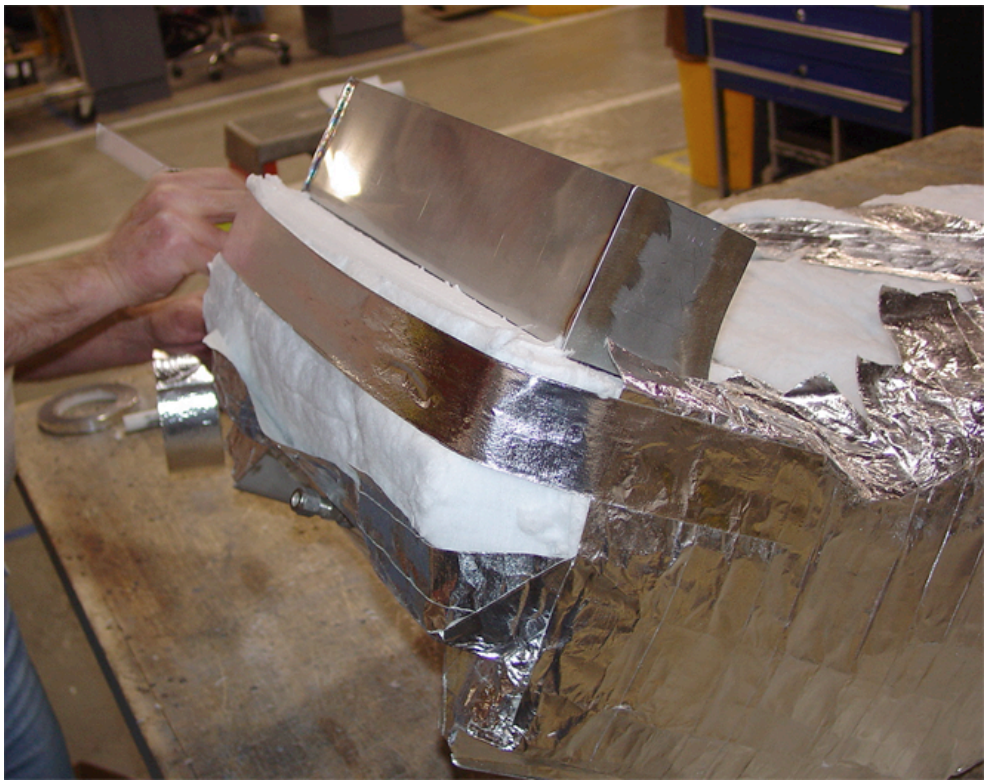

Figure 29. Final Taping of the Plenum (Sheet 1 of 2).

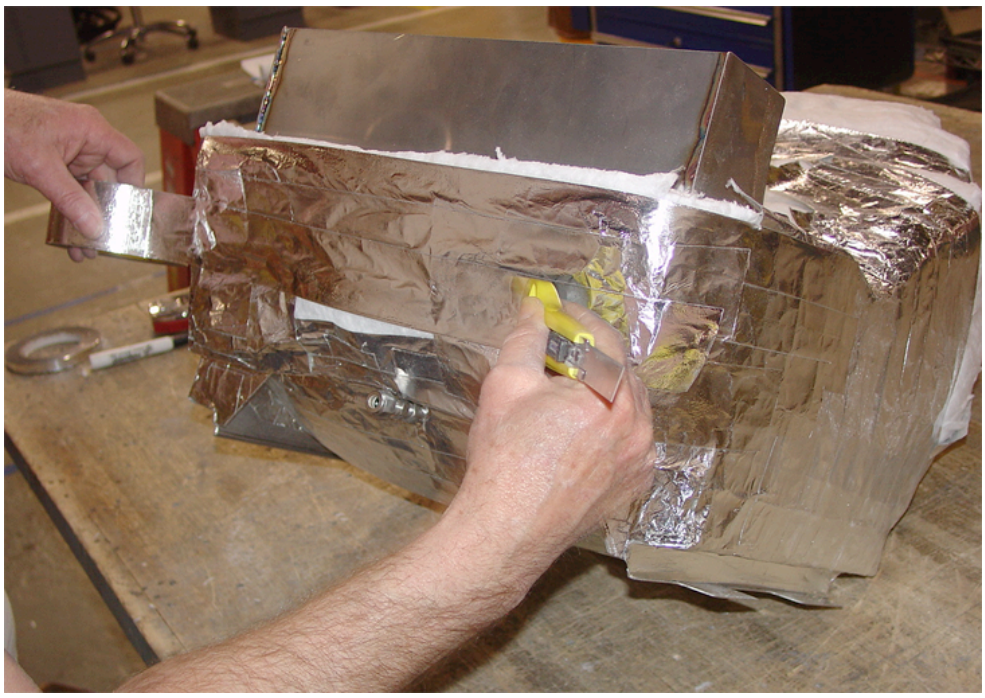

Figure 29. Final Taping of the Plenum (Sheet 2 of 2).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

The plenum insulation on the top is in its final taping stages but you must build the non stick sides around the plenum outlet.

Figure 30. Building the Nonstick Side Around the Plenum Outlet.

These small pieces of double sided tape will need to be positioned down inside the insulation along the plenum opening, but still have enough lip left to be taped to. Insert the tape down the plenum opening allowing for half of the tape to be used for further taping.

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 31. Folding of Tape to Form the Two Sided Tape (Sheet 1 of 4).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 31. Folding of Tape to Form the Two Sided Tape (Sheet 2 of 4).

Figure 31. Folding of Tape to Form the Two Sided Tape (Sheet 3 of 4).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 31. Folding of Tape to Form the Two Sided Tape (Sheet 4 of 4).

While taping around the edges of the plenum you will utilize the folded pieces of tape. So that the insulation will all be covered in the little crevices along the plenum, you will add smaller pieces of tape to the edges.

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 32. Utilizing the Folded Pieces of Tape.

Finally, you will tape the top portion of the plenum, and continue reinforcing and the taping procedure. Remember to ensure overlapping of tape by one half width of tape.

Figure 33. Taping the Top Portion of the Plenum.

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

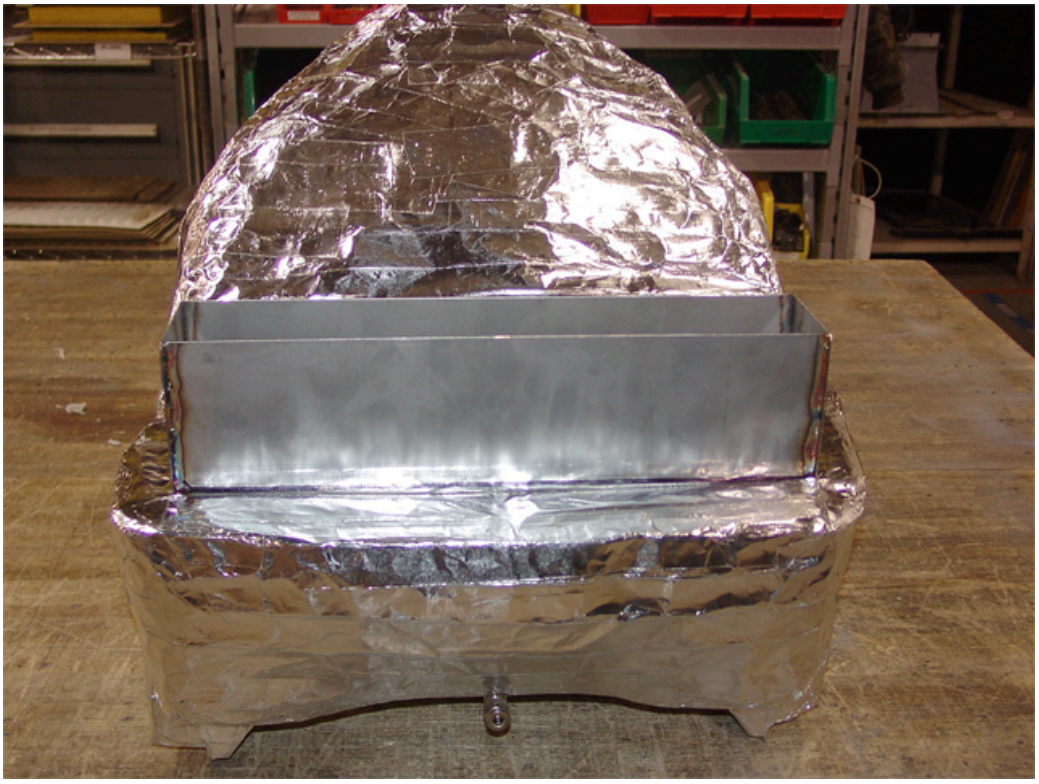

Figure 34. View of Finished Product. (Sheet 1 of 3).

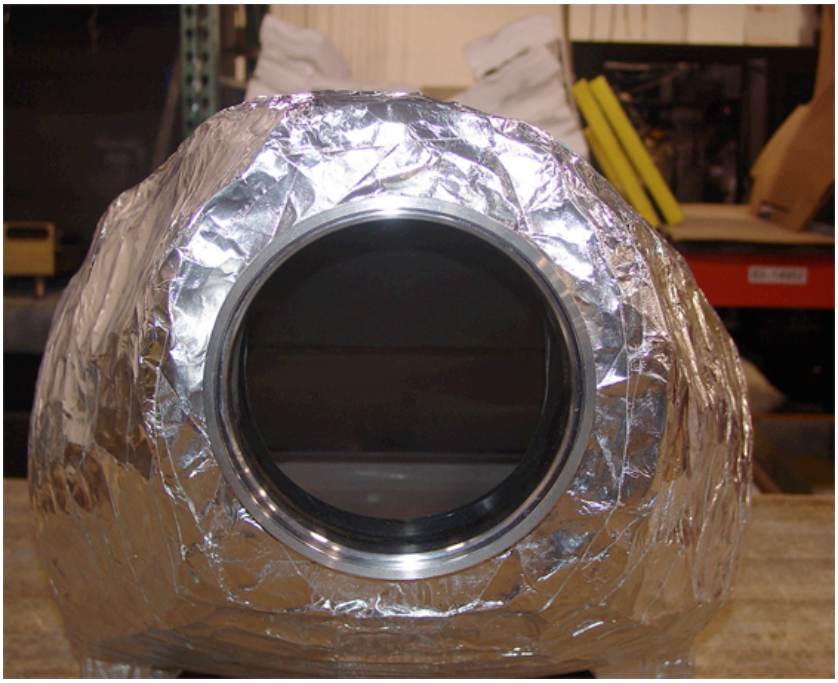

Figure 34. View of Finished Product. (Sheet 2 of 3).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 34. View of Finished Product. (Sheet 3 of 3).

Bottom and Top view of completed insulation wrap. Note: the overlap procedure of the taping process.

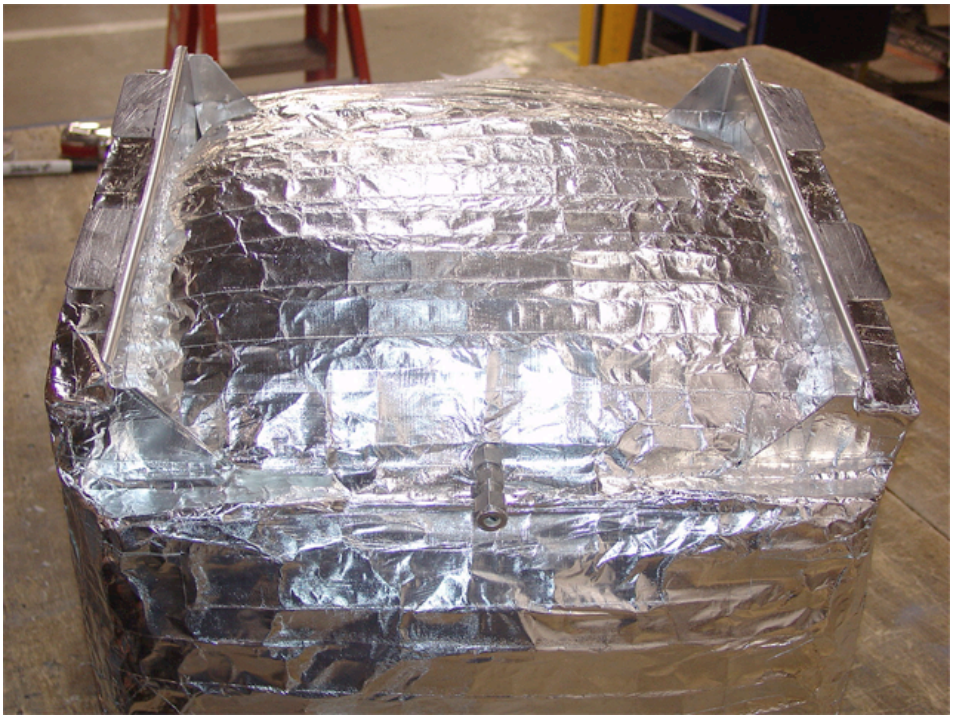

Figure 35. Bottom and Top View of Completed Insulation Wrap (Sheet 1 of 2).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 35. Bottom and Top View of Completed Insulation Wrap (Sheet 2 of 2).

INSTALLATION

Refer to WP 0159 00 for installation procedures.

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

REMOVAL AND INSTALLATION OF ENGINE/GENERATOR/HYDRAULIC PUMP

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

Materials/Parts

Wire, Nonelectrical (WP 0170 00, Item 60)

References

WP 0016 00
WP 0027 00
WP 0116 00
WP 0159 00
WP 0031 00

Figure 1 shows an outline view of the engine and generator from the right side of the AGPU. Note that the generator (Figure 1, Item 6) cannot be removed from the engine (Figure 1, Item 9) without first removing the engine on the MEP 83-360A Model only. If the AGPU is a MEP 83-360D/E then the Alternator can be removed without removing the engine. the engine is supported at two points by right and left engine mounts (Figure 1, Item 8). The generator is supported at the rear by an adjustable height generator support (Figure 1, Item 7). This allows aligning the engine exhaust with the exhaust ejector inlet tube (refer to Figure 2). Care must be taken when removing the engine/generator, since the lifting cable on the engine is forward of the combined engine/generator center of gravity. When lifting with a hoist, the rear of the generator must be supported since the generator will tip down.

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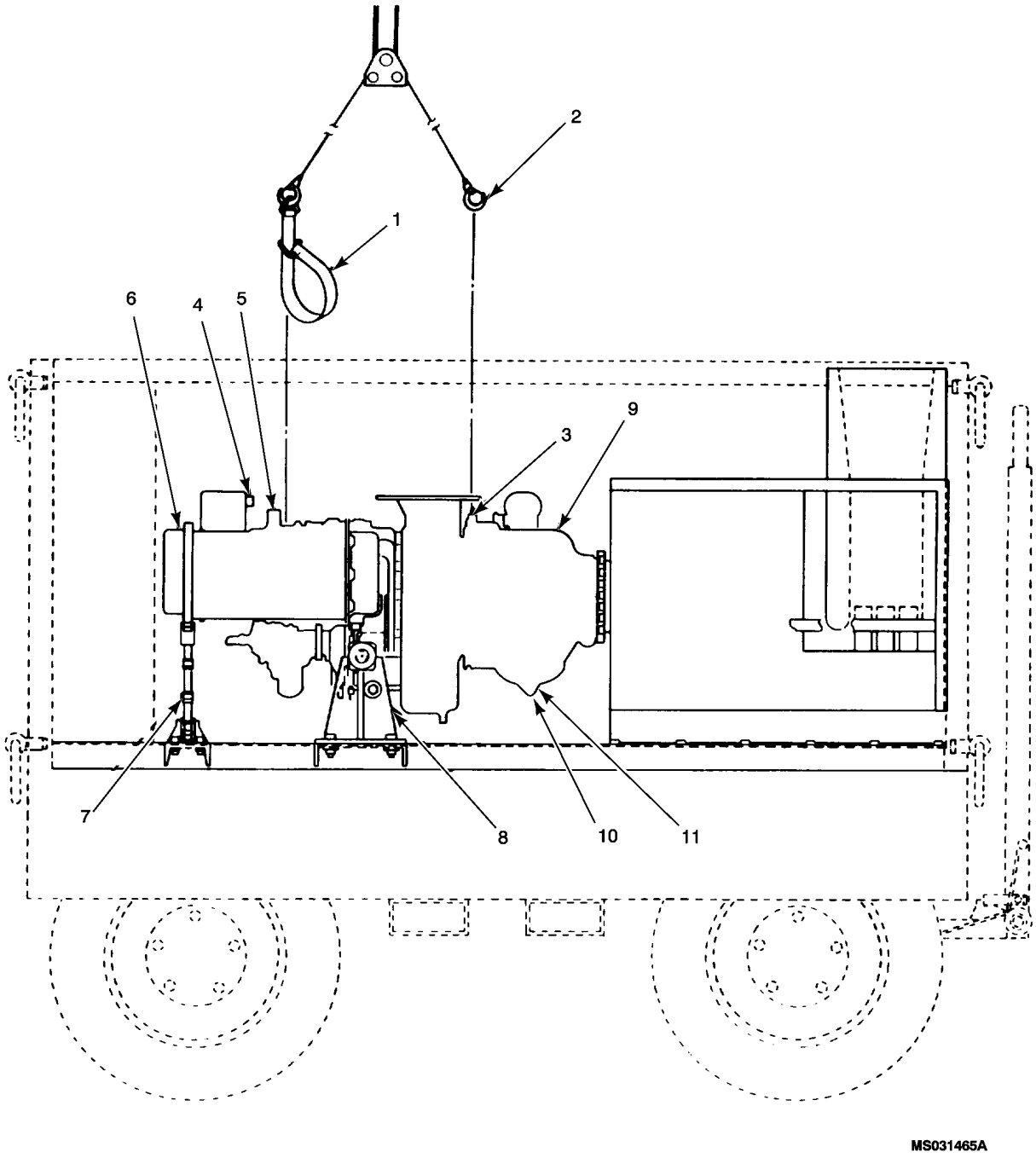
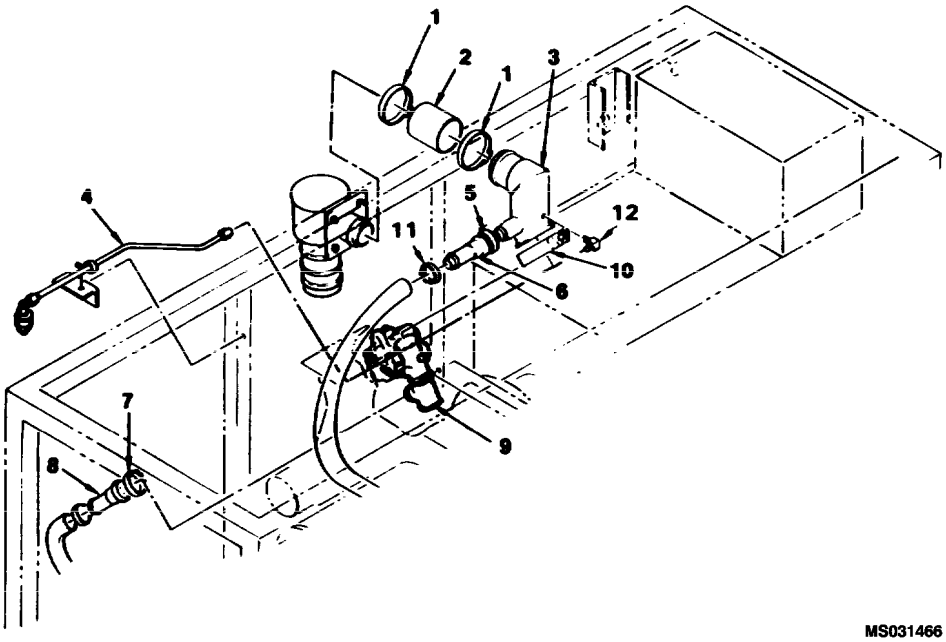


1. Lifting Strap
2. Lifting Sling
3. Engine Lifting Cable
4. Generator Electrical Connector
5. Generator Terminal Block
6. Generator
7. Generator Support
8. Right Engine Mount
9. Engine
10. Combustor Cap Drain Tube

Figure 1. Engine Installation (Outline View).

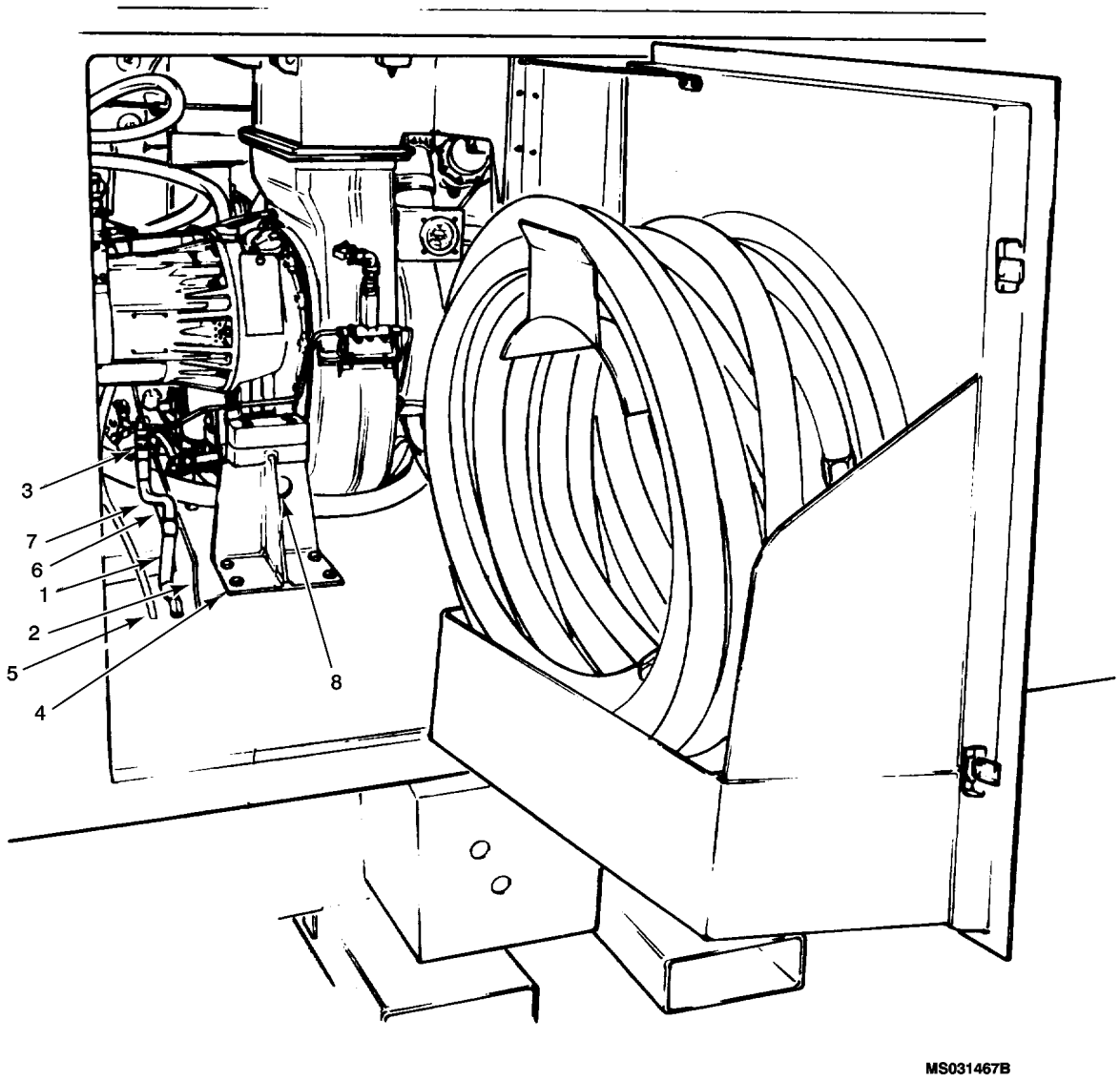
– Continued



1. Clamp
2. Hose
3. Manifold, LCV Adapter
4. Tube Assembly
5. Marmon Clamp
6. Adapter
7. Marmon Clamp
8. Adapter
9. LCV Adapter
10. Marmon Clamp
11. Clamp
12. Elbow

Figure 2. Pneumatic Hoses/Lines Removal/Installation.

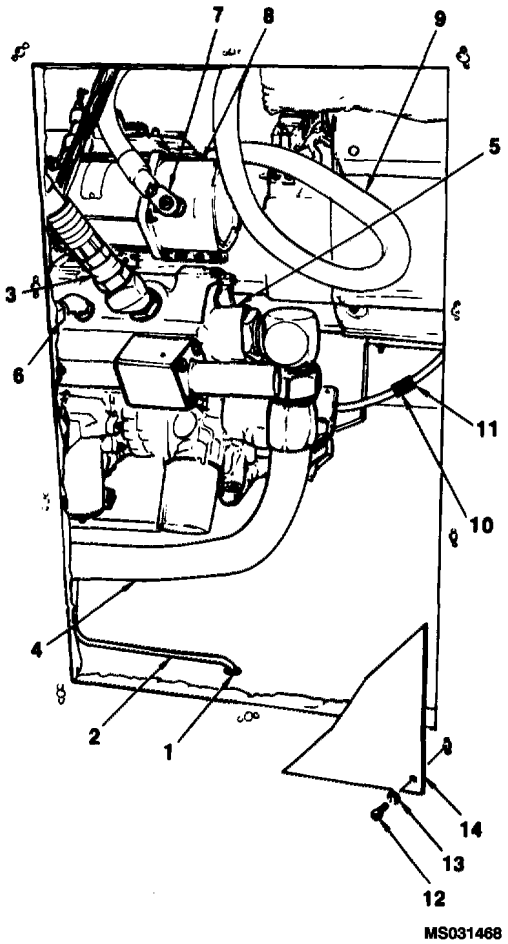
– Continued



1. Fuel Hose (FCU)
2. Turbin Housing Drain Tube
3. Nipple
4. Right Engine Mount
5. FCU Draintube
6. Gear Case Draintube
7. Fuel Extension Tube
8. Oil Drain Extension Tube

Figure 3. Fuel Line and Extension Tube Removal/Installation.

– Continued



1. Grommet
2. Drain Tube, Hydraulic
3. Flex Hose, Pressure (AN-12)
4. Flex Hose, Suction (AN-20)
5. Hydraulic Pump
6. Flex Hose, Case Drain (AN-6)
7. Starter Ground Cable
8. Starter Assembly
9. Starter Positive (+) Cable
10. Connector, Hydraulic Pump Electrical
11. Connector, Wiring Harness
12. Screw
13. Washer
14. Access Cover, Hydraulic

Figure 4. Hydraulic Pump and Engine Access.

REMOVAL

NOTE

The hydraulic pump may be removed attached to engine, or it may be removed as a unit without removal of engine.

1. Remove hydraulic module (WP 0116 00), and exhaust ejector (WP 0159 00).
2. Remove inner air intake duct by performing Steps 6. through 11. of WP 0031 00, Removal. Cover engine air intake with paper and tape.
3. Disconnect pneumatic hoses/fittings (refer to Figure 2).

REMOVAL – CONTINUED

a. Loosen hose clamps (Figure 2, Item 1) and disconnect hose (Figure 2, Item 2) from manifold (Figure 2, Item 3).

b. Disconnect tube assembly (Figure 2, Item 4) from fitting on manifold (Figure 2, Item 3). Slide tube assembly to the rear away from Engine/LCV.

c. Loosen marmon clamp (Figure 2, Item 5) and disconnect adapter (Figure 2, Item 6) with hose attached from fitting on manifold (Figure 2, Item 3).

d. Loosen marmon clamp (Figure 2, Item 7) and disconnect adapter (Figure 2, Item 8) with hose attached from LCV adapter (Figure 2, Item 9).

e. Loosen marmon clamp (Figure 2, Item 10) and remove manifold (Figure 2, Item 3) and marmon clamp (Figure 2, Item 10) from LCV adapter (Figure 2, Item 9).

4. Disconnect gearcase drain tubes (refer to Figure 3).

a. Disconnect turbine housing drain tube (Figure 3, Item 2) and remove tube from floor grommet.

b. Disconnect combustor cap drain tube (Figure 1, Item 10) and remove tube from floor grommet.

c. Disconnect fuel control unit (FCU) drain tube (Figure 3, Item 5) and nipple (Figure 3, Item 3), and remove tube from floor grommet.

d. Disconnect gearcase drain tube (Figure 3, Item 6) and remove tube from floor grommet.

5. Disconnect fuel hose and fuel extension tube (Figure 3, Item 7).

a. Disconnect fuel hose (Figure 3, Item 1) and nipple (Figure 3, Item 3) from fitting on fuel control unit (FCU). Cap end of line to prevent contamination.

b. Drain oil from gearcase. Remove oil extension tube (Figure 3, Item 8) from gearcase. Remove cap from extension tube and install on gearcase. Retain extension tube for later reinstallation.

6. Disconnect hydraulic pump hoses and lines. Refer to Figure 4.

a. Remove hydraulic access cover (Figure 4, Item 14) by removing ten screws (Figure 4, Item 12) and washers (Figure 4, Item 13).

b. Disconnect hoses (Figure 4, Item 3,4 and 6) from elbows installed on hydraulic pump. Cap hoses and elbows with plastic caps or material to prevent contamination.

c. Disconnect drain tube (WP 0116 00, Figure 1, Item 16) from elbow on hydraulic pump.

d. Disconnect wiring harness connector (Figure 4, Item 11) from hydraulic pump electrical connector (Figure 4, Item 10).

7. Open control panel access door (Figure 5, Item 6). Remove four screws (Figure 5, Item 7) securing control panel (Figure 5, Item 8), and lower control panel.

8. Disconnect engine electrical connector from ECU.

a. Disconnect engine electrical connector P2 (Figure 5, Item 1) from ECU (Figure 5, Item 2) connector J2.

REMOVAL – CONTINUED

b. Free engine wiring harness (Figure 5, Item 3) between ECU (Figure 5, Item 2) and bulkhead hole (Figure 5, Item 4) by cutting and removing cable ties (Figure 5, Item 5).

NOTE

Notice how Wiring Harness routes through Bulkhead to Engine Compartment.

NOTE

AGPU serial numbers 20 and below may require tagging and disconnecting wires running through same bulkhead hole as engine wiring harness before engine harness and connector can be pulled through hole.

c. Carefully pull engine wiring harness (Figure 5, Item 3) and connector (Figure 5, Item 1) through bulkhead hole (Figure 5, Item 4).

d. Free engine wiring harness (Figure 5, Item 3) between bulkhead hole and engine by cutting and removing cable ties.

e. Coil engine wiring harness and tape or tie to engine to prevent damage to harness during engine removal.

9. Disconnect generator electrical connections.

a. Disconnect wiring harness (Figure 6, Item 2) connector (Figure 6, Item 1) from generator connector (Figure 6, Item 3).

b. Remove two screws (Figure 6, Item 4) and washers (Figure 6, Item 5) and remove cover (Figure 6, Item 6) from DC terminal block (Figure 6, Item 7).

c. Tag and disconnect DC cable (Figure 6, Item 11) by removing nut (Figure 6, Item 8), lockwasher (Figure 6, Item 9), and flat washer (Figure 6, Item 10).

d. Tag and disconnect DC cable (Figure 6, Item 16) by removing nut (Figure 6, Item 13), lockwasher (Figure 6, Item 14), and flat washer (Figure 6, Item 15).

e. Disconnect ground lug wire (Figure 6, Item 29) by removing nut (Figure 6, Item 28) and lockwasher (Figure 6, Item 27).

f. Remove two screws (Figure 6, Item 24) and washers (Figure 6, Item 25) and remove wire cover (Figure 6, Item 30) from AC terminal block (Figure 6, Item 18).

g. Tag and remove six AC cables (Figure 6, Item 23) by removing six nuts (Figure 6, Item 20), lockwashers (Figure 6, Item 21), and flat washers (Figure 6, Item 22). Leave jumper (Figure 6, Item 19) on terminal block.

10. Tag and disconnect starter ground cable (Figure 4, Item 7) and starter positive (+) cable (Figure 4, Item 9).

11. Remove engine/generator/hydraulic pump.

a. Attach lifting sling (Figure 1, Item 2) to engine lifting cable (Figure 1, Item 3) and lifting strap (Figure 1, Item 1) wrapped around generator.

NOTE

Record all lockwiring methods for later installation.

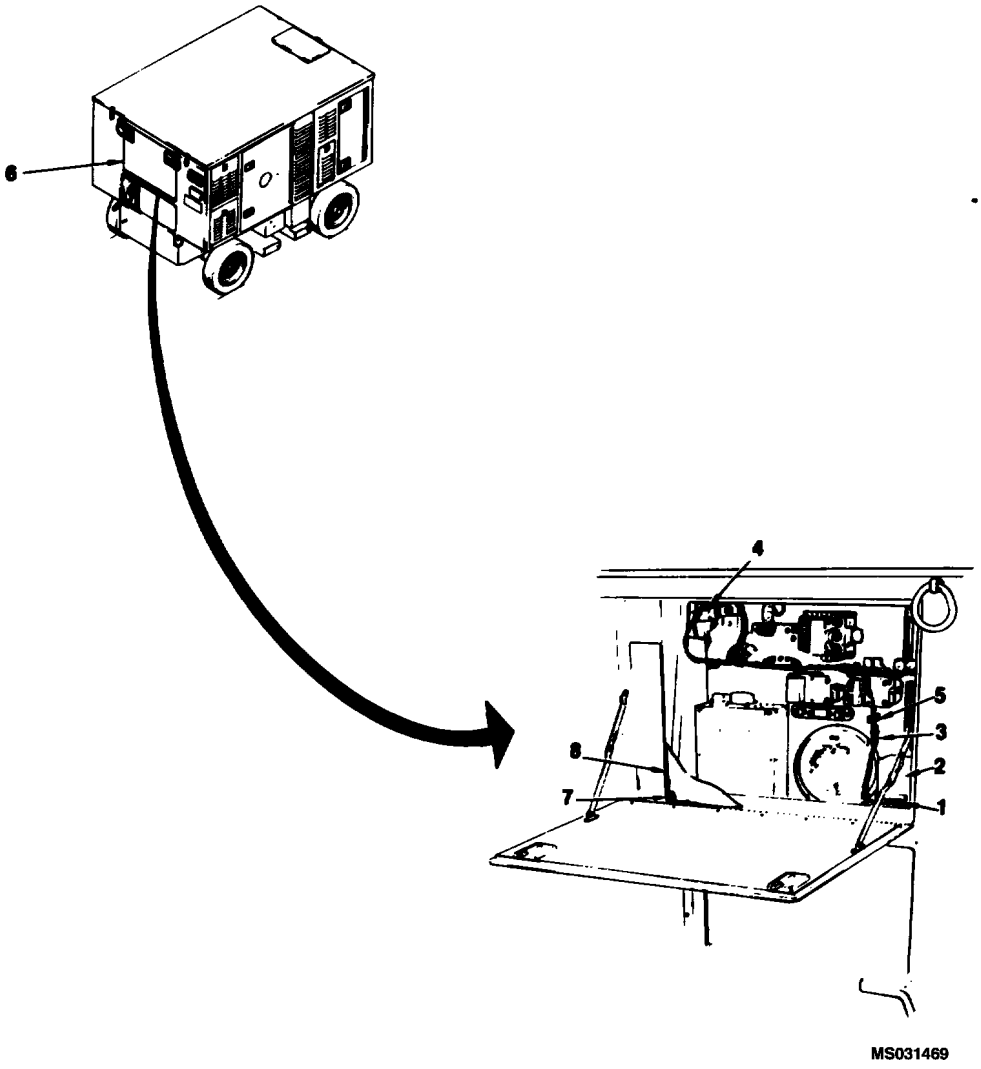
b. Cut lockwires (Figure 7, Item 1) and remove two hexhead capscrews (Figure 7, Item 2) and washers (Figure 7, Item 3) from generator.

REMOVAL – CONTINUED

c. Cut lockwires (Figure 7, Item 12) and remove four hexhead capscrews (Figure 7, Item 13) and washers (Figure 7, Item 14) from right engine mount. Remove right mounting block (Figure 7, Item 15), but leave right pin (Figure 7, Item 17) in place.

d. Cut lockwires (Figure 7, Item 5, 8) and remove eight capscrews (Figure 7, Item 6 and 9) and washers Figure 7, Item 7 and 10 from left engine mount. Remove left mounting block (Figure 7, Item 11), but leave left pin (Figure 7, Item 16) in place.

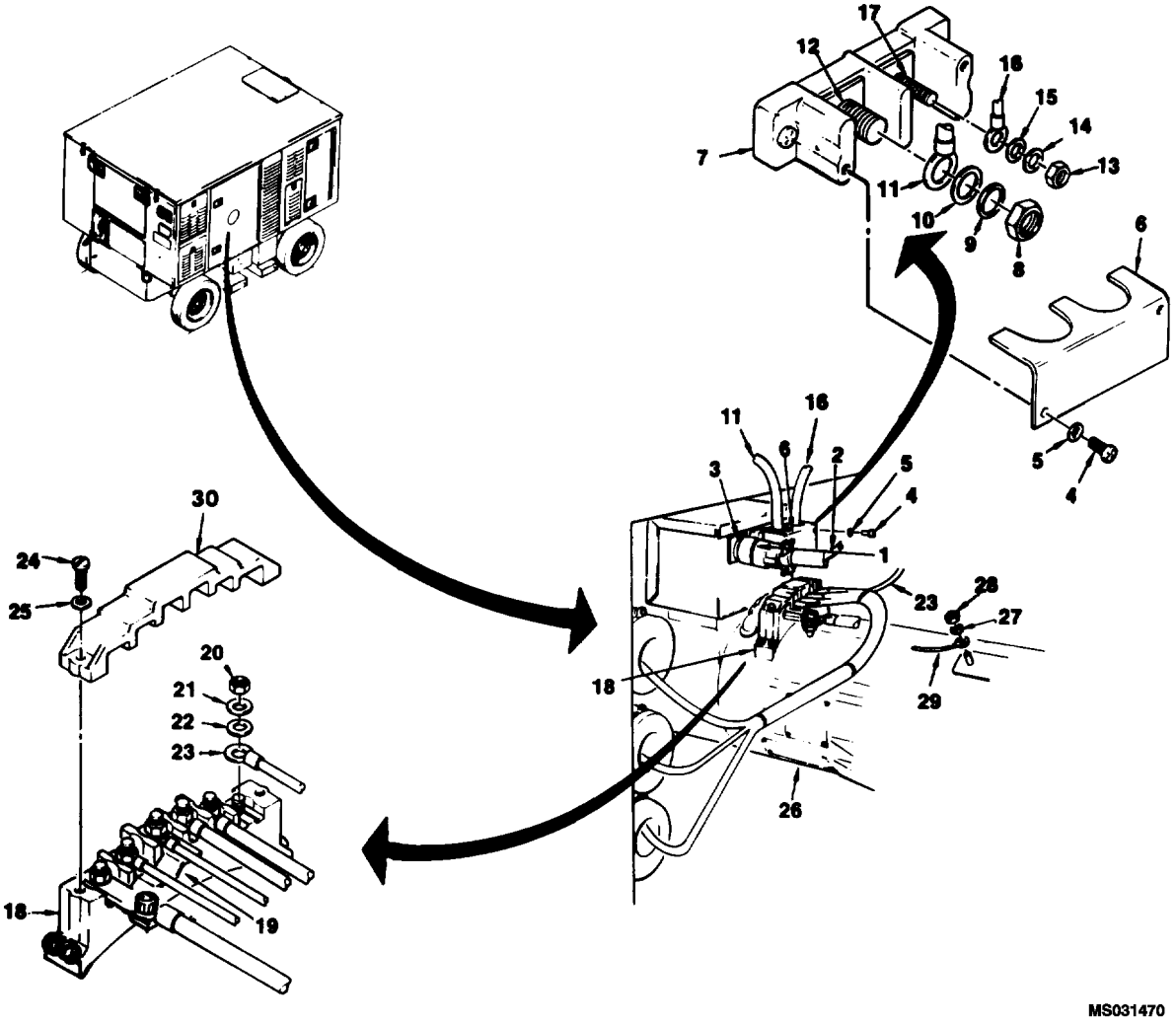
e. Check that all lines, hoses, and cables have been disconnected from engine/generator/hydraulic pump, and that they are not in the way of engine removal. Tie back lines, hoses, and cables as required.



1. Connector, Engine P2
2. ECU J-2 Connector
3. Wiring Harness, Engine
4. Hole, Bulkhead
5. Cable Ties
6. Access Door, Control Panel
7. Screw
8. Control Panel

Figure 5. Engine Wiring Harness and Connector.

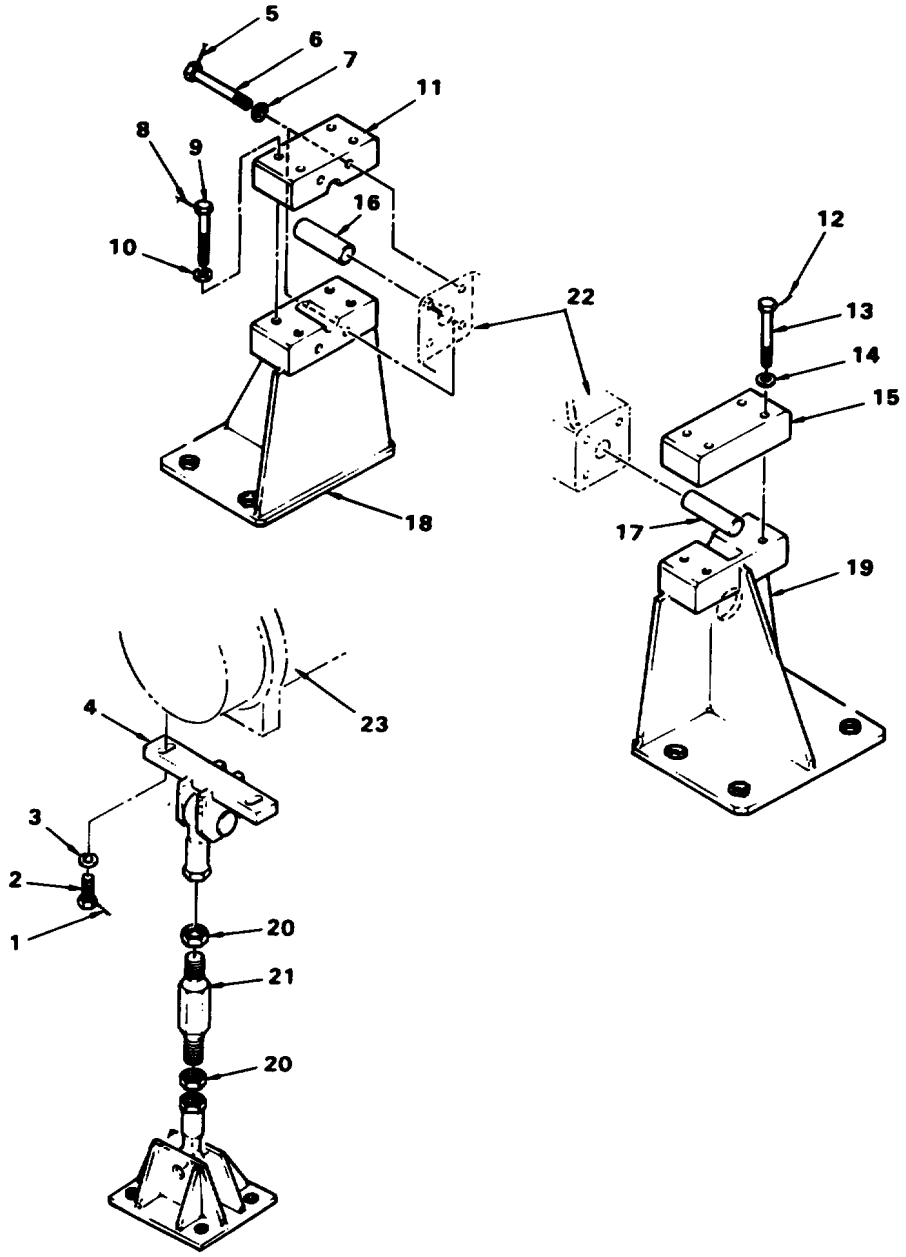
REMOVAL – CONTINUED



1. Connector, Generator	9. Lockwasher	17. Terminal Stud (-)	25. Washer
2. Wiring Harness	10. Washer, Flat	18. Terminal Block, AC	26. Generator
3. Connector, Generator	11. Cable, DC (+)	19. Jumper	27. Lockwasher
4. Screw	12. Terminal Stud (+)	20. Nut	28. Nut
5. Washer	13. Nut	21. Lockwasher	29. Ground Wire and Lug
6. Cover	14. Lockwasher	22. Washer, Flat	30. Cover
7. Terminal Block, DC	15. Washer, Flat	23. Cable, AC	
8. Nut	16. Cable, DC (-)	24. Screw	

Figure 6. Generator Connections.

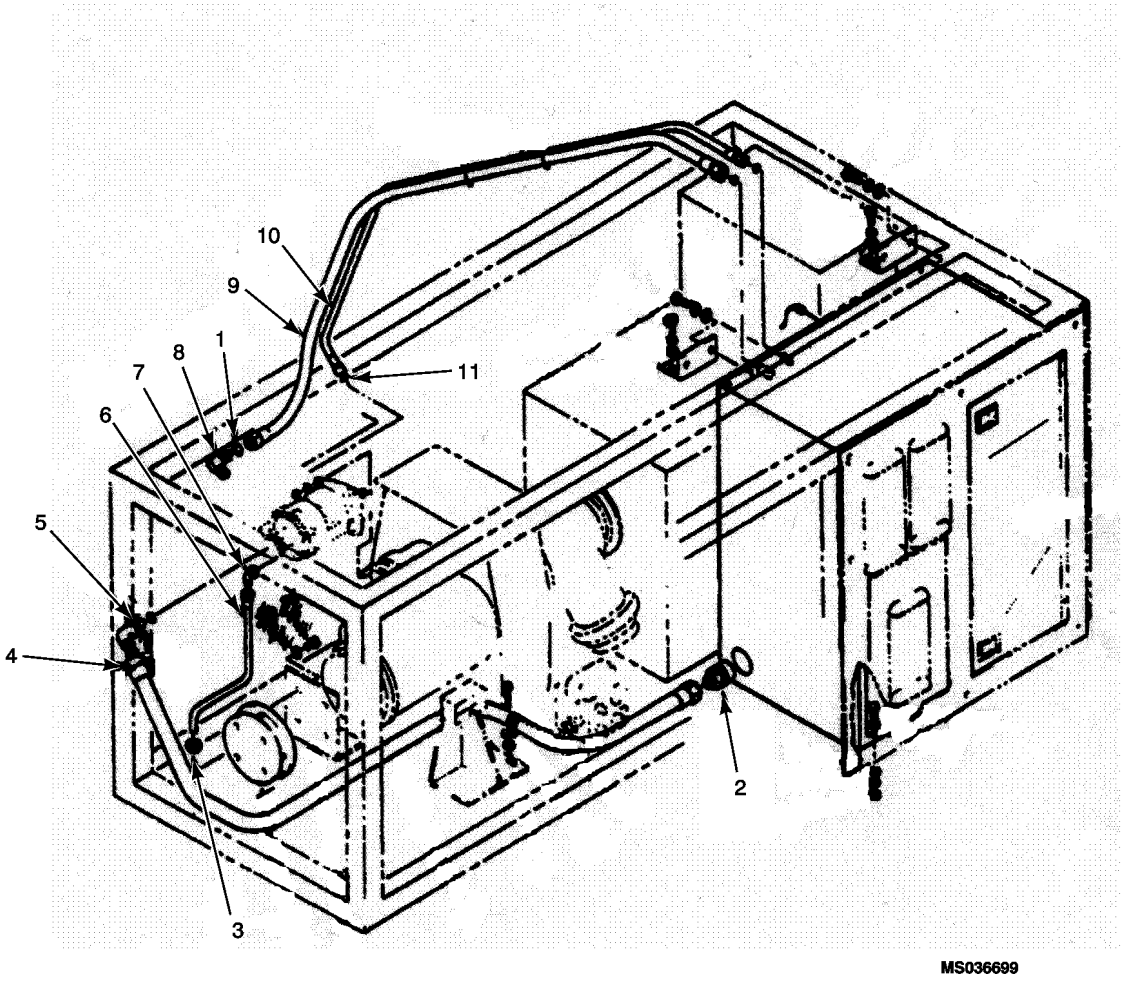
REMOVAL – CONTINUED



1. Lockwire	7. Washer	13. Capscrew, Hex Head	19. Right Engine Mount
2. Capscrew, Hex Head	8. Lockwire	14. Washer	20. Nut
3. Washer	9. Capscrew, Hex Head	15. Mounting Block, Right	21. Adjuster
4. Generator Support Bracket	10. Washer	16. Pin, Left	22. Engine Mounting Pads
5. Lockwire	11. Mounting Block, Left	17. Pin, Right	23. Generator
6. Capscrew, Hex Head	12. Lockwire	18. Left Engine Mount	

Figure 7. Engine/Generator Mounts.

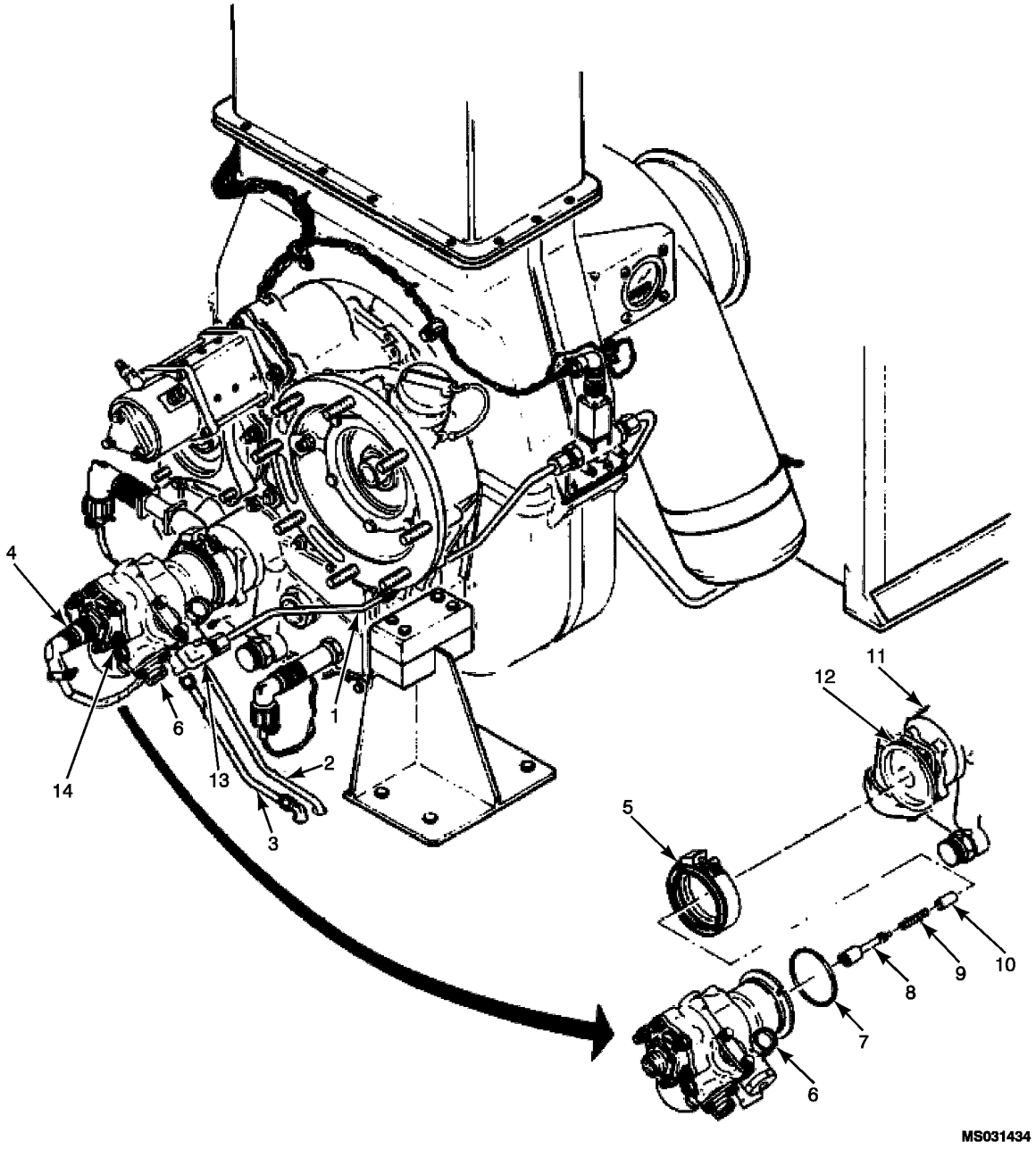
REMOVAL – CONTINUED



1. Seal 37 @ Flare
2. Nipple, Male
3. Grommet, Rubber
4. Seal, 37° Flare
5. Fitting, Hydraulic, 90° Elbow
6. Tubing, Drain, Hydraulic Seal
7. Fitting, Hydraulic, 45° Elbow
8. Fitting, Hydraulic, 90° Elbow
9. Hose, HP
10. Hose Return
11. Seal 37°

Figure 8. Hydraulic System.

REMOVAL – CONTINUED



1. Fuel Line
2. Drain Tube
3. Fuel Hose Supply
4. Electrical Connector (P9)
5. Clamp
6. Fuel Control Unit (FCU)
7. Packing
8. Shaft
9. Spring
10. Spacer
11. Oil Pump Housing
12. FCU Adapter
13. Elbow
14. Fuel Filter

Figure 9. Fuel Control Unit (FCU) (MEP 83-360A and MEP 83-360D/E).

REMOVAL – CONTINUED

WARNING

Do not put hands or fingers under rear of generator while lifting engine. Generator end may tip down when lifted.

f. Carefully lift engine from mounts while guiding engine/generator. Remove left/right pins (Figure 7, Item 16, 17) from engine mounting pads.

g. Move engine forward a few inches to clear housing and lift engine from AGPU.

h. Install engine in maintenance stand or engine shipping container.

i. Check AGPU floor around engine. Remove all signs of corrosion or rust. Touchup paint as required. Refer to (WP 0027 00).

INSTALLATION

1. Install engine/generator/hydraulic pump (refer to (Figure 6).
   a. Attach lifting sling (Figure 1, Item 2) to engine lifting cable (Figure 1, Item 3) and lifting strap (Figure 1, Item 1) wrapped around generator.
   b. Carefully lift engine from maintenance stand and position over AGPU.
   c. Carefully lower engine to a position just above engine mounts.
   d. Install left/right pins (Figure 7, Item 16 and item 17) in engine mounting pads.
   e. Carefully lower engine until pins are seated in left/right engine mounts (Figure 7, Item 18, 19) and generator contacts support bracket (Figure 7, Item 4).
   f. Install mounting blocks (Figure 7, Item 11, 15).
   g. Install eight left/right hexhead capscrews (Figure 7, Item 9, 13) and washers (Figure 7, Item 10, 14), but do not tighten at this time.
   h. Install two hexhead capscrews (Figure 7, Item 2) and washers (Figure 7, Item 3) into rear generator support and tighten.
   i. Install four hexhead capscrews (Figure 7, Item 6) and washers (Figure 7, Item 7) in left mounting block (Figure 7, Item 11) and tighten.
   j. Tighten hexhead capscrews (Figure 7, Item 9, 13) installed in Step 1.g.
   k. If required, loosen two nuts (Figure 7, Item 20) and turn adjuster (Figure 7, Item 21) to level engine. Ensure that LCV adapter aligns with pneumatic hose fitting. Tighten nuts (Figure 7, Item 20).
   l. Lockwire hexhead capscrews (Figure 7, Item 2, 6, 9, and 13).
2. Connect starter ground cable (Figure 4, Item 7) and starter (+) cable (Figure 4, Item 9).
3. Connector generator electrical connections.
   a. Connect ground lug wire (Figure 6, Item 29) with lockwasher (Figure 6, Item 27), and nut (Figure 6, Item 28).
   b. Ensure that jumper (Figure 6, Item 19) is installed as shown in (Figure 6).
   c. Install six AC cables (Figure 6, Item 23) on AC terminal block (Figure 6, Item 18) studs. Secure cables with flat washers (Figure 6, Item 22), lockwashers (Figure 6, Item 21), and nuts (Figure 6, Item 20).
   d. Install cover (Figure 6, Item 30) on AC terminal block (Figure 6, Item 18) with two screws (Figure 6, Item 24) and washers (Figure 6, Item 25).

INSTALLATION – CONTINUED

e. Install DC cable (Figure 6, Item 16) on DC terminal block (Figure 6, Item 7) with flat washer (Figure 6, Item 15), lockwasher (Figure 6, Item 14), and nut (Figure 6, Item 13).

f. Install DC cable (Figure 6, Item 11) on DC terminal block (Figure 6, Item 7) with flat washer (Figure 6, Item 10), lockwasher (Figure 6, Item 9), and nut (Figure 6, Item 8).

g. Install cover (Figure 6, Item 6) on DC terminal block (Figure 6, Item 7) with two screws (Figure 6, Item 4) and washers (Figure 6, Item 5).

h. Connect wiring harness (Figure 6, Item 2) connector (Figure 6, Item 1) to generator connector (Figure 6, Item 3).

4. Connect engine electrical connector.

a. Carefully pull P2 engine connector (Figure 5, Item 1) and engine wiring harness (Figure 5, Item 3) through bulkhead hole (Figure 5, Item 4).

b. Connect engine P2 connector (Figure 5, Item 1) to ECU J2 connector (Figure 5, Item 2), and safety wire.

c. Place engine wiring harness (Figure 5, Item 3) in position along main harness bundle and tie to main harness bundle with cable ties (Figure 5, Item 5) every six to eight inches.

d. Loop excess slack in engine wiring harness (Figure 5, Item 3) inside engine compartment and tie back with cable ties.

e. Set control panel (Figure 5, Item 8) in position and secure with four screws (Figure 5, Item 7).

5. Connect hydraulic pump hoses and lines (refer to WP 0116 00, Figure 1).

a. Connect hydraulic pump electrical connector and wiring harness connector (Figure 4, Item 10, 11).

b. Connect drain tube (WP 0116 00, Figure 1) (Figure 4, Item 2) to 45° elbow (Figure 4, Item 8) on hydraulic pump. Route end of tube through floor grommet (Figure 4, Item 1).

c. Install new seal (Figure 8, Item 4) in the end of hose (Figure 4, Item 4) and connect hose to elbow (Figure 8, Item 5) on hydraulic pump. Tighten hose (Figure 4, Item 4) coupling nut to 1,520 to 1,680 inch-pounds of torque.

d. Install new seal (Figure 8, Item 1) in the end of hose HP (Figure 8, Item 9) and connect to 90° elbow (Figure 8, Item 8) on hydraulic pump. Tighten hose coupling nut to 900 to 1,000 inch-pounds of torque.

e. Install new seal 37°(Figure 8, Item 11) in the end of hose return (Figure 8, Item 10) and connect to hydraulic pump. Tighten hose coupling nut to 200 to 230 inch-pounds of torque.

f. Install hydraulic access cover (Figure 4, Item 14) using ten screws (Figure 4, Item 12), and washers (Figure 4, Item 13).

6. Connect fuel hose (Figure 3, Item 1) and fuel extension tube (Figure 3, Item 7) (refer to Figure 3).

a. Remove cap from oil drain and install oil drain extension tube (Figure 3, Item 8). Install cap on oil drain extension tube.

b. Connect fuel hose FCU (Figure 3, Item 1) to nipple (Figure 3, Item 3) on FCU (Figure 9, Item 6).

7. Connect FCU and gearcase drain tubes.

a. Connect gearcase drain tube (Figure 3, Item 6) and route tube through floor grommet.

b. Connect FCU drain tube (Figure 3, Item 5) and route tube through floor grommet.

c. Connect combustor cap drain tube (Figure 1, Item 10) and route tube through floor grommet.

d. Connect turbine housing drain tube (Figure 3, Item 2) and route tube through floor grommet.

8. Connect pneumatic hoses/fittings (refer to Figure 2).

INSTALLATION – CONTINUED

a. Install LCV adapter manifold (Figure 2, Item 3) on LCV adapter (Figure 2, Item 9) and secure with marmon clamp (Figure 2, Item 10).

b. Install adapter (Figure 2, Item 8) with hose attached to LCV adapter (Figure 2, Item 9) and secure with marmon clamp (Figure 2, Item 7).

c. Install adapter (Figure 2, Item 6) with hose attached to LCV adapter manifold (Figure 2, Item 3) and secure with marmon clamp (Figure 2, Item 5).

d. Connect tube assembly (Figure 2, Item 4) to fitting on LCV adapter manifold (Figure 2, Item 3).

e. Install hose clamps (Figure 2, Item 1) and hose (Figure 2, Item 2). Tighten hose clamps.

9. Install exhaust ejector (WP 0160 00).
10. Install inner air intake duct assembly by performing Steps 5. through 10. of WP 0031 00.
11. Install hydraulic module (WP 0116 00).
12. Perform MOC and PMCS (WP 0016 00).

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

ENGINE/GENERATOR MOUNTS

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0171 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0171 00, Item 16)
Tool Set, Aviation Unit (WP 0171 00, Item 42)

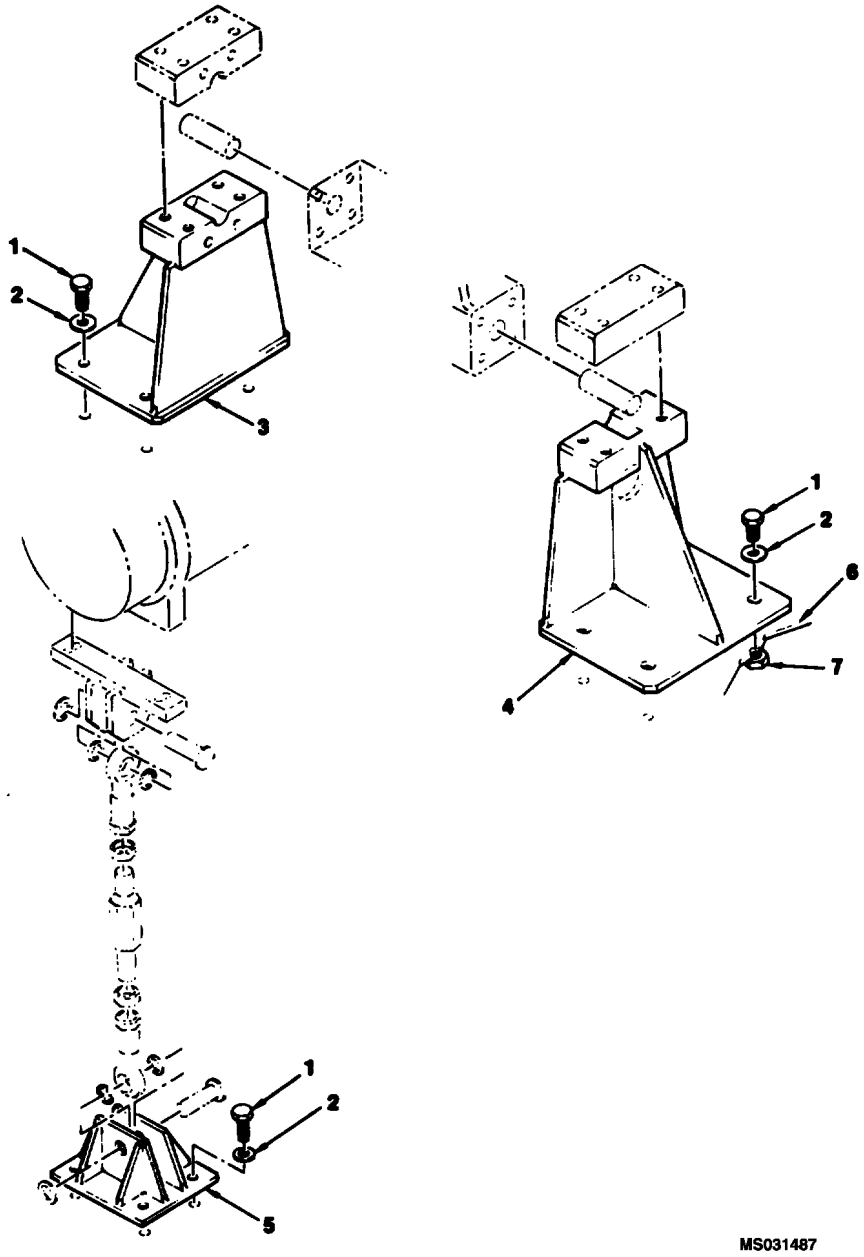
References

WP 0002 00
WP 0161 00

GENERAL

For description of frame and housing components, refer to WP 0002 00.

GENERAL – Continued



1. Bolt
2. Washer
3. Engine Mount, Left
4. Engine Mount, Right
5. Generator Support
6. Floor (Cutaway)
7. Welded Nut

Figure 1. Engine/Generator Mounts.

REMOVAL

1. Remove engine/generator (WP 0161 00).
2. Remove engine mounts (Figure 1, Item 3, 4) or generator support (Figure 1, Item 5) by removing bolts (Figure 1, Item 1) and washers (Figure 1, Item 2).

REPAIR OR REPLACEMENT

NOTE

There is no repair for Engine/Generator mounts. If welds or any part is found to be defective, **replace only.**

INSTALLATION

Install engine mounts (Figure 1, Item 3, 4) or generator support (Figure 1, Item 5) by installing bolts (Figure 1, Item 1) and washers (Figure 1, Item 2).

END OF WORK PACKAGE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

WIRING HARNESS

INITIAL SETUP:

References	References (cont.)
WP 0002 00	
WP 0034 00	WP 0027 00

MAIN TRUNK WIRING HARNESS REMOVAL AND INSTALLATION

This manual contains instructions for TASMG (L) and DEPOT (D) maintenance of Multi-Output Aviation Power Unit MEP 83-360A, MEP 83-360D and E models, referred to as the Aviation Ground Power Unit (AGPU). Prior to performing these maintenance procedures, refer to the MAC chart within this TM 1-1730-229-40 if applicable. The contents of this manual will be followed in the event of conflict with any other document referenced herein.

Refer to WP 0002 00, Table 1 for a description of the DC electrical and control system.

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

Fold outs FO1-FO18 should be referred for the MEP 360A/D and FO15-FO31 for the MEP 360E.

REMOVAL

1. Disconnect battery (WP 0034 00). (MEP 83-360E only) Disconnect J-1 and P-1 connector.
2. Note routing of wiring harness to be replaced. Also note location of all harness clamps.
3. Disconnect all wiring harness electrical connectors and ground terminals.
4. Loosen and remove clamps and remove wiring harness.
5. Refer to fold outs FO29 and FO30 for all models.

INSTALLATION

1. Perform corrosion control on electrical connectors as outlined in WP 0027 00, Step 5.
2. Position wiring harness and install harness clamps.

INSTALLATION – CONTINUED

3. Connect all wiring harness electrical connectors and ground terminals. Ensure that there is enough slack in harness so that wiring to connectors is not under strain.
4. Refer to fold outs FO29 and FO30 for all models.
5. Connect battery.
6. Perform MOC after installation.

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

AGPU TESTS AND INSPECTION AFTER REPAIR OR OVERHAUL

INITIAL SETUP:

NA

RESPONSIBILITY FOR TEST AND INSPECTION AFTER REPAIR AND OVERHAUL

The activity for performing the repair or overhaul is responsible for the performance of all applicable tests and inspections specified herein. Activities performing maintenance on any portion of the AGPU must perform those tests and inspections required by the applicable component or system repair instruction.

INSPECTION REQUIREMENTS

The extent of inspection required before test and after repair is dependent upon the extent of the repair accomplished. It may also be affected by the known general condition of the AGPU, the total operating time accumulated, and the length of time since the AGPU has been operated. In any event, the inspection shall be thorough enough to enable detection of obvious discrepancies. Particular attention must be given to conditions that would endanger personnel or equipment during test or operation.

INSPECTION PROCEDURES

Perform the following specific inspections that are applicable.

1. Inspect all components, particularly those in the area of repair, for tightness of attaching parts, electrical connections, and fuel or hydraulic line connections.
2. Perform the W (weekly), and M (monthly) operator PMCS contained in WP 0016 00.
3. Perform applicable organizational PMCS contained in WP 0016 00.

AGPU FUNCTIONAL PERFORMANCE OPERATING TESTS

1. Perform B (before) operator PMCS contained in WP 0016 00.
2. Perform the Prestart Procedures contained in TM 1-1730-229-13, Prestart Procedures.
3. Perform the Start Procedures contained in TM 1-1730-229-13, Start Procedures.
    a. If operation limits tabulated in Table 1 are exceeded, or if seizing, unusual noise, smoke, fuel or oil leakage, or other obvious malfunction is observed, shut down engine immediately and correct the cause of trouble.

AGPU FUNCTIONAL PERFORMANCE OPERATING TESTS – CONTINUED

b. Ensure that engine operates at or below maximum exhaust gas temperature limit of 1255 °F (680 °C) during load operations.

NOTE

When loads are removed and engine is to be shut down, the customary three-minute "cool-down" run at no-load used on other gas turbine engines is desired for the AGPU engine and will detrimentally affect the life of hot section components.

4. Perform the D (during) operator PMCS contained in WP 0016 00 during performance tests outlined in paragraphs e. through i.
5. Perform AC Mode Operation procedures contained in TM 1-1730-229-13, Operator Instructions.
6. Perform DC Mode Operation procedures contained in TM 1-1730-229-13, Operator Instructions.
7. Perform Bleed Air (Pneumatic) System Operation procedures contained in TM 1-1730-229-13, Operator Instructions.
8. Perform Hydraulic System Operation procedures contained in TM 1-1730-229-13, Operator Instructions.
9. Perform Propulsion System Operation procedures contained in TM 1-1730-229-13, Operator Instructions.
10. Perform Removing AGPU From Operation and Placing AGPU in Shutdown Status procedures contained in TM 1-1730-229-13, Operator Instructions.
11. Perform the A (after) operator PMCS contained in WP 0016 00.

Table 1. Engine Operating Limits.

Observation	Condition	Limit Requirements
CAUTION		
Shut down engine if indicated values exceed or persist at these limits.		
Pressure:		
Oil	Governed speed	45 +10/-10 psig
	Steady-state	+5/-5 psig max fluctuation
Speed:	Full-load governed speed	100 percent (58,667 rpm)
	Full governed speed limits	99 to 100.5 percent limits (58,167 to 59,034 rpm)
Temperature:		
Inlet Air		125°F (52°C) max
Oil		275°F (135°C) max
CAUTION		
Exhaust gas temperature during normal engine operation should not exceed maximum limit. Engine operation at exhaust gas temperatures above maximum limit is evidence of engine malfunction and possible distress, and appropriate corrective action should be taken to restore normal operation.		
Exhaust gas	During engine starting below 60 percent rpm:	

AGPU FUNCTIONAL PERFORMANCE OPERATING TESTS – CONTINUED

Table 1. Engine Operating Limits. – Continued

Observation	Condition	Limit Requirements
	Exhaust gas temperature(s) (EGT's) above 1600°F (870°C) to maximum of 1785°F (974°C) are allowed for a period of 10 seconds maximum.	
	Between 60 percent rpm and 95 percent rpm:	
	Stabilized operation (Loss of RPM acceleration) which indicates a "hung start" condition and/or EGT's above 1600°F (870°C) should not be allowed to exceed a period of 10 seconds maximum.	
	APU governed speed operation:	
	Maximum EGT during governed speed operation is 1350°F (732°C) (red line).	
	Operation above 1255°F (679°C) (yellow band) should be minimized and is intended for emergency operation only. If governed speed operation above 1255°F (679°C) is encountered, the reason for overtemperature operation should be corrected through maintenance actions.	
Leakage:		
Fuel	From accessory drain only. Fuel leakage from combustor and plenum drain valves is permitted only after a false start or blowout.	1 drop per minute max
Oil	From output shaft seal	5 cc per hour max
Duty Cycle:		
Starter Motor	Battery Starts - Using AGPU battery or an external power source which limits current output to 800 amps maximum (soft-start).	Six consecutive normal starts at ten minute intervals, after which one hour off time shall be required for additional starts.
	Battery Cranking - Using AGPU battery or an external power source which limits current output to 800 amps maximum (soft-cranking).	Three consecutive 30 second cranking cycles and then 20 minutes off time.

FINAL TEST SHEET

All AGPUs will be acceptance-tested IAW the most current version of the approved AGPU ATP, AVNS-ATP-10777. Table 2 reflects the ATP as of the date of this publication. In the event of differences between Table 4 and the official ATP, AVNS-ATP-10777 will take precedence over Table 2.

Table 2. FINAL ACCEPTANCE TEST PROCEDURE (P/Ns MEP 83-360A, MEP 83-360D and MEP 83-360E, NSN 1730-01-144-1897 & NSN 1730-01-466-9371; P/N 1024250, NSN 1730-01-552-2313).

1.0 **INTRODUCTION**

1.1 **Test Objective**

To demonstrate that an AGPU is physically and functionally operational and document end item final inspection and acceptance by the Government. This ATP must be performed by a direct support / depot-level trained technician with operational knowledge of the AGPU.

1.2 **Test Purpose**

To determine that the AGPU was properly repaired; that inherent safety devices are correctly installed and operate as required; that the AC/DC electrical system is operational; and that the unit will deliver electrical, hydraulic, pneumatic power and propulsion as required.

AGPU FUNCTIONAL PERFORMANCE OPERATING TESTS – CONTINUED

Table 2. FINAL ACCEPTANCE TEST PROCEDURE (P/Ns MEP 83-360A, MEP 83-360D and MEP 83-360E, NSN 1730-01-144-1897 & NSN 1730-01-466-9371; P/N 1024250, NSN 1730-01-552-2313). – Continued

1.3 **Test Performance Sequence**

The procedures included in this ATP need to be accomplished in number sequence except where the sequence is required for safety or operational purposes.

1.4 **Test Performance Indication**

An initial or stamp of test person next to a step indicates satisfactory (PASS) completion of that step. If unit fails any step, an (F) will be placed in that step and the overall rating of the unit will be failed.

2.0 **TEST REQUIREMENTS**

2.1 **Test Specimen GTE Hydraulic Module**

AGPU Model #: MEP-360A, MEP-360D and MEP-360E (circle one)

Starting GTE Hour Meter:

Starting Hydraulic Module Hour Meter:

2.1.1 **Test Equipment**

2.2 a. DC load bank, adjustable, 50, 100, 200, 350, 500, 700, and 1000 Amps at 28 VDC

b. AC load bank, adjustable, 20 KW, 40 KW, 55 KW, and 70 KW

c. PNEUMATIC load test stand 0-78 psig

d. Multi-meter, capable of measuring true RMS and amperage

e. 24 VDC battery load tester

3.0 **STATIC INSPECTION**

3.1 **Pre-Operational Preparation**

3.1.1 Ensure that all shop paperwork is complete before testing. Review any open paperwork with the Shop Supervisor or Production Manager to ensure there is no adverse affect on test results.

4.0 **FUNCTIONAL OPERATION**

4.1 **Fuel System**

_____ a. Fill fuel tank with approximately 65 gallons of fuel and verify fuel gauge reads approximately full.

_____ b. Inspect all tank seams and fittings for leaks. (Pass if no wetness or leaks are found.)

4.2 **Engine Start-up**

a. Verify the following:

_____ (1) Outer doors closed and latched, except where necessary to operate or perform test sequence.

_____ (2) Brake set.

_____ (3) Exhaust vent moves freely.

_____ (4) Tow bar up and locked.

_____ (5) Ear protection worn by all in test cell.

_____ (6) Area clear of any FOD.

_____ (7) BATTERY OUTPUT SWITCH is OFF.

AGPU FUNCTIONAL PERFORMANCE OPERATING TESTS – CONTINUED

Table 2. FINAL ACCEPTANCE TEST PROCEDURE (P/Ns MEP 83-360A, MEP 83-360D and MEP 83-360E, NSN 1730-01-144-1897 & NSN 1730-01-466-9371; P/N 1024250, NSN 1730-01-552-2313). – Continued

_____ (8) Fire extinguisher serviceable and available at unit.

_____ (9) Unit grounded to EARTH.

b. If engine has never been ran (i.e., engine is new or has been remanufactured), complete the following steps:

CAUTION

If hydraulic pump and system has not been purged of air, DO NOT START GTE until air is purged from all hoses and hydraulic pump.

_____ (1) Verify the operation of the Fuel Select Valve. Place the Fuel Valve (Four-Way Fuel Valve) to the INTERNAL position (indicator points up).

_____ (2) Set AC or DC POWER switch to the ON position to prevent actual cranking of the engine.

_____ (3) Crack or Loosen the flex fuel line on the AGPU side of the engine fuel control valve.

_____ (4) Connect system 24 VDC battery.

_____ (5) Set MASTER SWITCH to ON.

_____ (6) Set START switch to ON to operate the AGPU boost fuel pump.

NOTE

ENGINE SHOULD NOT CRANK. If the engine cranks, set START switch to STOP and check all previous engine preparation steps.

_____ (7) Disconnect flex fuel line from Fuel Valve. Hold START switch in RUN until fuel is present at the fuel control unit (FCU). (Use container to catch fuel; will require about 5-10 seconds of pump operating.) Place START switch to STOP.

_____ (8) Reconnect flex fuel line to Fuel Valve.

_____ (9) Crack or Loosen stainless steel line from Fuel Solenoid input side.

_____ (10) Operate AGPU fuel pump as described in Steps 5 and 6, above, until fuel flows into container. Accumulate approximately 2 to 3 ounces. Flow shall be slow but consistent.

_____ (11) Replace fuel lines and tighten.

_____ (12) Ensure AGPU hydraulic reservoir selector is placed in the AGPU mode.

_____ (13) Close the high pressure bypass valve.

_____ (14) Open the hydraulic pressure gauge valve 1/4 turn.

_____ (15) Place the bypass selector to OFF.

_____ (16) Open the high pressure and return bleed valves 1-1/2 turns.

_____ (17) Turn the high pressure relief valve in (to increase pressure) approximately two full turns.

_____ (18) Place MASTER SWITCH to OFF.

WARNING

AGPU FUNCTIONAL PERFORMANCE OPERATING TESTS – CONTINUED

Table 2. FINAL ACCEPTANCE TEST PROCEDURE (P/Ns MEP 83-360A, MEP 83-360D and MEP 83-360E, NSN 1730-01-144-1897 & NSN 1730-01-466-9371; P/N 1024250, NSN 1730-01-552-2313). – Continued

If any operation or indication appears abnormal during the following procedures, set ENGINE CONTROL switch to STOP or press EMERGENCY STOP or set MASTER SWITCH to OFF. Discontinue test until problem is resolved.

CAUTION

If hydraulic pump and system has not been purged of air, DO NOT START GTE until this operation is performed.

4.3 **Pre-Start Procedure**

_____ a. Set all toggle switches to the OFF position.

_____ b. Set MASTER SWITCH to ON.

_____ c. Connect Battery.

_____ d. Depress PRESS TO TEST switch on master control panel.

NOTE

All indicator lamps must illuminate. Exception: For D- and E-Models only, the DC VOLTAGE FAULT lamp does not illuminate or has been removed.

_____ e. Verify the LOW FUEL PRESS light is illuminated. Verify that LOW OIL PRESS light is illuminated.

_____ f. Verify service bay and control panel lights illuminate in both bright and dim positions.

_____ g. Verify battery charger fault light is illuminated.

_____ h. For D- and E-Models, verify CURRENT LIMITER SELECTOR switch is not in the AH-64D, 90 KVA, or blank position. For A-Models, verify CURRENT LIMITER SELECTOR switch is not in the 45 KVA (AC) or 1000 Amp (DC) position. (Surge control valve closed.)

_____ i. Remove small access panel in DC cable bay to observe hydraulic pump and inspect for leakage during engine start-up.

_____ j. Secure engine access door partially open to observe engine area during engine start-up. (look for oil, fuel, or other hazards)

4.4 **Engine Start**

NOTE

Never attempt to start the unit while the engine is still operating. Never attempt more than 3 starts in an hour. Never allow the starter to operate for more than 30 seconds.

_____ a. Turn the ENGINE CONTROL switch on the Master Control Panel to the START position and hold momentarily and then release to RUN position.

_____ b. Immediately verify that hydraulic pressure increases to 450-500 psig.

_____ c. Observe STARTER CURRENT to peak at approximately 800-1000 amps and immediately falls to approximately 100-0 amps. Observe the GTE STARTER ON lamp (green) illuminates.

_____ d. After several seconds, the LOW FUEL PRESSURE and LOW OIL PRESSURE lights should extinguish. Shut engine off if either does not extinguish.

_____ e. When engine RPM reaches 10%, EGT should begin to rise and will peak during acceleration. Maximum EGT allowed is 1785 °F for 10 seconds maximum at speeds below 60% RPM.

AGPU FUNCTIONAL PERFORMANCE OPERATING TESTS – CONTINUED

Table 2. FINAL ACCEPTANCE TEST PROCEDURE (P/Ns MEP 83-360A, MEP 83-360D and MEP 83-360E, NSN 1730-01-144-1897 & NSN 1730-01-466-9371; P/N 1024250, NSN 1730-01-552-2313). – Continued

_____ f. When engine RPM reaches 60%, verify that the GTE STARTER ON lamp extinguishes and the STARTER CURRENT has decreased to 0.

WARNING

If exhaust appears to be a grey fog and the EGT meter does not show an increase, discontinue starting procedure and set ENGINE CONTROL switch to STOP. Do not attempt to restart until the problem is resolved.

NOTE

If engine RPM stabilizes between 60 and 95%, this indicates a hung start. Make sure STARTER CURRENT has decreased to 0 and tarter or light is out. Shut off unit and repeat the engine start procedure.

_____ g. Engine RPM should reach 95% within 60 seconds and EGT should stabilize at approximately 650-700 °F.

_____ h. Verify that no hydraulic or fuel leaks exist.

_____ i. Close both bleed valves at hydraulic control panel.

_____ j. Verify hydraulic pressure is at 450-500 psig.

_____ k. Observe that the BATTERY CHG/DISCH meter indicates a positive charge within 90 seconds.

_____ l. Verify that all indications (EGT, RPM, etc.) are normal.

_____ m. Verify that the exhaust ejector/engine connection does not have excessive exhaust leaks.

_____ n. Verify operation of inlet filter switch and damper by partially blocking off air inlet. Damper shall open and filter warning light shall illuminate.

NOTE

During engine operation, EGT readings above 1250 °F should not be allowed for more than 10 seconds. Automatic or manual shutdown should be initiated.

4.4.1 Drive Motor (Propulsion) Ramp Up and Down Operation

NOTE

The following test will be conducted in the primary and secondary modes with engine running.

_____ a. Test the propulsion on a 12 ± 6 degree slope in forward and reverse directions.

_____ b. Remove pin in DRIVE/DISENGAGE handle, push in to the DISENGAGE position and replace the pin.

NOTE

The DO NOT TOW light on tow bar should NOT illuminate.

_____ c. Place drive switch in the OFF position.

_____ d. Shut down unit using the emergency stop switch. Engine should immediately shut down.

4.4.2 **Shutdown (when necessary)**

_____ a. On AGPU main control panel set ENGINE CONTROL switch to STOP.

_____ b. Observe LOW FUEL PRESSURE and LOW OIL PRESSURE lights come on.

AGPU FUNCTIONAL PERFORMANCE OPERATING TESTS – CONTINUED

Table 2. FINAL ACCEPTANCE TEST PROCEDURE (P/Ns MEP 83-360A, MEP 83-360D and MEP 83-360E, NSN 1730-01-144-1897 & NSN 1730-01-466-9371; P/N 1024250, NSN 1730-01-552-2313). – Continued

_____ c. Set MASTER SWITCH to off by closing the switch guard.

_____ d. Observe all gauges and meters on AGPU hydraulic and main control panel to assure that indicated pressures, voltages, and currents have been reduced to zero.

4.5 **Power Output Checks**

4.5.1 **Output Load Bank Connections. Connect loads to the AGPU as follows:**

4.5.1.1 **Pneumatic Load Connections**

CAUTION

Perform purge operation on pneumatic hose before connecting hose to load bank.

_____ a. Open AGPU pneumatic hose compartment door on the left-hand side.

_____ b. Remove entire length of pneumatic hose and lay it on the decking. Straighten the hose as much as possible to minimize flow restrictions, connect the aircraft connector to the load test stand.

_____ c. Check the condition of the pneumatic hose-to-AGPU connecting point, pneumatic tubing and hose.

_____ d. Verify that the AIR FLOW CONTROL valve on the pneumatic load bank is set to the closed position.

4.5.1.2 **Electrical Load Connections (AC)**

_____ a. Remove all AC cable from the storage compartment.

_____ b. Check condition of the AC cable.

_____ c. Inspect cable connector for damage, contamination, and compatibility with the AC connector on the electrical load bank.

_____ d. Verify that the AC OUTPUT switch is set to OFF.

_____ e. Connect AC cable to the AC load bank.

_____ f. Set CURRENT LIMIT SELECTOR switch to AC 17 KVA.

4.5.1.3 **Electrical Load Connections (DC)**

_____ a. Remove all DC cable from the storage compartment.

_____ b. Check condition of the DC cable.

_____ c. Inspect cable connector for damage, contamination and compatibility with the DC connector on the DC load bank.

_____ d. Verify that the DC OUTPUT switch is set to OFF.

_____ e. Connect DC cable to the DC load bank.

4.5.2 **Pneumatic System Test. Perform pneumatic system test as follows:**

CAUTION

Perform purge operation on pneumatic hose before connecting hose to load bank.

NOTE

For all steps that follow, all controls and indications are on the main AGPU control panel unless otherwise stated.

AGPU FUNCTIONAL PERFORMANCE OPERATING TESTS – CONTINUED

Table 2. FINAL ACCEPTANCE TEST PROCEDURE (P/Ns MEP 83-360A, MEP 83-360D and MEP 83-360E, NSN 1730-01-144-1897 & NSN 1730-01-466-9371; P/N 1024250, NSN 1730-01-552-2313). – Continued

a. Recheck connection of pneumatic hose at pneumatic load bank to assure that a hose release will not occur when pressure is applied. Verify that the AIR FLOW CONTROL valve on the pneumatic load bank is set to closed.

_____

_____ b. Check the mechanical zero on the AGPU PSIG PNEUMATIC gauge (adjust needle to zero).

WARNING

Clear personnel from area around the pneumatic load bank. When pneumatic pressure is initially applied, high volume, low pressure, hot air (450 to 600 °F) and flailing hoses can cause injury.

CAUTION

If abnormal indications are observed in the following step, set the PNEUMATIC POWER switch to OFF and discontinue test until problem is corrected.

c. Raise switch guard on PNEUMATIC POWER switch and set PNEUMATIC POWER switch to ON. Observe that PSIG PNEUMATIC gauge rises to approximately 40 PSIG and that the green PNEUMATIC POWER ON light illuminates.

_____

Record: PSIG _____

Set surge valve to OPEN by moving the current limit selector to 45 KVA (A-Model) or 90 KVA/AH64 (D- and E-Models) position. PSIG gauge should be approximately 40 PSIG.

Record: PSIG _____

WARNING

Before opening pneumatic load bank AIR FLOW valve in the next step, ensure that all personnel are clear of air exhaust port.

d. Set Load Bank to approximately 40 lb/min by slowly opening the load pneumatic valve to increase flow. In warmer ambient air the 40 lb/min may not be obtained. Verify that the EGT does not exceed 1250 °F. Slowly open the pneumatic load bank valve and observe the AGPU EGT meter. Open the valve, slowly, until the EGT stops increasing. Record EGT reading, flow and the pressure at which the EGT stopped rising.

_____

EGT: _____ °F Load Bank Flow: _____ AGPU Pressure: _____

Readings should be within 40 lb/min at 40 psig (sea level), temp 450 °F (232 °C), and 26.5 lb/min at 24 psig, 10,000 ft (3048m) altitude, temp 420 °F (215 °C).

e. Set the PNEUMATIC POWER switch to OFF. Observe that the pneumatic hose pressure returns to 0-2 psig within five seconds before proceeding to the next step. (This is a visual check of the hose inflation)

_____

4.5.3 AC System Check Record Ambient Temperature _____°F

4.5.3.1 **Perform AC system check as follows:**

NOTE

For all steps that follow, all controls and indications are on the main AGPU control panel unless otherwise stated.

NOTE

The following electrical load bank settings are approximate only. Slightly different current thresholds in the various AGPU units will require slight variations of the load.

AGPU FUNCTIONAL PERFORMANCE OPERATING TESTS – CONTINUED

Table 2. FINAL ACCEPTANCE TEST PROCEDURE (P/Ns MEP 83-360A, MEP 83-360D and MEP 83-360E, NSN 1730-01-144-1897 & NSN 1730-01-466-9371; P/N 1024250, NSN 1730-01-552-2313). – Continued

NOTE

The following load bank settings may vary ±20%.

_____ a. AGPU Running

_____ b. Set PHASE SELECT switch to A.

_____ c. Check the mechanical zero on the three AGPU AC power meters (VOLTS, HERTZ, and % LOAD).

CAUTION

If abnormal indications are observed in the following steps, set the AC POWER switch to OFF and discontinue test until problem is corrected.

d. Phase Sequence Verification

(1) Set AC POWER output switch to ON.

(2) Verify the phase rotation is clockwise, indicating direction A, B, C; reading should

indicate AC output in AC volts.

(3) Set AC POWER output switch to OFF.

NOTE

If the above indications are not as specified, physically verify the generator to AC output cable wiring. Correct wiring and repeat above steps.

_____ e. Set AGPU CURRENT LIMIT SELECTOR to 45 KW (A-Model) or 90 KVA (D- and E-Models) and the AC power switch to ON. Observe normal indications on AC VOLTS and HERTZ meters:

0 indication on AC % LOAD meter.

Four red AC warning lights are extinguished.

AC POWER ON light is illuminated.

Record EGT: _____°F

_____ f. Read indication on AGPU AC HERTZ meter, 398 to 400+. _____Hz

_____ g. Read indication on AGPU AC VOLTS meter, 115 to 121. _____VAC

_____ h. Adjust the AC load bank to apply a load of 138 Amps per phase L1, L2, L3. Energize the load bank and verify an indication of approximately 133% on the AGPU AC% load meter on all phases. If GTE surging occurs, stop test and check operation of the surge valve. Record in test log if surge valve is activated. Record time when load is applied in step k. below.

_____ i. Read and record indications on AC VOLTS meter and AC HERTZ meter with AC PHASE SELECT to A.

_____AC% Load

_____Amps @ _____kw _____Hz

_____VAC

EGT: _____°F

_____ j. Switch AC PHASE SELECT to B & C. Record voltage and hertz readings. Note: readings should remain as in step i.

AGPU FUNCTIONAL PERFORMANCE OPERATING TESTS – CONTINUED

Table 2. FINAL ACCEPTANCE TEST PROCEDURE (P/Ns MEP 83-360A, MEP 83-360D and MEP 83-360E, NSN 1730-01-144-1897 & NSN 1730-01-466-9371; P/N 1024250, NSN 1730-01-552-2313). – Continued

_____ (1) Phase B

_____AC% Load

_____Hz

_____VAC

_____ (2) Phase C

_____AC% Load

_____Hz

_____VAC

_____ k. Run system at 138 amps for 30 minutes.

System on (time of day): _____

EGT: _____°F

System off (time of day): _____

_____ l. Set load bank to OFF.

_____ m. Set AGPU AC POWER SWITCH to RESET and return to OFF.

_____ n. Set AGPU CURRENT LIMIT SELECTOR and load bank in accordance with the following table. Run system at load specified for 5 minutes at each step.

NOTE

After each load test, set load bank to off and set AGPU AC POWER SWITCH to RESET and return to OFF. DO NOT change AC current limit selector while under load.

AGPU CURRENT LIMIT SELECTOR: A-Model / D- and E-Models	SET LOAD BANK: A-Model / D- and E-Models		AC % Load: All Models		VAC @ Phase A All Models
10 KW / 17 KVA	10 KW / 15 KW	Amps	(40%)	%	(114 to 120)
20 KW / 38 KVA	20 KW / 30 KW	Amps	(75%)	%	(114 to 120)
30 KW / 59 KVA	30 KW / 45 KW	Amps	(115%)	%	(114 to 120)
/ 90 KVA	/ 75 KW	Amps	(150%)	%	(114 to 120)

4.5.3.2 Surge Valve Operation.

_____ a. Place Surge valve switch to off position by moving the current selector to 10 KVA (A-Model) or 17 KVA (D- and E-Models).

_____ b. Record EGT reading. EGT: _____°F

_____ c. Place Surge valve switch in on position. (45 KVA for A-Model; 90 KVA for D- and E-Models)

_____ d. Record EGT reading. EGT: _____°F

NOTE

AGPU FUNCTIONAL PERFORMANCE OPERATING TESTS – CONTINUED

Table 2. FINAL ACCEPTANCE TEST PROCEDURE (P/Ns MEP 83-360A, MEP 83-360D and MEP 83-360E, NSN 1730-01-144-1897 & NSN 1730-01-466-9371; P/N 1024250, NSN 1730-01-552-2313). – Continued

	EGT should rise 75-200 °F and GTE sound level should increase when the surge valve switch is activated. The EGT should also decrease the same amount when the switch is turned off. Note: If desired results are not observed, stop and check pneumatic system and new exhaust muffler on D- and E-models.	
4.5.3.3	**Model MEP-360A AC Current Limit Test.**	
_____	a. Set AGPU CURRENT LIMIT SELECTOR to 45 KW and the AC power switch to on.	
_____	b. On the electrical load bank, set LOAD SWITCH to ON. Adjust load bank for 133% on the AGPU AC % LOAD meter (45 KW, 138 Amps).	
	Record EGT reading. EGT: _____°F	
	Check that load meter on AGPU indicates 133% load _____AC % Load	
_____	c. After 30 seconds, set the load bank to 55 KW. Within 4 to 7 seconds, the OVER CURRENT lamp will illuminate, the AGPU AC contactor will open, the UNDER VOLTAGE lamp will illuminate, and the AC POWER ON lamp will go out. Record the time taken for the AC POWER ON lamp to go out after the OVER CURRENT lamp illuminates. Record TIME: _____ sec	
_____	d. Set load bank to off. Set AGPU AC POWER SWITCH to RESET and return to OFF.	
4.5.3.4	**Model MEP-360D/E AC Current Limit Test.**	
_____	a. Set AGPU CURRENT LIMIT SELECTOR to AH-64D (90 KVA) and the AC power switch to on.	
_____	b. On the electrical load bank, set LOAD SWITCH to ON. Set the load bank to 75 KW. Hold for 5 seconds.	
	Record EGT reading. EGT: _____°F	
	Check that load meter on AGPU indicates 133% load _____AC % Load	
_____	c. Set the load bank to 75 KW. After 30 seconds, the OVER CURRENT lamp will illuminate followed by a 45-second delay before the UNDER VOLTAGE lamp illuminates and the AC POWER ON lamp goes out. Record the time taken for the UNDER VOLTAGE lamp to illuminate after the OVER CURRENT lamp illuminates. Record TIME: _____ sec	
_____	d. Set load bank to off. Set AGPU AC POWER SWITCH to RESET and return to OFF.	
4.5.4	**Battery Charger Test**	
_____	a. Verify that the 50 amp 28 VDC load is connected to the slave receptacle.	Record Battery Max Charger Output_____
_____	b. Disconnect the AGPU on-board battery QD.	
_____	c. Apply 50 amp load on load bank. Verify that the battery voltage gauge is in the green and the charging amps is indicating +50. Apply load for one minute, then deactivate load; turn off AGPU and Battery switch. Reconnect the AGPU on-board battery QD and restart the AGPU GTE.	
4.5.5	**DC System Check**	
4.5.5.1	Verify that the BATTERY OUTPUT is OFF.	
4.5.5.2	Set DC POWER switch to ON. Verify reading on DC VOLTS meter on the DC load bank is less than 30 VDC.	

AGPU FUNCTIONAL PERFORMANCE OPERATING TESTS – CONTINUED

Table 2. FINAL ACCEPTANCE TEST PROCEDURE (P/Ns MEP 83-360A, MEP 83-360D and MEP 83-360E, NSN 1730-01-144-1897 & NSN 1730-01-466-9371; P/N 1024250, NSN 1730-01-552-2313). – Continued

4.5.5.3 Set load bank to 100 Amps. Record reading from DC meter (it should be 100 Amps for **5 minutes**)

Test Start Time_____

Record Amps _____

Test Stop Time_____

4.5.5.4 Set load bank to 350 Amps. Record reading from DC meter (it should be 350 Amps)

Record Amps _____

4.5.5.5 Run system at 350 DC Amps load for **30 minutes**. Check that cooling fans are running on the TRU and note if air flow is not felt from unit. Stop the load test if airflow is not felt.

Test Start Time_____

Record Amps _____

Test Stop Time_____

4.5.6 Hydraulic System Test. Perform hydraulic system test as follows. Connect the 10’ and 30’ hydraulic hoses and the Dual Service Manifold as required.

NOTE

For all steps that follow, all controls and indications are on the AGPU hydraulic control panel unless otherwise stated.

_____ a. Recheck connection of hydraulic hoses at hydraulic load bank to ensure that hose release will not occur when pressure is applied. Ensure the load bank FLOW CONTROL valve is closed.

WARNING

Clear area around the hydraulic load bank of all personnel when hydraulic pressure is initially applied. High pressure fluid and flailing hoses will cause injury.

CAUTION

If abnormal indications are observed in the following steps, set the MAIN POWER switch to OFF and open load bank FLOW CONTROL valve to release pressure. Discontinue test until problem is corrected.

_____ b. Set MAIN POWER switch to ON. Observe that HYDRAULIC OUTPUT PRESSURE gauge reads 450-600 psig. Push TEST LIGHTS switch on hydraulic control panel to see if all hydraulic control panel lights illuminate.

_____ c. Open HIGH PRESS BLEED and RETURN BLEED and wait until red mist in viewing ports turns dark, indicating that the air is out of the hydraulic system and lines, then close.

_____ d. Verify the hydraulic load bank flow valve is set to its lowest limit.

_____ e. Set hydraulic OUTPUT switch to ON.

_____ f. Set the HYDRAULIC MODULE PRESSURE switch to increase until the hydraulic module pressure gauge reads 3200 psig. If pressure will not rise to 3200 psig, review high pressure relief valve setting.

Indicated hydraulic load bank pressure: _____psig

AGPU hydraulic module pressure gauge pressure: _____psig

NOTE

AGPU FUNCTIONAL PERFORMANCE OPERATING TESTS – CONTINUED

Table 2. FINAL ACCEPTANCE TEST PROCEDURE (P/Ns MEP 83-360A, MEP 83-360D and MEP 83-360E, NSN 1730-01-144-1897 & NSN 1730-01-466-9371; P/N 1024250, NSN 1730-01-552-2313). – Continued

If pressure will not increase, adjust the relief valve to a higher setting.

_____ g. Check the High Pressure bypass function of the unit as follows:

(1) Slowly open the high pressure bypass valve while observing the hydraulic pressure gauge. Open the valve until the gauge indicates a pressure drop of 150-200 psig.

(2) Close the high pressure bypass valve and observe the pressure returns to the previously set value.

_____ h. Set the pump pressure switch to increase until the hydraulic output pressure gauge reads approximately 3400-3500 psig. Adjust the relief valve if necessary.

_____ i. On the hydraulic load bank, adjust the flow control valve to attain an indication of 15.2 GPM flow on the load bank's flow meter.

_____ j. Record readings. Adjust the AGPU and load bank to achieve 15.2 GPM at 3300 psig indicated on the load bank.

Pressure at AGPU: _____psig

Pressure at load bank: _____psig

Flow at load bank: _____GPM

_____ Max Pump Output Pressure _____

4.5.7 **Operation at Rated Loads**

_____ a. Adjust the load banks as necessary to obtain the following loads and operate for 5 minutes:

Condition: Set AC power output to 45 KVA (A-Model) or 90 KVA (D- and E-Models) Set AC load bank at 30 KW (A-Model) or 45 KW (D- and E-Models) Set Hydraulic output power at 6.5 GPM @ 3000 psig at AGPU and load bank. Turn on Pneumatic power; should flow at approximately 30 lb/min (@ 40 psig) .

Test Start time: _____

AC Volts _____

Pneumatic PSIG _____

Hyd. Flow: _____gpm

Hydraulic pressure _____psig

EGT: _____°F

Test Stop time: _____

_____ b. De-energize AC load bank and turn pneumatic power to off.

_____ c. Set hydraulic Pump PRESSURE switch to DEC (decrease) until hydraulic output pressure gauge reads approximately 500 psig. Set OUTPUT switch to OFF.

NOTE

When Hydraulic System power switch is turned to the off position, pressure should also start to drop.

_____ d. Set hydraulic control panel MAIN POWER switch to OFF and close switch guard.

NOTE

Hydraulic pressure will still indicate approximately 500 psig.

AGPU FUNCTIONAL PERFORMANCE OPERATING TESTS – CONTINUED

Table 2. FINAL ACCEPTANCE TEST PROCEDURE (P/Ns MEP 83-360A, MEP 83-360D and MEP 83-360E, NSN 1730-01-144-1897 & NSN 1730-01-466-9371; P/N 1024250, NSN 1730-01-552-2313). – Continued

4.5.8 **Operation at Rated Loads**

_____ a. Adjust the load banks as necessary to obtain the following loads and operate for 30 minutes:

Condition: Set AC power output to 27 KVA (A-Model) or 90 KVA (D- and E-Models) Set AC load bank at 30 KW (A-Model) or 45 KW (D- and E-Models) Set DC load bank to 350 Amps (D- and E-Models only).

Test Start time: _____
AC Volts _____
AC Amps _____ amps
DC Volts _____
DC Amps _____ amps
EGT: _____°F
Test Stop time: _____

_____ b. De-energize load banks; turn off AC and DC outputs.

4.5.9 AC Outlet Tests: 400 Hz and Inverter 60 Hz, all models.

NOTE

Performed with engine running.

_____ a. Ensure all service receptacle circuit breakers are closed.

_____ b. Place AC POWER switch to ON.

_____ c. Verify the 400 Hz AC voltage at each of the 4 AC outlets. Measure and record the AC voltage with a suitable voltage meter. VAC_____HZ _____

_____ d. Turn on DC output switch. Test the AC output at the DC/AC inverter; verify that 110 VAC are obtained at 60 Hz outlets. VAC_____HZ _____

4.5.10 **Battery Charger/Battery Charger Selector Switch Test**

_____ a. Set Battery charger selector switch to the following positions. Observe and record voltages as read on the AGPU BATTERY meter.

Selector Position	Specification Voltage	Actual Voltage
28.5 VDC	26 to 31 VDC	_____
30.5 VDC	28 to 33 VDC	_____
32.5 VDC	29.5 to 34.5 VDC	_____

_____ b. Set battery charger selector switch to 28.5 VDC.

4.5.11 **Battery Charger/Circuit Breaker Test**

_____ a. Open 35A circuit breaker and verify the CHGR/BATT fault light illuminates and the engine does not shut down. Close 35A circuit breaker.

____ b. Shut down AGPU as described in paragraph 4.4.2.

5.0 **POST TEST**

AGPU FUNCTIONAL PERFORMANCE OPERATING TESTS – CONTINUED

Table 2. FINAL ACCEPTANCE TEST PROCEDURE (P/Ns MEP 83-360A, MEP 83-360D and MEP 83-360E, NSN 1730-01-144-1897 & NSN 1730-01-466-9371; P/N 1024250, NSN 1730-01-552-2313). – Continued

5.1 **System Shutdown**

Read and record the engine time and hydraulic hour meters and the number of starts during the test.

_____ a. Transfer the data to the Equipment/Engine log book.

_____ b. Disconnect all hoses Stow all hoses and cables.

Remove the roof and check the torque an all 1.0 and 2.5-inch hose clamps. Torque to 60-inch pounds.

_____ c. Reinstall the roof.

Disconnect large battery cable quick disconnect, but do not disconnect the tow alarm connector P-1

_____ d. and J-1. (MEP 83-360E Only)

ACCEPTANCE TEST COMPLETED

AGPU SERIAL NO. _____ GTE HOURS_____ HYD HOURS_____

Performed by: _____ Date: _____

Stamp

Accepted by: _____ Date: _____

Stamp

AGPU Passed: _____ AGPU Failed: _____

6.0 QUALITY ASSURANCE (QA)

6.1 QA In-Process Inspections

Performed by: _____ Date: _____

Stamp

6.2 QA Final Inspections

Performed by: _____ Date: _____

Stamp

END OF WORK PACKAGE

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

TORQUE LIMITS

INITIAL SETUP:

NA

STANDARD TORQUE LIMIT APPLICATION

Table 1. Standard Torque Limits in Inch-Pounds for Threaded Fasteners.

BOLT & NUT MATERIAL	STEEL & CORROSION RESISTANT STEEL						
NUT TYPE	SELF-LOCKING NUTS, PLATENUTS, CASTELLATED NUTS. 12 POINT NUTS						
	TENSION	SHEAR	TENSION	SHEAR	SHEAR	TENSION	SHEAR
NUT PART NUMBER EXAMPLES	AN310 AN315 MS20161	AN320	MS17825	MS17826	MS21244	AN310	AN320
	MS21069 MS21071	AN316		MS21224		AN315	MS21038
	MS20365 MS21072	AN315C				MS21044	
	MS21044 MS21073	MS21083					
	MS21045 NAS679	NAS1022					
	MS20500 NAS1021	MS51967					
	MS21055 NAS1068	MS51966					
	MS21056 BACN10MK	MS51971					
	MS21059 BACN110JZ						
	MS21060 BACN 10FX						
	MS21076 BACN10HY						

STANDARD TORQUE LIMIT APPLICATION – CONTINUED

TORQUE LIMITS (INCH-POUNDS)									
THREAD SIZE	SEE NOTE 1	SEE NOTE 3	SEE NOTE 1	SEE NOTE 3	SEE NOTE 5	SEE NOTE 5			
8-32	12-15	20	7-9	12	-	-	-	-	-
10-32	20-25	40	12-15	25	25-35	15-20	15-20	-	-
1/4-28	50-70	100	30-40	60	55-80	30-45	35-50	35-40	20-25
5/16-24	100-140	225	60-85	140	120-170	60-90	70-100	95-100	55-65
3/8-24	160-190	390	95-110	240	230-325	85-125	130-190	150-165	90-100
7/16-20	450-500	840	270-300	500	370-530	155-220	210-300	225-250	135-150
1/2-20	480-690	1100	290-410	660	580-830	195-280	315-450	300-375	180-225
9/16-18	800-1000	1600	480-600	960	770-1100	280-400	460-660	400-500	240-300
5/8-18	1100-1300	2400	660-780	1400	1120-1600	420-600	660-940	550-650	300-390
3/4-16	2300-2500	5000	1300-1500	3000	1400-2500	950-1100	1310-1560	1150-1250	590-750
7/8-14	2500-3000	7000	1500-1800	4200	2300-3000	1500-1800	2075-2500	1750-2000	1050-1200
1-12 or 1-14	3700-5500	10000	2200-3300	6000	3400-5500	2000-3000	2275-3410	2325-3000	1400-1800
1 1/8-12	5000-7000	15000	3000-4200	9000	5000-7000	-	-	2900-3900	1740-2340

Note 1: To compensate for differences in bolt grip length and material thickness due to manufacturing tolerances, protective coating, and other surface variances.

Note 2: To distribute bearing load over a greater area to prevent damage to material under a bolt head or nut.

Note 3: To protect the material surface when a bolt or nut is tightened.

Note 4: Prevent galling of aluminum or other soft material when bolt or nut is tightened.

Note 5: To insulate dissimilar metals to prevent corrosion. The washer material should be similar to the material on which it rests rather than the bolt or nut material. This insures that if corrosion occurs, it will be between the bolt and washer, which can be replaced.

TORQUE WRENCHES

5-50 Inch-Pounds

30-150 Inch-Pounds

100-750 Inch-pounds

700-1600 Inch-Pounds

0-600 Foot-Pounds

1. Refer to Tables 1 through 6 for standard torque limits for threaded fasteners, hose and tube coupling nuts, bulkhead fittings, and pipe thread fittings, and the minimum breakaway torque values for determining reusability of self-locking nuts. These standard torque values apply only when special torque values are not specified in procedures. General instructions for installation and fit of threaded fasteners are as follows:
    a. Thread shall not be in bearing when thickness of sheet or fitting is 3/32-inch or less. If thickness is more than 3/32-inch, a maximum of two threads in bearing is permissible.
    b. In shear applications, thread shall not be in bearing regardless of material thickness.
    c. Washers are used for the following purposes:
    d. When nut-bolt assemblies are installed, the nut shall not engage the first incomplete thread next to the bolt shank.
    e. Nuts are properly installed when all threads are engaged and the bolt chamfer extends through the nut. When flat-end bolts are used, the threaded end must extend at least 1/32- inch through the nut.
    f. Threads shall be clean and dry before installation. If threads are lubricated, torque limits are reduced by 30 percent.

STANDARD TORQUE LIMIT APPLICATION – CONTINUED

g. The tightening sequence in multiple fitting installation is as follows:

(1) Finger tighten all bolts or nuts.

(2) Snug up opposite bolts or nuts all around.

(3) Tighten opposite bolts or nuts all around to proper torque. Do not torque adjacent bolts or nuts in sequence.

h. All-metal self-locking nuts shall be replaced with new identical parts at each installation. If new nuts are not available, all metal self-locking nuts may be reused. The reused nuts must meet the required minimum friction torque. See Fiction Torque in Inch- Pounds for Threaded Fasteners, Table 2.

2. Additional standards to be followed are outlined below.

a. Torque limits apply to nut tightening only. When tightening bolt, the higher limit ±10 percent is used.

b. Torque values are for dry (unlubricated) threads. If threads are lubricated, limit is 70 percent unlubricated value.

c. Maximum torque allowed for cotter pin hole alignment. If limit is exceeded, discard nut and bolt and inspect parts secured by the nut and bolt.

d. Torque limits apply only to tightening nut on stud.

CAUTION

Overtightening fasteners can cause equipment damage or failure of fastener.

e. When tightening self-locking castellated nuts MS21224, MS17825, and MS17826, first tighten to minimum torque. If slot in nut is aligned with cotter pin hole in bolt, tighten nut an additional 60 degrees (one castellation) and install cotter pin. If slot in nut is not aligned with cotter pin hole in bolt, tighten nut until aligned and install cotter pin. In either case, maximum torque must not be exceeded.

g. Apply a coating of anti-seize compound (WP 0170 00, Item 3) or equivalent to the bushing OD on bolts 114R3650 series only.

Table 2. Friction Torque in Inch-Pounds for Threaded Fasteners.

THREAD SIZE	MINIMUM FRICTION TORQUE
8-32	1.5
10-32	2.0
1/4-28	3.5
5/16-24	6.5
3/8-24	9.5
7/16-20	14.0
1/2-20	18.0
9/16-18	24.0
5/8-18	32.0
3/4-16	50.0
7/8-14	70.0
1-12	90.0

STANDARD TORQUE LIMIT APPLICATION – CONTINUED

Table 2. Friction Torque in Inch-Pounds for Threaded Fasteners. – Continued

1-1/8-12	117.0
1-1/2-12	143.0

TORQUE WRENCHES

5-50 Inch-Pounds	30-150 Inch-Pounds

NOTE

To determine friction torque, thread the nut onto the screw or bolt until at least two threads protrude. The nut shall not make contact with a mating part. Stop the nut. the torque necessary to begin turning the nut again is the breakaway torque. Do not reuse self-locking nuts that do not meet minimum friction torque.

SELF-RETAINING BOLTS INSTALLATION

WARNING

Standard bolts must not be substituted for self-retaining bolts at any connection where self-retaining bolts are installed.

1. Two types of self-retaining bolts are used. They are positive retention bolts and impedance bolts. Both types have a fail-safe feature which prevents loss of bolt, if nut comes off. A nut, safetied with a cotter pin, must be installed on each self-retaining bolt.
2. Positive retention bolts have a pawl at threaded end of bolt shank. The pawl is spring loaded to an extended position. When extended, the pawl prevents the nut from being removed. Finger pressure compresses the pawl for removal of the nut and for removal of the bolt from the parts. Some of the bolts contain a heat shrunk bushing which replaces the sliding bushing in the fastener build-up. This prevents installation of the bolt without the bushing being installed. Placards are installed at each location for positive retention bolts.
3. Impedance bolts have either spring-loaded balls, or a spring ring on the bolt shank above the threads. These retaining elements extend beyond the diameter of the bolt and prevent it from sliding from the parts.
4. Remove positive retention bolts as follows:
    a. Remove cotter pin.
    b. Backoff nut until it is next to pawl.
    c. Depress pawl and backoff nut from bolt.
    d. Depress pawl and remove washer.
    e. Pull bolt out until pawl is next to lug.
    f. Depress pawl and pull bolt out until pawl is inside lug.

SELF-RETAINING BOLTS INSTALLATION – CONTINUED

g. Hold parts stack-up together and pull bolt out.

NOTE

If stack-up separates while removing bolt, pawl may extend and catch on edge of fastener, bearing, or bushing. If pawl extends while removing bolt, use a thin piece of metal such as knife edge or rule to depress pawl. Do not hammer bolt out.

5. Install positive retention bolts as follows:
   a. Place countersink washer under bolt head. Make sure countersink is next to bolt head. The positive retension bolt bushing assembly does not have a washer under the head.
   b. Apply a coating of anti-seize compound (WP 0170 00, Item 3) to the bushing OD on bolts 114R3650 series only.
   c. Align bearing, lugs, bolt, and bushing. Install bolt.
   d. Place washer(s) on the bolt. Use thick or thin washers as necessary for cotter pin installation.

NOTE

This table not applicable to permaswage nuts coupled to Rosan fittings.

Overtightening of hose and tube coupling nuts will cause thread and seal damage resulting in fitting leakage. Torque values are for threads cleaned and lubricated before tightening.

Table 3. Standard Torque Limits in Inch-Pounds for Hose and Tube Coupling Nuts.

TUBE OD	HOSE SIZE	NUT HEX	A	B	C	D	E
1/4	-4	9/16	105-115	135-145	50-65	135-150	100-120
1/8	-6	11/16	160-180	255-285	100-125	270-300	210-250
1/2	-8	7/8	265-295	475-525	210-250	450-500	340-420
5/8	-10	1	355-375	665-735	300-350	650-700	400-480
3/4	-12	1 1/4	430-470	855-945	425-500	900-1000	725-850
1	-16	1 1/2	715-785		600-700	1200-1400	900-1150
1 1/4	-20	2	855-945		680-800	1200-1400	950-1150
			TORQUE WRENCHES				
			30-150 Inch-Pounds		700-1600 Inch-Pounds		
			100-750 Inch-pounds				

A- Aluminum Permaswage tube coupling nuts

B- Steel Permaswage tube coupling nuts

C- Steel or aluminum flare fitting nuts, AN818, AN924, NAS591-593, and NAS594-596: used on aluminum tube*

D- Steel or aluminum flare fitting nuts, AN818, AN924, NAS591-593, and NAS594-596: used on steel tube*

E- Steel or aluminum flared fitting hose coupling nuts*

*- Where use of a torque wrench would be difficult, use a conventional wrench to tighten coupling nuts. Tighten until a distinct increase in the torque required is noted. Continue tightening an additional 1/6 of a turn. Back off the nut. Again tighten until a distinct increase in the torque required is noted. Continue tightening an additional 1/6 to 1/3 of a turn.

SELF-RETAINING BOLTS INSTALLATION – CONTINUED

Table 4. Standard Torque Limits in Inch-Pounds for Connecting Coupling Nuts to Rosan Fittings.

TUBE OD	HOSE SIZE	NUT HEX	STEEL	ALUMINUM
1/4	-4	9/16	140-150	140-150
3/8	-6	11/16	290-300	250-260
1/2	-8	7/8	525-575	410-430
5/8	-10	1	735-805	530-550
3/4	-12	1 1/4	960-1000	660-690
1	-16	1 1/2	1360-1400	1110-1150

TORQUE WRENCHES

30-150 Inch-Pounds

100-750 Inch-pounds

700-1600 Inch-Pounds

1. Rosan fittings are used on the following hydraulic system components:

Utility Pressure Module, Utility Return Module, APU Start Module, APU Start Accumulator, Utility Cooler Reservoir, Flight Control Cooler Reservoir, Flight Control Power Module, Lower Controls Module, ILCA Manifold, APU Motor Pump.

2. Torque values are for fittings lubricated with hydraulic fluid (E197).

CAUTION

Be careful when tightening pipe fittings. Overtightening causes distortion, cracking and leaks.

Table 5. Standard Torque Limits in Inch-Pounds for Pipe Thread Fittings.

THREAD SIZE	WORKING TORQUE	MAXIMUM TORQUE
1/8-27	100	175
1/4-18	150	300
3/8-18	225	450

TORQUE WRENCHES

30 to 150 Inch-Pounds

100 to 750 Inch-Pounds

[1]Antiseize compound (E750) shall be used on threads to prevent seizing and to aid in sealing. The compound shall be applied to the male fitting so that it does not contaminate the fluid in the system. Male and female fittings should be of different materials.

SELF-RETAINING BOLTS INSTALLATION – CONTINUED

CAUTION

Be careful when tightening pipe fittings. Overtightening causes distortion, cracking and leaks.

Table 6. Bulkhead Fitting Hole Diameter, Washer Thickness, and Nut Torque Limits.

TUBE SIZE	TUBE FITTING		BULKHEAD HOLE DIA (IN.)		WASHER THICKNESS	TORQUE (IN-LB) AN924 NUT	
	OD (IN.)	THREAD	MIN	MAX	(IN.)	MIN	MAX
-4	1/4	7/16-20	.443	.463	.063	85	105
-5	5/16	1/2-20	.505	.525	.063	105	125
-6	3/8	9/10-18	.568	.588	.063	120	150
-8	5/8	7/8-14	.880	.990	.90	320	280
-10	1/2	3/4-16	.775	.775	.90	240	380
-12	3/4	1-1/16-12	1.068	1.088	.90	500	600
-16	1.0	1-5/16-12	1.318	1.338	.90	720	880
-20	1-1/4	1-5/8-12	1.630	1.650	.90	960	1200

END OF WORK PACKAGE

CHAPTER 4

SUPPORTING INFORMATION

FOR

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU) WHEEL MOUNTED, SELF-PROPELLED, TOWABLE

AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V

DC - 28 VOLT

PNEUMATIC - 60 LBS/MIN. AT 40 PSIG

HYDRAULIC - 15.2 GPM AT 3300 PSIG

LIN: P44627

(PART NO. 83-360A) (NSN: 1730-01-144-1897)

(MEP 83-360A)

(PART NO. 83-360D) (NSN: 1730-01-466-9371)

(MEP 83-360D)

(PART NO. 1024250) (NSN: 1730-01-552-2313)

(MEP 83-360E)

SUPPORTING INFORMATION

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
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DC - 28 VOLT
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HYDRAULIC - 15.2 GPM AT 3300 PSIG
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EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

REFERENCES

SCOPE

This work package contains a list of reference manuals that may be used in conjunction with this TM in the operation and maintenance of the AGPU. Those manuals not coded are applicable for use by all services.

REFERENCES

AR 700-138	Army Logistics Readiness and Sustainability
ASTM-E-1417	Standard Practice for Liquid Penetrant Testing
ASTM-E-1444	Standard Practice for Magnetic Particle Testing
C6800-IL	Chemicals and Chemical Products
C9100-IL	Petroleum, Petroleum Base Products and Related Materials
DA PAM 25-30	User's Guide for Army Publications and Forms
DA PAM 40-501	Hearing Conservation Program
DA PAM 738-751	Functional Users Manual for The Army Maintenance Management System, Aviation - (TAMMS-A)
DA PAM 750-8	Functional Users Manual for The Army Maintenance Management System - (TAMMS)
DD Form 2026	Oil Analysis Request
DA Form 2404	Equipment Inspection and Maintenance Worksheet
DA Form 2406	Materiel Condition Status Report
DA Form 2408-5	Equipment Modification Record
DA Form 2408-20	Oil Analysis Record
DD Form 314	Preventive Maintenance Schedule and Record
DMWR 1-2835-213	Engine, Gas Turbine (AGPU)
DMWR 55-2910-300	Hydraulic Pump, Electric Pressure
DMWR 1-6115-509	Generator Control Unit
DMWR 1-6115-510	Generator, AC, DC (AGPU)
FM 9-207	Operation and Maintenance of Ordnance Materiel in Cold Weather
FM 11-65	High Frequency Radio Communications
MCO P4450.7	
MIL-A-8625	Anodic Coatings for Aluminum and Aluminum Alloys
MIL-HDBK-454B	General Guidelines for Electronic Equipment
MIL-PRF-46010	Lubricant, Solid Film, Heat Cured, Corrosion Inhibiting

REFERENCES – CONTINUED

MWO 1-1730-229-50-2	
MWO 1-1730-229-50-4	
QQ-B-654A(1)	
SAE-AMS-STD-1595	Qualification of Aircraft of Aircraft Missile and Aerospace Fusion Welders
SL-1-3	
SF 368	Product Quality Deficiency Report
TB 1-1730-229-20-1	Aviation Ground Power Unit (Fuel Filter/Separator Replacement)
TB 1-1730-229-30-2	Authorized Modification of Battery Installation, Aviation Ground Power Unit
TB 43-0211	Army Oil Analysis Program (AOAP) Guide for Leaders and Users
TB 5-4200-200-10	Hand Portable Fire Extinguishers Approved for Army Use
TB 740-97-2	Preservation of USAMECOM Mechanical Equipment for Shipment and Storage
TM1-1500-204-23-1 (Series)	General Aircraft Maintenance Manual
TM 1-1500-323-24-1	Installation and Repair Practices, Aircraft Electric and Electronic Wiring
TM 1-1500-344-23 (Series)	Cleaning and Corrosion Control
TM 1-1730-229-24P	Organizational, and Intermediate (Field) (Direct Support and General Support) Maintenance Repair Parts and Special Tools List
TM 43-0139	Painting Instructions for Field Use
TM 750-244-1-4	Procedures for Destruction of Aviation Ground Support Equipment (FSC 4920) to Prevent Enemy Use
TM 750-244-3	Procedures for Destruction of Equipment to Prevent Enemy Use
TM 9-2610-200-14	Operator, Unit, Direct Support and General Support Maintenance Manual for Care, Maintenance, Repair and Inspection of Pneumatic Tubes and Inner Tubes
TM 9-6140-200-1	Maintenance of Storage Batteries; Lead Acid Type
TO 00-25-225 (F)	
TO 00-25-234 (F)	General Shop Practice Requirements for the Repair, Maintenance and Test of Electrical Equipment
TO 1-1A-14 (F)	Installation Practices for Aircraft Electric and Electronic Wiring
TO 1-1A-14 (F)	Operation in Cold Weather Areas
TO 8D2-3-1 (F)	Maintenance of NI-CAD Batteries
TO 31-1-141-13 (F)	Basic Electronic Technology
TO 35C2-3	
TO 35C2-3-473-2 (F)	
TO 35C2-3-473-4 (F)	Organizational Intermediate (DS and GS) Depot Maintenance Instructions With Repair Parts and Special Tools List (RPSTL)
TO 35-1-3 (F)	Painting and Marking of USAF Support Equipment
TO 35-1-4 (F)	Processing and Inspection of Aerospace Ground Equipment for Storage and Shipment
TO 36Y32-1-142 (F)	Organizational Care, Maintenance and Repair of Pneumatic Tires and Inner Tubes
TO 36Y-4-1-194 (F)	
TO 38-1-5	

AGPU DMWR'S LISTING

COMPONENTS:

1-2835-213	GAS TURBINE ENGINE (GTE)
1-2835-213	STARTER
1-2835-213	FUEL CONTROL UNIT (FCU)
1-2835-213	LOAD CONTROL VALVE (LCV)
1-2835-213	GTE WIRING HARNESS

AGPU DMWR'S LISTING – CONTINUED

55-2910-300	HYDRAULIC PUMP, ELECTRIC PRESSURE
1-6115-509	GENERATOR CONTROL UNIT (GCU)
1-6115-510	GENERATOR, AC, DC (AGPU)
1-6130-293	BATTERY CHARGER
55-2920-280	ELECTRONIC CONTROL UNIT (ECU)
1-6120-280	TRU

SUPPORTING INFORMATION

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
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MAINTENANCE ALLOCATION CHART (MAC) INTRODUCTION

MAINTENANCE ALLOCATION CHART (MAC) INTRODUCTION

Aviation Maintenance Allocation Chart

The MAC (immediately following the introduction) designates overall authority and responsibility for the performance of maintenance functions on the identified end item or component. The application of the maintenance functions to the end item or component shall be consistent with the capacities and capabilities of the designated maintenance level which are shown on the MAC as:

Field - includes two columns, "O" which corresponds to Aviation Maintenance Company (AMC) and "F" which corresponds to Aviation Support Battalion (ASB)
Sustainment - includes two columns, "L" which corresponds to Theater Aviation Sustainment Maintenance Group (TASMG) and other organizations that have National Maintenance Program certification and "D" which corresponds to Depot .

The maintenance to be performed below depot and in the field is described as follows:

1. **Aviation Maintenance Company (AMC).** The primary purpose of the aviation maintenance company is to support the momentum of offensive operations. Composition of the AMC will be based on type of operations being supported, nature of the battlefield, and the need for flexibility. AMCs will provide forward positioning of essential maintenance repair parts and supplies, maximum use of support teams, use of airlift/air drops for resupply, for maintenance that does not interfere with the tactical plans and operations. AMCs are agile, mobile, and well equipped. They will carry limited stockpiles of demand supported, essential parts and supplies. The AMC performs battle damage assessment and repair (BDAR) and unit level repairs on Aviation Life Support Systems (ALSS). The AMC performs production control, quality control, and Maintenance Management/Maintenance Test Pilot functions. AMCs will rig aircraft for recovery operations. The AMC manages the battalion maintenance program and operates a central tool room. The AMC conducts forward arming and refueling. AMCs will be comprised of 3 to 4 modular platoons, which are configured to maintain unit level operational readiness and aircraft availability:
   Headquarters Platoon - Establishes standard operating procedures, receives and processes work requests, schedules maintenance, maintains status of aircraft, coordinates inspections and test flights and return of repaired aircraft, enforces quality standards, responsible for safety. Also, obtains, stores, and issues Classes II, III, IV, and IX, prescribe load list, shop stock and authorized stockage list items.
   Airframe Repair Platoon - Tailored to battalion it supports. Performs scheduled and unscheduled maintenance, troubleshoots faulty components, and removes and replaces aircraft components. Provides mission capable aircraft to support flight company operations.
   Component Repair Platoon - Performs scheduled and unscheduled maintenance, troubleshoots faulty components, and removes and replaces aircraft components. Performs BDAR and manages Class

MAINTENANCE ALLOCATION CHART (MAC) INTRODUCTION – CONTINUED

IX spare/shop stock. This platoon uses Shop Equipment Contact Maintenance (SECM) trucks which are multi-capable and self-contained and are used to perform on-site maintenance using enhanced power tools, test, measurement, and diagnostic equipment, welding and cutting equipment, and an air compressor. The SECM truck is highly mobile.
Armament platoon - Only used in attack battalions and cavalry squadrons. Performs scheduled and unscheduled maintenance on armament components.

2. **Aviation Support Company (ASC) in the Aviation Support Battalion (ASB).** Comprised of Headquarters, Airframe, and Component Repair Platoons. Provides maintenance assistance to aviation units helping them maintain operational readiness and aircraft availability. Utilizes SECM trucks. Capable of supporting split based operations in two separate and distinct locations. Performs the following types of maintenance:

   a. Intermediate maintenance and logistics support operations.
   b. Maintenance actions which require more than 3 days to correct.
   c. Phased maintenance and preventive maintenance services.
   d. In-depth troubleshooting and diagnosis of airframe and component malfunctions.
   e. Repairs airframes and LRU component.
   f. Fixes night vision systems, aviation life support systems, aviation electrical and hydraulic components.
   g. Limited capability to fabricate hydraulic lines.
   h. Repairs engines, prop and rotors, armament, and armament subsystems.
   i. Fixes and fuels organic battalion equipment, ground aviation vehicles, and aviation ground support equipment.
   j. Operates and performs field maintenance on aviation ground power units, generator, and ground support equipment.
   k. Battle damage assessment and repair (BDAR).
   l. Production control and quality control.
   m. Test Pilot functions.

3. **Theater Aviation Sustainment Maintenance Group (TASMG).** Assists in deployment and redeployment, provides technical assistance, supports increased operational tempo, sustains Army aviation across the entire spectrum of operations. The TASMG:

   a. Provides support to CONUS deploying forces
   b. Provides support to OCUNUS deployed forces
   c. OCONUS aviation maintenance support for contingency and stability and/or support operations.
   d. Expands aviation maintenance capabilities of CONUS depots
   e. Classifies and inspects aviation stocks and components.
   f. Repairs engines, airframes, armament, composite materials, electrical systems, avionics, hydraulics.
   g. Fabricates hydraulics lines.
   h. Backup ASB and AMC maintenance functions.

Use of the MAC

NOTE

Approved item names are used throughout this MAC. Generic terms/ nomenclature (if any) are expressed in parentheses and are not to be considered as official terminology.

This MAC assigns maintenance functions to the lowest level of maintenance, based on past experience and the following considerations:

Skills available.
Work time required.
Tools and test equipment required and/or available.

MAINTENANCE ALLOCATION CHART (MAC) INTRODUCTION – CONTINUED

Only the lowest level of maintenance authorized to perform a maintenance function is indicated. If the lowest maintenance level cannot perform all tasks of any single maintenance function (e.g., test, repair), then the higher maintenance level(s) that can accomplish additional tasks will also be indicated.

A maintenance function assigned to a maintenance level will automatically be authorized to be performed at any higher maintenance level.

A maintenance function that cannot be performed at the assigned level of maintenance for any reason may be evacuated to the next higher maintenance level. Higher maintenance levels will perform the maintenance functions of lower maintenance levels when required by the commander who has the authority to direct such tasking.

The assignment of a maintenance function will not be construed as authorization to carry the related repair parts or spares in stock. Information to requisition or otherwise secure the necessary repair parts will be as specified in the associated PSTL.

Normally there will be no deviation from the assigned level of maintenance. In cases of operational necessity, at the request of a lower maintenance level and on a one-time basis, transfer of maintenance functions to the lower level may be accomplished by specific authorization of the maintenance officer of the higher level of maintenance to which the function is assigned. The special tools, equipment, etc., required by the lower level of maintenance to perform this function will be furnished by the maintenance level to which the function is assigned. This transfer of a maintenance function to a lower maintenance level does not relieve the higher maintenance level of the responsibility for the function. The higher level of maintenance will provide technical supervision and inspection of the function being performed at the lower level.

Maintenance Functions

Maintenance functions will be limited to and defined as follows:

1. Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination (e.g., by sight, sound, or feel).
2. Test. To verify serviceability by measuring the mechanical, pneumatic, hydraulic, or electrical characteristics of an item and comparing those characteristics with prescribed standards.
3. Service. Operations required periodically to keep an item in proper operating condition, i.e., to clean (includes decontaminate, when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemical fluids, or gases.
    a. Unpack. To remove from packing box for service when required for the performance of maintenance operations.
    b. Repack. To return item to packing box after service and other maintenance operations.
    c. Clean. To rid the item of contamination.
    d. Touch up. To spot paint scratched or blistered surfaces.
    e. Mark. To restore obliterated identification.
1. Adjust. To maintain or regulate, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to specified parameters.
2. Align. To adjust specified variable elements of an item to bring about optimum or desired performance.
3. Calibrate. To determine and cause corrections to be made or to be adjusted on instruments of test, measuring, and diagnostic equipment used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.
4. Remove/Install. To remove and install the same item when required to perform service or other maintenance functions. Install may be the act of emplacing, seating, or fixing into position a spare, repair part, or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.
5. Paint. To prepare and spray color coats of paint so that the ammunition can be identified and protected. The color indicating primary use is applied, preferably, to the entire exterior surface as the background color of the item. Other markings are to be painted as original so as to retain proper ammunition identification.

MAINTENANCE ALLOCATION CHART (MAC) INTRODUCTION – CONTINUED

6. Replace. To remove an unserviceable item and install a serviceable counterpart in its place. "Replace" is authorized by the MAC and assigned maintenance level is shown as the third position code of the Source, Maintenance, and Recoverability (SMR) code.
7. Repair. The application of maintenance services, including fault location/troubleshooting, removal/installation, disassembly/assembly procedures, and maintenance actions to identify troubles and restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assemly), end item, or system.

NOTE

The following definitions are applicable to the "repair" maintenance function:

Services. Inspect, test, service, adjust, align, calibrate, and/or replace.
Fault location/troubleshooting. The process of investigating and detecting the cause of equipment malfunctioning; the act of isolating a fault within a system or Unit Under Test (UUT).
Disassembly/assembly. The step-by-step taking apart (or breakdown) of a spare/functional group coded item to the level of its least component identified as maintenance significant (i.e., assigned an SMR code) for the level of maintenance under consideration.
Actions. Welding, grinding, riveting, straightening, facing, machining, and/or resurfacing.

8. Overhaul. That maintenance effort (service/action) prescribed to restore an item to a completely serviceable/operational condition as required by maintenance standards in appropriate technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.
9. Rebuild. Those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (e.g., hours/miles) considered in classifying Army equipment/components.

Explanation of Entries in the MAC

Group Number and Component/Assembly. The functional groupings in the sample below identify maintenance significant components, assemblies, subassemblies, and modules with the next higher assembly.

Group Number	Component/Assembly Description
04	POWER PLANT
0401	ENGINE, GENERAL Servicing, handling inspection requirements, overhaul and retirement schedules. External lines and hoses. (As applicable.)
0402	COMPRESSOR SECTION (COLD SECTION MODULE) Rotor, blades, vanes, impeller, stators, inlet guide vanes, mainframe, particle separator, bleed valve, bearings, seals, external lines and hoses.
0403	COMBUSTION SECTION (HOT SECTION MODULE) Liners, nozzles, stators, rotor, seals, couplings, blades.
0404	POWER-TURBINE (POWER TURBINE MODULE) Nozzles, rotors, blades, exit guide vanes, exhaust frame, drive shaft, bearings, seals, external lines and hoses.
0405	ACCESSORY GEAR BOX (ACCESSORY SECTION MODULE) Input and output gears, seals, chip detector, housings, drive shaft, bearings.
0406	FUEL SYSTEM Fuel control, fuel boost pump, governors, fuel filter assembly, sequence valve, fuel manifold, fuel nozzle, external lines and hoses.
0407	ELECTRICAL SYSTEM Electrical control units, exciters, thermocouples, ignition harness, electrical cables, history record, torque over speed sensor, Np sensor, external lines and hoses.

MAINTENANCE ALLOCATION CHART (MAC) INTRODUCTION – CONTINUED

0408	OIL SYSTEM Tanks, oil filter, oil cooler, lube and scavenger pumps, oil filter bypass sensor, external lines and hoses.

Maintenance Function. Entry lists the functions to be performed o the items listed in Component/Assembly.

Maintenance Level. The maintenance levels field and sustainment are listed on the MAC with individual columns for AMC, ASB, TASMG, and Depot that include the work times for maintenance functions at each maintenance level. Work time presentations such as "0.1" indicate the average time (expressed in manhours in whole hours or decimals) it requires a maintenance level to perform a specified maintenance function. If a work time has not been established, the columnar presentation will indicate "--". Maintenance levels higher than the level of maintenance indicated are authorized to perform the indicated function.

Tools and Equipment Reference Code. Entry specifies, by code, those common tool sets (not individual tools), common TMDE, and special tools, special TMDE, and special support equipment required to perform the designated function.

Remarks Code. When applicable, this column contains a letter code, in alphabetical order, which is keyed to the remarks.

Explanation of Entries in the Tools and Test Equipment Requirements

Tool or Test Equipment Reference Code. The tool or test equipment reference code correlates with a code used in tasks and equipment reference code entry of the MAC.

Maintenance Level. The lowest level of maintenance authorized to use the tool or test equipment.

Nomenclature. Name or identification of the tool or test equipment.

National Stock Number (NSN). The NSN of the tool or test equipment.

Tool Number. The manufacturer's part number.

Explanation of Entries in the Remarks

Remarks Code. The code recorded in remarks code entry of the MAC.

Remarks. This entry lists information pertinent to the maintenance function being performed as indicated in the MAC

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EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

MAINTENANCE ALLOCATION CHART (MAC)

Table 1. Maintenance Allocation Chart.

(1)	(2)	(3)	(4) MAINTENANCE LEVEL				(5)	(6)
			FIELD		SUSTAINMENT		TOOLS AND EQUIPMENT	
GROUP NUMBER	DESCRIPTION	MAINTENANCE FUNCTION	AMC (O)	ASB (F)	TASMG (L)	DEPOT (D)	REF CODE	REMARKS CODE
01	**Frame and Housing**							
0101	Frame and Panels	INSPECT	.25					A , I
		SERVICE	.5					A , I
		ADJUST	.25					A , I
		ALIGN	.25					A , I
		REPLACE	1.5					A , I
		REPAIR		2.0				A , I
		REBUILD			8.0			A , I
0102	Lifting Eye(s)	INSPECT	.5					A
		TEST			1.0			A
		SERVICE	.5					A
		ADJUST	.5					A
		ALIGN	.5					A
		REPLACE	.5					A
		REPAIR		1.0				A
		REBUILD			1.0			A
0103	Tie Downs	INSPECT	.5					A
		TEST			1.0			A
		SERVICE	.5					A
		ADJUST	.5					A
		ALIGN	.5					A
		REPLACE	.5					A
		REPAIR		1.0				A
		REBUILD			1.0			A

Table 1. Maintenance Allocation Chart – Continued

(1) GROUP NUMBER	(2) DESCRIPTION	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL FIELD AMC (O)	FIELD ASB (F)	SUSTAINMENT TASMG (L)	SUSTAINMENT DEPOT (D)	(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
0104	Covers	INSPECT	.5					A , I
		SERVICE	.5					A , I
		ADJUST	.5					A , I
		ALIGN	.5					A , I
		REPLACE	1.0					A , I
		REPAIR		2.0				A , I
		REBUILD			8.0			A , I
0105	Roof	INSPECT	.5					A , I
		SERVICE	.5					A , I
		ADJUST	.5					A , I
		ALIGN	.5					A , I
		REPLACE	.5					A , I
		REPAIR		1.0				A , I
		REBUILD			8.0			A , I
0106	Access Doors	INSPECT	.5					A , I
		SERVICE	.5					A , I
		ADJUST	.5					A , I
		ALIGN	.5					A , I
		REPLACE	1.0					A , I
		REPAIR		4.0				A , I
		REBUILD			8.0			A , I
0107	Battery Holddown	INSPECT	.5					A
		SERVICE	.25					A
		ADJUST	.25					A
		ALIGN	.25					A
		REPLACE	.50					A
		REPAIR	.50					A
0108	Exhaust Ejector Assembly	INSPECT	.5					A , J , I
		TEST				1.0		A , J , I
		SERVICE	.5					A , J , I
		ADJUST	.5					A , J , I
		ALIGN	.5					A , J , I
		REPLACE	1.5					A , J , I
		REPAIR		8.0				A , J , I
		REBUILD				16.0		A , J , I
0109	Ejector Inlet Tube	INSPECT	.5					A
		TEST				1.0		A
		SERVICE	.5					A
		ADJUST	.5					A
		ALIGN	.5					A
		REPLACE	1.5					A
		REPAIR		8.0				A

Table 1. Maintenance Allocation Chart – Continued

(1) GROUP NUMBER	(2) DESCRIPTION	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL FIELD AMC (O)	FIELD ASB (F)	SUSTAINMENT TASMG (L)	SUSTAINMENT DEPOT (D)	(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
		REBUILD				16.0		A
0110	Air Cleaner Assembly	INSPECT	.5					A
		SERVICE	.5					A
		ADJUST	.5					A
		ALIGN	.5					A
		REPLACE	1.0					A
		REPAIR		2.0				A
		REBUILD				8.0		A
0111	Air Intake Duct Assembly	INSPECT	.5					A , I
		SERVICE	.5					A , I
		ADJUST	.5					A , I
		ALIGN	.5					A , I
		REPLACE	1.0					A , I
		REPAIR		2.0				A , I
		REBUILD				8.0		A , I
0112	Ground Stud	INSPECT	.25					A
		SERVICE	.25					A
		REPLACE	.5					A
0113	Drain Hoses/Lines	INSPECT	.5					A
		SERVICE	.5					A
		ADJUST	.5					A
		ALIGN	.5					A
		REPLACE	1.0					A
		REPAIR		2.0				A
		REBUILD			4.0			A
0114	Engine/Generator Mounts	INSPECT	.5					A
		SERVICE	.5					A
		ADJUST	.5					A
		ALIGN	.5					A
		REPLACE		1.0				A
		REPAIR		2.0				A
		REBUILD			4.0			A
0115	Insulation	INSPECT	.5					A , J , I
		SERVICE	.5					A , J , I
		ADJUST	.5					A , J , I
		ALIGN	.5					A , J , I
		REPLACE		1.0				A , J , I
		REPAIR		1.0				A , J , I
02	**DC Electrical and Control System**							

Table 1. Maintenance Allocation Chart – Continued

(1) GROUP NUMBER	(2) DESCRIPTION	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL FIELD AMC (O)	FIELD ASB (F)	SUSTAINMENT TASMG (L)	SUSTAINMENT DEPOT (D)	(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
0201	Battery	INSPECT	.5					A , B , K , C
		TEST		1.0				A , B , K , C
		SERVICE	.5					A , B , K , C
		REPLACE	1.0					A , B , K , C
		REPAIR		2.0				A , B , K , C
0202	Battery Cables	INSPECT	.5					A , C , B , F
		TEST	.5					A , C , B , F
		SERVICE	.5					A , C , B , F
		REPLACE	.5					A , C , B , F
		REPAIR	.5					A , C , B , F
0203	Slave Receptacle	INSPECT	.5					A , C , B
		TEST	.5					A , C , B
		SERVICE	.5					A , C , B
		REPLACE	2.0					A , C , B
		REPAIR	2.0					A , C , B
0204	Battery Charger	INSPECT	.5					A , C , B , D
		TEST	8.0					A , C , B , D
		SERVICE	.5					A , C , B , D
		ADJUST		.5				A , C , B , D
		REPLACE	1.5					A , C , B , D
		REPAIR				8.0		A , C , B , D
		OVERHAUL				8.0		A , C , B , D
		REBUILD				8.0		A , C , B , D
0205	Contactors	INSPECT	.5					A , C , B
		TEST	.5					A , C , B

Table 1. Maintenance Allocation Chart – Continued

(1) GROUP NUMBER	(2) DESCRIPTION	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL FIELD AMC (O)	FIELD ASB (F)	SUSTAINMENT TASMG (L)	SUSTAINMENT DEPOT (D)	(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
		SERVICE	.5					A , C , B
		REPLACE	1.0					A , C , B
		REPAIR	1.0					A , C , B
0206	Shunts	INSPECT	.5					A , C , B
		TEST	.5					A , C , B
		SERVICE	.5					A , C , B
		REPLACE	1.0					A , C , B
0207	Wiring Harness	INSPECT	1.0					A , C , B
		TEST		1.0				A , C , B
		SERVICE	.5					A , C , B
		REPLACE		16.0				A , C , B
		REPAIR		16.0				A , C , B
		OVERHAUL				40.0		A , C , B
		REBUILD				40.0		A , C , B
0208	Speed Sensor	INSPECT	.5					A , C , B , D
		TEST	.5					A , C , B , D
		SERVICE	.5					A , C , B , D
		ADJUST	.5					A , C , B , D
		ALIGN	.5					A , C , B , D
		REPLACE	1.0					A , C , B , D
0209	Low Oil Pressure Switch	INSPECT	.5					A , C , B , D
		TEST		.5				A , C , B , D
		SERVICE	.5					A , C , B , D
		ADJUST	.5					A , C , B , D
		ALIGN	.5					A , C , B , D
		REPLACE	1.0					A , C , B , D
0210	High Oil temperature Switch	INSPECT	.5					A , C , B , D
		TEST		.5				A , C , B , D

Table 1. Maintenance Allocation Chart – Continued

(1) GROUP NUMBER	(2) DESCRIPTION	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL FIELD AMC (O)	FIELD ASB (F)	SUSTAINMENT TASMG (L)	SUSTAINMENT DEPOT (D)	(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
		SERVICE	.5					A , C , B , D
		ADJUST	.5					A , C , B , D
		ALIGN	.5					A , C , B , D
		REPLACE	.5					A , C , B , D
0211	Thermocouple	INSPECT	.5					A , C , B
		TEST		.5				A , C , B
		SERVICE	.5					A , C , B
		ADJUST	.5					A , C , B
		ALIGN	.5					A , C , B
		REPLACE	1.0					A , C , B
0212	Control Relays	INSPECT	.5					A , C , B
		TEST		.5				A , C , B
		SERVICE	.5					A , C , B
		ADJUST		.5				A , C , B
		REPLACE	1.0					A , C , B
		REPAIR		1.0				A , C , B
		OVERHAUL			2.0			A , C , B
		REBUILD				2.0		A , C , B
0213	Protective Relays	INSPECT	.5					A , C , B
		TEST		.5				A , C , B
		SERVICE	.5					A , C , B
		ADJUST		.5				A , C , B
		REPLACE	1.0					A , C , B
		REPAIR		1.0				A , C , B
		OVERHAUL			2.0			A , C , B
		REBUILD				2.0		A , C , B
0214	Electronic Control Unit	INSPECT	.5					A , C , B , D
		TEST				2.0		A , C , B , D
		SERVICE	.5					A , C , B , D
		ADJUST				2.0		A , C , B , D
		CALIB				2.0		A , C , B , D
		REPLACE	1.0					A , C , B , D
		REPAIR				4.0		A , C , B , D

Table 1. Maintenance Allocation Chart – Continued

(1) GROUP NUMBER	(2) DESCRIPTION	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL FIELD AMC (O)	FIELD ASB (F)	SUSTAINMENT TASMG (L)	SUSTAINMENT DEPOT (D)	(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
		OVERHAUL				8.0		A , C , B , D
		REBUILD				8.0		A , C , B , D
0215	Circuit Breakers	INSPECT	.5					A , C , B
		TEST	.5					A , C , B
		SERVICE	.5					A , C , B
		ADJUST	.5					A , C , B
		REPLACE	1.0					A , C , B
0216	Switches	INSPECT	.5					A , C , B
		TEST	.5					A , C , B
		SERVICE	.5					A , C , B
		ADJUST	.5					A , C , B
		ALIGN	.5					A , C , B
		REPLACE	1.0					A , C , B
		REPAIR		1.0				A , C , B
0217	Utility Lights	INSPECT	.5					A , C , B
		TEST	.5					A , C , B
		SERVICE	.5					A , C , B
		ADJUST	.5					A , C , B
		REPLACE	1.0					A , C , B
		REPAIR	1.0					A , C , B
0218	Lamps, Incandescent	INSPECT	.5					A
		TEST	.5					A
		SERVICE	.5					A
		REPLACE	.5					A
		REPAIR	.5					A
0219	Diodes	INSPECT	.5					A , C , B
		TEST		1.0				A , C , B
		SERVICE	.5					A , C , B
		REPLACE		1.0				A , C , B
		REPAIR		1.0				A , C , B
03	**Electrical Power Generation and Control System**							
0301	Generator Assembly	INSPECT	.5					A , C , B , D , L , I , M
		TEST			8.0			A , C , B , D , L , I , M
		SERVICE	.5					A , C , B , D , L , I , M
		ADJUST			1.0			A , C , B , D , L , I , M

Table 1. Maintenance Allocation Chart – Continued

(1) GROUP NUMBER	(2) DESCRIPTION	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL FIELD AMC (O)	FIELD ASB (F)	SUSTAINMENT TASMG (L)	SUSTAINMENT DEPOT (D)	(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
		ALIGN	.5					A , C , B , D , L , I , M
		REPLACE	3.0					A , C , B , D , L , I , M
		REPAIR			8.0			A , C , B , D , L , I , M
		OVERHAUL				16.0		A , C , B , D , L , I , M
		REBUILD				16.0		A , C , B , D , L , I , M
030101	Grease Fittings	INSPECT	.25					A
		TEST	.25					A
		SERVICE	.25					A
		REPLACE	.5					A
0302	Generator Control Unit	INSPECT	.5					A , C , B , D
		TEST			8.0			A , C , B , D
		SERVICE	.5					A , C , B , D
		ADJUST				1.0		A , C , B , D
		CALIB				2.0		A , C , B , D
		REPLACE	2.0					A , C , B , D
		REPAIR				16.0		A , C , B , D
		OVERHAUL				16.0		A , C , B , D
		REBUILD				16.0		A , C , B , D
0303	TRU Current Transformers	INSPECT	.5					A , C , B , D
		TEST			1.0			A , C , B , D
		SERVICE	.5					A , C , B , D
		ADJUST				.5		A , C , B , D
		CALIB				.5		A , C , B , D
		REPLACE	1.0					A , C , B , D

Table 1. Maintenance Allocation Chart – Continued

(1) GROUP NUMBER	(2) DESCRIPTION	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL FIELD AMC (O)	FIELD ASB (F)	SUSTAINMENT TASMG (L)	SUSTAINMENT DEPOT (D)	(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
		REPAIR				8.0		A , C , B , D
		OVERHAUL				8.0		A , C , B , D
		REBUILD				8.0		A , C , B , D
0304	Main Contactors	INSPECT	.5					A , C , B
		TEST	.5					A , C , B
		SERVICE	.5					A , C , B
		REPLACE	.5					A , C , B
0305	AC Power Cable	INSPECT	.5					A , C , B
		TEST	.5					A , C , B
		SERVICE	.5					A , C , B
		REPLACE	3.0					A , C , B
		REPAIR		1.0				A , C , B
		OVERHAUL			1.0			A , C , B
		REBUILD			1.0			A , C , B
0306	DC Power Cable	INSPECT	.5					A , C , B
		TEST	.5					A , C , B
		SERVICE	.5					A , C , B
		REPLACE	3.0					A , C , B
		REPAIR		1.0				A , C , B
		OVERHAUL			1.0			A , C , B
		REBUILD			1.0			A , C , B
0307	AC Inverter (800W AC)	INSPECT	.5					A , C , B , D
		TEST	.5					A , C , B , D
		SERVICE	.5					A , C , B , D
		REPLACE	1.0					A , C , B , D
		REPAIR			2.0			A , C , B , D
		REBUILD				3.0		A , C , B , D
04	**Fuel System**							
0401	Fuel Pump	INSPECT	.5					A , C , B , D
		TEST	.5					A , C , B , D

Table 1. Maintenance Allocation Chart – Continued

(1) GROUP NUMBER	(2) DESCRIPTION	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL FIELD AMC (O)	FIELD ASB (F)	SUSTAINMENT TASMG (L)	SUSTAINMENT DEPOT (D)	(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
		SERVICE	1.0					A , C , B , D
		ADJUST	.5					A , C , B , D
		REPLACE	1.0					A , C , B , D
		REPAIR		1.0				A , C , B , D
0402	Four Way Valve	INSPECT	.5					A , D , B
		TEST	.5					A , D , B
		SERVICE	.5					A , D , B
		REPLACE	1.0					A , D , B
		REPAIR		.5				A , D , B
0403	Fuel Control Unit	INSPECT	.5					A , C , B , D
		TEST				1.0		A , C , B , D
		SERVICE	1.0					A , C , B , D
		ADJUST				1.0		A , C , B , D
		CALIB				1.0		A , C , B , D
		REPLACE	1.0					A , C , B , D
		REPAIR				4.0		A , C , B , D
		OVERHAUL				6.0		A , C , B , D
		REBUILD				8.0		A , C , B , D
0404	Fuel Filter Assembly	INSPECT	.5					A , E , C
		TEST	.5					A , E , C
		SERVICE	1.0-					A , E , C
		REPLACE	1.0					A , E , C
0405	Fuel Filter	INSPECT	.5					A , E , C
		TEST	.5					A , E , C
		SERVICE	1.0					A , E , C
		REPLACE	1.0					A , E , C
0406	Water Seperator	INSPECT	.5					A , E , C
		TEST	.5					A , E , C
		SERVICE	.5					A , E , C
		REPLACE	1.0					A , E , C

Table 1. Maintenance Allocation Chart – Continued

(1) GROUP NUMBER	(2) DESCRIPTION	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL FIELD AMC (O)	FIELD ASB (F)	SUSTAINMENT TASMG (L)	SUSTAINMENT DEPOT (D)	(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
0407	Fuel Solenoid, shutdown	INSPECT	.5					A , C , B , D
		TEST		.5				A , C , B , D
		SERVICE	.5					A , C , B , D
		REPLACE	1.0					A , C , B , D
0408	Fuel Tank	INSPECT	.5					A
		TEST			.5			A
		SERVICE	.5					A
		ADJUST	1.0					A
		ALIGN	1.0					A
		REPLACE	2.0					A
		REPAIR			8.0			A
		OVERHAUL				16.0		A
		REBUILD				16.0		A
0409	Fuel Level Sensors	INSPECT	.5					A , C , B , D
		TEST		.5				A , C , B , D
		SERVICE	.5					A , C , B , D
		ALIGN	.5					A , C , B , D
		REPLACE	2.0					A , C , B , D
0410	Fuel Lines, Valves, Fittings	INSPECT	.5					A , D , B
		TEST	.5					A , D , B
		SERVICE	.5					A , D , B
		ALIGN	.5					A , D , B
		REPLACE	1.0					A , D , B
		REPAIR		2.0				A , D , B
		OVERHAUL			2.0			A , D , B
		REBUILD			2.0			A , D , B
0411	Fuel Nozzle	INSPECT	.5					A , D , B , F , C
		TEST				3.0		A , D , B , F , C
		SERVICE	.5					A , D , B , F , C
		ADJUST				.5		A , D , B , F , C

Table 1. Maintenance Allocation Chart – Continued

(1) GROUP NUMBER	(2) DESCRIPTION	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL FIELD AMC (O)	FIELD ASB (F)	SUSTAINMENT TASMG (L)	SUSTAINMENT DEPOT (D)	(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
		ALIGN				.5		A , D , B , F , C
		REPLACE	1.0					A , D , B , F , C
		REPAIR				2.0		A , D , B , F , C
		OVERHAUL				2.0		A , D , B , F , C
		REBUILD				2.0		A , D , B , F , C
05	**Pneumatic System**							
0501	Load Control Valve	INSPECT	.5					A , C , B , D
		TEST				2.0		A , C , B , D
		SERVICE	.5					A , C , B , D
		ADJUST				1.0		A , C , B , D
		ALIGN				1.0		A , C , B , D
		CALIB				1.0		A , C , B , D
		REPLACE	2.0					A , C , B , D
		REPAIR				4.0		A , C , B , D
		OVERHAUL				4.0		A , C , B , D
		REBUILD				4.0		A , C , B , D
0502	Bleed Air Duct Assembly	INSPECT	.5					A
		TEST	1.0					A
		SERVICE	.5					A
		REPLACE	2.0					A
		REPAIR		4.0				A
		OVERHAUL			4.0			A
		REBUILD				4.0		A
0503	Pneumatic Connector	INSPECT	.5					A
		TEST		1.0				A
		SERVICE	.5					A
		REPLACE	1.0					A
		REPAIR		1.0				A
		OVERHAUL			1.0			A

Table 1. Maintenance Allocation Chart – Continued

(1) GROUP NUMBER	(2) DESCRIPTION	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL FIELD AMC (O)	FIELD ASB (F)	SUSTAINMENT TASMG (L)	SUSTAINMENT DEPOT (D)	(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
		REBUILD				1.0		A
0504	Pneumatic Hose	INSPECT	.5					A
		TEST	.5					A
		SERVICE	.5					A
		REPLACE	1.0					A
		REPAIR		1.0				A
		OVERHAUL			.5			A
0505	Bleed Air Solenoid Valve	INSPECT	.5					A , C , B , D
		TEST		.5				A , C , B , D
		SERVICE	.5					A , C , B , D
		REPLACE	1.0					A , C , B , D
		REPAIR		1.5				A , C , B , D
		OVERHAUL			1.5			A , C , B , D
		REBUILD				1.5		A , C , B , D
0506	Pressure Transducer	INSPECT	.5					A , C , B , D
		TEST		.5				A , C , B , D
		SERVICE	.5					A , C , B , D
		REPLACE	1.0					A , C , B , D
06	**Ignition System**							
0601	Igniter Plug	INSPECT	.5					A , D , B , F , C
		TEST		1.0				A , D , B , F , C
		SERVICE	.5					A , D , B , F , C
		ADJUST	.5					A , D , B , F , C
		REPLACE	1.0					A , D , B , F , C
0602	Igniter Plug Lead	INSPECT	.5					A , D , B
		TEST		.5				A , D , B

Table 1. Maintenance Allocation Chart – Continued

(1) GROUP NUMBER	(2) DESCRIPTION	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL FIELD AMC (O)	FIELD ASB (F)	SUSTAINMENT TASMG (L)	SUSTAINMENT DEPOT (D)	(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
		SERVICE	.5					A , D , B
		ADJUST	.5					A , D , B
		REPLACE	.5					A , D , B
		REPAIR	1.0					A , D , B
0603	Ignition Unit	INSPECT	.5					A , D , B
		TEST		.5				A , D , B
		SERVICE	.5					A , D , B
		REPLACE	1.0					A , D , B
0604	Starter Assembly	INSPECT	.5					A , C , B , D , N , I
		TEST		1.0				A , C , B , D , N , I
		SERVICE	.5					A , C , B , D , N , I
		REPLACE	2.0					A , C , B , D , N , I
		REPAIR		8.0				A , C , B , D , N , I
		OVERHAUL			16.0			A , C , B , D , N , I
		REBUILD				16.0		A , C , B , D , N , I
07	**Lubrication System**							
0701	Pump Assembly, Rotary Oil	INSPECT				160.0		Table 3
		TEST				2.0		Table 3
		SERVICE				80.0		Table 3
		REPLACE				80.0		Table 3
		REPAIR				80.0		Table 3
		OVERHAUL				160.0		Table 3
		REBUILD				160.0		Table 3
0702	Oil Pressure Regulating Valve	INSPECT				160.0		Table 3
		TEST				2.0		Table 3
		SERVICE				80.0		Table 3
		ADJUST				.5		Table 3
		REPLACE				80.0		Table 3
		REPAIR				80.0		Table 3
		OVERHAUL				160.0		Table 3
		REBUILD				160.0		Table 3
0703	Pickup and Strainer	INSPECT				1.0		Table 3
		TEST				.5		Table 3

Table 1. Maintenance Allocation Chart – Continued

(1) GROUP NUMBER	(2) DESCRIPTION	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL FIELD AMC (O)	FIELD ASB (F)	SUSTAINMENT TASMG (L)	SUSTAINMENT DEPOT (D)	(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
		SERVICE				1.0		Table 3
		REPLACE				2.0		Table 3
		REPAIR				1.0		Table 3
		OVERHAUL				1.0		Table 3
		REBUILD				1.0		Table 3
0704	Oil Filter Element	INSPECT	.5					A , E , H
		SERVICE	.5					A , E , H
		REPLACE	1.0					A , E , H
0705	Sight Level Indicator	INSPECT	.25					A
		SERVICE	.25					A
		REPLACE	.5					A
0706	Magnetic Drain Plugs	INSPECT	.25					A
		SERVICE	.25					A
		REPLACE	.5					A
08	**Hydraulic System**							
0801	Hydraulic Module	INSPECT	.5					A , G , B
		TEST		2.0				A , G , B
		SERVICE	1.0					A , G , B
		ADJUST			4.0			A , G , B
		CALIB			1.0			A , G , B
		REPLACE	2.0					A , G , B
		REPAIR		8.0				A , G , B
		OVERHAUL				80.0		A , G , B
		REBUILD				120.0		A , G , B
080102	Frame	INSPECT	1.0					A , I
		SERVICE	.5					A , I
		REPLACE				16.0		A , I
		REPAIR				4.0		A , I
		OVERHAUL				80.0		A , I
		REBUILD				80.0		A , I
0802	Control Panel	INSPECT	1.0					A
		TEST		2.0				A
		SERVICE	.5					A
		ADJUST		1.0				A
		REPLACE		4.0				A
		REPAIR		2.0				A
		OVERHAUL				40.0		A
		REBUILD				40.0		A
080201	Reservoir Sight Glass/Temperature Gauge	INSPECT	.5					A
		SERVICE	.5					A

Table 1. Maintenance Allocation Chart – Continued

(1) GROUP NUMBER	(2) DESCRIPTION	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL FIELD AMC (O)	FIELD ASB (F)	SUSTAINMENT TASMG (L)	SUSTAINMENT DEPOT (D)	(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
		REPLACE		2.0				A
		REPAIR		2.0				A
		OVERHAUL				4.0		A
		REBUILD				4.0		A
080202	Hydraulic Pressure Gauge	INSPECT	.5					A
		TEST		2.0				A
		SERVICE	.5					A
		ADJUST			1.0			A
		CALIB			1.0			A
		REPLACE		2.0				A
		REPAIR			2.0			A
		OVERHAUL				2.0		A
		REBUILD				2.0		A
080203	Sight Glasses	INSPECT	.5					A
		SERVICE	.5					A
		REPLACE		1.0				A
080204	Valves	INSPECT	.5					A
		TEST		.5				A
		SERVICE	.5					A
		ADJUST		.5				A
		CALIB		1.0				A
		REPLACE		2.0				A
		REPAIR			1.0			A
		OVERHAUL				1.0		A
		REBUILD				1.0		A , C
080205	Switches	INSPECT	.5					A , C , B
		TEST	.5					A , C , B
		SERVICE	.5					A , C , B
		ADJUST	.5					A , C , B
		REPLACE	1.0					A , C , B
		REPAIR		2.0				A , C , B
		OVERHAUL			2.0			A , C , B
		REBUILD				2.0		A , C , B
080206	Indicator Lights	INSPECT	.5					A , C , B
		TEST	.25					A , C , B
		SERVICE	.5					A , C , B
		REPLACE	1.0					A , C , B
		REPAIR		1.0				A , C , B
080207	Hour Meter	INSPECT	.5					A
		TEST	1.0					A
		SERVICE	.25					A
		REPLACE	1.0					A

Table 1. Maintenance Allocation Chart – Continued

(1) GROUP NUMBER	(2) DESCRIPTION	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL FIELD AMC (O)	FIELD ASB (F)	SUSTAINMENT TASMG (L)	SUSTAINMENT DEPOT (D)	(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
080208	Lamps	INSPECT	.25					A
		TEST	.25					A
		SERVICE	.25					A
		REPLACE	.25					A
080209	Hydraulic Connectors	INSPECT	.5					A
		TEST	.5					A
		SERVICE	.5					A
		REPLACE	1.0					A
0803	Reservoir	INSPECT		.5				A , O , C
		TEST		1.0				A , O , C
		SERVICE	.5					A , O , C
		REPLACE		8.0				A , O , C
		REPAIR			16.0			A , O , C
		OVERHAUL				32.0		A , O , C
		REBUILD				32.0		A , O , C
0804	Vent Dryer Assembly (Filter)	INSPECT	.25					A , H , C
		SERVICE	.5					A , H , C
		REPLACE	1.0					A , H , C
		REPAIR		1.0				A , H , C
080401	Accumulator	INSPECT		1.0				A
		TEST		1.0				A
		SERVICE		8.0				A
		REPLACE		8.0				A
		REPAIR		8.0				A
		OVERHAUL				40.0		A
		REBUILD				40.0		A
080402	Cooler (Heat Exchanger)	INSPECT		1.0				A , F , C
		TEST			1.0			A , F , C
		SERVICE		8.0				A , F , C
		REPLACE			8.0			A , F , C
		REPAIR			16.0			A , F , C
		OVERHAUL				32.0		A , F , C
		REBUILD				32.0		A , F , C
080403	Manifolds, Lines and Fittings	INSPECT		1.0				A , G , B
		TEST		1.0				A , G , B
		SERVICE		1.0				A , G , B
		REPLACE		2.0				A , G , B
		REPAIR			8.0			A , G , B
		OVERHAUL				16.0		A , G , B

Table 1. Maintenance Allocation Chart – Continued

(1) GROUP NUMBER	(2) DESCRIPTION	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL FIELD AMC (O)	FIELD ASB (F)	SUSTAINMENT TASMG (L)	SUSTAINMENT DEPOT (D)	(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
		REBUILD				16.0		A , G , B
080404	Wiring Harness	INSPECT	.5					A , C , B
		TEST		1.0				A , C , B
		SERVICE	.5					A , C , B
		REPLACE		8.0				A , C , B
		REPAIR			12.0			A , C , B
		OVERHAUL				16.0		A , C , B
		REBUILD				16.0		A , C , B
080405	Filter Assemblies	INSPECT	.5					A , G , B
		SERVICE	1.0					A , G , B
		REPLACE	1.0					A , G , B
		REPAIR		2.0				A , G , B
		OVERHAUL			4.0			A , G , B
		REBUILD	4.0					A , G , B
08040501	Filter Element	INSPECT	.5					E , H
		TEST	.5					E , H
		SERVICE	1.5					E , H
		REPLACE	1.5					E , H
080406	Check Valves	INSPECT		.5				A
		TEST		.5				A
		SERVICE		1.0				A
		REPLACE		2.0				A
		REPAIR			4.0			A
		OVERHAUL				4.0		A
		REBUILD				4.0		A
080407	Temperature Sensors	INSPECT		1.0				A
		TEST		1.0				A
		SERVICE		1.0				A
		REPLACE		16.0				A
		REPAIR			16.0			A
		OVERHAUL				16.0		A
		REBUILD				16.0		A
080408	Solenoid Valve	INSPECT		1.0				A
		TEST		1.0				A
		SERVICE		1.0				A
		REPLACE		16.0				A
		REPAIR		16.0				A
080409	Pump Assembly, Hydraulic	INSPECT	.5					A
		TEST				4.0		A
		SERVICE	.5					A
		REPLACE		4.0				A
		REPAIR				4.0		A

Table 1. Maintenance Allocation Chart – Continued

(1) GROUP NUMBER	(2) DESCRIPTION	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL FIELD AMC (O)	FIELD ASB (F)	SUSTAINMENT TASMG (L)	SUSTAINMENT DEPOT (D)	(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
		OVERHAUL				80.0		A
		REBUILD				80.0		A
080410	Hoses, Lines and Fittings	INSPECT						A
		TEST	1.0					A
		SERVICE	1.0					A
		REPLACE		2.0				A
		REPAIR		2.0				A
		OVERHAUL				4.0		A
		REBUILD				4.0		A
080411	Manifold, Dual	INSPECT	.5					A , G , B
		TEST		1.0				A , G , B
		SERVICE	1.0					A , G , B
		REPLACE	.5					A , G , B
		REPAIR		2.0				A , G , B
		OVERHAUL				4.0		A , G , B
		REBUILD				4.0		A , G , B
080412	Purge/Oil Sample Adapter	INSPECT	.5					Table 3
		TEST		1.0				Table 3
		SERVICE	1.0					Table 3
		REPLACE		.5				Table 3
		REPAIR		2.0				Table 3
		OVERHAUL				4.0		Table 3
		REBUILD				4.0		Table 3
09	**Engine**							
0901	Engine and Gearcase Assembly	INSPECT	.5					A , P , C
		TEST		1.0				A , P , C
		SERVICE	1.0					A , P , C
		REPLACE				80.0		A , P , C
		REPAIR				160.0		A , P , C
		OVERHAUL				160.0		A , P , C
		REBUILD				160.0		A , P , C
090101	Fuel Check Valve	INSPECT	.5					A , F , C
		SERVICE	.5					A , F , C
		REPLACE	1.0					A , F , C
		REPAIR		1.0				A , F , C
		OVERHAUL				1.0		A , F , C
		REBUILD				1.0		A , F , C
090102	Hour Meter	INSPECT	.5					A , C , B
		TEST	1.0					A , C , B
		SERVICE	.5					A , C , B
		REPLACE	1.0					A , C , B

Table 1. Maintenance Allocation Chart – Continued

(1) GROUP NUMBER	(2) DESCRIPTION	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL FIELD AMC (O)	FIELD ASB (F)	SUSTAINMENT TASMG (L)	SUSTAINMENT DEPOT (D)	(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
0902	Engine Assembly	INSPECT	.5					A
		TEST				2.0		A
		SERVICE	3.0					A
		ADJUST				1.0		A
		REPLACE		6.0				A
		REPAIR				160.0		A
		OVERHAUL				200.0		A
		REBUILD				200.0		A
090201	Plumbing and Wiring Harness	INSPECT	.5					A , C , B
		TEST		1.0				A , C , B
		SERVICE	1.0					A , C , B
		REPLACE		4.0				A , C , B
		REPAIR			4.0			A , C , B
		OVERHAUL				8.0		A , C , B
		REBUILD				8.0		A , C , B
090202	Combustion Section	INSPECT	1.0					A
		TEST				1.0		A
		SERVICE				2.0		A
		REPLACE				2.0		A
		REPAIR				8.0		A
		OVERHAUL				16.0		A
		REBUILD				16.0		A
090203	Compressor Inlet Duct and Screen	INSPECT	1.0					A
		SERVICE		1.0				A
		ADJUST		.5				A
		REPLACE				8.0		A
		REPAIR				2.0		A
		OVERHAUL				8.0		A
		REBUILD				8.0		A
0903	Compressor/Turbine Section (Hot Section)	INSPECT				4.0		A , Q
		TEST				2.0		A , Q
		SERVICE				1.0		A , Q
		ADJUST				1.0		A , Q
		ALIGN				1.0		A , Q
		REPLACE				4.0		A , Q
		REPAIR				40.0		A , Q
		OVERHAUL				80.0		A , Q
		REBUILD				80.0		A , Q
090301	Containment Ring	INSPECT				4.0		A

Table 1. Maintenance Allocation Chart – Continued

(1) GROUP NUMBER	(2) DESCRIPTION	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL FIELD AMC (O)	ASB (F)	SUSTAINMENT TASMG (L)	DEPOT (D)	(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
		TEST				2.0		A
		SERVICE				1.0		A
		REPLACE				4.0		A
		REPAIR				40.0		A
		OVERHAUL				80.0		A
		REBUILD				80.0		A
090302	Turbine Plenum	INSPECT				4.0		A
		TEST				2.0		A
		SERVICE				1.0		A
		REPLACE				4.0		A
		REPAIR				40.0		A
		OVERHAUL				80.0		A
		REBUILD				80.0		A
090303	Turbine Housing Scroll	INSPECT				4.0		A
		TEST				2.0		A
		SERVICE				1.0		A
		REPLACE				4.0		A
		REPAIR				40.0		A
		OVERHAUL				80.0		A
		REBUILD				80.0		A
090304	Deflector Assembly	INSPECT				4.0		A
		TEST				2.0		A
		SERVICE				1.0		A
		REPLACE				4.0		A
		REPAIR				40.0		A
		OVERHAUL				80.0		A
		REBUILD				80.0		A
090305	Turbine Nozzle	INSPECT				4.0		A
		TEST				2.0		A
		SERVICE				1.0		A
		REPLACE				4.0		A
		REPAIR				40.0		A
		OVERHAUL				80.0		A
		REBUILD				80.0		A
0904	Gearcase Assembly	INSPECT	.5					A , P , C
		TEST				6.0		A , P , C
		SERVICE				2.0		A , P , C
		REPLACE				4.0		A , P , C
		REPAIR				4.0		A , P , C
		OVERHAUL				80.0		A , P , C
		REBUILD				80.0		A , P , C
090401	Housing	INSPECT	.5					A

Table 1. Maintenance Allocation Chart – Continued

(1) GROUP NUMBER	(2) DESCRIPTION	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL FIELD AMC (O)	FIELD ASB (F)	SUSTAINMENT TASMG (L)	SUSTAINMENT DEPOT (D)	(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
		SERVICE	1.0					A
		REPLACE				4.0		A
		REPAIR				4.0		A
		OVERHAUL				80.0		A
		REBUILD				80.0		A
090402	Accessory Drive Pads	INSPECT		1.0				A
		TEST				2.0		A
		SERVICE		1.0				A
		REPLACE				4.0		A
		REPAIR				4.0		A
		OVERHAUL				80.0		A
		REBUILD				80.0		A
10	**Controls and Instruments**							
1001	Control Panel	INSPECT	.5					A
		TEST		1.0				A
		SERVICE	1.0					A
		REPLACE	1.0					A
		REPAIR		4.0				A
		OVERHAUL				8.0		A
		REBUILD				16.0		A
1002	Switches	INSPECT	.5					A , C , B
		TEST	.5					A , C , B
		SERVICE	.5					A , C , B
		ADJUST	.5					A , C , B
		REPLACE	.5					A , C , B
1003	Meters	INSPECT	.5					A
		TEST	.5					A
		SERVICE	.5					A
		ADJUST		.5				A
		REPLACE	.5					A
1004	Gauges	INSPECT	.5					A , C , B
		TEST	.5					A , C , B
		SERVICE	.5					A , C , B
		REPLACE	.5					A , C , B
1005	Indicator Lights	INSPECT	.5					A , C , B
		TEST	.5					A , C , B
		SERVICE	.5					A , C , B
		REPLACE	1.0					A , C , B
1006	Circuit Breakers	INSPECT	.5					A , C , B
		TEST	.5					A , C , B

Table 1. Maintenance Allocation Chart – Continued

(1) GROUP NUMBER	(2) DESCRIPTION	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL FIELD AMC (O)	FIELD ASB (F)	SUSTAINMENT TASMG (L)	SUSTAINMENT DEPOT (D)	(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
		SERVICE	.5					A , C , B
		REPLACE	1.0					A , C , B
1007	Wiring Harness	INSPECT	.5					A , C , B
		TEST		1.0				A , C , B
		SERVICE	.5					A , C , B
		REPLACE		8.0				A , C , B
		REPAIR				8.0		A , C , B
		OVERHAUL				16.0		A , C , B
		REBUILD				16.0		A , C , B
11	**Propulsion System**							
1101	Front Axle Assembly	INSPECT	.5					A , M , C , R , D
		TEST	.5					A , M , C , R , D
		SERVICE	.5					A , M , C , R , D
		ADJUST	1.0					A , M , C , R , D
		REPLACE		2.0				A , M , C , R , D
		REPAIR		2.0				A , M , C , R , D
		OVERHAUL				8.0		A , M , C , R , D
		REBUILD				8.0		A , M , C , R , D
1102	Wheels and Tires	INSPECT	.05					A , S , C
		SERVICE	.5					A , S , C
		REPLACE	1.0					A , S , C
		REPAIR		2.0				A , S , C
1103	Tow Bar Assembly	INSPECT	.5					A
		SERVICE	.25					A
		ADJUST		.5				A
		ALIGN		.5				A
		REPLACE	2.0					A
		REPAIR		4.0				A
		OVERHAUL				6.0		A
		REBUILD				6.0		A
1104	Brake Cable Assembly	INSPECT	.5					A , M , C
		TEST	.5					A , M , C
		SERVICE	.5					A , M , C
		ADJUST	1.0					A , M , C

Table 1. Maintenance Allocation Chart – Continued

(1) GROUP NUMBER	(2) DESCRIPTION	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL FIELD AMC (O)	FIELD ASB (F)	SUSTAINMENT TASMG (L)	SUSTAINMENT DEPOT (D)	(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
		REPLACE	3.0					A , M , C
		REPAIR	2.0					A , M , C
1105	Brake Assembly	INSPECT	1.0					A
		TEST	.5					A
		SERVICE	2.0					A
		ADJUST	.5					A
		REPLACE	3.0					A
		REPAIR	1.0					A
		OVERHAUL		4.0				A
		REBUILD		4.0				A
1106	Springs, Leaf	INSPECT	.5					A
		SERVICE	.5					A
		ADJUST		.5				A
		ALIGN		.5				A
		REPLACE		4.0				A
		REPAIR		4.0				A
		OVERHAUL				4.0		A
		REBUILD				4.0		A
1107	Drive Gear Assembly (Running Gear)	INSPECT	.5					Table 3
		TEST	.5					Table 3
		SERVICE	.5					Table 3
		ADJUST	1.0					Table 3
		REPLACE		4.0				Table 3
		REPAIR		4.0				Table 3
		OVERHAUL				8.0		Table 3
		REBUILD				40.0		Table 3
1108	Traction Bar	INSPECT	.5					A , C , B , D
		TEST	.5					A , C , B , D
		SERVICE	.5					A , C , B , D
		ADJUST	.5					A , C , B , D
		REPLACE		4.0				A , C , B , D
		REPAIR				4.0		A , C , B , D
		OVERHAUL				8.0		A , C , B , D
		REBUILD				8.0		A , C , B , D

Table 1. Maintenance Allocation Chart – Continued

(1) GROUP NUMBER	(2) DESCRIPTION	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL FIELD AMC (O)	FIELD ASB (F)	SUSTAINMENT TASMG (L)	SUSTAINMENT DEPOT (D)	(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
1109	Electric Brake	INSPECT	.5					A , C , B , D
		TEST	.5					A , C , B , D
		SERVICE	.5					A , C , B , D
		ADJUST		.5				A , C , B , D
		REPLACE		4.0				A , C , B , D
1110	Gearbox	INSPECT	.5					Table 3
		TEST	.5					Table 3
		SERVICE	.5					Table 3
		ADJUST		.5				Table 3
		REPLACE		4.0				Table 3
		REPAIR		3.0				Table 3
		OVERHAUL				4.0		Table 3
		REBUILD				4.0		Table 3
1111	Drive Disengage	INSPECT	.5					A , D , B
		TEST	.5					A , D , B
		SERVICE	.5					A , D , B
		ADJUST		.5				A , D , B
		REPLACE		1.0				A , D , B
		REPAIR		1.0				A , D , B
		OVERHAUL				2.0		A , D , B
		REBUILD				2.0		A , D , B
1112	Chain Drive Assembly	INSPECT	.5					A , D , B
		TEST	.5					A , D , B
		SERVICE	1.0					A , D , B
		ADJUST		.5				A , D , B
		ALIGN	.5					A , D , B
		REPLACE		4.0				A , D , B
		REPAIR		2.0				A , D , B
		OVERHAUL				5.0		A , D
		REBUILD				5.0		A , D , B
1113	Rear Axle Assembly	INSPECT	.5					A , P , C
		TEST		.5				A , P , C
		SERVICE	1.0					A , P , C
		ADJUST		.5				A , P , C
		ALIGN		.5				A , P , C
		REPLACE		4.0				A , P , C
		REPAIR		2.0				A , P , C
		OVERHAUL				4.0		A , P , C

Table 1. Maintenance Allocation Chart – Continued

(1) GROUP NUMBER	(2) DESCRIPTION	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL FIELD AMC (O)	FIELD ASB (F)	SUSTAINMENT TASMG (L)	SUSTAINMENT DEPOT (D)	(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
		REBUILD				4.0		A , P , C
1114	Motor Controller	INSPECT	.5					A , C , B , D
		TEST	.5					A , C , B , D
		SERVICE	.5					A , C , B , D
		ADJUST		1.0				A , C , B , D
		REPLACE		2.0				A , C , B , D
		REPAIR				6.0		A , C , B , D
		OVERHAUL				6.0		A , C , B , D
		REBUILD				6.0		A , C , B , D
1115	Control Relays	INSPECT	.5					A , C , B , D
		TEST		.5				A , C , B , D
		SERVICE	.5					A , C , B , D
		ADJUST		1.0				A , C , B , D
		REPLACE		1.0				A , C , B , D
		REPAIR		1.0				A , C , B , D
		OVERHAUL				2.0		A , C , B , D
		REBUILD				2.0		A , C , B , D
1116	Speed/Direction Control Assembly	INSPECT	.5					A , C , B , D
		TEST	.5					A , C , B , D
		SERVICE	.5					A , C , B , D
		ADJUST		1.0				A , C , B , D
		REPLACE		1.0				A , C , B , D

Table 1. Maintenance Allocation Chart – Continued

(1) GROUP NUMBER	(2) DESCRIPTION	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL FIELD AMC (O)	FIELD ASB (F)	SUSTAINMENT TASMG (L)	SUSTAINMENT DEPOT (D)	(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
		REPAIR		1.0				A , C , B , D
		OVERHAUL				1.0		A , C , B , D
		REBUILD				1.0		A , C , B , D

Table 2. Tool List.

TOOLS OR TEST EQUIP REF CODE	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL NUMBER
1	F	Pin Welder, Erico Jones		PW 500
2	O	Tester, Battery Electrolyte Solution	6630-00-171-6126	
3	O	Multimeter	6625-00-581-2036	
4	O	Gauge		
5	O	Brush, Brass		
6	F	Hydraulic Pressure Supply, 0-5,000 PSI		
7	F	Gauge, Hydraulic 0-5,000 PSIG		
8	F	28 VDC Power Supply		
9	F	Gauge, Hydraulic 0-300 PSIG		
10	F	Hand Pump, Hydraulic 5,000 PSI Max.		
11	F	Stand, Maintenance		83-15011
12	O	Socket, Deep 3/8”, 3/8” Drive		
13	D	Fiberscope	6720-01-023-6260	FS-100
14	D	Puller, Scroll Housing	5120-01-003-9882	291984-1
15	D	Puller, Turbine Plenum	5120-01-016-6692	293171-1
16	O	Socket, 12-point, 1/4”, 1/4” Drive		
17	O	Drain Fitting and Hose	4720-00-018-2146	DB75-108
18	O	Reservoir Servicing Unit	4940-01-504-5279	06-5022-6500-A7
19	O	Fill Adapter, Return Port	4730-01-449-9702	
20	O	Fill Adapter, Vent	4730-00-825-0587	

Table 3. Reference List.

REMARK CODE	REMARKS
A	VISUAL INSPECTION
B	HYDROMETER TEST
C	CONTINUITY CHECK/VOLTAGE MEASUREMENT
D	OPERATIONAL CHECK
E	REPLACE ELEMENTS
F	CLEAN
G	PRESSURE TEST
H	REPLACE DESICCANT
I	STRAIGHTEN AND WELD
J	REPLACE WELD PINS/INSULATION
K	ADD ELECTROLYTE
L	REPLACE GREASE FITTINGS
M	GREASE
N	REPLACE BRUSHES
O	ADD HYDRAULIC FLUID
P	ADD OIL
Q	FIBERSCOPE INSPECTION
R	ADJUST TOE-IN
S	CHECK PRESSURE/ADD AIR
T	REFER TO TB 43-180

SUPPORTING INFORMATION

**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH**

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS

INTRODUCTION

Scope

This work package lists COEI and BII for the AGPU to help you inventory items for safe and efficient operation of the equipment.

Figure 1. Components of End Item.

Table 1. Components Of End Item List.

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) U/I	(6) QTY RQR
1		30’ HIGH PRESSURE HOSE ADAPTER ASSEMBLY (63631) 83-14786			1
1		30’ LOW PRESSURE HOSE ADAPTER ASSEMBLY (63631) 83-14791			1
1		10’ LOW PRESSURE HOSE ADAPTER ASSEMBLY (81996) 83-14825			2
1		10’ HIGH PRESSURE HOSE ADAPTER ASSEMBLY (81996) 83-14831			2
1		2’ HIGH PRESSURE HOSE ADAPTER ASSEMBLY (81996) 83-14893			1
1		2’ LOW PRESSURE HOSE ADAPTER ASSEMBLY (81996) 83-14892			1
2		MANIFOLD, DUAL SERVICE (06177) 8140			1
3		HYDRAULIC OIL SAMPLING/PURGE ADAPTER ()			1
4	4210-01-388-7854	EXTINGUISHER, FIRE (58536) A52471-1-S			1

Figure 2. Basic Issue Items.

Table 2. Basic Issue Items List.

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) U/I	(6) QTY RQR
1	7510-00-889-3494	BINDER, LOOSE-LEAF MIL-B-43064			1
2	4720-00-018-2146	HOSE ASSEMBLY, NONMETALLIC DB75-108			1

SUPPORTING INFORMATION

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU) WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

EXPENDABLE AND DURABLE ITEMS LIST

EXPENDABLE AND DURABLE ITEMS LIST INTRODUCTION

Scope

This work package lists expendable and durable items that you will need to operate and maintain the AGPU. This list is for information only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable/Durable Items (Except Medical, Class V, Repair Parts, and Heraldic Items) and CTA 8-100, Army Medical Department Expendable/Durable Items.

Explanation of Columns in the Expendable/Durable Items List

Column (1) Item No. This number is assigned to the entry in the list and is referenced in the narrative instructions to identify the item (e.g., “Use brake fluid (WP 0098, item 5)”).

Column (2) Level. This column identifies the lowest level of maintenance that requires the listed item (include as applicable: Field: O = AMC, F = ASB, Sustainment: L = TASMG D = Depot).

Column (3) National Stock Number (NSN). This is the NSN assigned to the item which you can use to requisition it.

Column (4) Item Name, Description, Part Number/(CAGEC). This column provides the other information you need to identify the item. The last line below the description is the part number and the Commercial and Government Entity Code (CAGEC) (in parentheses).

Column (5) U/I. Unit of Issue (U/I) code shows the physical measurement or count of an item, such as gallon, dozen, gross, etc.

Table 1. Expendable and Durable Items List.

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGE, PART NUMBER	(5) U/I
1	O	6810-00-184-4796	Acetone (81349) O-A-51	GL
2	O	6810-00-184-4796	Acetone, Technical (4N760) ASTM D329–09	GL
3	O	8030-01-087-8254	Anti-Seize Compound (81349) MIL-PRF-907	LB
4	O	8950-00-292-9611	Baking Soda Best Commercial Grade	BX
5	O	6850-01-474-2319	Cleaning Compound, Solvent (81349) MIL-PRF-680 Type II	GL
6	O	6850-01-474-2318	Cleaning Compound, Solvent (81349) MIL-PRF-680 Type III	GL

Table 1. Expendable and Durable Items List. – Continued

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGE, PART NUMBER	(5) U/I
7	O	5350-00-192-5052	Cloth, Abrasive (81348) P-C-458	SH
8	O	7920-00-044-9281	Cloth, Cleaning (81349) MIL-C-85043, Type II	LB
9	O	8030-00-850-7076	Coating Compound, Metal Pretreatment (81349) DOD-P-15328	KT
10	O	8030-01-026-4058	Coating, Thermal (01139) TBS-758	KT
11	O	8040-00-251-2312	Compound, Sealing (D8367) RTV730	QT
12	O	8030-01-347-0978	Corrosion Preventive Compound (81349) MIL-C-81309 Type III	GL
13	O	8030-01-347-0980	Corrosion Preventive Compound (81349) MIL-C-85054 Type I	OZ
14	O	8030-00-057-2354	Corrosion Resistant Coating, Chemical (81349) MIL-C-81706	JR
15	O	6850-00-680-2233	Desiccant, Activated (81349) MIL-D-3716	CN
16	O	7930-00-531-9715	Detergent (81349) MIL-D-16791	BX
17	O	7930-00-880-4454	Dishwashing Compound, Hand (81348) P-D-410	BX
18	O	6810-00-682-6867	Distilled Water, Reagent (81346) ASTM D1193	EA
19	O	8010-00-148-7045	Epoxy Primer (00297) P415-A66	QT
20	O	8010-01-193-0519	Epoxy Primer Coating Kit (81349) MIL-P-53030	KT
21	O	5330-01-212-9537	Gasket Material, Engine (75165) JM150-20A	EA
22	O	9150-01-197-7688	Grease, Automotive and Artillery, GAA (81349) MIL-PRF-10924	OZ
23	O	9150-01-117-2928	Grease, Ball and Roller Bearing (81349) DOD-G-24508	CN
24	O	9150-00-149-1593	Grease, Ball and Roller Bearings (81349) DOD-G-24508	CN
25	O	9150-00-935-4018	Grease, Molybdenum Disulfide (81349) MIL-G-21164	DR
26	O	9150-00-149-7431	Hydraulic Fluid, Fire Resistant (81349) MIL-PRF-83282	QT
27	O	9150-00-252-6383	Hydraulic Fluid, Petroleum Base (81349) MIL-PRF-5606	QT
28	O	6810-00-286-5435	Isopropyl Alcohol, Technical (81348) TT-I-735	CN
29	O	6140-00-981-5864	Kit, Electrolite Filling (81349) MIL-B-82117	EA
30	O	9525-00-803-3044	Lockwire (96906) MS20995NC32	LB
31	O	9150-01-416-9506	Lubricant, Solid Film (81349) MIL-PRF-46010	GL
32	O	9150-00-985-7099	Lubricating Oil, Aircraft Turbine (81349) MIL-PRF-23699	QT
33	O	9150-00-782-2627	Lubricating Oil, Aircraft Turbine (81349) MIL-PRF-7808	QT
34	O	9150-01-496-8069	Lubricating Oil, Engine (81349) MIL-PRF-2104	GL
35	O	9150-01-035-5391	Lubricating Oil, Gear (81349) MIL-PRF-2105	DR
36	O	9150-00-543-7220	Lubricating Oil, Molybdenum Disul (81349) MIL-L-25681	LB
37	O	8030-00-145-0084	Metal Conditioning Compound (81349) MIL-C-10578	GL
38	O	6810-00-281-2786	Methyl Ethyl Ketone (81346) ASTM D740	GL

Table 1. Expendable and Durable Items List. – Continued

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGE, PART NUMBER	(5) U/I
39	O	8010-01-234-2936	Polyurethane Coating (81349) M53039-1-005G-33303	CN
40	O	8010-01-229-7547	Polyurethane Coating (81349) M53039-1-005G-34094	CN
41	O	8040-00-845-4304	Primer, Adhesive (71984) DC1200	
42	O	8040-00-139-3708	Primer, Adhesive (96214) 417728-2	CN
43	O	8010-00-181-7568	Remover, Paint (81349) MIL-R-81294	GL
44	O	8010-01-483-4367	Remover, Paint (81348) TT-R-2918	GL
45	O	3439-00-166-9584	Rod, Welding (81343) AMS5786	LB
46	O	3439-00-882-7351	Rod, Welding (81348) AMS5798	LB
47	O	9160-01-515-2484	RTV Red Gasket Maker (45152) 349525	EA
48	O	8030-01-329-6338	Sealing Compound (3R2V1) LH150	TU
49	O	8030-00-952-2205	Sealing Compound Tube, 250 CC (81346) ASTM D5363	CC
50	O	8040-01-144-0391	Sealing Compound (24457) RTV732	LB
51	O	9515-01-177-5958	Sheet, Metal (81343) AMS5536	SH
52	O	6850-00–927-9461	Silicone Compound (71984) DC340-5OZ	TU
53	O	3439-01-547-3533	Solder, Tin Alloy (81349) J-STD-006 RMA-L	LB
54	O	8030-01-462-3305	Tape, Anti-Seizing (58536) A-A-58092	YD
55	O	3611-01-210-8058	Tape, Electrical Wire-Flexible Insulated (19200) 11780052-2	FT
56	O	9130-00-256-8613	Turbine Fuel, Aviation (81349) JP-4 or MIL-DTL-5624T	GL
57	O	9130-00-273-2379	Turbine Fuel, Aviation (81349) JP5 or MIL-DTL-5624T	GL
58	O	9130-01-031-5816	Turbine Fuel, Aviation (81349) JP8 or MIL-DTL-83133E	GL
59	O	9505-00-076-8640	Wire, Nonelectrical (80205) MS20995C41	LB
60	O	9525-00-618-0257	Wire, Nonelectrical (80205) MS20995NC20	FT
61	O	9505-00-331-3275	Wire, Nonelectrical (80205) MS20995C41	LB
62	O	9505-00-293-4208	Wire, Nonelectrical (80205) MS20995C32	LB

SUPPORTING INFORMATION

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU) WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)
EIC: UEG
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D)
EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E)
EIC: UDH

TOOL IDENTIFICATION LIST

INTRODUCTION

Scope

This work package lists all common tools and supplements and special tools/fixtures needed to maintain the AGPU.

Explanation of Columns in the Tool Identification List

Column (1) Item Number. This number is assigned to the entry in the list and is referenced in the initial setup to identify the item (e.g., "Extractor (WP 0090 00, Item 32").

Column (2) Item Name. This column lists the item by noun nomenclature and other descriptive features (e.g., "Gauge, belt tension").

Column (3) National Stock Number. This is the National Stock Number (NSN) assigned to the item; use it to requisition the item.

Column (4) Part Number/CAGEC. Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity) which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of items. The manufacturer's Commercial and Government Entity Code (CAGEC) is also included.

Column (5) Reference. This column identifies the authorizing supply catalog or RPSTL for items listed in this work package.

Table 1. Tools Identification List.

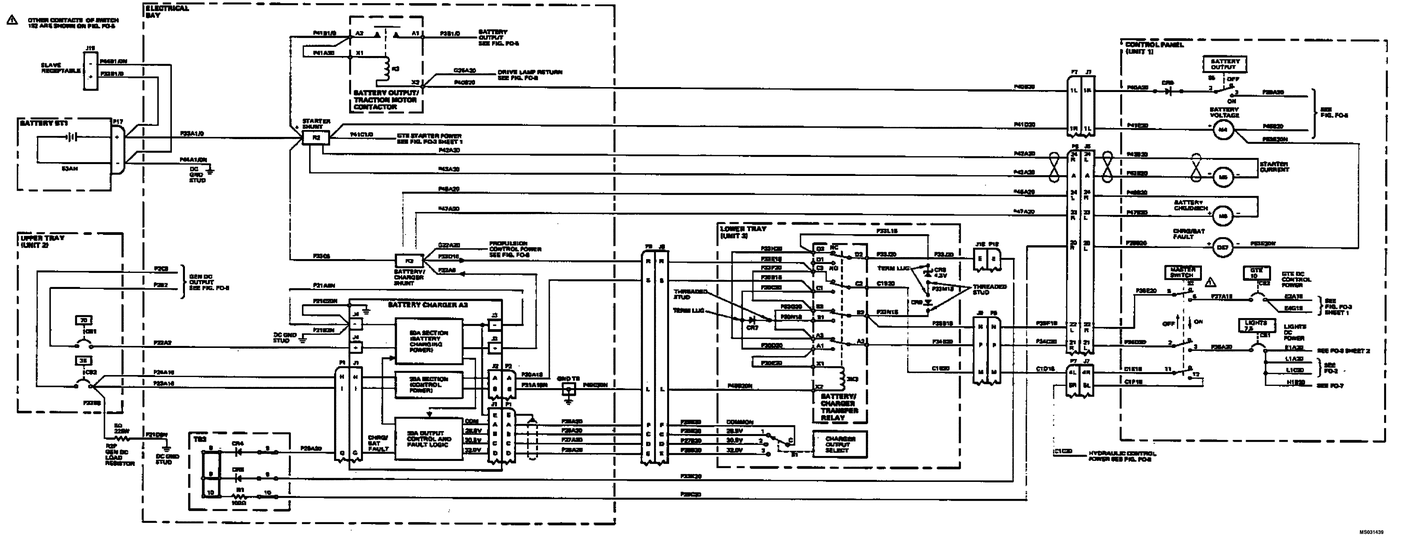
(1) ITEM NO	(2) ITEM NAME	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) REFERENCE
1	Additional Apex Fitting Assembly			
2	Airframe Repairer Tool Kit, S/MTK	5180-01-548-4211	KIT PEOAVN-B02 00NS2	
3	Aviation Foot Locker, AFL	4920-01-377-5412	4920-99-B90 81996	
4	Brush, Brass			
5	Cap, Tube	4730-00-808-6848	A66-4 98660	
6	Cord, Nylon, Type III			
7	Cotton Webbing, 80 Pound			

Table 1. Tools Identification List. - Continued

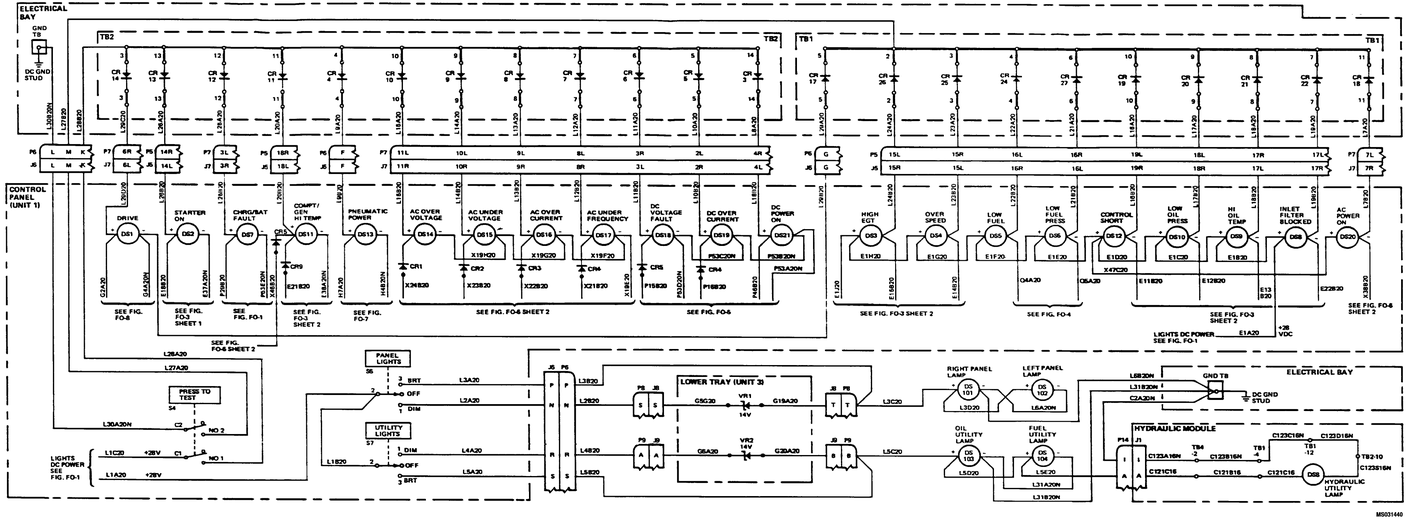
(1) ITEM NO	(2) ITEM NAME	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) REFERENCE
8	Coupling Half, Quick Disconnect	4730-01-449-9702	G1-29-9160 55827	
9	Drain Fitting and Hose	4720-00-018-2146	DB 75-108 97484	
10	Elbow, Tube	4730-00-825-0587	332-2053-030 13499	
11	Electrical Repairer Tool Kit, EL/TK	5180-01-548-4213	KIT PEOAVN-B06 00NS2	
12	Fiberscope	6720-01-023-6260	FS-100 02622	
13	Gauge			
14	Gauge, Hydraulic, 0-300 PSIG			
15	Gauge, Hydraulic, 0-5000 PSIG			
16	General Mechanics Tool Kit, GMTK	5180-01-548-4210	KIT PEOAVN-B01 00NS2	
17	Hand Pump, Hydraulic, 5000 PSI max			
18	Hydraulic Pressure Supply, 0-5000 PSI			
19	Hydraulic Repairer Tool Kit, HYTK	5180-01-548-4219	KIT PEOAVN-A03 00NS2	
20	Hydrometer, Graduated Scale	6630-01-147-4680	CL-277A 98773	
21	Load Bank DC 1000 Amps			
22	Load Bank AC 3 Phase 110 AC Volts 300 Amps			
23	Multimeter	6625-00-581-2036	ANRURM105 80058	
24	Nylon, Tubular			
25	Pin Welder, Erico Jones PW500			
26	Plug, Protective, Dust and Moisture	5340-00-790-8423	AMPH12 78357	
27	Power Plant Tool Kit, PPTK	5180-01-548-4216	KIT PEOAVN-B07 00NS2	
28	Power Train Tool Kit, PTTK	5180-01-548-4217	KIT PEOVAN-B13 00NS2	
29	Puller, Scroll Housing	5120-01-003-9882	291984-1 99193	
30	Puller, Turbine Plenum	5120-01-016-6692	293171-1 99193	
31	Reducer, Tube	4730-00-719-2789	J514 81343	
32	Reservoir Servicing Unit	494-01-504-5279	06-5022-6500-A7 59603	
33	Sling set (10,000 pound capacity)	1670-01-027-2902		
34	Socket, 12-point, 1/4-inch, 1/4-inch Drive			
35	Socket, Deep 3/8-inch, 3/8-inch Drive			
36	Stand, Maintenance, 83-15011			

Table 1. Tools Identification List. - Continued

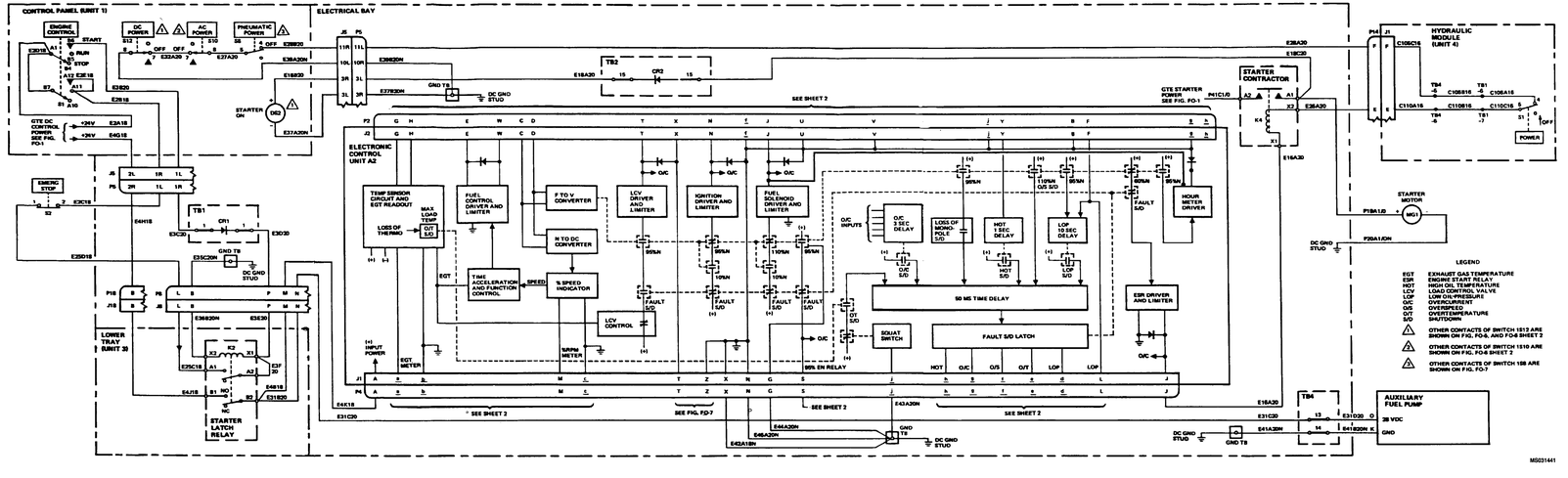
(1) ITEM NO	(2) ITEM NAME	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) REFERENCE
37	Tester, Battery Electrolyte Solution	6630-00-171-6126	GG-T-258 81348	
38	Tiedown Assembly, CGU-1/B			
39	Tape, Adhesive, Pressure Sensitive, 2-inch wide roll			
40	Technical Inspector Tool Kit, TITK	5180-01-548-4223	KIT PEOAVN-A09 00NS2	
41	Tool Kit Army Aircraft Crash Investigation	5180-00-903-1049	SC518099CLA11 81996	
42	Tool Set, Aviation Unit	4920-00-567-0476	SC492099CLA92 81996	
43	28VDC Power Supply			



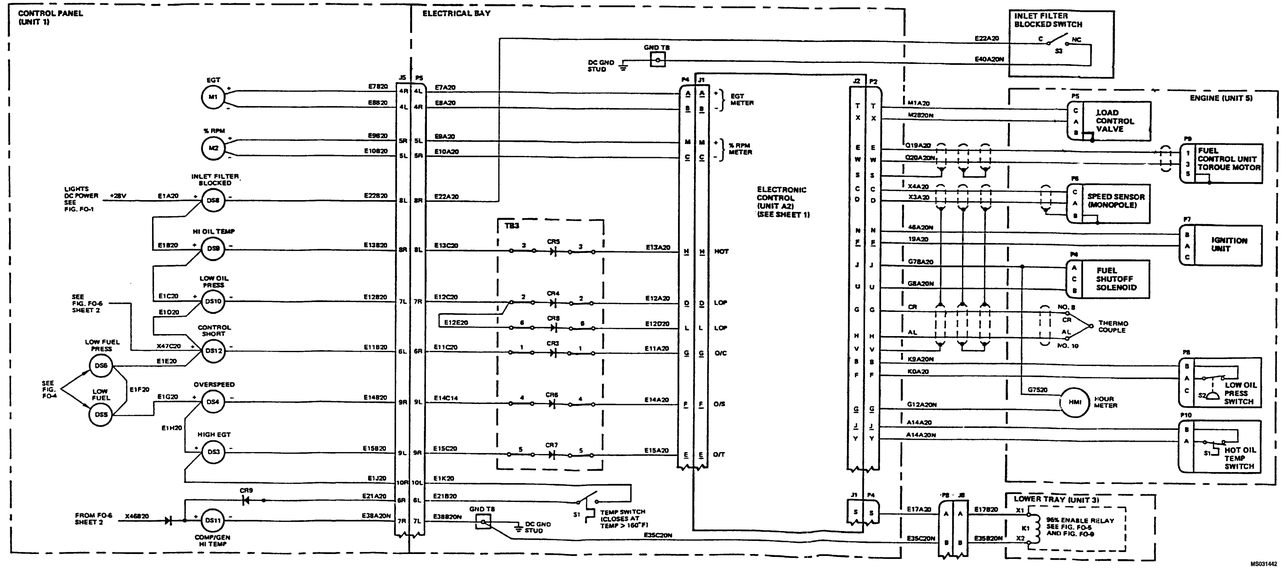
FO 1. Master DC Power Control System Schematic/Wiring Diagram .



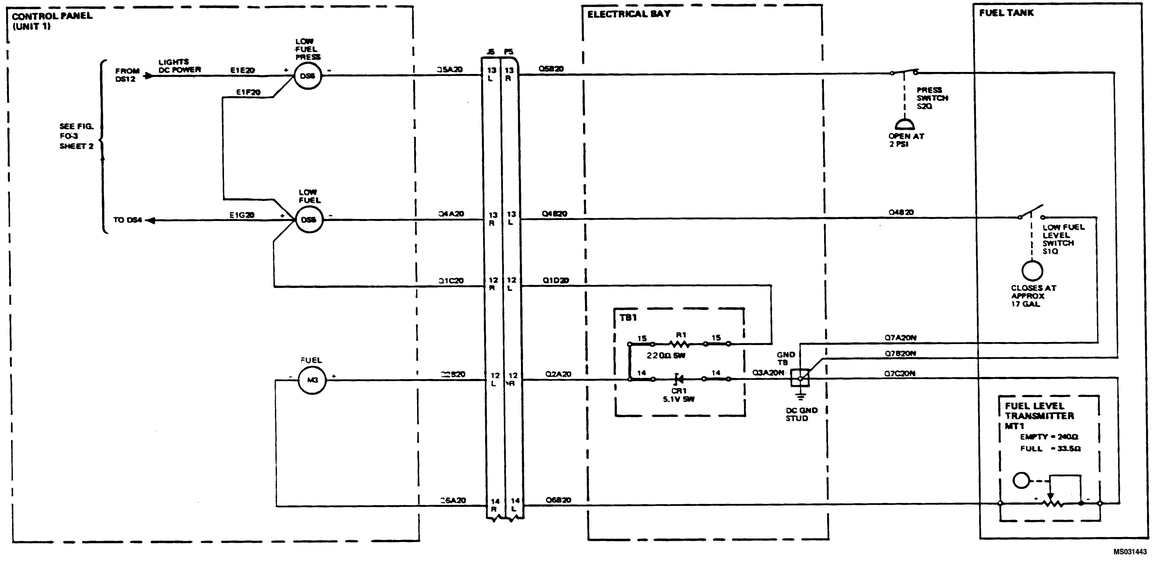
FO 2. Lighting System Schematic/Wiring Diagram .



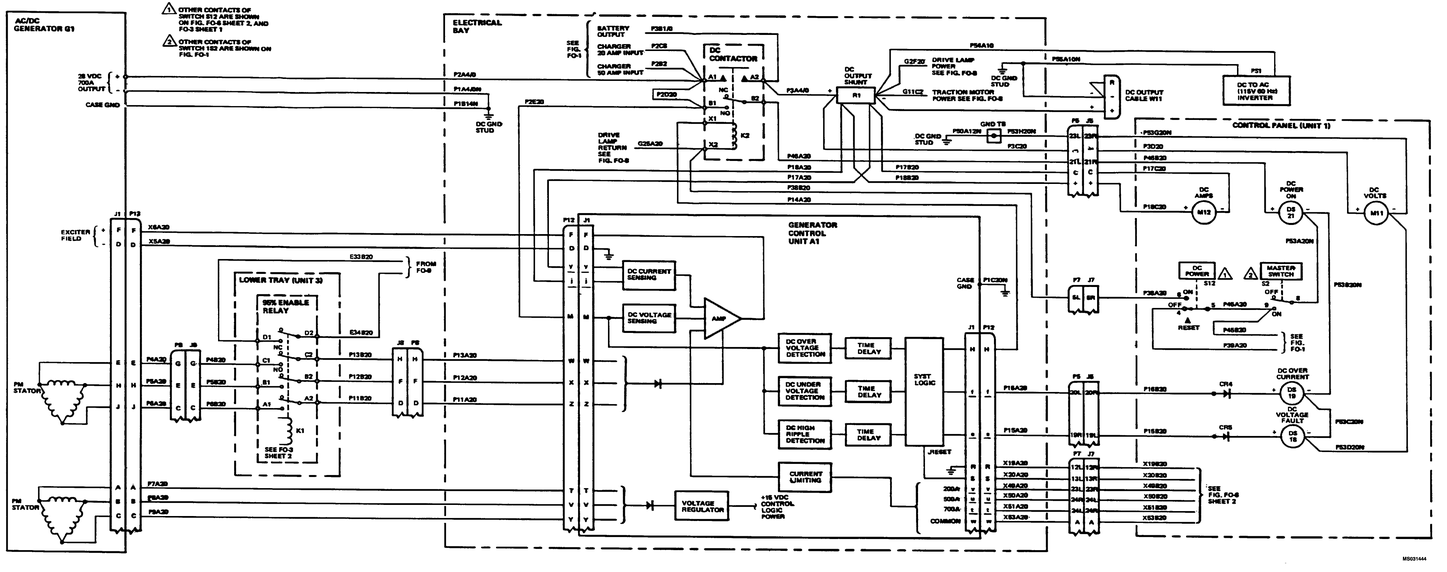
FO 3. Gas Turbine Engine Control System Schematic/Wiring Diagram (Sheet 1 of 2).



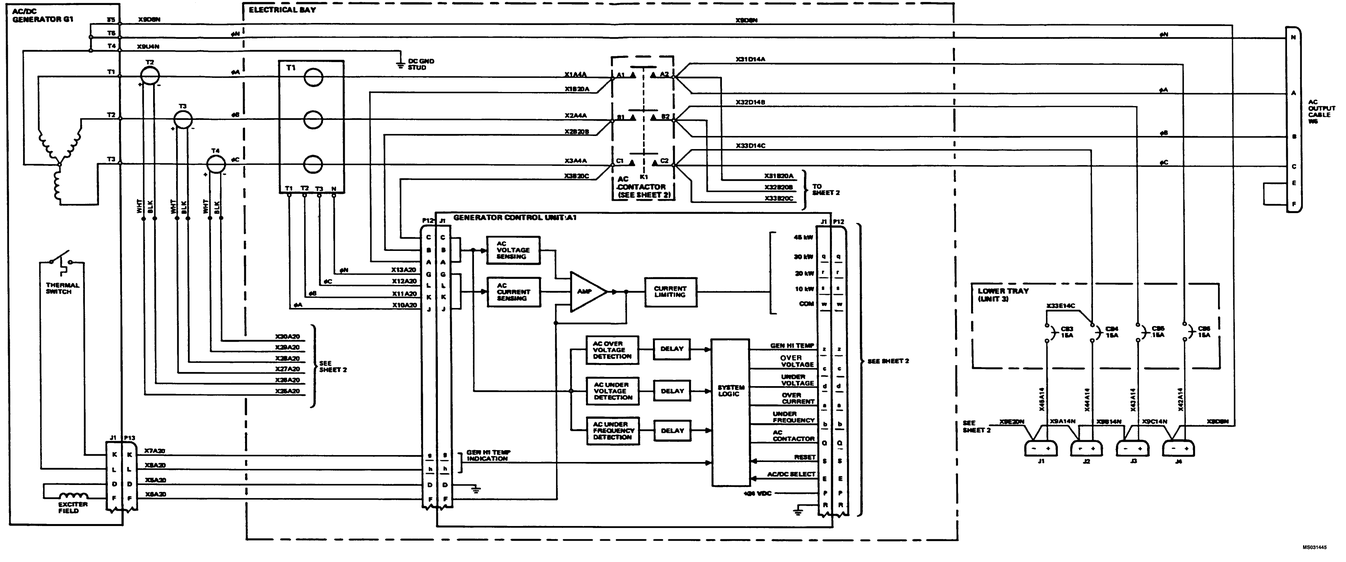
FO 3. Gas Turbine Engine Control System Schematic/Wiring Diagram (Sheet 2 of 2).



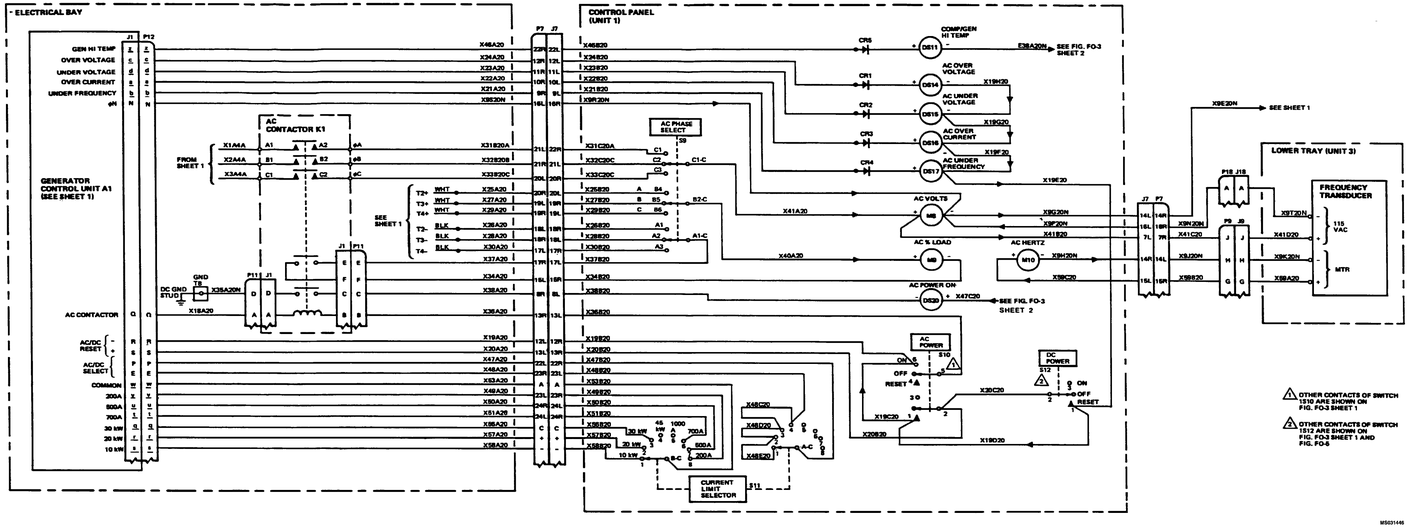
FO 4. Fuel Indication Control System Schematic/Wiring Diagram .



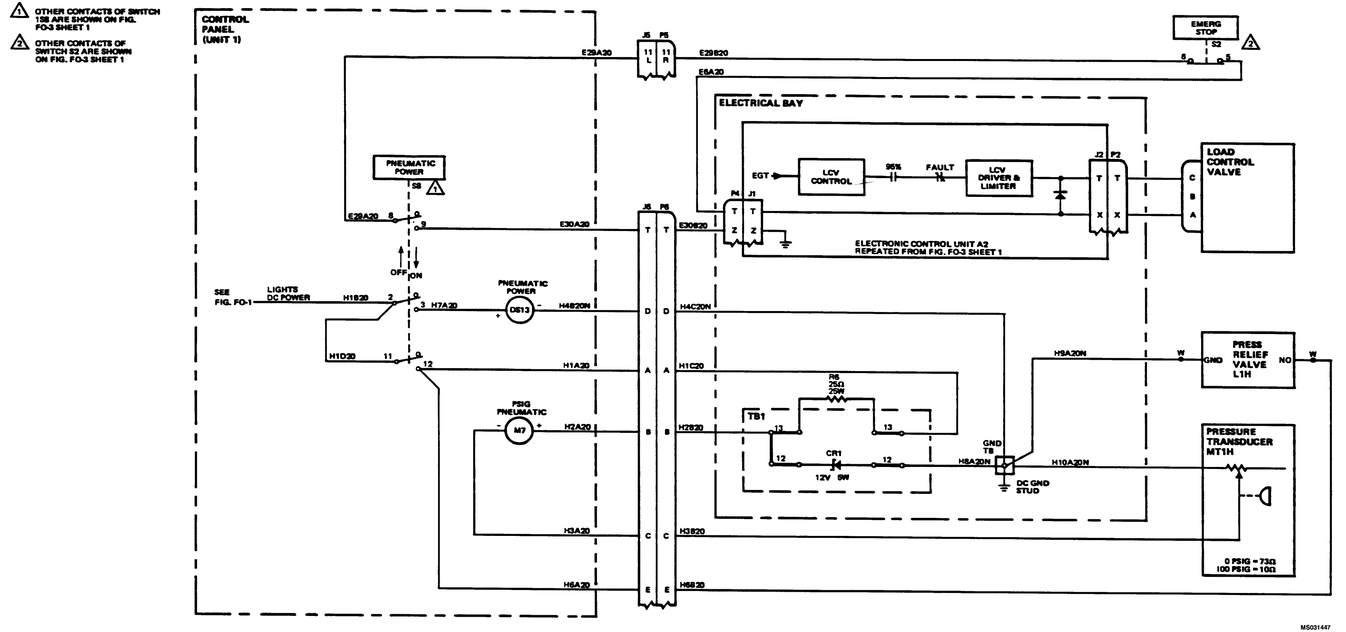
FO 5. DC Power Generation and Control System Schematic/Wiring Diagram .



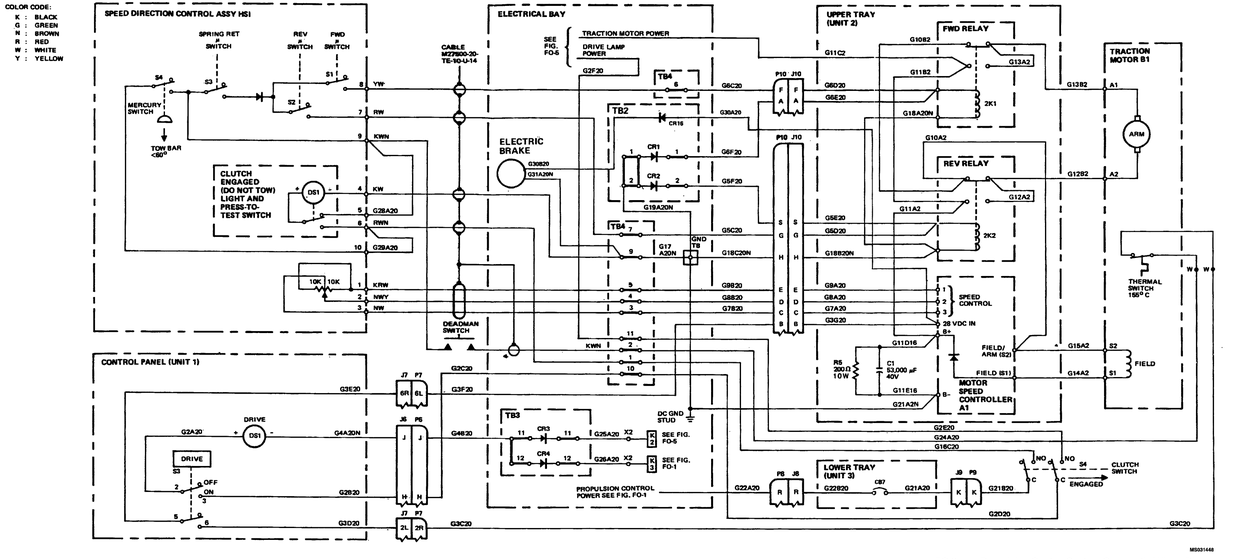
FO 6. AC Power Generation and Control System Schematic/Wiring Diagram (Sheet 1 of 2).



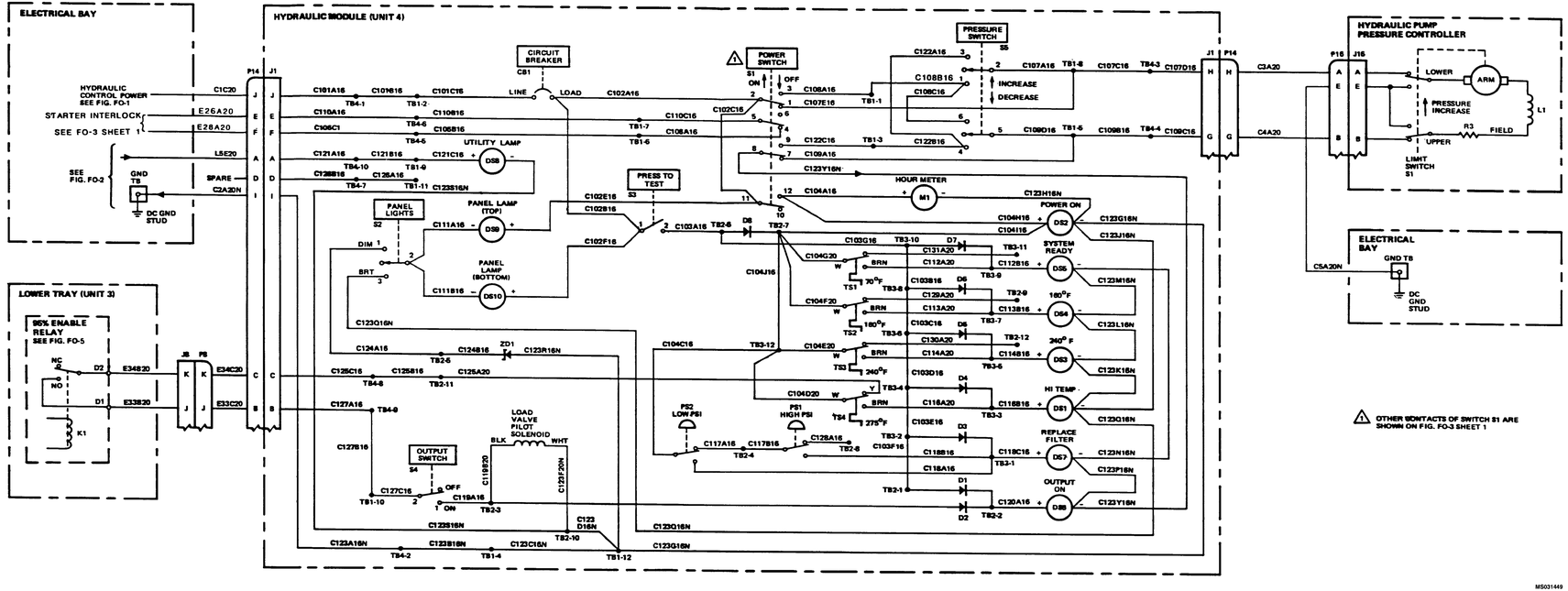
FO 6. AC Power Generation and Control System Schematic/Wiring Diagram (Sheet 2 of 2).



FO 7. Pneumatic Control System Schematic/Wiring Diagram .

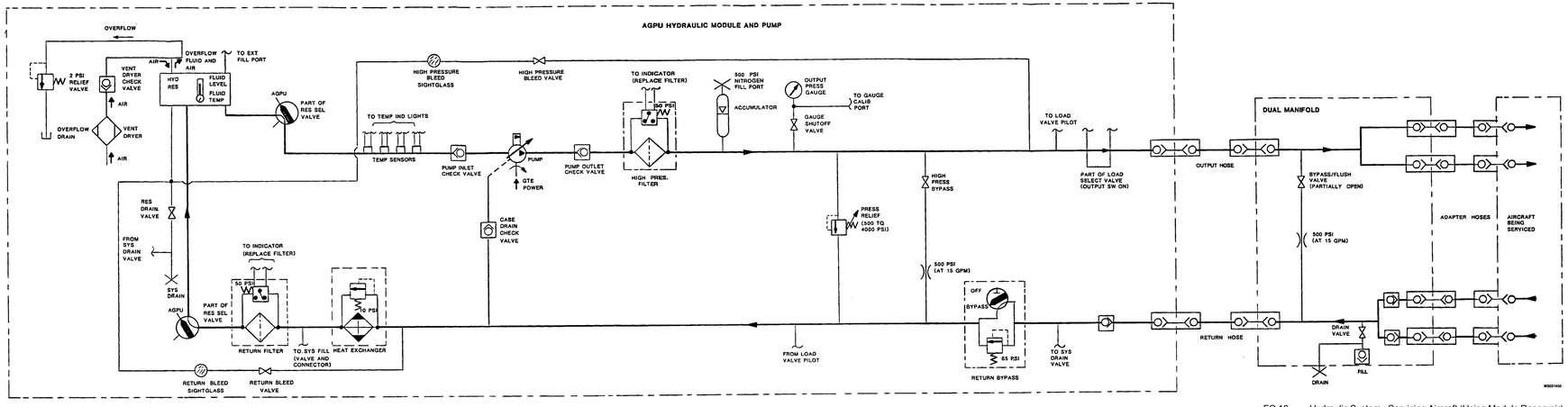


FO 8. Propulsion Control System Schematic/Wiring Diagram .

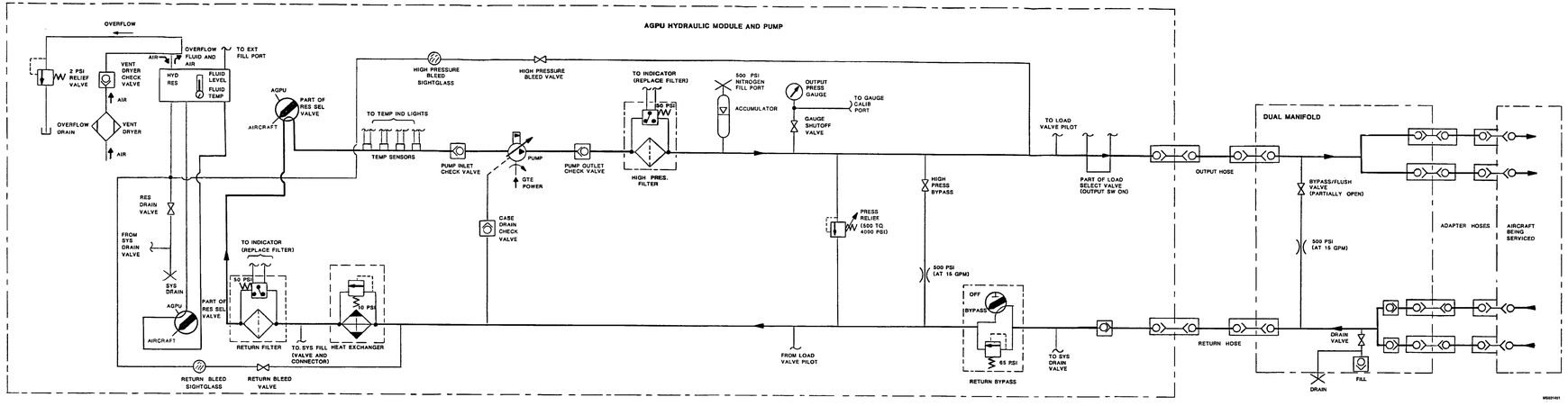


MS031449

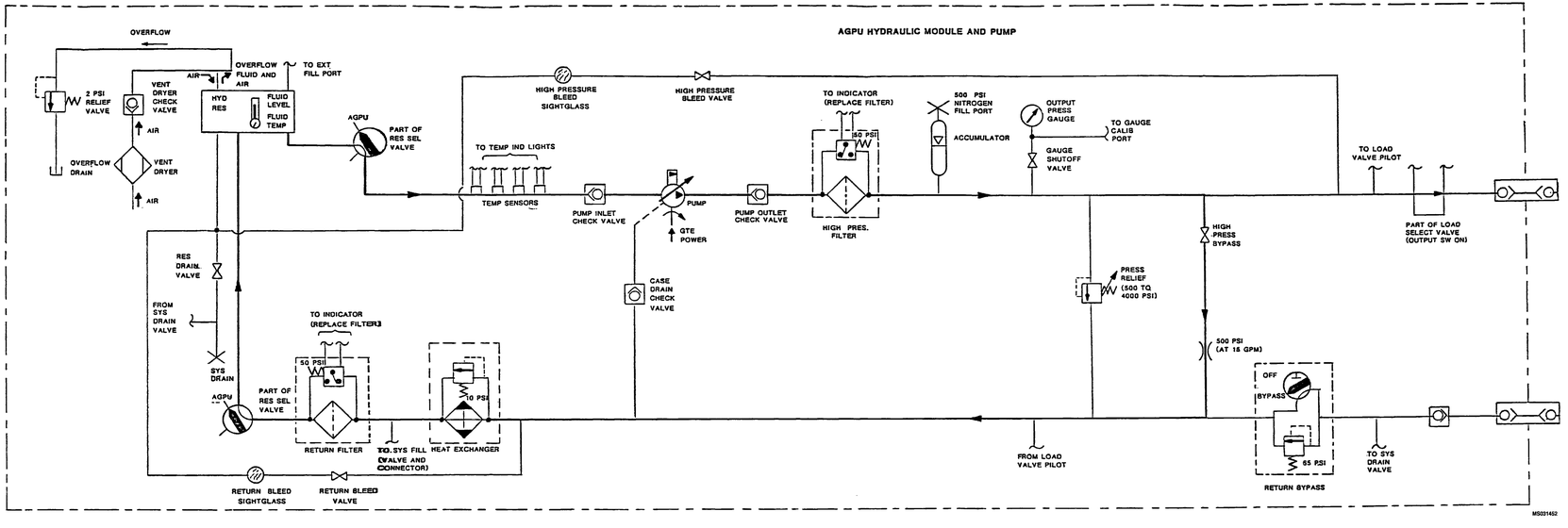
FO 9. Hydraulic Control System Schematic/Wiring Diagram .



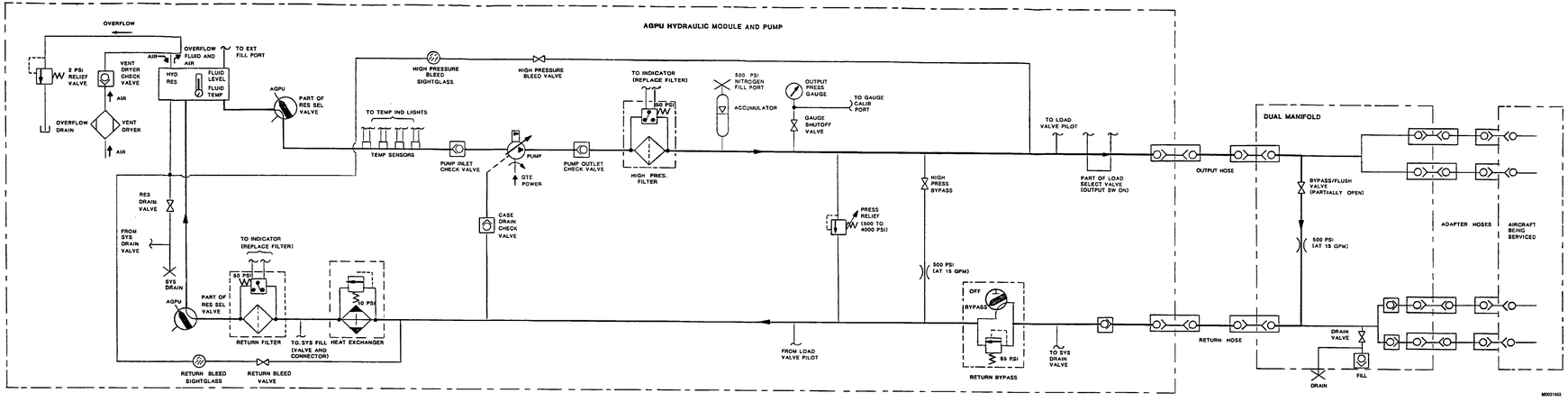
FO 10. Hydraulic System - Servicing Aircraft (Using Module Reservoir) .



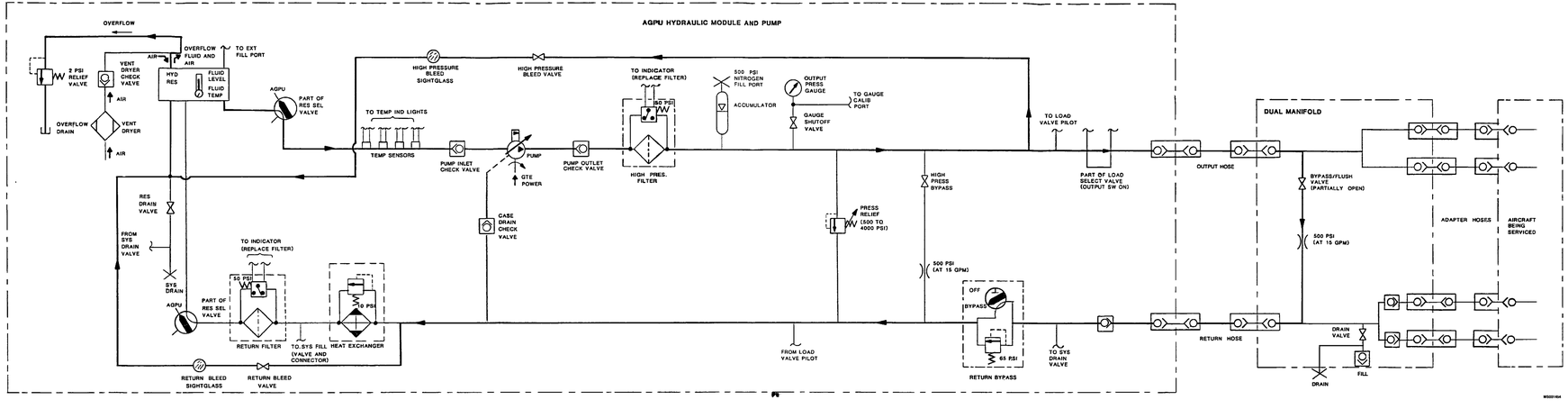
FO 11. Hydraulic System - Servicing Aircraft (Using Aircraft Reservoir) .



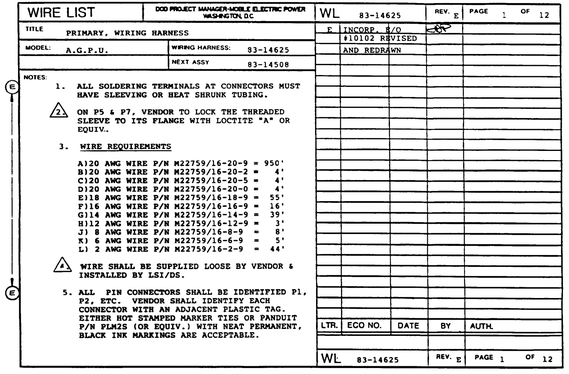
FO 12. Hydraulic System - Warming Fluid in Module .



FO 13. Hydraulic System - Warming Fluid in Hoses .



FO 14. Hydraulic System - Air Bleed .



WIRE LIST — DOD PROJECT MANAGER-MOBILE ELECTRIC POWER WASHINGTON, D.C.

WL 83-14625 REV. E PAGE 1 OF 12

TITLE: PRIMARY. WIRING HARNESS

MODEL: A.G.P.U. WIRING HARNESS: 83-14625

NEXT ASSY 83-14508

NOTES:

1. ALL SOLDERING TERMINALS AT CONNECTORS MUST HAVE SLEEVING OR HEAT SHRUNK TUBING.

2. ON P5 & P7, VENDOR TO LOCK THE THREADED SLEEVE TO ITS FLANGE WITH LOCTITE "A" OR EQUIV.

3. WIRE REQUIREMENTS

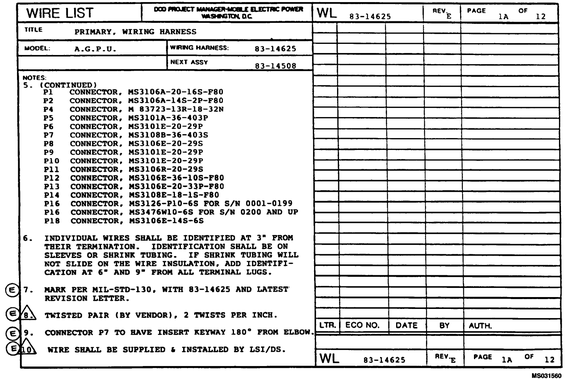
A)20 AWG WIRE P/N M22759/16-20-9 = 950'
B)20 AWG WIRE P/N M22759/16-20-2 = 4'
C)20 AWG WIRE P/N M22759/16-20-5 = 4'
D)20 AWG WIRE P/N M22759/16-20-0 = 4'
E)18 AWG WIRE P/N M22759/16-18-9 = 55'
F)16 AWG WIRE P/N M22759/16-16-9 = 16'
G)14 AWG WIRE P/N M22759/16-14-9 = 39'
H)12 AWG WIRE P/N M22759/16-12-9 = 3'
J) 8 AWG WIRE P/N M22759/16-8-9 = 8'
K) 6 AWG WIRE P/N M22759/16-6-9 = 5'
L) 2 AWG WIRE P/N M22759/16-2-9 = 44'

4. WIRE SHALL BE SUPPLIED LOOSE BY VENDOR & INSTALLED BY LSI/DS.

5. ALL PIN CONNECTORS SHALL BE IDENTIFIED P1, P2, ETC. VENDOR SHALL IDENTIFY EACH CONNECTOR WITH AN ADJACENT PLASTIC TAG. EITHER HOT STAMPED MARKER TIES OR PANDUIT P/N PLM2S (OR EQUIV.) WITH NEAT PERMANENT, BLACK INK MARKINGS ARE ACCEPTABLE.

LTR.	ECO NO.	DATE	BY	AUTH.
E	INCORP. S/O #10102 REVISED AND REDRAWN			

WL 83-14625 REV. E PAGE 1 OF 12



WIRE LIST — DOD PROJECT MANAGER-MOBILE ELECTRIC POWER WASHINGTON, D.C.

WL 83-14625 REV. E PAGE 1A OF 12

TITLE: PRIMARY. WIRING HARNESS

MODEL: A.G.P.U. WIRING HARNESS: 83-14625

NEXT ASSY 83-14508

NOTES:

5. (CONTINUED)
P1 CONNECTOR, MS3106A-20-16S-P80
P2 CONNECTOR, MS3106A-14S-2P-P80
P4 CONNECTOR, M 83723-13R-18-32N
P5 CONNECTOR, MS3101A-36-403P
P6 CONNECTOR, MS3101E-20-29P
P7 CONNECTOR, MS3108B-36-403S
P8 CONNECTOR, MS3106E-20-29S
P9 CONNECTOR, MS3101E-20-29P
P10 CONNECTOR, MS3101E-20-29P
P11 CONNECTOR, MS3106R-20-29S
P12 CONNECTOR, MS3106E-36-10S-P80
P13 CONNECTOR, MS3106E-20-33P-P80
P14 CONNECTOR, MS3108E-18-1S-P80
P15 CONNECTOR, MS3126-P10-6S FOR S/N 0001-0199
P16 CONNECTOR, MS3476W10-6S FOR S/N 0200 AND UP
P18 CONNECTOR, MS3106E-14S-6S

6. INDIVIDUAL WIRES SHALL BE IDENTIFIED AT 3" FROM THEIR TERMINATION. IDENTIFICATION SHALL BE ON SLEEVES OR SHRINK TUBING. IF SHRINK TUBING WILL NOT SLIDE ON THE WIRE INSULATION, ADD IDENTIFICATION AT 6" AND 9" FROM ALL TERMINAL LUGS.

E 7. MARK PER MIL-STD-130, WITH 83-14625 AND LATEST REVISION LETTER.

E 8. TWISTED PAIR (BY VENDOR), 2 TWISTS PER INCH.

E 9. CONNECTOR P7 TO HAVE INSERT KEYWAY 180° FROM ELBOW.

E 10. WIRE SHALL BE SUPPLIED & INSTALLED BY LSI/DS.

LTR.	ECO NO.	DATE	BY	AUTH.

WL 83-14625 REV. E PAGE 1A OF 12

MS031560

FO 15. Main Harness Wire List (Sheet 1 of 5).

WIRE LIST CONTINUATION PAGE

	WIRE NO.	SIZE	COLOR	LENGTH	FROM	TO	REMARKS
E	P25A20	20	RED	36"	P1-A	P9-F	4 COND. SHIELD WIRE
	P26A20	20	BLACK	36"	P1-B	P9-C	4 COND. SHIELD WIRE
	P27A20	20	GREEN	36"	P1-C	P9-D	4 COND. SHIELD WIRE
	P28A20	20	WHITE	36"	P1-D	P9-E	4 COND. SHIELD WIRE
	SHIELD GND		NONE	A/R	WIRE SHIELDS	P1-E	4 COND. SHIELD WIRE
	P29A20	20	WHT	42"	P1-G	TB3-8	ANODE
	P24A16	16		67"	P1-H	2CB2-L	#8 LUG
	P23A16	16		66"	P1-I	2CB2-L	#8 LUG
	P30A18	18		37.5"	P2-A	P9-S	
	P31A18N	18		36.5"	P2-B	GND TB	#6 LUG
	E2C18	18		146"	P5-1L (2)	S2E-2	EMER. SWITCH #6 LUG
	E3C20	20		29"	P5-1R	TB1-1	ANODE, #6 LUG
	E4H18	18		44"	P5-2R	P18-B	
	E18A20	20		30"	P5-3L	TB2-15	CATHODE, #6 LUG
	E37B20N	20		40.5"	P5-3R	GND TB	#6 LUG
	E7A20	20		43.5"	P5-4L	P4-B	
	E8A20	20		43.5"	P5-4R	P4-D	
	E9A20	20		43.5"	P5-5L	P4-M	
	E10A20	20		43.5"	P5-5R	P4-Z	
	E21A20	20		36.5"	P5-6L	S1E,THERM SWITCH	BARE WIRE
	E11C20	20		41"	P5-6R	TB3-1	ANODE, #6 LUG
	E12C20	20		40"	P5-7R	TB3-2	#6 LUG
	E13C20	20		41.5"	P5-8L	TB3-3	ANODE, #6 LUG
	E22A20	20		104.5"	P5-8R	S3E-NC, S3E	INLET FILTER SW, AIR STARVATION SW,
	E14C20	20		41"	P5-9L	TB3-4	ANODE, #6 LUG
	E15C20	20		41.5"	P5-9R	TB3-5	ANODE, #6 LUG
E	E1K20	20	WHT	36.5"	P5-10L (2)	S1P-NO	BARE WIRE

WL 83-14625 PAGE 2 OF 12

WIRE LIST CONTINUATION PAGE

	WIRE NO.	SIZE	COLOR	LENGTH	FROM	TO	REMARKS
E	E39B20N	20	WHT	39.5"	P5-10R (2)	GND TB	#6 LUG
	E28A20	20		118.5"	P5-11L	P14-F	
	E29B20	20		147"	P5-11R	S2E-6	EMER. SW., #6 LUG
	Q1D20	20		31"	P5-12L	TB1-15	ANODE, R1Q RESISTOR, #6 LUG
	Q2A20	20		39"	P5-12R	TB1-14	DIODE, ZENER, #6 LUG CATHODE
	Q4B20	20		76"	P5-13L	S1Q	BARE WIRE,FUEL LEV. SW.
	Q5B20	20		87"	P5-13R	S2Q	FUEL PRES SW, #8 LUG
	Q6B20	20		71"	P5-14L	MT1Q(+)	FUEL LEV SEND, FLOAT SW., #12 LUG
	L26A20	20		29"	P5-14R	TB2-13	CATHODE, #6 LUG
	L24A20	20		31"	P5-15L	TB1-2	ANODE, #6 LUG
	L23A20	20		30"	P5-15R	TB1-3	ANODE, #6 LUG
	L22A20	20		30"	P5-16L	TB1-4	ANODE, #6 LUG
	L21A20	20		29"	P5-16R	TB1-6	ANODE, #6 LUG
	L19A20	20		30"	P5-17L	TB1-7	ANODE, #6 LUG
	L18A20	20		29"	P5-17R	TB1-8	ANODE, #6 LUG
	L17A20	20		29"	P5-18L	TB1-9	ANODE, #6 LUG
	L20A20	20		28"	P5-18R	TB2-11	CATHODE, #6 LUG
	L16A20	20		29"	P5-19L	TB1-10	ANODE, #6 LUG
	P15A20	20		54"	P5-19R	P12-S	
	P16A20	20		54"	P5-20L	P12-T	
	P46A20	20		52"	P5-21L	K2-B2	DC CONTACTOR,#12 LUG
	P34C20	20		42.5"	P5-21R	P9-P	
	P35P18	18		42.5"	P5-22L	P9-N	
	P53B20N	20		39.5"	P5-23L	GND TB	#6 LUG
	P47A20	20		35.5"	P5-23R	R3(-)	SHUNT METER(-),#8 LUG
	P48A20	20		38"	P5-24L	R3(+)	SHUNT METER(+),#8 LUG
E	P42A20 (3)	20	WHT	33.5"	P5-24R (2)	R2(-)	#8 LUG (TWISTED PAIR)

WL 83-14625 PAGE 3 OF 12

WIRE LIST CONTINUATION PAGE

	WIRE NO.	SIZE	COLOR	LENGTH	FROM	TO	REMARKS
E	P43A20 (3)	20	WHT	36"	P5-A (2)	R2(+)	#8 LUG (TWISTED PAIR)
	P17B20	20		60"	P5-C	R1(-)	#8 LUG
	P18B20	20		62"	P5-(+)	R1(+)	#8 LUG
	P3C20	20		64"	P5-(-) (1)	R1(+)	#8 LUG
	E44A20N	20		35.5"	P4-G	GND TB	#6 LUG
	E16A20	20		32"	P4-J	K4-X1	#8 LUG
	E45A20N	20		37"	P4-N	GND TB	#6 LUG
	E17A20	20		41"	P4-S	P8-A	
	E6A20	20		147.5"	P4-T	S2E-5	EMER. SHUTOFF SW., #6 LUG
	E42A18N	18		42"	P4-X	GND TB	#6 LUG
	E30B20	20		43"	P4-Z	P6-T	
	E43A20N	20		42"	P4-J	GND TB	#6 LUG
	H1C20	20		32"	P6-A	TB1-13	R1H RESISTOR(+), ANODE, #6 LUG
	H2B20	20		38"	P6-B	TB1-13	R1H RESISTOR(-), CATHODE #6 LUG
	H3B20	20		96"	P6-C	MT1H-(+)	BARE WIRE, PRESSURE TRANSDUCER ENGINE
	H4C20N	20		44"	P6-D	GND TB	#6 LUG
	H6B20	20		119"	P6-E	L1H-1-NO	BARE WIRE,PNEU. VALVE LCV
	L9A20	20		32"	P6-F	TB2-4	CATHODE, #6 LUG
	L29A20	20		28.5"	P6-G	TB1-5	ANODE, #6 LUG
	G2C20	20		45.5"	P6-H	TB4-10	#6 LUG
	G4B20N	20		44.5"	P6-J	TB3-11	ANODE, #6 LUG
	L28B20	20		43.5"	P6-K	TB2-3	ANODE, #6 LUG
	L30B20N	20		41"	P6-L	GND TB	#6 LUG
	L27B20	20		39"	P6-M	TB1-2	CAGHODE, #6 LUG
E	L2B20	20	WHT	42"	P6-N	P8-S	

WL 83-14625 PAGE 4 OF 12

MS031561

FO 15. Main Harness Wire List (Sheet 2 of 5).

WIRE LIST CONTINUATION PAGE

WIRE NO.	SIZE	COLOR	LENGTH	FROM	TO	REMARKS
L3B20	20	WHT	42"	P6-P	P8-T	
L4B20	20		42.5"	P6-R	P9-A	
L5B20	20		42.5"	P6-S	P9-B	
E35C20N	20		32.5"	P8-B	GND TB	#6 LUG
P6A20	20		60.5"	P8-C	P13-J	
P11A20	20		45.5"	P8-D	P12-Z	
P5A20	20		60.5"	P8-E	P11-H	
P12A20	20		45.5"	P8-F	P12-X	
P4A20	20		60.5"	P8-G	P13-E	
P13A20	20		45.5"	P8-H	P12-W	
E33C20	20		110"	P8-J	P14-B	
E34C20	20		110"	P8-K	P14-C	
E25D18	18		141"	P8-L	S2E-1	
E31C20	20		42"	P8-N	TB4-13	FUEL BOOST PUMP, #6
G5F20	20		29.5"	TB2-2	P10-S	CR2G CATHODE, #6 LUG
G6F20	20		30.5"	TB2-1	P10-A	CR1G CATHODE, #6 LUG
X59B20	20		41.5"	P9-G	P7-15R ⚠2	
X9J20N	20		41.5"	P9-H	P7-14L ⚠2	
X41C20	20		42"	P9-J	P7-7R ⚠2	
X9N20N	20		43.5"	P18-A	P7-16R ⚠2	
P49C20N	20		65.75"	P9-L	GND TB	#6 LUG
C1C20	20		118.5"	P7-5R ⚠2	P14-J	
P33D16	16		26.5"	P9-R	R3(-)	3/8" LUG
P41D20	20		32.5"	P7-1R ⚠2	R2(-)	#8 LUG
P40B20	20		19"	P7-1L	K3-X2	#8 LUG
L10A20	20		27"	P7-2L	TB2-5	CATHODE, #6 LCG
L11A20	20		30"	P7-3R	TB2-6	CATHODE, #6 LCG
L25A20	20	WHT	28"	P7-3L ⚠2	TB2-12	CATHODE, #6 LCG

WIRE LIST CONTINUATION PAGE

WIRE NO.	SIZE	COLOR	LENGTH	FROM	TO	REMARKS
L8A20	20	WHT	29"	P7-4R ⚠2	TB2-14	CATHODE, #6 LUG
L7A20	20		30"	P7-7L	TB1-11	ANODE, #6 LUG
X38A20	20		63.5"	P7-8R	P11-C	
L12A20	20		31"	P7-8L	TB2-7	CATHODE, #6 LUG
X21A20	20		54"	P7-9R	P12-T	
L13A20	20		29"	P7-9L	TB2-8	CATHODE, #6 LUG
X22A20	20		54"	P7-10R	P12-a	
L14A20	20		30"	P7-10L	TB2-9	CATHODE, #6 LUG
X23A20	20		54"	P7-11R	P12-Q	
L15A20	20		29"	P7-11L	TB2-10	CATHODE, #6 LUG
X24A20	20		54"	P7-12R	P12-S	
X19A20	20		54"	P7-12L	P12-R	
X36A20	20		63.5"	P7-13R	P11-B	
X20A20	20		54"	P7-13L	P12-S	
X34A20	20		63.5"	P7-15L	P11-F	
X9S20N	20		54"	P7-16L	P12-K	
X37A20	20	WHT	63.5"	P7-17R	P11-E	
X30A20	20	BLK	61"	P7-17L	T4(-)	BARE WIRE
X28A20	20	BLK	58"	P7-18R	T3(-)	BARE WIRE
X26A20	20	BLK	54"	P7-18L	T2(-)	BARE WIRE
X29A20	20	WHT	61"	P7-19R	T8(+)	BARE WIRE
X27A20	20		58"	P7-19L	T3(+)	BARE WIRE
X25A20	20		54"	P7-20R	T2(+)	BARE WIRE
X33B20C	20		53"	P7-20L	K1-C2	3/8" LUG
X32B20B	20		54.5"	P7-21R	K1-B2	3/8" LUG
X31B20A	20		55.5"	P7-21L	K1-A2	3/8" LUG
X46A20	20		54"	P7-22R	P12-E	
X47A20	20		54"	P7-22L	P12-P	
X48A20	20		54"	P7-23R	P12-E	
X49A20	20	WHT	54"	P7-23L ⚠2	P12-Z	

WIRE LIST CONTINUATION PAGE

WIRE NO.	SIZE	COLOR	LENGTH	FROM	TO	REMARKS
X50A20	20	WHT	54"	P7-24R ⚠2	P12-U	
X51A20	20		54"	P7-24L	P12-Z	
X53A20	20		54"	P7-A	P12-S	
X56A20	20		54"	P7-C	P12-G	
X57A20	20		54"	P7-(+)	P12-Z	
X58A20	20		54"	P7-(-) ⚠2	P12-U	
G3F20	20		42.5"	P10-B	P7-6L	
G7B20	20		40"	P10-C	TB4-3	#6 LUG
G8B20	20		41"	P10-D	TB4-4	#6 LUG
G9E20	20		41"	P10-E	TB4-5	#6 LUG
G6C20	20		41"	P10-F	TB4-6	#6 LUG
G5C20	20		42"	P10-G	TB4-7	PROPULSION CONTROLLER, #6 LUG
G18C20N	20		34.5"	P10-H	GND TB	#6 LUG
G16C20	20		64"	TB4-1	S4G-1-NC	#6 LUG, CLUTCH SW.
X18A20	20		28"	P11-A	P12-Q	
X35A20N	20		39"	P11-D	GND TB	#6 LUG
X1B20A	20		21.5"	P12-A	K1-A1	3/8" LUG
X2B20B	20		20.5"	P12-B	K1-B1	3/8" LUG
X3B20C	20		19"	P12-C	K1-C1	3/8" LUG
X5A20	20		59"	P12-D	P13-D	
X6A20	20		59"	P12-F	P13-F	
X13A20	20		36"	P12-G	T1-N	#4 LUG
P14A20	20		18"	P12-H	K2-X1	#8 LUG
X10A20	20		36"	P12-J	T1-X1	#4 LUG
X11A20	20	WHT	36"	P12-K	T1-T2	#4 LUG

MS031562

FO 15. Main Harness Wire List (Sheet 3 of 5).

WIRE LIST CONTINUATION PAGE

WIRE NO.	SIZE	COLOR	LENGTH	FROM	TO	REMARKS
X12A20	20	WHT	36"	P12-L	T1-T3	#4 LUG
P2E20	20	↓	18"	P12-M	K2-B1	#8 LUG
P7A20	20		59"	P12-T	P13-A	
P8A20	20		59"	P12-V	P13-B	
P9A20	20		59"	P12-Y	P13-C	
X7A20	20		59"	P12-Z	P13-K	
X8A20	20		59"	P12-AA	P13-L	
P18A20	20		15"	P12-J	R1(+)	#8 LUG
P17A20	20		13"	P12-V	R1(-)	#8 LUG
P50A12N ⚠	12		24"	GND TB	DC GND STUD	1/2" LUG
H8A20N	20		26"	TB1-12	GND TB	ANODE, #6 LUG
H9A20N	20		91.5"	L1H-1-GND	GND TB	FREU. VALVE, #6 LUG
H10A20N	20		67"	MT1H-(-)	GND TB	PRES.XDUCER, #6 LUG
Q3A20N	20		24"	TB1-14	GND TB	CR1Q, ANODE, #6 LUG
G19A20N	20		33"	TB2-2	GND TB	CR2G, ANODE, #6 LUG
L6B20N	20		77.5"	dDS2-(-)	GND TB	#6 LUG
L6A20N ⚠	20		36"	DS101-(-)	DS102-(-)	BARE WIRE
L3D20 ⚠	20		36"	DS101-(+)	DS102-(+)	BARE WIRE
L5D20	20		83"	DS103-(+)	DS104-(+)	BARE WIRE
L5E20	20		132"	DS104-(+)	P14-A	
L31A20N	20		83"	DS104-(-)	DS103-(-)	BARE WIRE
L31B20N	20		47.5"	DS103-(-)	GND TB	#6 LUG
G17A20N	20		41"	TB4-9	GND TB	#6 LUG
E26A20	20		109"	P14-E	K4-X2	#8 LUG
C4A20	20		137.5"	P14-G	P16-B	
C3A20	20		137.5"	P14-N	P16-A	
C2A20N	20		98"	P14-I	GND TB	#6 LUG
C5A20N	20	↓	78"	P16-E	GND TB	#6 LUG
Q7A20N	20	WHT	70"	S1Q-(NO)	GND TB	FUEL LEV. SW.,#6 LUG

WIRE LIST CONTINUATION PAGE

WIRE NO.	SIZE	COLOR	LENGTH	FROM	TO	REMARKS
Q7B20N	20	WHT	81"	S2Q-(NO)	GND TB	FUEL PRES. SW., GND TB, #6 LUG
Q7C20N	20	↓	65"	MT1Q-(-)	GND TB	FUEL LEVEL SENDER, #6 LUG
P41A20 ⚠	20		6"	K3-A2	K3-X1	3/8" LUG, #8 LUG
E40A20N	20		83"	S3E-C	GND TB	S3E INLET SW., AIR STARV. SW., #6 LUG
E41A20N	20		52"	TB4-14	GND TB	#6 LUG, #6 LUG
G11C2 ⚠	2		44"	R1-(-)	2K1-NO	1/2",3/8",R1(-)DC CBL SIDE
G11B2	2		2"	2K1-NO	2K2-NO	3/8", 3/8"
G11A2	2		19"	2K2-NO	2A1-B+POS	3/8", 3/8"
G13A2	2		7"	2K1-NO	2K1-NC	3/8", 3/8"
G13B2	2		80"	2K1-NC	B1G-A1	3/8", 3/8", PROP MOTOR
G10B2	2		7"	2K1-NC	2K2-NC	3/8", 3/8"
G10A2	2		10"	2K2-NC	2A1-(S2)	3/8", 3/8", ARM/FLD
G12A2	2		7"	2K2-NO	2K2-NC	3/8", 3/8"
G12B2	2		80"	2K2-NC	B1G-A2	3/8", 3/8", PROP MOTOR
G14A2	2		80"	B1G-S1	2A1-S1	3/8", 3/8"
G15A2	2		80"	B1G-S2	2A1-S2	3/8", 3/8"
G21A2N	2		14"	DC GND STUD	2A1-B-NEG	1/2", 3/8"
P33C6	6		13"	R2(+)	R3(+)	1/2", 1/2"
P32A6	6		20"	R3(-)	J3(+) BAT CHGR	1/2", 1/4", BAT CHGR
P21A6N	6		24"	J4(-) BAT CHGR	J3(-) BAT CHGR	1/4", 1/4", BAT CHGR
P21B2N ⚠	2		36"	J4(-) BAT CHGR	DC GND STUD	1/4", 1/2", BAT CHGR
X31D14A	14		72"	K1-A2	3CB6-B	3/8" LUG, #10 LUG
X32D14B	14		72"	K1-B2	3CB5-B	3/8" LUG, #10 LUG
X33D14C	14		72"	K1-C2	3CB4-B	3/8" LUG, #10 LUG
X33E14C ⚠	14		6"	3CB3-B	3CB4-B	#10 LUG, #10 LUG
X42A14 ⚠	14	↓	48"	3CB6-L	J4(+) AC OUTLET	BARE WIRE, #10 LUG
X43A14 ⚠	14	WHT	48"	3CB5-L	J3(+) AC OUTLET	BARE WIRE, #10 LUG

WIRE LIST CONTINUATION PAGE

WIRE NO.	SIZE	COLOR	LENGTH	FROM	TO	REMARKS
X44A14 ⚠	14	WHT	48"	3CB4-L	J2(+) AC OUTLET	BARE WIRE, #10 LUG
X45A14 ⚠	14	↓	48"	3CB3-L	J1(+) AC OUTLET	BARE WIRE, #10 LUG
X9B14N ⚠	14		6"	J3(-) AC OUTLET	J2(-) AC OUTLET	BARE WIRE, #10 LUG
X9D8N ⚠	8		66"	J4(-) AC OUTLET	G1X-N	#10 LUG, 1/4 LUG
X9E20N	20		59.5"	J1(-) AC OUTLET	P7-4R ⚠	BARE WIRE
E3D20	20		40"	TB1-1 CATHODE	P8-P	#6 LUG
E11A20	20		43"	TB3-1 CATHODE	P4-9	CATHODE, #6 LUG
E12A20	20		43"	TB3-2 CATHODE	P4-8	CATHODE, #6 LUG
E12E20 ⚠	20		6"	TB3-2 ANODE	TB3-6 ANODE	#6 LUG, #6 LUG
E12D20	20		45"	TB3-6 CATHODE	P4-L	CATHODE, #6 LUG
E13A20	20		43"	TB3-3 CATHODE	P4-H	CATHODE, #6 LUG
E14A20	20		43.5"	TB3-4 CATHODE	P4-I	CATHODE, #6 LUG
E15A20	20		44"	TB3-5 CABTODE	P4-G	CATHODE, #6 LUG
C1D18	18		42"	P7-4L ⚠	P9-M	
P2A2 ⚠	2		68"	J4(+) BAT CHGR	3CB1-L	1/4", 1/4"
P2B2 ⚠	2		34"	3CB1-B	K2-A1	1/4", 3/8"
P38B20	20		51"	P7-5L	K2-X2	#8 LUG
P2C8 ⚠	8		36"	3CB2-B	K2-A1	3/8" LUG, #8 LUG
E18C20	20		36"	K4-A1	TB2-15 ANODE	ANODE, 3/8"LUG, #6 LUG
P2D20 ⚠	20		6"	K2-A1	K2-B1	3/8" & 3/8"
L5C20	20		62"	DS103(+)	P9-B	BARE WIRE
G24A20	20		54"	TB4-2	B1G TEMP SW	PROP MOTOR, BARE WIRE
G22A20	20		26"	R3(+)	P8-R	3/8" LUG, SHUNT
G21B20	20		65"	S4G-1-COM	P9-K	BARE WIRE, CLUTCH SW.
G25A20	20		65"	TB2-11 CATHODE	K2-X2	CATHODE
G11D20 ⚠	20		24"	C1G(+)	2A1G-B(+) POS	BARE WIRE, #10 LUG
G11E20 ⚠	20	↓	24"	C1G(-)	2A1G-B(-) NEG	BARE WIRE, #10 LUG
L3C20	20	WHT	52.5"	P8-T	DS101(+) PANEL LT	BARE WIRE

MS031563

FO 15. Main Harness Wire List (Sheet 4 of 5).

WIRE LIST CONTINUATION PAGE

WIRE NO.	AWG SIZE	COLOR	LENGTH		FROM	TO	REMARKS	
C2A2GN	20		3¼"	98	P14-1	GND TB	# 6 LUG	
C5A2GN	20		3"	78	P16-E	GND TB	# 6 LUG	
Q7A2GN	20		2¼"	126	S1Q-(NO)	GND TB	FUEL LEVEL SW, # 6 LUG	
Q7B2GN	20		22½"	139	S2Q-(NO)	GND TB	FUEL PRESS SW, GND TB, # 6 LUG	
Q7C2GN	20		4"	125	MT1Q-(-)	GND TB	FUEL LEVEL SENDER, # 6 LUG	
P41A2O	20			6	K3-A2	K3-X1	3/8" LUG, # 8 LUG	
E40A2GN	20			53	S3E-C	GND TB	S3E INLET SW. AIR STARV. SW. # 6 LUG	
E41A2GN	20			68	TB4-14	GND TB	#6 & #6	
G11C2	2			42	B1-(-)	2K1-NO	½ & B1-(-) DC CABLE SIDE	F
G11B2	2			12	2K1-NO	2K2-NO	½ &	
G11A2	2			30	2K2-NO	2A1-B+ POS	½ &	
G13A2	2			10	2K1-NO	2K1-NC	½ &	
G13B2	2			80	2K1-NC	B1G-A1	½ & PROP MOTOR	
G10B2	2			12	2K1-NC	2K2-NC	½ &	
G10A2	2			24	2K2-NC	2K1-(S2)	½ &, ANN/FLD	
G12A2	2			10	2K2-NO	2K2-NC	½ &	
G12B2	2			80	2K2-NC	B1G-A2	½ & PROP MOTOR	
G14A2	2			80	B1G-S1	2A1-S1	½ &	
G15A2	2			80	B1G-S2	2A1-S2	½ &	
G21A2H	2			20	DC GND STUD	2A1-B - NEG	½ &	
								E
P33C6	6			24	R2(+)	R3(+)	½ &	
* P32A6	6			24	R3(-)	J3-(+) BAT CHGR	½ & BAT CHGR	
* P21A6A	6			24	J4-(-) BAT CHGR	J3-(-) BAT CHGR	½ & BAT CHGR	
* P21B2H	2			96	J4-(-) BAT CHGR	DC GND STUD	½ & BAT CHGR	D
X31D14A	14			72	K1-A2	3C86-B	3/8" LUG , # 10 LUG	B
X32D14B	14			72	K1-B2	3C85-B	3/8" LUG , # 10 LUG	A
X33D14C	14			72	K1-C2	3C84-B	3/8" LUG , # 10 LUG	A

WL 83-14625 PAGE 9 OF 12

WIRE LIST CONTINUATION PAGE

WIRE NO.	AWG SIZE	COLOR	LENGTH		FROM	TO	REMARKS	
X33E14C	14			6	3C83-B	3C84-B	# 10 LUG, # 10 LUG	E
X47A14	14			KB	3C86-L	J4-(+) AC OUTLET	BARE WIRE # 10 LUG	
X43A14	14			KB	3C85-L	J3-(+) AC OUTLET	BARE WIRE , # 10 LUG	
X44A14	14			KB	3C84-L	J2-(+) AC OUTLET	BARE WIRE, # 10 LUG	
X45A14	14			KB	3C83-L	J1-(+) AC OUTLET	BARE WIRE, # 10 LUG	
X36BR	not done at W.L.E			6	J3-(-) AC OUTLET	J2-(-) AC OUTLET	BARE WIRE, # 10 LUG	
X9DHN	14			76	J4-(-) AC OUTLET	G1E-N	BARE WIRE, ½ & #10 LUG	
X9E2GN	20			73	J1-(-) AC OUTLET	P7-14B	BARE WIRE	
E3D2O	20		12"	41	TB1-1 CATHODE	P8-P	# 6 LUG	
E11A2O	20		16"	51	TB3-1 CATHODE	P4-g	CATHODE, # 6 LUG	
E12A2O	20		16¾"	50A	TB3-2 CATHODE	P4-d	CATHODE, # 6 LUG	
E12E2O	20			6	TB3-2 ANODE	TB3-6 ANODE	ANODE, CATHODE, # 6 LUG; #6 LUG	
E12D2O	20		6"	89	TB3-6 CATHODE	P4-L	CATHODE, # 6 LUG	
E13A2O	20		16½"	50A	TB3-3 CATHODE	P4-h	CATHODE, # 6 LUG	
E14A2O	20		17¾"	49 3/4	TB3-4 CATHODE	P4-f	CATHODE, # 6 LUG	
E15A2O	20		17 3/4"	49B	TB3-5 CATHODE	P4-e	CATHODE, # 6 LUG	
C10UA	18			92	P7-4L	P8-M		
*P22A2	not done at RCE			54	J4-(+) BAT CHGR	3C81-L	¼" & ¼"	
*P2B2	2			KB	3C81-B	K2-X1	¼" & ¼"	
P38B2O	20		7¼"	50A	P7-5L	K2-X2	# 8 LUG	
P2C2	8			89	3C82-B	K2-A1	3/8" LUG , # 8 LUG	
E18C2O	20		11"	39	K4-A1	TB2-15 ANODE	ANODE, 3/8" LUG, # 6 LUG	
								C
P2D2O	20			6	K2-A1	K2-B1	3/8" & 3/8"	
L5C2O	20			KZ	4DC3-(+)	P3-B	BARE WIRE	
G24A2O	20			34	TB4-2	B1G TEMP SW	PROP MOTOR, *BARCWIRE*	P
G22A2O	20		3"	59	R3(-)	P8-R	3/8" LUG, SHUNT	
G21B2O	20			72	S4C - COM	P3-K	BARE WIRE, CLUTCH SW	
G25A2O	20			72	TB3-11 CATHODE	K2-X2	CATHODE	
G30A2O	20	WHT	30"		Z8 VDC INPUT	TB2-16 ANODE	20 AWG RECEPTACLE #6 LUG	
G30B2O	20	WHT	48"		TB2-16 CATHODE	ELECTRIC BRAKE	#6 LUG IN LINE SPLICE	
G31A2GN	20	WHT	24"		ELECTRIC BRAKE	TB4-9	IN LINE SPLICE #6 LUG	

WL 83-14625 PAGE 10 OF 12

MS031564

FO 15. Main Harness Wire List (Sheet 5 of 5).

WIRE LIST

DOD PROJECT MANAGER-MOBILE ELECTRIC POWER WASHINGTON, D.C.

TITLE: HARNESS, WIRING - CONTROL PANEL

MODEL: A.G.P.U. | WIRING HARNESS: 83-14626 | NEXT ASSY: 83-14591

NOTES:

1. WIRE NUMBER MARKING TO BE AT 3" FROM EACH END.
2. PIN ASSIGNMENT ON J5, J6 & J7 ARE SEEN BY LOOKING AT THE CONNECTOR'S FRONT VIEW (NOT AT THE CONNECTOR WIRE SIDE).
3. ALL PIN CONNECTORS SHALL BE IDENTIFIED J5, J6 ETC. VENDOR SHALL IDENTIFY EACH CONNECTOR WITH AN ADJACENT PLASTIC TAG. EITHER HOT STAMPED MARKER TIES OR PANDUIT P/N PLM2S OR EQUIV.) WITH NEAT, PERMANENT BLACK INK MARKINGS ARE ACCEPTABLE.
   J5 CONNECTOR, MS3108A-36-4O3S
   J6 CONNECTOR, MS3106E-20-29S
   J7 CONNECTOR, MS3101A-36-4O3P
4. ALL SOLDERING TERMINALS AT J5, J6 & J7 CONNECTORS MUST HAVE SLEEVING OR HEAT SHRUNK TUBING.
5. LUGS TO BE APPLIED BY VENDOR.
6. MARK PER MIL-STD-130 WITH 83-14626 AND LATEST REVISION LETTER.
7. ON J5 & J7, VENDOR SHALL LOCK THE THREADED SLEEVE TO ITS FLANGE WITH LOCTITE "A" OR EQUIV.
8. WIRE REQUIREMENTS:
   A) 20 AMG WIRE P/N M22759/16-20-9 = 478.00'
   B) 18 AMG WIRE P/N M22759/16-18-9 = 17.00'

WL 83-14626 | REV. D | PAGE 1 OF 8

LTR.	ECO NO.	DATE	BY	AUTH.
C	INCORP. E.O. #10115 COMPLETELY REVISED & REDRAWN			
D	INCORP. E/O #10272		DAD	

WL 83-14626 | REV. D | PAGE 1 OF 8

WIRE LIST CONTINUATION PAGE

WIRE NO.	SIZE	COLOR	LENGTH	FROM	TO	REMARKS
E2B18	18	WHT	50"	S1-A11-RUN	J5-1R	BARE WIRE
E3B20	20		50"	S1-B6-START	J5-1L	BARE WIRE
E4G18	18		48"	CB2-L	J5-2L	#8 LUG
E18B20	20		49"	DS2(+)	J5-3R	#4 LUG
E37A20N			49"	DS2(-)	J5-3L	#4 LUG
E7B20			54"	M1(+)	J5-4R	TWISTED PAIR 1/4" LUG
E8B20			54"	M1(-)	J5-4L	TWISTED PAIR 1/4" LUG
E9B20			57"	M2(+)	J5-5R	TWISTED PAIR 1/4" LUG
E10B20			57"	M2(-)	J5-5L	TWISTED PAIR 1/4" LUG
E21B20			41"	CR9E- ANODE	J5-6R	#4 LUG
E11B20			39"	DS12(-)	J5-6L	#4 LUG
E12B20			53"	DS10(-)	J5-7L	#4 LUG
E13B20			51"	DS9(-)	J5-8R	#4 LUG
E22B20			49"	DS8(-)	J5-8L	#4 LUG
E14B20			54"	DS4(-)	J5-9R	#4 LUG
E15B20			52"	DS3(-)	J5-9L	#4 LUG
E1J20			52"	DS3(+)	J5-10R	#4 LUG
E39A20N			34"	S12-(8)	J5-10L	#6 LUG
E28B20			39"	S8-(4)	J5-11R	#6 LUG
E29A20			39"	S8-(8)	J5-11L	#6 LUG
Q1C20			42"	DS5(+)	J5-12R	#4 LUG
Q2B20			42"	M3(+)	J5-12L	#1/4 LUG
Q4A40			42"	DS5(-)	J5-13R	#4 LUG
Q5A20			40"	DS6(-)	J5-13L	#4 LUG
Q6A20			42"	M3(-)	J5-14R	#1/4 LUG
L26B20			49"	DS2(+)	J5-14L	#4 LUG
L24B20			52"	DS3(-)	J5-15R	#4 LUG
L23B20			54"	DS4(-)	J5-15L	#4 LUG
L22B20	20	WHT	42"	DS5(-)	J5-16R	#4 LUG

WL 83-14626 | PAGE 2 OF 8

WIRE LIST CONTINUATION PAGE

WIRE NO.	SIZE	COLOR	LENGTH	FROM	TO	REMARKS
L21B20	20	WHT	40"	DS6(-)	J5-16L	#4 LUG
L19B20			49"	DS8(-)	J5-17R	#4 LUG
L18B20			51"	DS9(-)	J5-17L	#4 LUG
L17B20			53"	DS10(-)	J5-18R	#4 LUG
L20B20			41"	DS11(+)	J5-18L	#4 LUG
L16B20			39"	DS12(-)	J5-19R	#4 LUG
P15B20			33"	CR11P- ANODE	J5-19L	#4 LUG
P16B20			36"	CR10P- ANODE	J5-20R	#4 LUG
P29B20			44"	DS7(+)	J5-20L	#4 LUG
P46B20			34"	DS21(+)	J5-21R	#4 LUG
P34D20	20		54"	S2-2	J5-21L	#6 LUG
P35D18	18		54"	S2-5	J5-22R	#6 LUG
P53G20N	20		34"	M11(-)	J5-23R	#1/4 LUG
P47B20			45"	M6(+)	J5-23L	#6 LUG
P48B20			45"	M6(-)	J5-24R	#6 LUG
P48B20			45"	M5(-)	J5-24L	TWISTED PR 1/4" LUG
P43B20			45"	M5(+)	J5-A	TWISTED PR 1/4" LUG
P17C20			37"	M12(-)	J5-C	#1/4 LUG
P18C20			37"	M12(+)	J5(+)	#1/4 LUG
P3D20			34"	M11(+)	J5(-)	#1/4 LUG
P41E20			39"	M4(+)	J7-1L	#4 LUG
P40A20			40"	CR6P- ANODE	J7-1R	#4 LUG
L10B20			36"	DS19(+)	J7-2R	#4 LUG
L11B20			34"	DS18(+)	J7-3L	#4 LUG
L25B20			44"	DS7(+)	J7-3R	#4 LUG
L18B20	20	WHT	33"	DS21(+)	J7-4L	#4 LUG

WL 83-14626 | PAGE 3 OF 8

MS0315B5

FO 16. Control Panel Harness Wire List (Sheet 1 of 3).

WIRE LIST CONTINUATION PAGE

WIRE NO.	SIZE	COLOR	LENGTH	FROM	TO	REMARKS
E37C20N	20	WHT	40"	DS11(-)	DS2(-)	BAREWIRE, BAREWIRE
P38A20	↑	↑	21"	S12-6	J7-5R	#6 LUG
L29D20			65"	DS1(+)	J7-6L	#4 LUG
X41B20			42"	M8(+)	J7-7L	#1/4 LUG
L7B20			33"	DS20(-)	J7-7R	#4 LUG
X38B20			33"	DS20(-)	J7-8L	#4 LUG
L12B20			32"	DS17(+)	J7-8R	#4 LUG
X21B20			31"	CR4X- ANODE	J7-9L	#4 LUG
L13B20			46"	DS16(+)	J7-9R	#4 LUG
X22B20			45"	CR3X- ANODE	J7-10L	#4 LUG
L14B20			44"	DS15(+)	J7-10R	#4 LUG
X23B20			43"	CR2X- ANODE	J7-11L	#4 LUG
L15B20			42"	DS14(+)	J7-11R	#4 LUG
X24B20			41"	CR1X- ANODE	J7-12L	#4 LUG
X19B20			28"	S10(6)	J7-12R	#6 LUG
X36B20			28"	S10(5)	J7-13L	#6 LUG
X20B20			28"	S10(2)	J7-13R	#6 LUG
X9G20N			42"	M8(-)	J7-14L	#1/4 LUG
X9H20N			35"	M10(-)	J7-14R	#1/4 LUG
X59C20			35"	M10(+)	J7-15L	#1/4 LUG
X34B20			45"	M9(-)	J7-15R	#1/4 LUG
X9P20N			42"	M8(-)	J7-16L	#1/4 LUG
X9R20N			42"	M8(-)	J7-16R	#1/4 LUG
X37B20	↓	↓	32"	S9-A-COM	J7-17L	BARE WIRE
X30B20	20	WHT	32"	S9-A-3	J7-17R	BARE WIRE

WL 83-14626 PAGE 4 OF 8

WIRE LIST CONTINUATION PAGE

WIRE NO.	SIZE	COLOR	LENGTH	FROM	TO	REMARKS
X28B20	20	WHT	32"	S9-A-2	J7-18L	BARE WIRE
X26B20	↑	↑	32"	S9-A-1	J7-18R	BARE WIRE
X29B20			32"	S9-B-6	J7-19L	BARE WIRE
X27B20			32"	S9-B-5	J7-19R	BARE WIRE
X25B20			32"	S9-B-4	J7-20L	BARE WIRE
X33C20C			32"	S9-C-3	J7-20R	BARE WIRE
X32C20C			32"	S9-C-2	J7-21L	BARE WIRE
X31C20A			32"	S9-C-1	J7-21R	BARE WIRE
X46B20			39"	CR5X- ANODE	J7-22L	#4 LUG
X47B20			25"	S11-A-COM	J7-22R	BARE WIRE
X48B20			25"	S11-4	J7-23L	BARE WIRE
X49B20			25"	S11-B-8	J7-23R	BARE WIRE
X50B20			25"	S11-B-7	J7-24L	BARE WIRE
X51B20			25"	S11-B-6	J7-24R	BARE WIRE
X53B20			25"	S11-B-COM	J7-A	BARE WIRE
X56B20			25"	S11-B-3	J7-C	BARE WIRE
X57B20			25"	S11-B-2	J7-(+)	BARE WIRE
X58B20			25"	S11-B-1	J7-(-)	BARE WIRE
H1A20			38"	S8-12	J6-A	#6 LUG
H2A20			44"	M7(+)	J6-B	#1/4 LUG
H3A20			44"	M7(-)	J6-C	#1/4 LUG
H4B20N			40"	DS13(-)	J6-D	#4 LUG
H6A20			38"	S8-12	J6-E	#6 LUG
L9B20			40"	DS13(+)	J6-F	#4 LUG
L29B20	↓	↓	50"	DS1(-)	J6-G	#4 LUG
G2B20	20	WHT	49"	S3-3	J6-H	#6 LUG

WL 83-14626 PAGE 5 OF 8

WIRE LIST CONTINUATION PAGE

WIRE NO.	SIZE	COLOR	LENGTH	FROM	TO	REMARKS
G4A20N	20	WHT	50"	DS1(-)	J6-J	#4 LUG,
L28A20	↑	↑	50"	S4-N01	J6-K	BARE WIRE
L30A20N			50"	S4-COM2	J6-L	BARE WIRE
L27A20			50"	S4-N02	J6-M	BARE WIRE
L2A20			47"	S6-1	J6-N	#6 LUG
L3A20			47"	S6-3	J6-P	#6 LUG
L4A20			45"	S7-1	J6-R	#6 LUG
L5A20			45"	S7-3	J6-S	#6 LUG
E30A20	20		38"	S8-9	J6-T	#6 LUG
F2A18	18		7.5"	CB2-L	S1-A1-COM	#8 LUG, BARE WIRE
E2D18	18		6"	S1-A1-COM	S1-B7-COM	BARE WIRE, BARE WIRE
E2E18	18		6"	S1-A11-RUN	S1-A12-START	BARE WIRE, BARE WIRE
E1A20	20		7"	CB1-L	DS8(+)	#8 LUG, #4 LUG
E1B20	↑		5.5"	DS8(+)	DS9(+)	#4 LUG, #4 LUG
E1C20			5.5"	DS9(+)	DS10(+)	#4 LUG, #4 LUG
E1D20			40"	DS10(+)	DS12(+)	#4 LUG, #4 LUG
E1E20			7"	DS12(+)	DS6(+)	#4 LUG, #4 LUG
E1F20			5"	DS6(+)	DS5(+)	#4 LUG, #4 LUG
E1G20			46.5"	DS5(+)	DS4(+)	#4 LUG, #4 LUG
E1H20			5.5"	DS4(+)	DS3(+)	#4 LUG, #4 LUG
E27A20			15"	S8-(5)	S10-(8)	#6 LUG, #6 LUG
E32A20			13.5"	S10-(7)	S12-(7)	#6 LUG, #6 LUG
X48C20			6.5"	S11-A-4	S11-A-3	BARE WIRE, BARE WIRE
X48D20	↓	↓	6.5"	S11-A-3	S11-A-2	BARE WIRE, BARE WIRE
X48E20	20	WHT	6.5"	S11-A-2	S11-A-1	BARE WIRE, BARE WIRE

WL 83-14626 PAGE 6 OF 8

MS031566

FO 16. Control Panel Harness Wire List (Sheet 2 of 3).

WIRE LIST CONTINUATION PAGE

WIRE NO.	SIZE	COLOR	LENGTH	FROM	TO	REMARKS
X47C20	20	WHT	15"	DS12(+)	DS20(+)	#4 LUG, #4 LUG
X20C20	↓	↓	15"	S10-2	S12-2	#6 LUG, #6 LUG
X19C20			5.5"	S10-6	S10-1	#6 LUG, #6 LUG
X19D20			15.5"	S10-1	S12-1	#6 LUG, #6 LUG
X19E20			11.5"	S12-1	DS17(-)	#6 LUG, #4 LUG
X19F20			31"	DS17(-)	DS16(-)	#4 LUG, #4 LUG
X19G20			5.25"	DS16(-)	DS15(-)	#4 LUG, #4 LUG
X19H20			5.25"	DS15(-)	DS14(-)	#4 LUG, #4 LUG
X40A20			19"	S9-B-COM	M9(+)	BARE WIRE,#1/4 LUG
X41A20			16.5"	S9-C-COM	M8(+)	BARE WIRE,#1/4 LUG
P53A20N			37"	S2-8	DS21(-)	#6 LUG, #4 LUG
P53B20N			13.5"	DS21(-)	DS19(-)	#4 LUG, #4 LUG
P53C20N			6"	DS19(-)	DS18(-)	#4 LUG, #4 LUG
P53D20N			4"	DS18(-)	M11(-)	#4 LUG, #1/4 LUG
P53E20N	↓		8.25"	M4(-)	DS7(-)	#4 LUG, #4 LUG
P36A20	20		6"	S2-1	CB1-B	#6 LUG, #8 LUG
P37A18	18		10"	S2-6	CB2-B	#6 LUG, #8 LUG
P45A20	20		39"	S2-9	S12-5	#6 LUG, #6 LUG
P39A20	↓		21"	S12-4	S5-3	#6 LUG, #6 LUG
H1B20			13"	CB1-L	S8-2	#8 LUG, #6 LUG
H7A20			7.5"	S8-3	DS13(+)	#6 LUG, #4 LUG
G2A20			5.25"	S3-2	DS1(+)	#6 LUG, #4 LUG
L1A20	↓	↓	8"	CB1-L	S6-2	#8 LUG, #6 LUG
L1B20	20	WHT	6.25"	S6-2	S7-2	#6 LUG, #6 LUG

WL 83-14626 PAGE 7 OF 8

WIRE LIST CONTINUATION PAGE

WIRE NO.	SIZE	COLOR	LENGTH	FROM	TO	REMARKS
L1C20	20	WHT	5"	CB1-L	S4-COM-1	#8 LUG, BARE WIRE
P45B20	20		42.5"	S2-9	M4(-)	#6 LUG, #4 LUG
C1E18	18		51"	J7-4R	S2-11	——— , #6 LUG
C1F18	18		51"	J7-5L	S2-12	——— , #6 LUG
H1D20	20		5.5"	S8-2	S8-11	#6 LUG, #6 LUG
G3D20	20		48"	J7-2L	S3-6	——— , #6 LUG
G3E20	20		48"	J7-6R	S3-5	——— , #6 LUG
H4D20	20		24"	S8-10	S11-C-COM	BAREWIRE, BAREWIRE
H5A20	20		2"	S11-C-5	S11-C-4	BARFWIRE, BAREWIRE
H5B20	20	WHT	36"	S11-C-4	J5-7R	BAREWIRE, BARFWIRE

WL 83-14626 PAGE 8 OF 8

M50031567

FO 16. Control Panel Harness Wire List (Sheet 3 of 3).

WIRE LIST	DOD PROJECT MANAGER-MOBILE ELECTRIC POWER WASHINGTON, DC	WL 83-14627	REV. C	PAGE 1 OF 2
TITLE: HARNESS, WIRING - UPPER TRAY		B	INCORP. E.O. #10114 COMPLETELY REVISED & REDRAWN.	
MODEL: A.G.P.U.	WIRING HARNESS 83-14627	C	INCORP. E/O #10273	
	NEXT ASSY 83-14697			

NOTES:

1. WIRE NUMBER MARKING TO BE AT 3" FROM EACH END.
2. ALL PIN CONNECTORS SHALL BE IDENTIFIED J10, 2P1, ETC. VENDOR SHALL IDENTIFY EACH CONNECTOR WITH AN ADJACENT PLASTIC TAG. EITHER HOT STAMPED MARKER TIES OR PANDUIT P/N PLM2S(OR EQUIV.) WITH NEAT, PERMANENT BLACK INK MARKINGS ARE ACCEPTABLE.
   J10 CONNECTOR, MS3106E-20-29S
   2P1 CONNECTOR, 207360-1
   28VDC CONNECTOR, 61429-1
3. ALL SOLDERING TERMINALS AT J10 CONNECTOR MUST HAVE SLEEVING OR HEAT SHRUNK TUBING.
4. MARK PER MIL-STD-130 WITH 83-14627 AND LATEST REVISION LETTER.
5. WIRE REQUIREMENTS:
   20 AWG WIRE P/N M22759/16-20-9 = 30.00'.

LTR	ECO NO.	DATE	BY	AUTH.

WL 83-14627 REV. C PAGE 1 OF 2

WIRE LIST CONTINUATION PAGE

WIRE NO.	SIZE	COLOR	LENGTH	FROM	TO	REMARKS
G5E20	20	WHT	36"	J-10-A (3)	2R1(+)	#10 LUG
G3G20			24.5"	-B	28VDC INPUT	ON MOTOR CONTROLLER
G7A20			36"	-C	2P1-3	
G8A20			36"	-D	2P1-2	
G9A20			36"	-E	2P1-1	
G6D20			36"	-F	2R1(+)	#10 LUG
G5D20			36"	-G	2R2(+)	#10 LUG
G18B20N			36"	-H	2R2(-)	#10 LUG
G5E20			36"	J-10-S (3)	2R2(+)	#10 LUG
G18A20N	20	WHT	8"	2R1(-)	2R2(-)	#10 LUG, #10 LUG

WL 83-14627 PAGE 2 OF 2

MS031568

FO 17. Upper Tray Wiring Harness Wire List .

WIRE LIST	DOD PROJECT MANAGER-MOBILE ELECTRIC POWER WASHINGTON, D.C.	WL 83-14628	REV. D	PAGE 1 OF 5
TITLE HARNESS, WIRING, LOWER TRAY				
MODEL: A.G.P.U.	WIRING HARNESS: 83-14628			
	NEXT ASSY 83-14692			

NOTES:

1. WIRE NUMBER MARKING TO BE OUT AT 3" FROM EACH END.
2. ALL PIN CONNECTORS SHALL BE IDENTIFIED J8, J9. ETC. VENDOR SHALL IDENTIFY EACH CONNECTOR WITH AN ADJACENT PLASTIC TAG. EITHER HOT STAMPED MARKER TIES OR PANDUIT P/N PLM2S(OR EQUIV.) WITH HEAT, PERMANENT BLACK INK MARKINGS ARE ACCEPTABLE.

   J8 CONNECTOR, MS3101A-20-29P
   J9 CONNECTOR, MS3106A-20-29S
   J18 CONNECTOR, MS3101E-14S-6P

3. ALL SOLDERING TERMINALS AT J8,J9 & J18 CONNECTORS MUST HAVE SLEEVING OR HEAT SHRUNK TUBING.
4. WRAP ELECTRICAL TAPE AROUND WIRE HARNESS, AT POINT OF CONTACT WITH ENDBELL OF INTERGRAL CABLE CLAMP J18, PROVIDING GREATER CLAMPING ABILITY FOR WIRE HARNESS.
5. LUGS TO BE APPLIED BY VENDOR.
6. UNLESS OTHERWISE SPECIFIED ALL WIRE SHALL TERMINATE WITH BAREWIRE.
7. MARK PER MIL-STD-130 WITH 83-14628 AND LATEST REVISION LETTER.

LTR.	ECO NO.	DATE	BY	AUTH.
C	INCORP. E.O. 10116 COMPLETELY			
	REVISED & REDRAWN			
D	INCORP. E/O 10274			

WL 83-14628 REV. D PAGE 1 OF 5

WIRE LIST	DOD PROJECT MANAGER-MOBILE ELECTRIC POWER WASHINGTON, D.C.	WL 83-14628	REV. D	PAGE 1A OF 5
TITLE HARNESS, WIRING, LOWER TRAY				
MODEL: A.G.P.U.	WIRING HARNESS: 83-14628			
	NEXT ASSY 83-14692			

NOTES:

8. WIRE REQUIREMENTS:
   A) 20 AWG WIRE P/N M22759/16-20-9 = 92.00'
   B) 18 AWG WIRE P/N M22759/16-18-9 = 17.00'

LTR.	ECO NO.	DATE	BY	AUTH.

WL 83-14628 REV. D PAGE 1A OF 5

WIRE LIST CONTINUATION PAGE

WIRE NO.	SIZE	COLOR	LENGTH	FROM	TO	REMARKS
E17B20	20	WHT	31"	J8 -A	3XK1-X1	BARE WIRE
E35B20N			31"	-B	3XK1-X2	SEE E36B20N,
P6B20			31"	-C	3XK1-A1	BARE WIRE
P11B20			31"	-D	3XK1-A2	
P5B20			31"	-E	3XK1-B1	
P12B20			31"	-F	3XK1-B2	
P48B20			31"	-G	3XK1-C1	
P13B20			31"	-H	3XK1-C2	
E33B20			31"	-J	3XK1-D1	
E34B20	20		31"	-K	3XK1-D2	
E25C18	18		31"	-L	3XK2-A1	BARE WIRE
E48B18	18		31"	-M	SPLICE	SEE PG. 5 FIG. 5
E31B20	20		31"	-N	SPLICE	SEE PG. 5 FIG. 5
E3E20			31"	-P	SPLICE	SEE PG. 5 FIG. 4
G22B20			35.5"	-R	3F1(+)	
G5G20			26"	-S	3VR1+	BARE WIRE
G19A20 (5)			26"	J8 -T	3VR1-	#6 LUG
G6G20			26"	J9 -A	3VR2(+)	BARE WIRE
G20A20 (5)			26"	-B	3VR2(-)	#6 LUG
P26B20			32"	-C	3S1-1	BARE WIRE
P27B20			32"	-D	3S1-2	
P28B20			32"	-E	3S1-3	
P25B20			32"	-F	3S1-COMM	BARE WIRE
X59A20 (5)			31"	-G	FTMTR(+)	#1/4 LUG
X9X20N (5)			31"	J9 -H (3)	FTMTR(-)	#1/4 LUG
E3P20			8"	E3E20, SPLICE	3XK2-X1	SEE PG. 5 FIG. 4
E3G20	20		8"	E3E20, SPLICE	3XK2-A2	SEE PG. 5 FIG. 4
E4A18	18		8"	E4B18, SPLICE	3XK2-B2	SEE PG. 5 FIG. 5
E36B20N	20	WHT	8"	3XK1-X2	3XK2-X2	

WL 83-14628 PAGE 2 OF 5

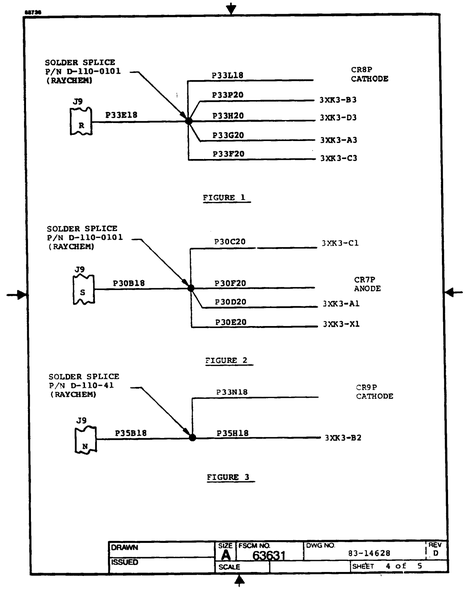
MS031569

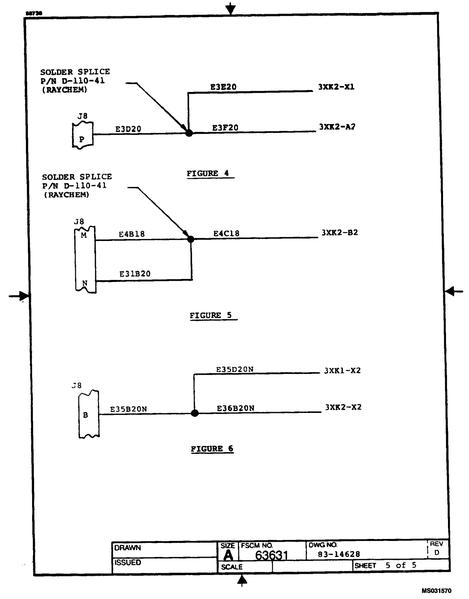
FO 18. Lower Electrical Tray Harness Wire List (Sheet 1 of 2).

WIRE LIST CONTINUATION PAGE

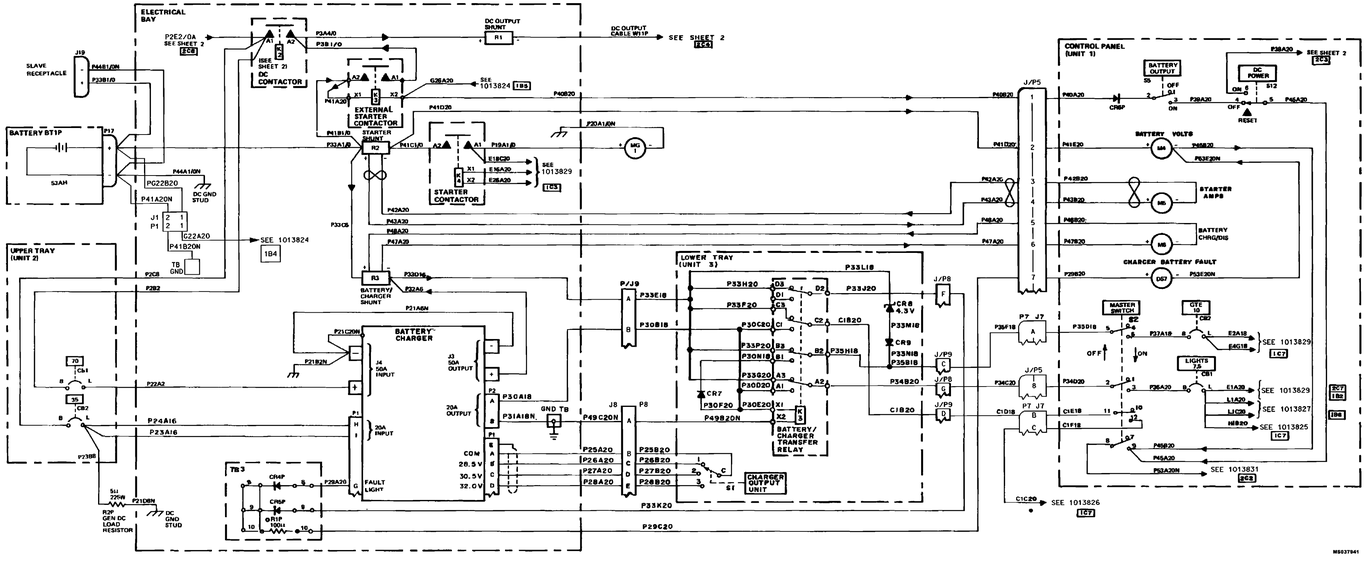
WIRE NO.	SIZE	COLOR	LENGTH	FROM	TO	REMARKS
X41D20	20	WHT	30"	J9 -J 3	FT115VAC(+)	#1/4 LUG 5
G21A20	↓	↓	31"	-K	3F1(-)	BARE WIRE
P49B20N			27"	-L	3XK3-X2	
C1B20	20		27"	-M	3XK3-C2	
P35B18	18		13"	-N	SPLICE	SEE PG. 1 FIG. 3
P34B20	20		27"	-P	3XK3-A2	
P33E18	18		12"	-R	SPLICE	SEE PG. 1 FIG. 1
P30B18	18		12"	J9 -S 3	SPLICE	SEE PG. 1 FIG. 2
P33F20	20		8"	P33E18, SPLICE	3XK3-C3	SEE PG. 1 FIG. 1
P33G20	↓		8"	P33E18, SPLICE	3XK3-A3	SEE PG. 1 FIG. 1
P30C20			8"	P30B18, SPLICE	3XK3-C1	SEE PG. 1 FIG. 2
P30D20			8"	P30B18, SPLICE	3XK3-A1	SEE PG. 1 FIG. 2
P30E20	↓	↓	8"	P30B18, SPLICE	3XK3-X1	SEE PG. 1 FIG. 2
X9720N	20		31"	J18-A 4 3	FT115VAC(-)	#1/4 LUG 5
E4C18	18		33"	J18-B	3XK2-B1	BARE WIRE
P33H20	20		8"	P33E18, SPLICE	3XK3-D3	SEE PG. 1 FIG. 1
P33J20	20		27"	3XK3-D2	J18-E	BARE WIRE
P33L18	18		8"	P33E18, SPLICE	CR8P-CATHODE	SEE PG. 1 FIG. 1
P33M18	↓		10"	3CR8P-ANODE	3CR9P-ANODE	JUMPER,3CR9P:20A DIODE
P33N18	↓		10"	3CR9P-CATHODE	3XK3-B2	JUMPER,3CR9P:20A DIODE
P30N18	18		8"	P35B18, SPLICE	CR9P-CATHODE	SEE PG. 1 FIG. 3
P30F20	20		8"	P30B18, SPLICE	CR7P-ANODE	SEE PG. 1 FIG. 2
P33P20	20	↓	8"	P33E18, SPLICE	3XK3-B3	SEE PG. 1 FIG. 1
P35H18	18	WHT	8"	P35B18, SPLICE	3XK3-B2	SEE PG. 1 FIG. 3

WL 83-14628 PAGE 3 OF 5





FO 18. Lower Electrical Tray Harness Wire List (Sheet 2 of 2).



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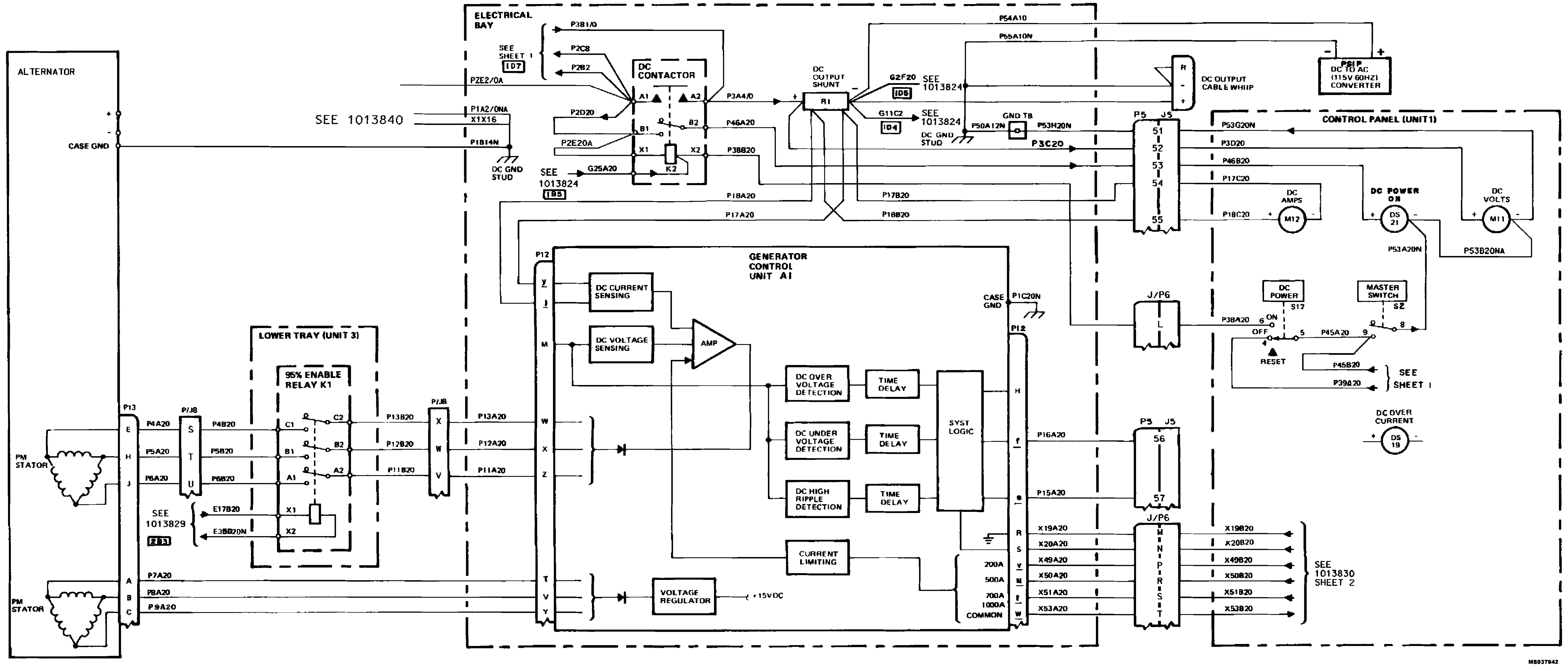
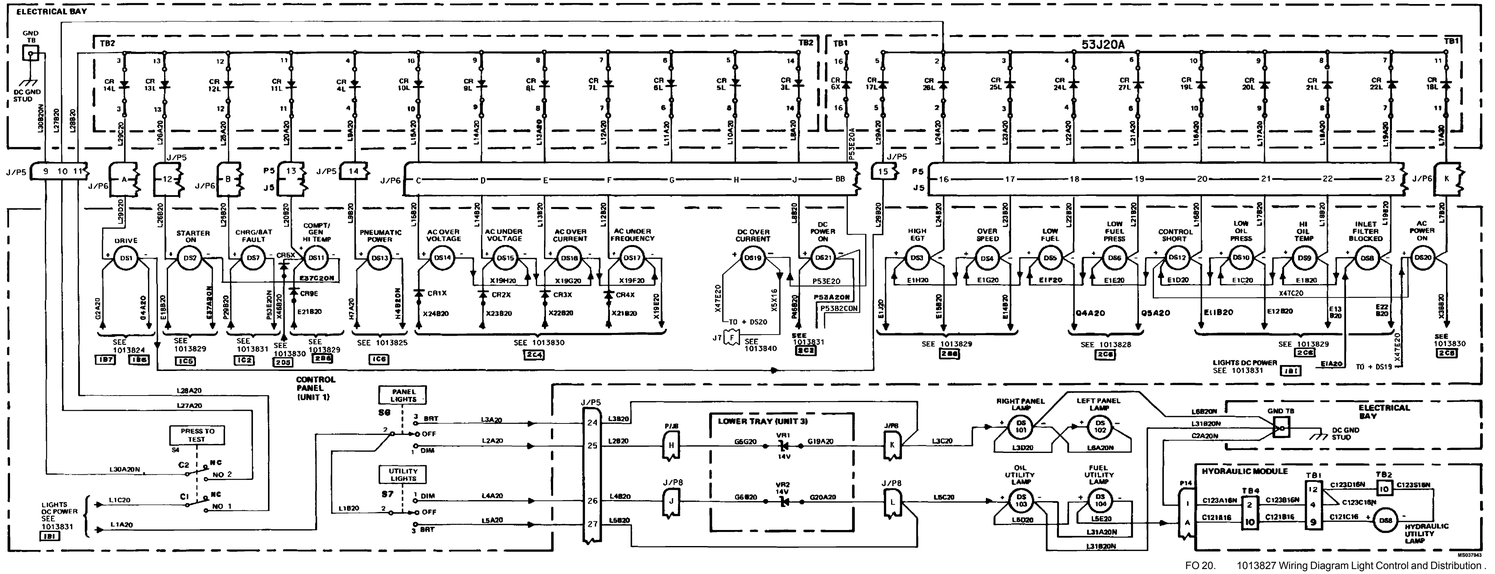
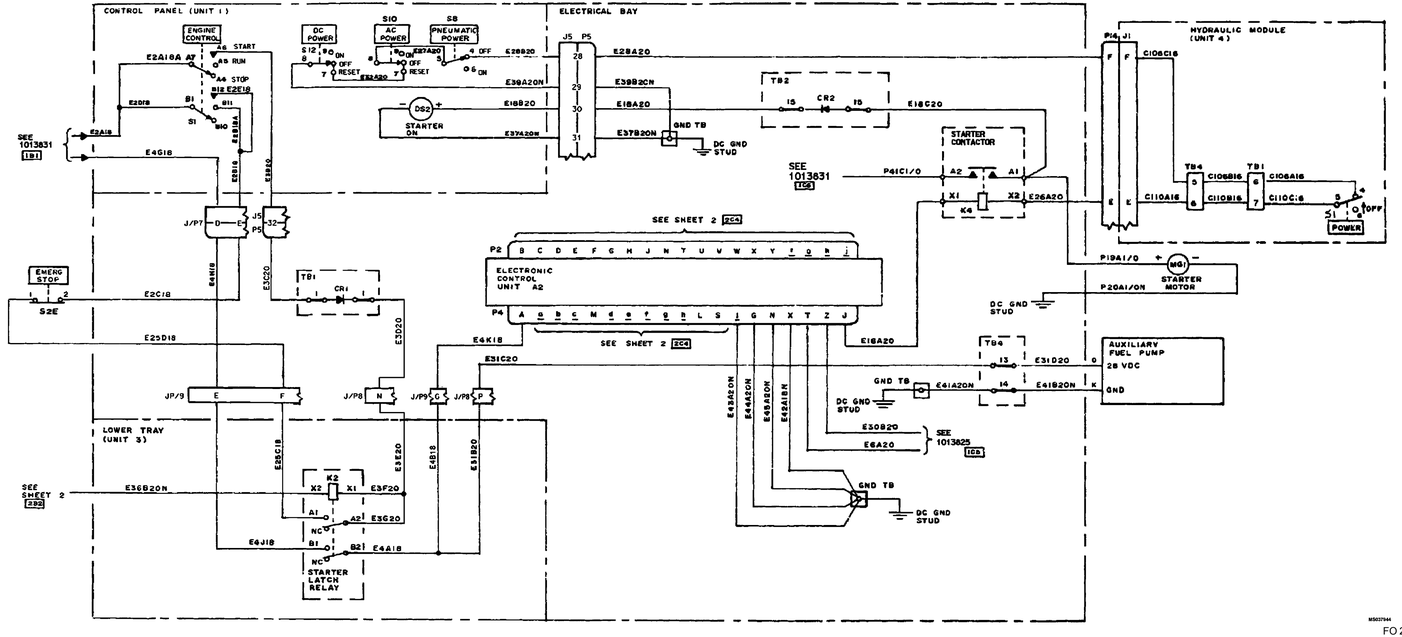
FO 19. 1013831_A DC System Control Schematic MEP 360E (Sheet 1 of 2).



FO 19. 1013831_A DC System Control Schematic MEP 360E (Sheet 2 of 2).



FO 20. 1013827 Wiring Diagram Light Control and Distribution .



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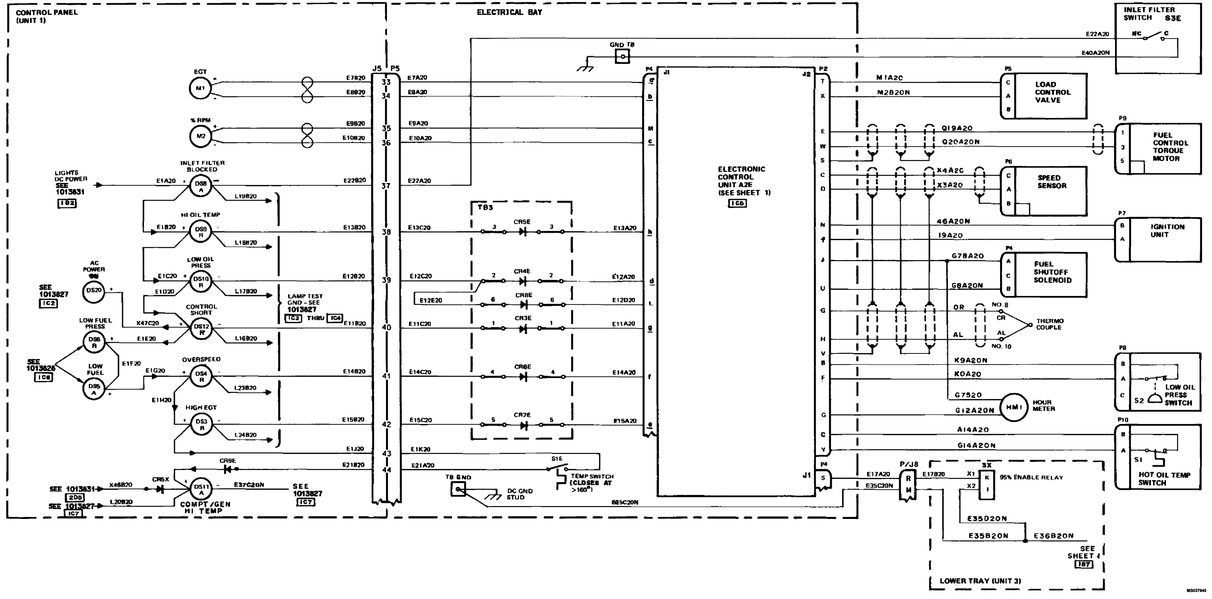
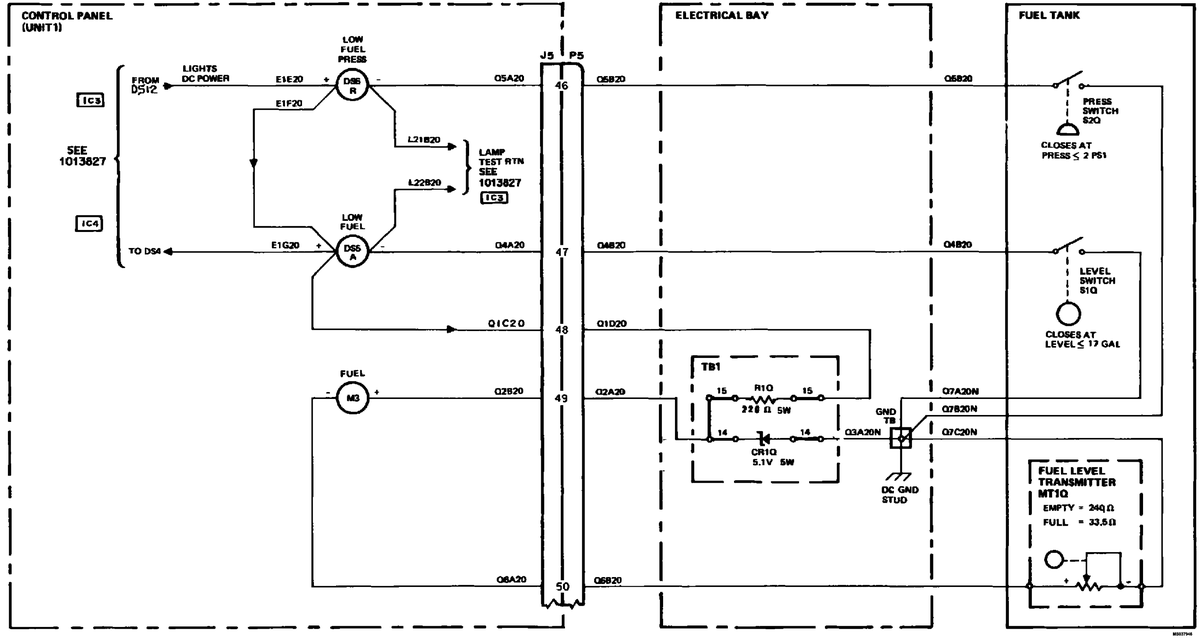
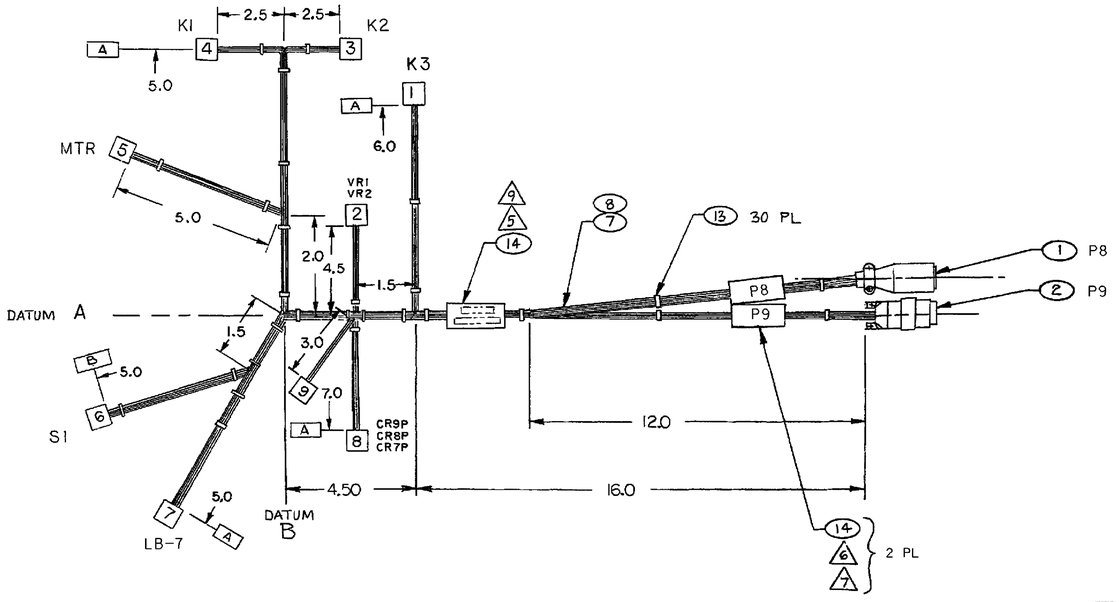
FO 21. Wiring Diagram Gas Turbine Engine (Sheet 1 of 2).



FO 21. Wiring Diagram Gas Turbine Engine (Sheet 2 of 2).



FO 22. 1013828 Wiring Diagram Fuel Level Indication .



FO 23. 1013779 Harness Assembly Lower Tray Schematic .

WIRE LIST	U.S. ARMY AVIATION AND MISSILE COMMAND REDSTONE ARSENAL HUNTSVILLE, ALABAMA 35898	WL 1013779	REV.	PAGE 1 OF 6
TITLE: WIRE LIST, LOWER TRAY				
MODEL: AGPU	WIRING HARNESS: 1013779			
CAGE 81996	NEXT ASSY 1013788			

NOTES:

1. Wire number marking to within 3" from each end.
2. All pin connectors shall be identified J8, J9, etc. Vendor shall identify each connector with an adjacent plastic tag. Either hot stamped marker ties or panduit P/N PLM2S (or equiv.) with neat, permanent black ink markings are acceptable.

   P8 CONNECTOR, MS3126F22-55P
   P9 CONNECTOR, MS3126F18-11P

3. All soldering terminals at J8 AND J9 CONNECTORS must have sleeving or heat shrunk tubing, if space permits.
4. DELETED
5. Lugs to be applied by vendor.
6. Unless otherwise specified all wire shall terminate with barewire.
7. Mark per MIL-STD-130 with 83-14628 and latest revision letter.

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WL 1013779 REV – PAGE 1 OF 6

MS037948

FO 24. 1013779 Lower Tray Wiring Harness List (Sheet 1 of 6).

WIRE LIST	U.S. ARMY AVIATION AND MISSILE COMMAND REDSTONE ARSENAL HUNTSVILLE, ALABAMA 35898	WL 1013779	REV.	PAGE 2 OF 6
TITLE: WIRE LIST, LOWER TRAY				
MODEL: AGPU	WIRING HARNESS: 1013779			
CAGE 81996	NEXT ASSY 1013788			

NOTES:

8. WIRE REQUIREMENTS:

   A) 20 AWG WIRE P/N M22759/16-20-9 = 77.6 FT
   B) 18 AWG WIRE P/N M22759/16-18-9 = 15.1 FT

LTR	ECO NO.	DATE	BY	AUTH.
-	RELEASED PER ERR AV-10392	051105		

DOD RELEASE		27 JAN 89
WL 1013779	REV -	PAGE 2 OF 6

MS037949

FO 24. 1013779 Lower Tray Wiring Harness List (Sheet 2 of 6).

DATE: 05/06/03
WIRE LIST CONTINUATION PAGE
WIRE LIST BY : WIRE NUMBER

WIRE NO.	SIZE	COLOR	LENGTH	FROM	LUG	TO	LUG	REMARKS	REV LTR
C1B20	20	WHT	25"	P9-D		3XX3-C2			
E17B20	20	WHT	26"	P9-F		3XX1-X1		BARE WIRE	
E23C18	18	WHT	29"	P9-F		3XX2-A1		BARE WIRE	
E31B20	20	WHT	9"	P9-P		E48H8 SPLICE		SEE PG. 5 FIG 6	
E39B20	20	WHT	29"	P9-f		3XX1-G1		BARE WIRE	
E34B20	20	WHT	29"	P9-e		3XX1-D2		BARE WIRE	
E35B20N	20	WHT	11"	P9-M		SPLICE		SEE PG. 5 FIG. 5	
E36C20N	20	WHT	18"	E35B20N, SPLICE		3XX1-X2		SEE PG. 5 FIG. 6	
E36B20N	20	WHT	18"	E35B20N, SPLICE		3XX2-X2		SEE PG. 5 FIG. 5	
E9E20	20	WHT	5"	P9-N		SPLICE		SEE PG. 6 FIG. 4	
E9F20	20	WHT	24"	E9E20, SPLICE		3XX3-X1		SEE PG. 6 FIG. 4	
E3G20	20	WHT	24"	E9E20, SPLICE		3XX3-A2		SEE PG. 6 FIG. 4	
E4A18	18	WHT	20"	E4B18, SPLICE		3XX2-B2		SEE PG. 6 FIG. 5	
E4B18	18	WHT	8"	P9-C		SPLICE		SEE PG. 6 FIG. 5	
E4J18	18	WHT	29"	P9-E		3XX3-B1		BARE WIRE	
G19A20	20	WHT	23"	P9-K		3VR1-		#6 LUG	
G20A20	20	WHT	23"	P9-L		3VR2(-)		#6 LUG	
G21A20	20	WHT	26.5"	P9-c		CB7(-)		#6 LUG	
G22B20	20	WHT	26.5"	P9-c		CB7(+)		#6 LUG	
G9J20	20	WHT	23"	P9-H		3VR1+		BARE WIRE	
G8J20	20	WHT	23"	P9-J		3VR2(+)		BARE WIRE	
P11B20	20	WHT	29"	P9-V		3XX1-A2		BARE WIRE	
P12B20	20	WHT	25"	P9-W		3XX1-B2		BARE WIRE	
P13B20	20	WHT	29"	P9-X		3XX1-C2		BARE WIRE	
P29B20	20	WHT	26.5"	P9-B		3S1-COMM		BARE WIRE	
P26B20	20	WHT	26.5"	P9-C		3S1-1		BARE WIRE	
P27B20	20	WHT	26.5"	P9-D		3S1-2		BARE WIRE	
P28B20	20	WHT	26.5"	P9-E		3S1-3		BARE WIRE	F
P30G18	18	WHT	11"	P9-R		SPLICE		SEE PG. 5 FIG. 2	
P30C20	20	WHT	14"	P30B18, SPLICE		3XX3-C1		SEE PG. 5 FIG. 2	
P30D20	20	WHT	14"	P30B18, SPLICE		3XX3-A1		SEE PG. 5 FIG. 2	
P30E20	20	WHT	14"	P30B18, SPLICE		3XX3-B1		SEE PG. 5 FIG. 2	
P30F20	20	WHT	19.5"	P30B18, SPLICE		CR7-ANNODE		SEE PG. 5 FIG. 2	
P30N18	18	WHT	8"	3CR7P, CATHODE		3XX3-B1		BARE WIRE	
P33E18	18	WHT	9.5"	P9-A		SPLICE		SEE PG. 5 FIG. 1	
P33F20	20	WHT	18.5"	P33E18, SPLICE		3XX3-C3		SEE PG. 5 FIG. 1	
P33G20	20	WHT	18.5"	P33E18, SPLICE		3XX3-A3		SEE PG. 5 FIG. 1	
P33H20	20	WHT	18.5"	P33E18, SPLICE		3XX3-D2		SEE PG. 5 FIG. 1	
P33J20	20	WHT	23"	P9-f		3XX3-D2		BARE WIRE	
P33L18	18	WHT	18"	P33J18, SPLICE		CR8P-CATHODE		SEE PG. 5 FIG. 1	

REVISION DATE:

REVISION LTR —
MODEL: A.Q.P.U. SHEET 3

TITLE : WIRE LIST, LOWER TRAY
HARNESS : WL1013779/81996
NEXT ASSY : 1013788

MS037660

FO 24. 1013779 Lower Tray Wiring Harness List (Sheet 3 of 6).

DATE: 05/06/03
WIRE LIST CONTINUATION PAGE
WIRE LIST BY : WIRE NUMBER

WIRE NO.	SIZE	COLOR	LENGTH	FROM	LUG	TO	LUG	REMARKS	REV LTR
P33M18	18	WHT	10"	3CRIP-ANODE		3CRIP-ANODE		JUMPER,3CRIP-20A DIODE	
P33N18	18	WHT	16"	3CRIP-CATHODE		P68B18, SPLICE		SEE PG. 5 FIG. 3	
P33P20	20	WHT	15.5"	P35E18, SPLICE		33XK3-B3		SEE PG. 5 FIG. 1	
P34B20	20	WHT	25"	P8-G		33XK3-A2			
P35B18	18	WHT	7"	P9-C		SPLICE		SEE PG. 5 FIG. 3	
P38H18	18	WHT	18"	P38B18, SPLICE		33XK3-B2		SEE PG. 5 FIG. 3	
P40B20N	20	WHT	25"	P8-A		33K2K2			
P4B20	20	WHT	28"	P8-S		33XK1-C1		BARE WIRE	
P6B20	20	WHT	29"	P8-T		33XK1-B1		BARE WIRE	
P6B20	20	WHT	29"	P8-U		33XK1-A1		BARE WIRE	
X41D20	20	WHT	28.5"	P8-Z		FT115VAC(+)		#1/4 LUG	
X39AB0	20	WHT	28.5"	P8-b		FTMTR(+)		#1/4 LUG	
X9K20N	20	WHT	28.5"	P8-a		FTMTR(-)		#1/4 LUG	
X9T20N	20	WHT	28.5"	P8-Y		FT115VAC(-)		#1/4 LUG	

TITLE : WIRE LIST, LOWER TRAY
HARNESS : WL1013779/81996
NEXT ASSY : 1013788

REVISION LTR: --
REVISION DATE:
MODEL A,G,P,U.
SHEET 4

MS037561

FO 24. 1013779 Lower Tray Wiring Harness List (Sheet 4 of 6).

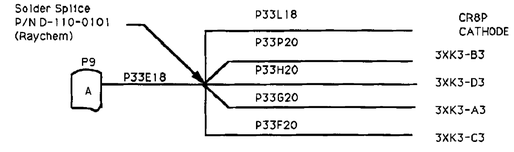

FIGURE 1

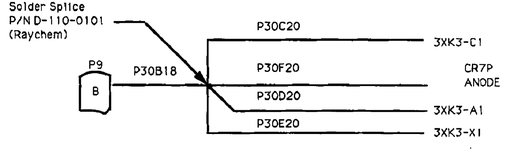

FIGURE 2

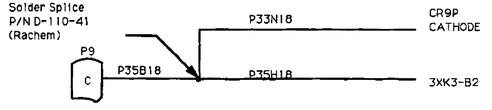

FIGURE 3

MS037952

FO 24. 1013779 Lower Tray Wiring Harness List (Sheet 5 of 6).

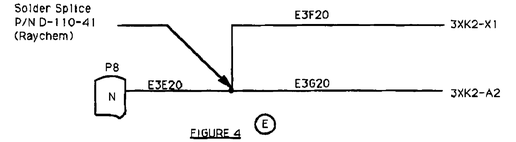

FIGURE 4

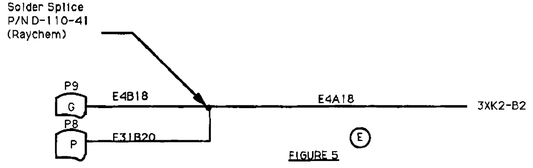

FIGURE 5

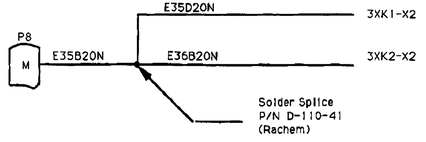

FIGURE 6

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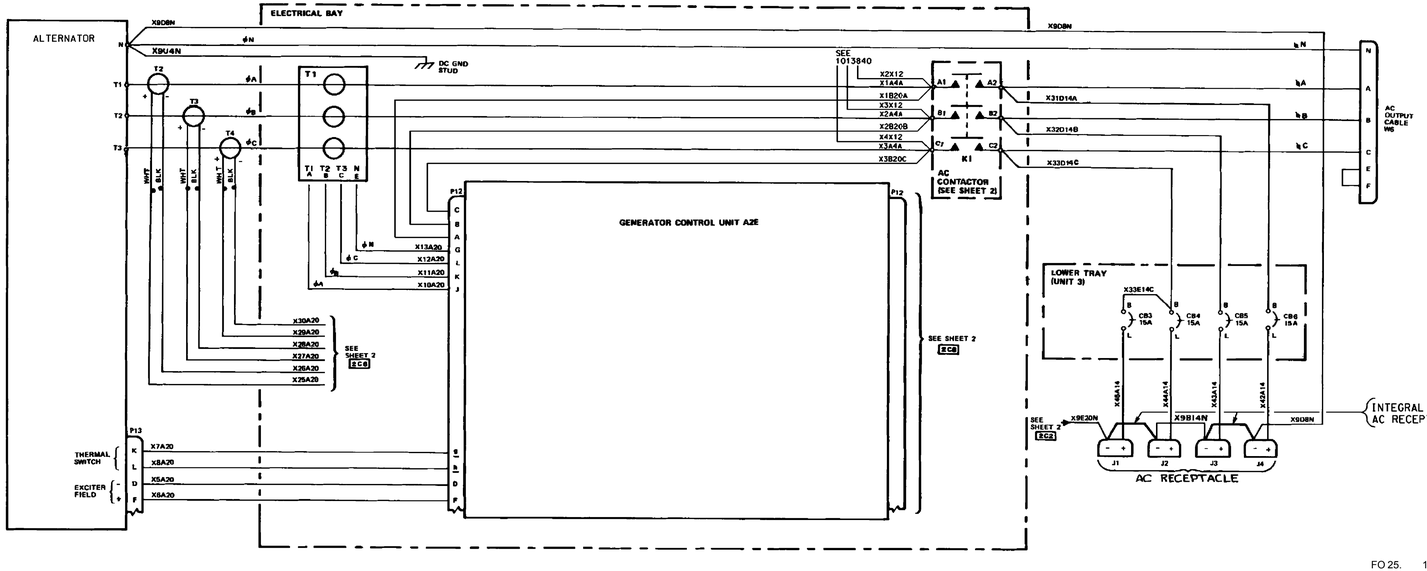
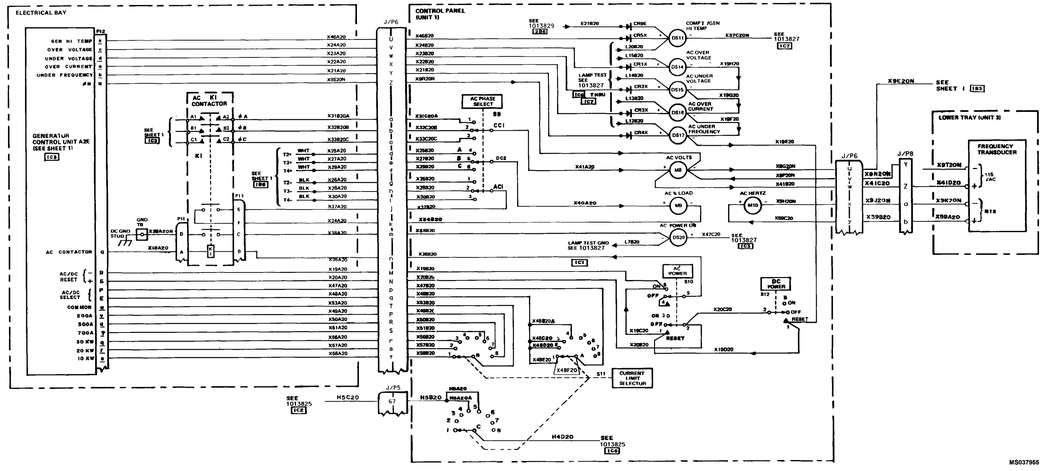
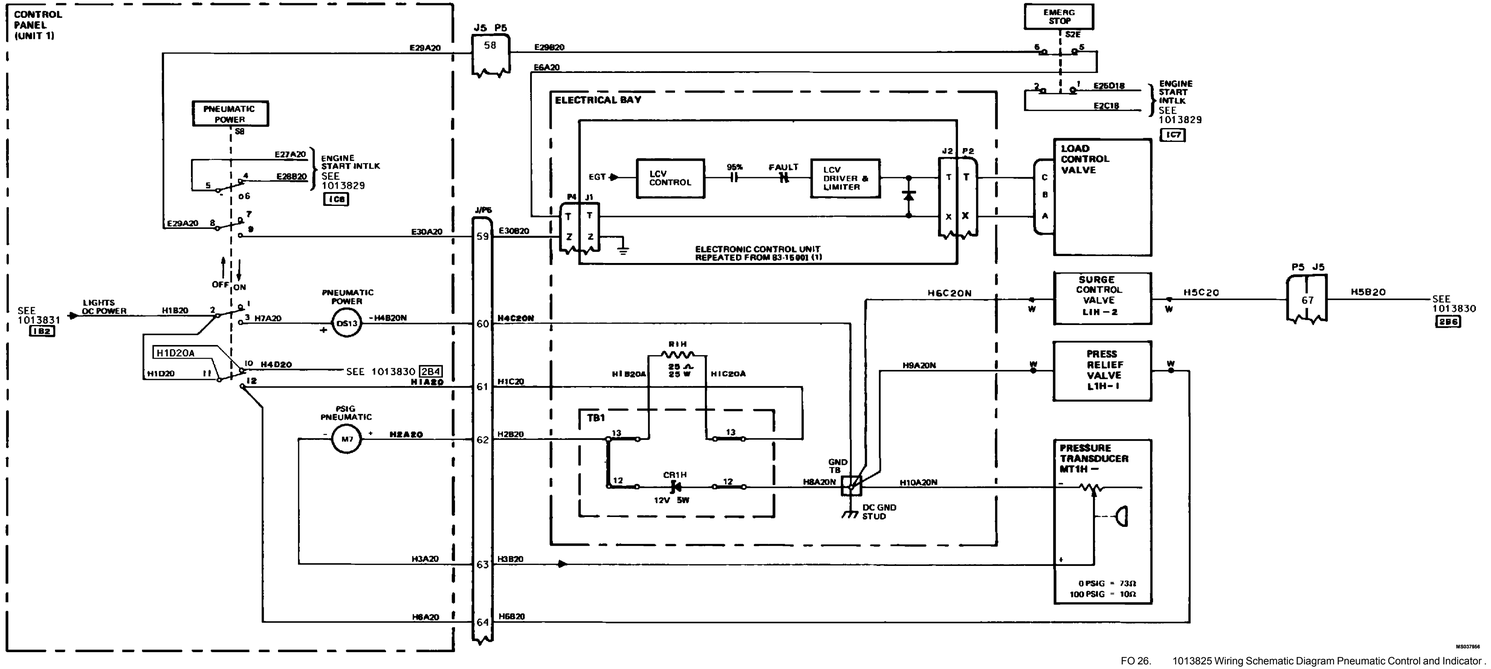
FO 24. 1013779 Lower Tray Wiring Harness List (Sheet 6 of 6).



FO 25. 1013830 Wiring Diagram AC System and Control (Sheet 1 of 2).

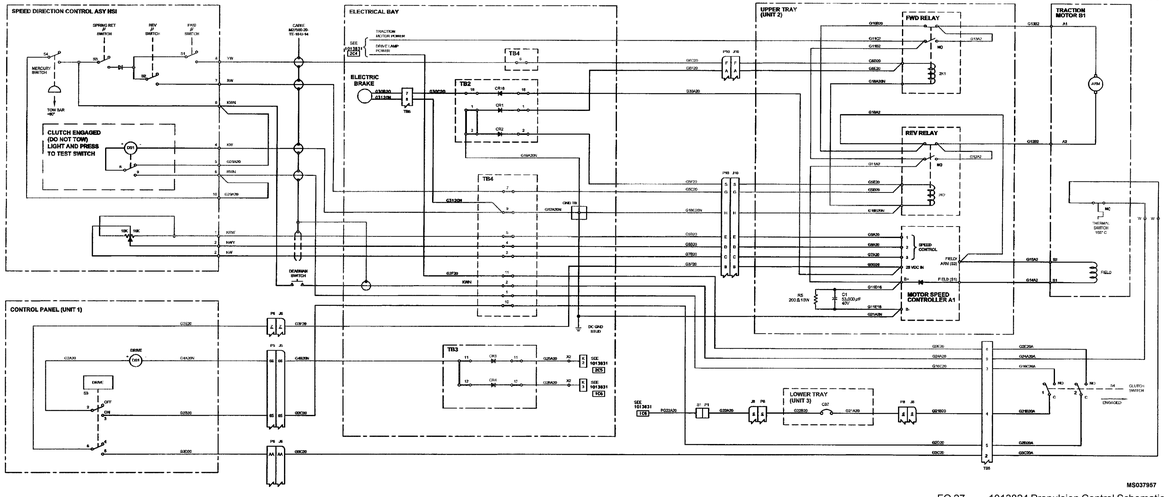


FO 25. 1013830 Wiring Diagram AC System and Control (Sheet 2 of 2).

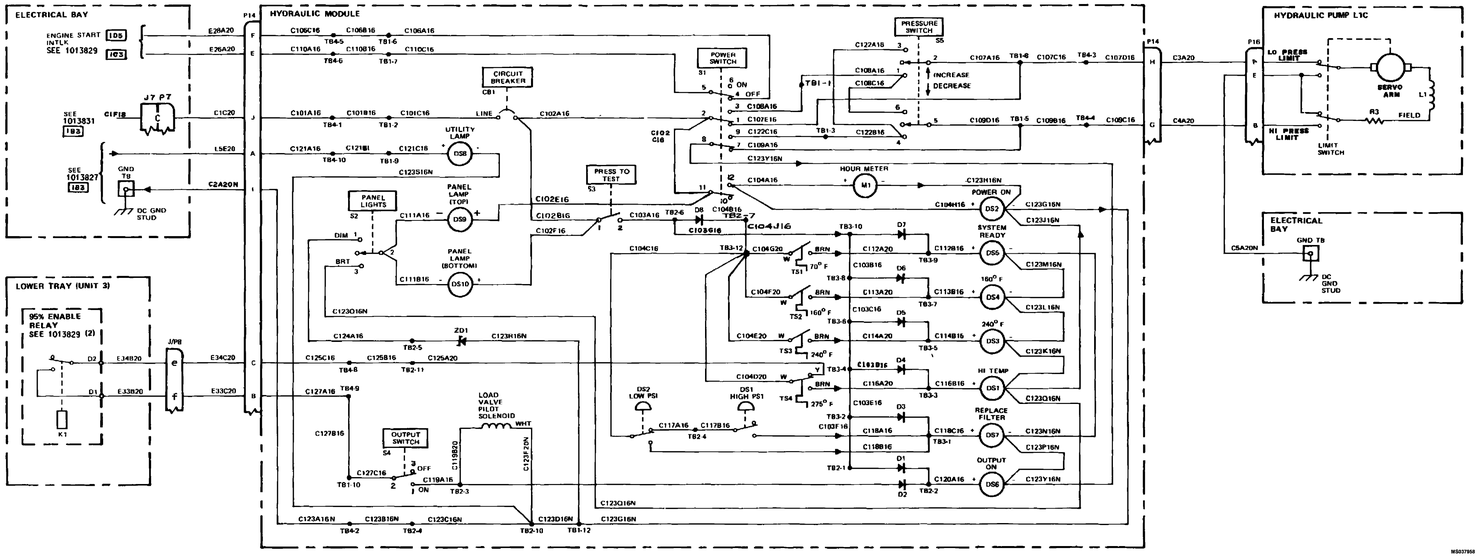


W0037966

FO 26. 1013825 Wiring Schematic Diagram Pneumatic Control and Indicator .



FO 27. 1013824 Propulsion Control Schematic .



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FO 28. 1013826 Hydraulic Control System Schematic/Wiring Diagram .

NOTES:

1. INTERPRET DRAWING PER ASME-Y14.100 AND ASME-Y14.5M.
2. SOLDER IAW ANSI J-STD-001. CLASS 3.
3. FOR WIRING LIST SEE SHEETS 2 AND 3.
4. (△) MAKE PART NUMBER AND LATEST REVISION LETTER PER MIL-STD-130 WITH .10 MIN HIGH CHARACTERS. USE PERMANENT BLACK INK. LOCATE MARKER BAND APPROXIMATELY WHERE SHOWN.
5. LOCATE REFERENCE DESIGNATOR MARKER BAND WITHIN 2.0 IN OF TERMINATION POINT.
6. ALL SOLDERING TERMINALS AT CONNECTORS MUST HAVE SLEEVING OR HEAT SHRINK TUBING IF SPACE PERMITS.
7. ELECTRICAL WIRING DENOTED BY WRAP WILL USE FIND NUMBERS 88 AND 89 TO DATA POINT LOCATIONS.
8. SPLICE AND CRIMP PER AS-81824.
9. (△) WIRES SUPPLIED AS LOOSE ITEMS AND NOT SHOWN ON HARNESS.
10. BW INDICATES BARE WIRE STRIPPED AND TINNED.
11. (△) SEE "TO LOCATION" FOR WIRE LENGTH. WIRE FN AND TERMINATION FN.
12. (△) J8-K HAS WIRE NUMBER L3F20 WHICH IS SPLICED TO WIRE NUMBERS L3B20 AND L3C20.
13. (△) J8-L HAS WIRE NUMBER L5F20 WHICH IS SPLICED TO WIRE NUMBERS L5B20 AND L5C20.
14. HARNESS IAW SAE-AS50881.
15. WIRE LENGTH IS ± 2%.
16. WIRE NUMBERS TO BE MARKED WITHIN 3.0" ±.5" OF TERMINATION.

FIND NO.	QTY RQD	CAGE CODE	DRAWING OR SPECIFICATION	PART OR IDENTIFICATION NO.	NOMENCLATURE OR DESCRIPTION	PL	UM	NOTES / REMARKS
95	2			83-9091	PARALLEL CRIMP SPLICE, 12-10, UNINSULATED		EA	
94	3			O2-09-2101	CONTACT, ELECT, MALE PIN		EA	
93	1			88-20470	CONNECTOR BODY, RECEPTACLE, P1 BATT BOX		EA	
92	AR			WM-1-33	MARKER, ID, BRADY B-500, #1 THRU #33			
91	4			61205-2	TERM, QUICK DISC, RECEPTACLE, ¼", 22-18, RED		EA	
90	AR			ZCT-TE-024	TUBING, PLASTIC CONDUIT, 3/8" ID, BLK, FLEX		FT	
89	AR			10177870-002	SLEEVING, TEXTILE, ELECT, ½" ID (1/4" NOM), BLK		FT	
88	AR			10177870-001	SLEEVING, TEXTILE, ELECT, ¼" ID (1/8" NOM), BLK		FT	
87	AR		SAE-AS33681	MS3368-1-9	BAND MARKER, W/TIE STRAPS ATTACHED		FT	
86	AR		SAE-AS33671	MS3367-1-9	TIEDOWN, STRAP, ELECT 6.3"X0.055", NAT		FT	
85	AR		SAE-AS23053	M23053/5-108-8	INSULATION SLEEVING, ELECT, 0.5" ID, GRAY		FT	
84	AR			TMS-SCE-1.0-2.0-9	TYCO PRINTABLE 1.0" TUBING LABEL, WHT		FT	
83	AR			TMS-SCE-3/16-2.0-9	TYCO PRINTABLE 3/16" TUBING LABEL, WHT		FT	
82	AR			TMS-SCE-3/4-2.0-9	TYCO PRINTABLE 3/4" TUBING LABEL, WHT		FT	
81	AR			TMS-SCE-1/8-2.0-9	TYCO PRINTABLE 1/8" TUBING LABEL, WHT		FT	
80	3		SAE-AS25036	AS-25036-158	TERMINAL LUG, ½" RING, 12-10, YELLOW		EA	
79	1		SAE-AS25036	AS-25036-155	TERMINAL LUG, ½" RING, 16-14 AWG, BLUE		EA	
78	2		SAE-AS25036	AS-25036-154	TERMINAL LUG, ¼" RING, 16-14 AWG, BLUE		EA	
77	1		SAE-AS25036	AS-25036-151	TERMINAL LUG, ½" RING, 22-18 AWG, RED		EA	

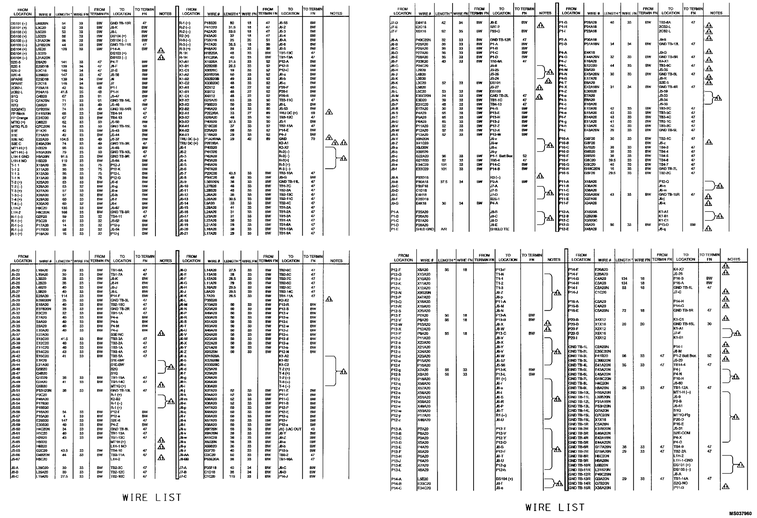
PARTS LIST

FIND NO.	QTY RQD	CAGE CODE	DRAWING OR SPECIFICATION	PART OR IDENTIFICATION NO.	NOMENCLATURE OR DESCRIPTION	PL	UM	NOTES / REMARKS
76	3		SAE-AS25036	AS-25036-150	TERMINAL LUG, ½" RING, 22-18 AWG, RED		EA	
75	1		SAE-AS25036	AS-25036-148	TERMINAL LUG, #4 RING, 22-18 AWG, RED		EA	
74	1		SAE-AS25036	AS-25036-141	TERMINAL LUG, ½" RING, 4/0 AWG, BLUE		EA	
73	1		SAE-AS25036	AS-25036-140	TERMINAL LUG, 3/8" RING, 4/0 AWG, BLUE		EA	
72	1		SAE-AS25036	AS-25036-137	TERMINAL LUG, ½" RING, 00 AWG, YELLOW		EA	
71	3		SAE-AS25036	AS-25036-136	TERMINAL LUG, 3/8" RING, 00 AWG, YELLOW		EA	
70	5		SAE-AS25036	AS-25036-134	TERMINAL LUG, ½" RING, 0 AWG, BLUE		EA	
69	11		SAE-AS25036	AS-25036-133	TERMINAL LUG, 3/8" RING, 0 AWG, BLUE		EA	
68	1		SAE-AS25036	AS-25036-132	TERMINAL LUG, ¼" RING, 0 AWG, BLUE		EA	
67	3		SAE-AS25036	AS-25036-128	TERMINAL LUG, ½" RING, 8 AWG, RED		EA	
66	19		SAE-AS25036	AS-25036-127	TERMINAL LUG, 3/8" RING, 2 AWG, RED		EA	
65	4		SAE-AS25036	AS-25036-126	TERMINAL LUG, ¼" RING, 2 AWG, RED		EA	
64	4		SAE-AS25036	AS-25036-125	TERMINAL LUG, 3/8" RING, 4 AWG, YELLOW		EA	
63	4		SAE-AS25036	AS-25036-123	TERMINAL LUG, ¼" RING, 4 AWG, YELLOW		EA	
62	3		SAE-AS25036	AS-25036-120	TERMINAL LUG, ¼" RING, 6 AWG, BLUE		EA	
61	1		SAE-AS25036	AS-25036-118	TERMINAL LUG, 3/8" RING, 8 AWG, RED		EA	
60	3		SAE-AS25036	AS-25036-116	TERMINAL LUG, ¼" RING, 8 AWG, RED		EA	
59	5		SAE-AS25036	AS-25036-115	TERMINAL LUG, #10 RING, 8 AWG, RED		EA	
58	3		SAE-AS25036	AS-25036-114	TERMINAL LUG, 3/8" RING, 12-10, YELLOW		EA	
57	1		SAE-AS25036	AS-25036-111	TERMINAL LUG, #6 RING, 12-10, YELLOW		EA	
56	9		SAE-AS25036	AS-25036-108	TERMINAL LUG, #10 RING, 16-14, BLUE		EA	
55	3		SAE-AS20659	MS-20659-143	TERMINAL LUG, ½" RING, 6 AWG, UN-INSUL		EA	
54	1		SAE-AS20659	MS-20659-142	TERMINAL LUG, ½" RING, 8 AWG, UN-INSUL		EA	
53	1			324114	TERMINAL LUG, ½" RING, 4 AWG, AMP		EA	
52	11		SAE-AS25036	AS-25036-105	TERMINAL LUG, 3/8 RING, 22-18, RED		EA	
51	4		SAE-AS25036	AS-25036-110	TERMINAL LUG, 3/8 RING, 16-14, BLUE		EA	
50	18		SAE-AS25036	AS-25036-103	TERMINAL LUG, #10 RING, 22-18, RED		EA	
49	14		SAE-AS25036	AS-25036-149	TERMINAL LUG, #8 RING, 22-18, RED		EA	
48	8		SAE-AS25036	AS-25036-153	TERMINAL LUG, #8 RING, 16-14, BLUE		EA	
47	138		SAE-AS25036	AS-25036-101	TERMINAL LUG, #6 RING, 22-18, RED		EA	
46	4		SAE-AS25036	AS-25036-148	TERMINAL LUG, #4 RING, 22-18, RED		EA	
45	AR			MIS-20148/2-20-2	WIRE, ELECT, TWISTED PAIR, 20 AWG, WHT		FT	
44	AR		SAE-AS22759	M22759/16-02-0	WIRE, ELECT, 00 AWG, BLK		FT	
43	AR		SAE-AS50861	M5086/2-04-9	WIRE, ELECT, 4/0 AWG, WHT		FT	
42	AR		SAE-AS22759	M22759/16-0-9	WIRE, ELECT, 0 AWG, WHT		FT	
41	AR		SAE-AS22759	M22759/16-2-9	WIRE, ELECT, 2 AWG, WHT		FT	
40	AR		SAE-AS22759	M22759/16-4-9	WIRE, ELECT, 4 AWG, WHT		FT	
39	AR		SAE-AS22759	M22759/16-6-9	WIRE, ELECT, 6 AWG, WHT		FT	
38	AR		SAE-AS22759	M22759/16-8-9	WIRE, ELECT, 8 AWG, WHT		FT	
37	AR		SAE-AS22759	M22759/16-12-9	WIRE, ELECT, 12 AWG, WHT		FT	
36	AR		SAE-AS22759	M22759/16-14-9	WIRE, ELECT, 14 AWG, WHT		FT	
35	AR		SAE-AS22759	M22759/16-16-9	WIRE, ELECT, 16 AWG, WHT		FT	
34	AR		SAE-AS22759	M22759/16-18-9	WIRE, ELECT, 18 AWG, WHT		FT	
33	AR		SAE-AS22759	M22759/16-20-9	WIRE, ELECT, 20 AWG, WHT		FT	
32	AR		SAE-AS22759	M22759/16-20-0	WIRE, ELECT, 20 AWG, BLK		FT	
31	AR		SAE-AS22759	M22759/16-10-9	WIRE, ELECT, 10 AWG, WHT		FT	
30	1		MS3420C	MS3420-18A	BUSHING, CABLE		EA	
29	1		MS3420C	MS3420-12	BUSHING, CABLE		EA	
28	1		MS3420C	MS3420-4A	BUSHING, CABLE		EA	
27	1		SAE-AS85049	M85049/63-20W	CLAMP, CABLE ADAPTER, RIGHT ANGLE		EA	
26	1		SAE-AS85049	M85049/51-18N	STRAIN RELIEF		EA	
25	1		SAE-AS85049	M85049/31-16W	BACKSHELL		EA	
24	1		MIL-C-28840	M28840/1GW	STRAIN RELIEF		EA	
23	1		SAE-AS85049	M85049/42-12A	STRAIN RELIEF		EA	
22	1		SAE-AS85049	M85049/52-1-10W	STRAIN RELIEF		EA	
21	1		SAE-AS85049	M85049/31-18A	BACKSHELL		EA	
20	1		MS3456D	MS3456W20-18S	CONNECTOR, PLUG		EA	P20
19	1		MS3470E	MS3470W18-11S	CONNECTOR, RECEPTACLE		EA	J9
18	1		SAE-AS85049	M85049/31-22A	BACKSHELL		EA	
17	1		MS3470E	MS3470W22-55S	CONNECTOR, RECEPTACLE		EA	J8
16	1		MS3101D	MS3101E-20-29P	CONNECTOR, PLUG, STRAIGHT		EA	P10
15	1		MS3106D	MS3106E20-16S	CONNECTOR, PLUG, STRAIGHT		EA	P1
14	1		MS3476E	MS3476W10-6S	CONNECTOR, PLUG, STRAIGHT		EA	P16
13	1		MS3108D	MS3108E18-1S	CONNECTOR, PLUG, 90 DEG		EA	P14
12	1		MS3106D	MS3106F20-33P	CONNECTOR, PLUG, STRAIGHT		EA	P13
11	1		MS3106D	MS3106E36-10S	CONNECTOR, PLUG, STRAIGHT		EA	P12
10	1		MS3106D	MS3106R-20-29S	CONNECTOR, PLUG, STRAIGHT		EA	P11
9	1		MS3470E	MS3470W18-8S	CONNECTOR, RECEPTACLE		EA	J7
8	1		SAE-AS85049	M85049/31-24A	BACKSHELL		EA	
7	1		MS3470E	MS3470W24-61S	CONNECTOR, RECEPTACLE		EA	J6
6	1		MIL-C-28840	M28840-10-AG1F1	CONNECTOR, RECEPTACLE		EA	J5
5	1		MS3476E	MS3476L18-32S	CONNECTOR, PLUG		EA	P4
4	1		SAE-AS85049	MS3057-6A	CABLE CLAMP		EA	
3	1		MS3106D	MS3106E14S-2P	CONNECTOR, PLUG, STRAIGHT		EA	P2
2	13.5			83-15066-01	CABLE, 10 CONDUCTOR, 20 AWG		FT	
1	3			MIS-20148/2-20-4	CABLE, SHIELDED, 4 CONDUCTOR		FT	

PARTS LIST

MS037959

FO 29. 1025386 (Main) Harness Assembly (primary) MEP 83 360-E Model AGPU (Sheet 1 of 4).



WIRE LIST

WIRE LIST

MS027960

FO 29. 1025386 (Main) Harness Assembly (primary) MEP 83 360-E Model AGPU (Sheet 2 of 4).

FROM LOCATION	WIRE #	LENGTH *	WIRE FN	FROM TERMIN FN	TO LOCATION	TO TERMIN FN	NOTES
GND TB-16R	P50A12N	43	37	57	DC GND #1	80	
TB1-1A	E3C20				J5-32		
TB1-2A	L24A20				J5-16		
TB1-3A	L23A20				J5-17		
TB1-4A	L22A20				J5-18		
TB1-5A	L29A20				J5-15		
TB1-6A	L21A20				J5-19		
TB1-7A	L19A20				J5-23		
TB1-8A	L18A20				J5-22		
TB1-9A	L17A20				J5-21		
TB1-10A	L16A20				J6-20		△11
TB1-11A	L7A20				J6-K		
TB1-12A	H8A20N				GND TB-9L		
TB1-13A	H1C20				J5-61		
TB1-13A	H1C20A				R-1H		
TB1-15A	Q1D20				J5-48		
TB1-16A	P53E20A				J6-BB		
TB1-1C	E3D20				J8-N		
TB1-2C	L27B20				J5-10		
TB1-3C							NOT USED
TB1-4C							NOT USED
TB1-5C							NOT USED
TB1-6C							NOT USED
TB1-7C							NOT USED
TB1-8C							NOT USED
TB1-9C							NOT USED
TB1-10C							NOT USED
TB1-11C	P53J20A	5	33	47	TB1-16C	47	NOT USED
TB1-12C							
TB1-13C	H2B20				J5-62		
TB1-13C	H1B20A				R-1H		△11
TB1-14C	Q2A20				J5-49		
TB1-16C	P53J20A				TB1-11C		
TB2-1A							NOT USED
TB2-2A	G19A20N				GND TB-7R		△11
TB2-3A	L28B20				J5-11		
TB2-4A							NOT USED
TB2-5A							NOT USED
TB2-6A							NOT USED
TB2-7A							NOT USED
TB2-8A							NOT USED
TB2-9A							NOT USED
TB2-10A							NOT USED
TB2-11A							NOT USED
TB2-12A							NOT USED
TB2-13A							NOT USED
TB2-14A							NOT USED

FROM LOCATION	WIRE #	LENGTH *	WIRE FN	FROM TERMIN FN	TO LOCATION	TO TERMIN FN	NOTES
TB2-15A	E18C20				K1-A1		△11
TB2-16A	G30A20	20	18		MS CONTROL	91	
TB2-1C	G6F20				P10-A		
TB2-2C	G5F20				P10-S		
TB2-3C	L29C20				J6-A		
TB2-4C	L9A20				J5-14		
TB2-5C	L10A20				J6-H		
TB2-6C	L11A20				J6-G		
TB2-7C	L12A20				J6-F		
TB2-8C	L13A20				J6-E		△11
TB2-9C	L14A20				J6-D		
TB2-10C	L15A20				J6-C		
TB2-11C	L20A20				J5-13		
TB2-12C	L25A20				J6-13		
TB2-13C	L26A20				J6-12		
TB2-14C	L8A20				J6-J		
TB2-15C	E18A20				J5-30		
TB2-16C	G30C20	57	33	47	TB5-7	47	
TB3-1A	E11C20				J5-40		△11
TB3-2A	E12C20				J5-39		
TB3-2A	E12E20	3.5	33	47	TB3-6A	47	
TB3-3A	E13C20				J5-38		
TB3-4A	E14C20				J5-41		
TB3-5A	E15C20				J5-42		△11
TB3-6A	E12E20				TB3-2A		
TB3-7A							NOT USED
TB3-8A	P29A20				P1-G		
TB3-9A	P33K20				J8-F		
TB3-10A	P29C20				J5-7		
TB3-11A	G4B20N				J5-66		
TB3-1C	E11A20				P4-g		△11
TB3-2C	E12A20				P4-d		
TB3-3C	E13A20				P4-h		
TB3-4C	E14A20				P4-f		
TB3-5C	E15A20				P4-e		
TB3-6C	E12D20				P4-L		
TB3-7C							NOT USED
TB3-8C							NOT USED
TB3-9C							NOT USED
TB3-10C							NOT USED
TB3-11C	G25A20				K2-X2		△11
TB3-12C	G26A20				K3-X2		
TB4-1	G16C20	43	33	47	TB5-3	47	
TB4-2	G24A20	27	33	47	TB5-9	47	
TB4-3	G7B20				P10-C		
TB4-4	G8B20				P10-D		△11
TB4;5	G9B20				P10-E		

FROM LOCATION	WIRE #	LENGTH *	WIRE FN	FROM TERMIN FN	TO LOCATION	TO TERMIN FN	NOTES
TB4-6	G6C20				P10-F		
TB4-7	G5C20				P10-G		△11
TB4-9	G17A20N				GND TB-6R		
TB4-9	G31B20N	42	18	30	TB5-8	47	△11
TB4-10	G2C20				J5-65		
TB4-10	G2D20	42	18	30	TB5-5	47	△11
TB4-11	G2F20				R1 (–)		
TB4-11	G2E20	40	33	47	TB5-6	47	
TB4-13	E31D20				FP Orange		
TB4-13	E31C20				J8-P		
TB4-14	E41B20N				FP Black		△11
TB4-14	E41A20N				GND TB-4L		
TB5-1							NOT USED
TB5-2	G3C20				J6-AA		
TB5-3	G16C20				TB4-1		
TB5-4	G21B20				J8-d		
TB5-5	G2D20				TB4-10		△11
TB5-6	G2E20				TB4-11		
TB5-7	G30C20				TB2-16C		
TB5-8	G31B20N				TB4-9		
TB5-9	G24A20				TB4-2		
P1-1 Batt Box	G22A20				J8-c		△11
P1-2 Batt Box	P41B20N				GND TB-3L		
J1 (–) AC OUT	X9E20N				J6-u		△11

FROM LOCATION	WIRE #	LENGTH *	WIRE FN	FROM TERMIN FN	TO LOCATION	TO TERMIN FN	NOTES
	G30B20	48	33	14 SPL		14 SPL	
	G31A20N	24	36	14 SPL		47	
	L3D20	31	33	BW		BW	
	L6A20N	31	33	BW		BW	
	P1C20N	14	33	¼ LUG		½ LUG	
	P21C20N	8	33	¼ LUG		¼ LUG	
	P2D20	8	33	3/8 LUG		#10 LUG	
	P41A20	16	33	3/8 LUG		#10 LUG	
	G28A20	3	33	30		47	
	G29A20	3	33	30		47	
	P2E20A	5	33	#10 LUG		#10 LUG	
	X31D14A	63	36	3/8 LUG		48	
	X32D14B	63	36	3/8 LUG		48	
	X33D14C	63	36	3/8 LUG		48	△9
	X33E14C	3	36	48		48	
	X42A14	43	36	48		48	
	X43A14	44.5	36	48		48	
	X44A14	48	36	48		48	
	X45A14	58.5	36	48		48	
	X9B14N	6	36	#8 LUG		48	
	P1B14N	6	36	¼ LUG		78	
	P50A12N	43	37	30		80	
	P54A10	43	31	BW		80	
	P55A10N	46.5	31	BW		80	
	P56A8N	7	38	½ LUG		60	
	P21D8N	4	38	59		67	
	P2C8	36	38	59		61	
	X9D8N	63	38	59		60	
	P1A2/0NA						△11 △9
	P2E2/0A						
	P3A4/0	4	43	73		74	FL9 △9

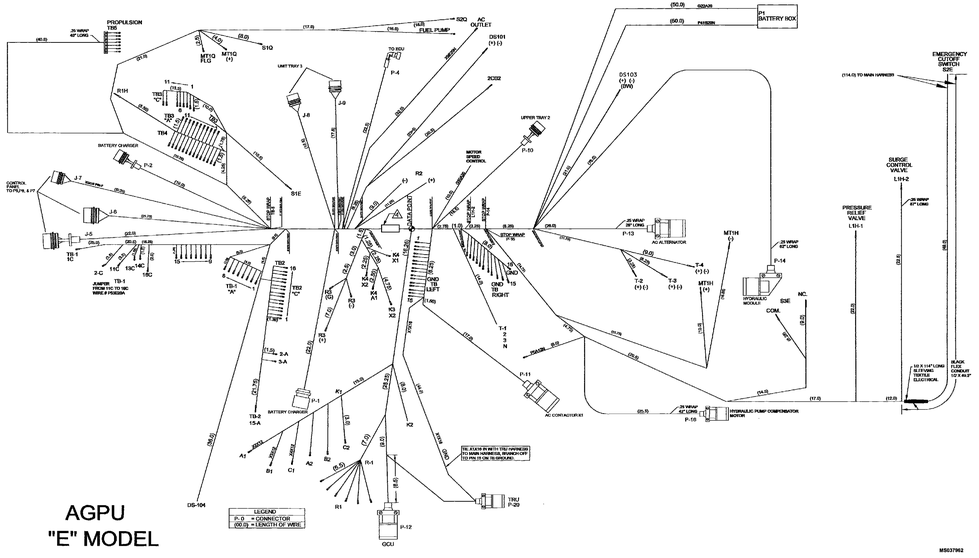
10 CONDUCTOR CABLE - 20 AWG

FROM LOCATION	WIRE #	LENGTH *	WIRE FN	FROM TERMIN FN	TO LOCATION	TO TERMIN FN	NOTES
	K-R-W	156		49		47	
	K-W	156		49		47	
	K-W-N	156		49		SPL	
	KWN	156				47	
	N-W	156		47		47	△9
	N-W-Y	156		47		47	
	R-W	156		47		47	
	R-W-N	156		47		47	
	Y-W	156		47		47	

WIRE LIST

MS037961

FO 29. 1025386 (Main) Harness Assembly (primary) MEP 83 360-E Model AGPU (Sheet 3 of 4).



FO 29. 1025386 (Main) Harness Assembly (primary) MEP 83 360-E Model AGPU (Sheet 4 of 4).

NOTES: UNLESS OTHERWISE SPECIFIED

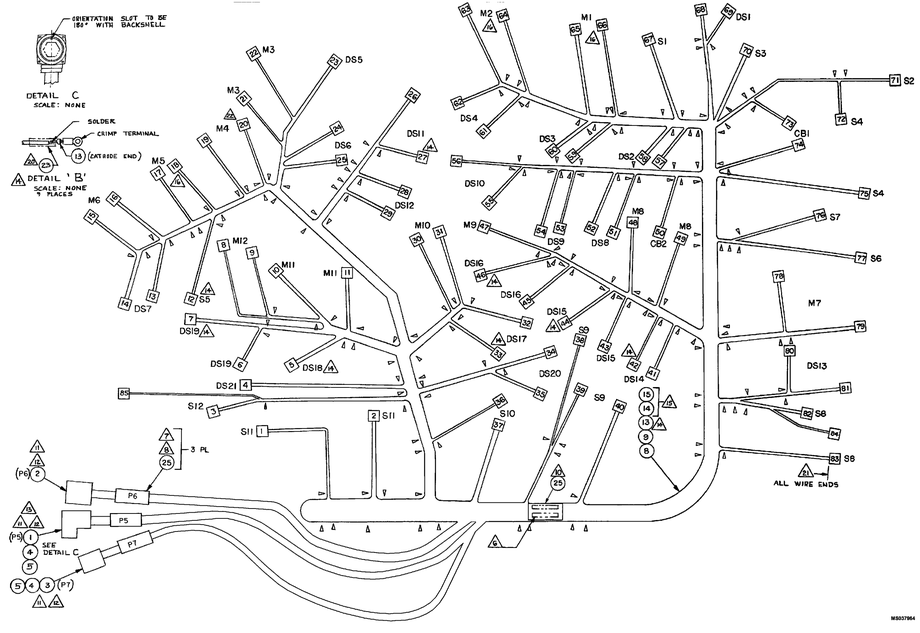
1. INTERPRET DRAWING PER ASME-14.100 AND ASME-Y14.5M.
2. SOLDER IN ACCORDANCE WITH ANSI J-STD-001. CLASS 3.
3. DELETED.
4. FOR WIRING LIST SEE WL 1024247. WIRE LENGTHS ARE FOR REF ON WIRE LIST.
5. ▻ DENOTES TIE WRAPS, ITEM 24, AS NECESSARY.
6. (△) MARK 1024247 & LATEST REVISION LETTER WITH .10 MIN HIGH CHARACTERS. USE PERMANENT BLACK INK. LOCATE MARKER BAND APPROX WHERE SHOWN.
7. (△) MARK PER MIL-STD-130 WITH .10 MIN HIGH CHARACTERS. USE PERMANENT BLACK INK.
8. (△) LOCATE REFERENCE DESIGNATOR MARKER BAND ITEM 25 WITHIN 2.0 INCHES FROM TERMINATION.
9. NO F/N (FIND NUMBER) DENOTES BARE WIRE.
10. (△) PUT SERIAL NUMBER FOR HARNESS ON TAG ITEM 25 PER NOTE 8. START WITH NO. 100.
11. (△) PIN ASSIGNMENTS ON P5, P6 AND P7 ARE SEEN BY LOOKING AT THE CONNECTORS FRONT VIEW (NOT AT THE CONNECTORS WIRE SIDE)
12.
13. (△) IF THE BACKSHELL ON ITEM 1 (P5) HAS A SQUARE BACKSHELL USE LOCTITE 'A' OR EQUIV. ON THE THREADS THAT CONNECT THE SQUARE FLANGED BACKSHELL TO THE CONNECTOR SLEEVE.
14. (△) INSTALL DIODES (FIND NO 13) AT THIS LOCATION PER DETAIL B (SHEET 2) AND WIRE LIST.
15. (△) LOCATE SPLICES (FIND NO. 14 AND 15) PER WIRE LIST.
16. (△) SEE WIRE LIST FOR TWISTED PAIRED WIRES.
17. HARNESS IAW AS50881.
18. THE REFERENCE DATUM LETTERS INDICATE THE DISTANCE FROM THE BASIC DATUM POINT.
19. LENGTH TOLERANCES: 0-12 INCHES ±.50; 12-36 INCHES ±.75; OVER 36 INCHES ±1.00
20. (△) WIRE NUMBERS TO BE MARKED ON ITEM 23 WITH .06 HIGH CHARACTERS, USING CONTRASTING COLOR INK IAW MIL-STD-130 WITHIN 3.0 INCHES FROM TERMINATION.
21. (△) DENOTES THE WIRE LENGTH WITH OR WITHOUT TERMINAL AND WITH A TOLERANCE OF ±.25 PER WIRE.
22. (△) CRIMP WIRES TOGETHER IN THE SAME LUG.

	FIND NO.	FSCM	DWG SIZE	PART OR IDENTIFYING NO.	QTY REQD	NOMENCLATURE OR DESCRIPTION	SPECIFICATION	MATERIAL
	25			AS-33681-1	4	TIE STRAP, ID	AS-23190	
	24			AS-33671-1	AR	TIE STRAP	AS-23190	
	23			M23053/5-104-9	AR	INSULATION SLEEVING	MIL-DTL-23053/5	
	22							
	21							
	20			AS-25036-150	22	TERMINAL LUG	AS-7928	(#1/4-RING)
	19			AS-25036-149	8	TERMINAL LUG	AS-7928	(#8-RING)
	18			AS-25036-101	50	TERMINAL LUG	AS-7928	(#6-RING)
	17			AS-25036-148	88	TERMINAL LUG	AS-7928	(#4-RING)
	16							
15 (△)	15	06090		D-110-0101	1	SPLICE, SOLDER		RAYCHEM
15 (△)	14	06090		D-110-41	2	SPLICE, SOLDER		RAYCHEM
14 (△)	13			1N5061	9	DIODE		CR1-6, 9-11
	12							
	11							
	10							
	9			M22759/16-18-9	AR	WIRE (16 AWG WHITE)	AS-22759/16	
	8			M22759/16-20-9	AR	WIRE (20 AWG WHITE)	AS-22759/16	
	7							
	6							
	5			MIL-C-85049/42-24A	2	CLAMP CABLE	MIL-DTL-5015	
	4			MS3420-24	2	BUSHING, CABLE		
	3			MS3126F16-8P	1	CONNECTOR	MS3126	P7
	2			MS3126F24-61P	1	CONNECTOR	MS3126	P6
	1			M28840-18-AG1G1	1	CONNECTOR	MIL-DTL-28840/18	P5

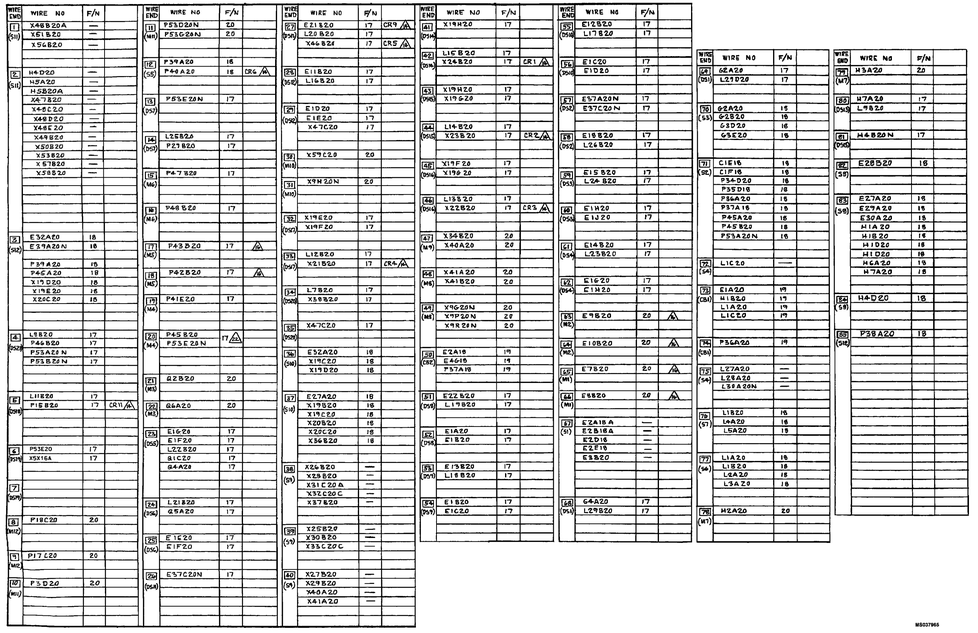
PARTS LIST

MS037963

FO 30. 1024247 Wiring Harness Assembly Control Panel (Sheet 1 of 3).



FO 30. 1024247 Wiring Harness Assembly Control Panel (Sheet 2 of 3).



FO 30. 1024247 Wiring Harness Assembly Control Panel (Sheet 3 of 3).

WIRE LIST	U.S. ARMY AVIATION AND MISSILE COMMAND REDSTONE ARSENAL, HUNTSVILLE, ALABAMA 35898	WL 1024247	REV.	PAGE 1 OF 7
TITLE WIRE LIST,HARNESS,CONTROL PANEL		–	RELEASED PER ERR AV-10664	–	071004
MODEL. AGPU	WIRING HARNESS: 1024247		SEE ECP AV-10836	A	080609
CAGE 81996	NEXT ASSY 1013771				

NOTES:

1. Wire number marking to be within 3 in. of each end.
2. Deleted
3. Deleted
4. Deleted
5. Deleted
6. Deleted
7. Deleted
8. Wire lengths for harness wires are for ref only. See assy for wire breakouts and routing.
9. BW denotes bare wires stripped and tinned in Lug column.

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LTR	ECO NO.	DATE	AUTH.

A	A	A	A	–	A	A	REV	REV STATUS
7	6	5	4	3	2	1	SHT	OF SHEETS

WL 1024247 REV – PAGE 1 OF 7

MS037966

FO 31. 1024247 Control Panel Harness Wire List (Sheet 1 of 6).

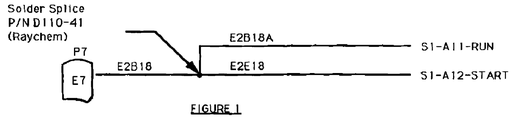


FIGURE 1

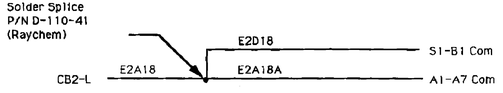


FIGURE 2

MS037967

FO 31. 1024247 Control Panel Harness Wire List (Sheet 2 of 6).

DATE: 07/07/10
WIRE LIST CONTINUATION PAGE
WIRE LIST BY: WIRE NUMBER

WIRE NO.	SIZE	COLOR	LENGTH	FROM	LUG	TO	LUG	REMARKS	REV LTR
C1E16	16	WHT	51"	S2-11		P7-B	#6		
C1F16	16	WHT	51"	S2-12		P7-C	#6		
E10B20	20	WHT	45.75"	M2(-)	#1/4	P5-36		TWISTED PAIR/E9B20	
E11B20	20	WHT	37"	DS12(-)	#4	P5-40			
E12B20	20	WHT	42"	DS10(-)	#4	P5-39			
E13B20	20	WHT	40.25"	DS9(-)	#4	P5-38			
E14B20	20	WHT	43"	DS4(-)	#4	P5-41			
E15B20	20	WHT	41.5"	DS3(-)	#4	P5-42			
E19B20	20	WHT	38"	DS2(+)	#4	P5-30			
E1A20	20	WHT	7"	CB1-L	#8	DS8(+)	#4		
E1B20	20	WHT	5.5"	DS8(+)	#4	DS5(+)	#4		
E1C20	20	WHT	5.5"	DS9(+)	#4	DS10(+)	#4		
E1D20	20	WHT	40"	DS10(+)	#4	DS12(+)	#4		
E1E20	20	WHT	7"	DS12(+)	#4	DS6(+)	#4		
E1F20	20	WHT	5"	DS6(+)	#4	DS5(+)	#4		
E1G20	20	WHT	48.5"	DS5(+)	#4	DS4(+)	#4		
E1H20	20	WHT	5.5"	DS4(+)	#4	DS3(+)	#4		
E1J20	20	WHT	42"	DS3(+)	#4	P5-43			
E21B20	20	WHT	39"	P5-44 (CR9E-AN/CATH)		DS-11(+1)	#4		
E22B20	20	WHT	38"	DS6(-)	#4	P5-37			
E27A20	20	WHT	18"	S9-(6)	#8	S10-(8)	#8		
E28B20	20	WHT	28.5"	S9-(4)	#8	P5-28			
E29A20	20	WHT	27.75"	S9-(8)	#8	P5-58			
E2A16	16	WHT	4"	CB2-L	#8	SPLICE	BW	SEE FIG. 2	
E2A18A	18	WHT	6"	E2A18 SPLICE	BW	S1-A7 COM	BW	SEE FIG. 2	G
E2B16	16	WHT	50"	SPLICE	BW	P7-E		SEE FIG. 1	
E2B18A	18	WHT	6"	E2B18 SPLICE	BW	S1-B11 RUN	BW	SEE FIG. 1	
E2D18	18	WHT	8"	E2A18 SPLICE	BW	S1-B1 COM	BW	SEE FIG. 2	G
E2E18	18	WHT	6"	E2B18 SPLICE	BW	S1-B13 START	BW	SEE FIG. 1	
E30A20	20	WHT	28"	S8-9	#8	P5-59			
E32A20	20	WHT	19.5"	S10-(7)	#8	S12-(7)	#8		
E37A20N	20	WHT	39"	DS2(-)	#4	P5-31			
E37C20N	20	WHT	40"	DS11(-)	#4	DS2(-)	#4		
E38A20N	20	WHT	35.75"	S12-(8)	#8	P5-29			
E3G20	20	WHT	39.5"	S1-A8-START	BW	P5-32			
E4G16	16	WHT	48"	CB2-L	#8	P7-D			
E7B20	20	WHT	53"	M1(+)	#1/4	P5-33		TWISTED PAIR/E8B20	
E8B20	20	WHT	43.25"	M1(-)	#1/4	P5-34		TWISTED PAIR/E7B20	
E9B20	20	WHT	45.75"	M2(+)	#1/4	P5-35		TWISTED PAIR/E10B20	
G2A20	20	WHT	5.25"	S3-2	#8	DS1(+)	#4		

TITLE : WIRE LIST.HARNESS.CONTROL PANEL
HARNESS : 1027247/81996
NEXT ASSY : 1013771

REVISION LTR: —
MODEL: A.G.P.U.

REVISION DATE:
SHEET 3

MS037966

FO 31. 1024247 Control Panel Harness Wire List (Sheet 3 of 6).

DATE: 07/07/10
WIRE LIST CONTINUATION PAGE
WIRE LIST BY : WIRE NUMBER

WIRE NO.	SIZE	COLOR	LENGTH	FROM	LUG	TO	LUG	REMARKS	REV LTR
G2SB20	20	WHT	41"	S3-3	#6	P5-45			
G3D20	20	WHT	39.5"	(S3-6)		(P6-AA)	#6		
G3E20	20	WHT	48"	(S3-5)		(P6-Z)	#6		
G4A20	20	WHT	42"	DS1(-)	#4	P5-66			
H1A20	20	WHT	30"	S8-12	#6	P5-61			
H1B20	20	WHT	18"	CB1-L	#8	S8-2	#6		
H1D20	20	WHT	5.5"	S8-2	#6	S8-11	#6		
H1D20A	20	WHT	11"	S8-11	#6	S8-10	#6	83-3600 ONLY	
H2A20	20	WHT	36"	M7(+)	#1/4	P5-62			
H3A20	20	WHT	36"	M7(-)	#1/4	P5-63			
H4B30M	20	WHT	32.25"	DS13(-)	#4	P5-60			
H4D20	20	WHT	24"	S8-10	#6	S11-D-COM	BW		
DELETED									
H5B20	20	WHT	36"	S11-C5	BW	P5-67			
DELETED									
H6A20	20	WHT	30"	S8-12	#6	P5-64			
H7A20	20	WHT	7.5"	S8-3	#6	DS13(+)	#4		
DELETED									
DELETED									
L12B20	20	WHT	32"	DS17(+)	#4	P6-F			
L13B20	20	WHT	37.5"	DS16(+)	#4	P6-E			
L14B20	20	WHT	35.5"	DS15(+)	#4	P6-D			
L15B20	20	WHT	35.5"	DS14(+)	#4	P6-C			
L16B20	20	WHT	37"	DS12(-)	#4	P5-20			
L17B20	20	WHT	42"	DS10(-)	#4	P5-21			
L18B20	20	WHT	40"	DS9(-)	#4	P5-22			
L19B20	20	WHT	38"	DS8(-)	#4	P5-23			
L1A20	20	WHT	8"	CB1-L	#8	S8-2	#6		
L1B20	20	WHT	6.25"	S8-2	#6	S7-2	#6		
L1C20	20	WHT	6"	CB1-L	#8	S4-COM-1	BW		
L20B20	20	WHT	39"	DS11(+)	#4	P5-13			
L21B20	20	WHT	39"	DS6(-)	#4	P5-19			
L22B20	20	WHT	40"	DS5(-)	#4	P5-18			
L23B20	20	WHT	43"	DS4(-)	#4	P5-17			
L24B20	20	WHT	40.5"	DS3(-)	#4	P5-16			
L25B20	20	WHT	43.5"	DS7(+)	#4	P6-B			
L26B20	20	WHT	49"	DS2(+)	#4	P5-12			
L27A20	20	WHT	42.50"	S4-NO2	BW	P5-10			
L28A20	20	WHT	42"	S4-NO1	BW	P5-11			
L29B20	20	WHT	42"	DS1(-)	#4	P5-15			
L29C20	20	WHT	60"	DS1(+)	#4	P6-A			

TITLE WIRE LIST.HARNESS.CONTROL PANEL
HARNESS : 1024247/81996
NEXT ASSY : 1013771

REVISION LTR: A
REVISION DATE:
MODEL: A.G.P.U.
SHEET 4

W5037969

FO 31. 1024247 Control Panel Harness Wire List (Sheet 4 of 6).

DATE: 07/07/10
WIRE LIST CONTINUATION PAGE
WIRE LIST BY: WIRE MASTER

WIRE NO.	SIZE	COLOR	LENGTH	FROM	LUG	TO	LUG	REMARKS	REV LTR
L2A20	20	WHT	39"	S9-1	#8	P5-25			
L30A20N	20	WHT	42"	S4-COM2	BW	P5-9			
L3A20	20	WHT	39"	S9-3	#8	P5-24			
L4A20	20	WHT	37"	S7-1	#8	P5-26			
L5A20	20	WHT	37"	S7-3	#8	P5-27			
L7B20	20	WHT	32.25"	DS20(-)	#4	P6-K			
L8B20	20	WHT	33"	DS21(+)	#4	P6-J			
L9B20	20	WHT	32"	DS13(+)	#4	P5-14			
DELETED									
DELETED									
P17C20	20	WHT	35.25"	M12(-)	#1/4	P5-54			
P18C20	20	WHT	35.25"	M13(+)	#1/4	P5-55			
P33B20	20	WHT	42.25"	DS7(+)	#4	P5-7			
P34D20	20	WHT	43"	S2-2	#8	P5-8			
P35D18	18	WHT	54"	S2-5	#8	P7-A			
P36A20	20	WHT	6"	S2-3	#8	CB1-B	#8		
P37A16	16	WHT	10"	S2-6	#8	CB2-B	#8		
P38A20	20	WHT	47"	S12-6	#6	P6-L			
P39A20	20	WHT	21.5"	S12-4	#6	S5-3	#6		
P3D20	20	WHT	31"	M11(+)	#1/4	P5-52			
P40A20	20	WHT	40"	P5-1(CRIMP-ANGATH)		S5-2	#6		
P41E20	20	WHT	39"	M4(+)	#4	P5-2			
P42B20	20	WHT	42.75"	M8(-)	#4	P5-3		TWISTED PAIR/P42B20	
P43B20	20	WHT	45"	M9(+)	#4	P5-4		TWISTED PAIR/P42B20	
P45A20	20	WHT	39.5"	S2-8	#8	S12-5	#8		
P45B20	20	WHT	42.5"	S2-9	#8	M4(-)	#4*	M4/CRIMP W/P53E20N	G
P46B20	20	WHT	32"	DS21(+)	#4	P5-53			
P47B20	20	WHT	43"	M6(+)	#4	P5-6			
P48B20	20	WHT	43"	M9(-)	#4	P5-5			
P53A20N	20	WHT	37"	S2-8	#8	DS21(-)	#4		
P53B20NA	20	WHT	9"	DS21(-)	#4	M11(-)	#1/4		
P53E20	20	WHT	30"	DS19(-)	#4	P6-BB			
DELETED									
P58E20N	20	WHT	6.28"	M4(-)	#4*	DS7(-)	#4	M4/CRIMP W/P45B20	G
P59G20N	20	WHT	32"	M11(-)	#1/4	P5-51			
Q1C20	20	WHT	40"	DS8(+)	#4	P5-48			
Q2B20	20	WHT	40.25"	M9(+)	#1/4	P5-49			
Q4A20	20	WHT	40"	DS8(-)	#4	P5-47			
Q5A20	20	WHT	37.75"	DS9(-)	#4	P5-46			
Q6A20	20	WHT	39.75"	M3(-)	#1/4	P5-50			

TITLE : WIRE LIST-HARNESS-CONTROL PANEL
HARNESS : 1024247/81996
NEXT ASSY : 1013T71

REVISION LTR: A
MODEL: A.G.P.U.

REVISION DATE:
SHEET 5

MS037970

FO 31. 1024247 Control Panel Harness Wire List (Sheet 5 of 6).

DATE: 07/07/10
WIRE LIST CONTINUATION PAGE
WIRE LIST BY: WIRE NUMBER

WIRE NO.	SIZE	COLOR	LENGTH	FROM	LUG	TO	LUG	REMARKS	REV LTR
X19B20	20	WHT	26.75"	S10(B)	#6	P6-M			
X19C20	20	WHT	6.5"	S10-B	#6	S10-1	#6		
X19D20	20	WHT	16.75"	S10-1	#6	S12-1	#8		
X19E20	20	WHT	8.75"	S12-1	#6	DS17(-)	#4		
X19F20	20	WHT	21"	DS17(-)	#4	DS16(-)	#4		
X19G20	20	WHT	5.25"	DS16(-)	#4	DS15(-)	#4		
X19H20	20	WHT	5.25"	DS15(-)	#4	DS14(-)	#4		
X20B20	20	WHT	26.75"	S10(E)	#6	P6-N			
X20C20	20	WHT	85.65"	S10-2	#6	S12-2	#8		
X21B20	20	WHT	30.25"	P6-Y (CR4XAN/CATH)		DS17(+)	#6		
X22B20	20	WHT	37"	P6-X (CR3XAN/CATH)		DS16(+)	#6		
X23B20	20	WHT	34.5"	P6-W (CR2XAN/CATH)		DS15(+)	#6		
X24B20	20	WHT	32.5"	P6-V (CR1XAN/CATH)		DS14(+)	#4		
X25B20	20	WHT	24.5"	S9-D-4	BW	P6-d			
X26B20	20	WHT	23.5"	S9-A-1	BW	p6-g			
X27B20	20	WHT	24.25"	S9-D-5	BW	p6-e			
X28B20	20	WHT	24.25"	S9-A-2	BW	p6-h			
X29B20	20	WHT	22.5"	S9-D-6	BW	p6-f			
X30B20	20	WHT	32"	S9-A-3	BW	p6-i			
X31C20A	20	WHT	23.5"	S9-C-1	BW	p6-a			
X32C20B	20	WHT	32"	S9-C-2	BW	p6-b			G
X33C20C	20	WHT	24"	S9-C-3	BW	p6-c			
X34B20	20	WHT	36.5"	M4(-)	#1/4	p6-k			
X35B20	20	WHT	27.25"	S10(B)	#8	p6-n			
X37B20	20	WHT	31.5"	S9-A-COM	BW	p6-j			
X38B20	20	WHT	32.25"	DS20(-)	#4	p6-m			
X40A20	20	WHT	19"	S9-D-COM	BW	M4(+)	#1/4		
X41A20	20	WHT	18.5"	S9-C-COM	BW	M4(+)	#1/4		
X41B20	20	WHT	43.5"	M4(+)	#1/4	P6-w			
X46B20	20	WHT	29"	P6-U (CR5AN/CATH)		DS11(+)	#4		
X47B20	20	WHT	25"	S11-A-COM	BW	P6-p			
X47C20	20	WHT	15"	DS12(+)	#4	DS20(+)	#4		
X47E20	20	WHT	15"	DS20(+)	#4	DS19(+)	#4		
X48B20	20	WHT	25"	S11-A4	BW	P6-q		SEE FIG.3	
DELETED									
DELETED									
DELETED									
DELETED									
DELETED									
X49B20	20	WHT	25"	S11-B-8	BW	P6-P			
X50B20	20	WHT	24.25"	S11-B-7	BW	P6-R			
X51B20	20	WHT	25"	S11-B-6	BW	P6-S			

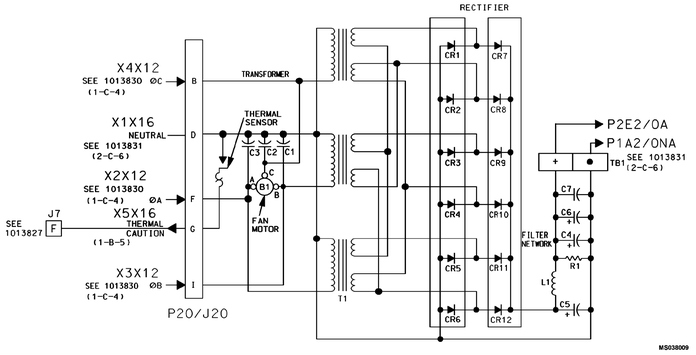
TITLE : WIRE LIST-HARNESS-CONTROL PANEL
HARNESS : 1024247/81996
NEXT ASSY : 1013771

REVISION LTR: A
MODEL: A.G.P.U.

REVISION DATE:
SHEET 6

MS037971

FO 31. 1024247 Control Panel Harness Wire List (Sheet 6 of 6).



FO 32. 1013840 Wiring Diagram/Schematic Transformer Rectifier Unit (TRU) .

NOTES:

1. ALL SOLDERING TERMINALS AT CONNECTORS MUST HAVE SLEEVING OR HEAT SHRUNK TUBING.
2. WIRES TO BE SUPPLIED LOOSE.
3. WIRE NUMBERS TO BE MARKED ON WHITE INSULATION SLEEVING WITH 0.06 HIGH (MIN) BLACK CHARACTERS AND LOCATED WITHIN 3 INCHES OF EACH TERMINATIION.
4. PIN CONNECTOR TO BE MARKED P20 WITH AN ADJACENT PLASTIC TAG. EITHER HOT STAMPED MARKER TIES OR BLACK INK MARKINGS ARE ACCEPTABLE.

DISTRIBUTION STATEMENT A. APPROVED FOR PUBLIC RELEASE: DISTRIBUTION IS UNLIMITED.

CAD MAINTAINED. CHANGES SHALL BE INCORPORATED BY THE DESIGN ACTIVITY.

7	96906		AS-25036-148	1	TERMINAL, 18/20 AWG, NO.4 LUG		
6	96906		AS-25036-155	1	TERMINAL, 14/16 AWG, 1/2 LUG		
5	96906		AS-25036-114	3	TERMINAL, 10/12 AWG, 3/8 LUG		
4	81349		M22759/16-16-9	A/R	WIRE, 16 AWG - WHT	AS-22759/16	
3	81349		M22759/16-12-9	A/R	WIRE, 12 AWG - WHT	AS-22759/16	
2	81349		M85049/63-20W	1	CABLE ADAPTER, RIGHT ANGLE	AS-85049/63	
1	96906		MS3456W20-18S	1	CONNECTOR, PLUG, ELECTRIC		
FIND NO.	CAGE CODE	DWG SIZE	PART NO. OR IDENTIFYING NO.	QTY REQD	NOMENCLATURE OR DESCRIPTION	SPECIFICATION	MATERIAL

PARTS LIST

MS038010

FO 33. 1013834 Harness Wiring List (TRU) (Sheet 1 of 2).

WIRE LIST

WIRE NO.	SIZE	COLOR	LENGTH
X1X16	16	WHT	20″
X2X12	12	WHT	48″
X3X12	12	WHT	48″
X4X12	12	WHT	48″
X5X16	16	WHT	92″
P1A2/ONA (2)	00	BLK	29″
P2E2/OA (2)	00	BLK	33″

FROM	TO	REMARK
P2O(D)	GRD	1/2″ LUG
P2O(F)	K1-A1	3/8″ LUG
P2O(I)	K1-B1	3/8″ LUG
P2O(B)	K1-C1	3/8″ LUG
P2O(G)	P7-F	NO.4 LUG
TRU DC (-)	GRD	3/8″,1/2″
TRU DC (+)	K2-A1	3/8″,3/8″

MS038011

FO 33. 1013834 Harness Wiring List (TRU) (Sheet 2 of 2).

1.0 SCOPE AND AREAS OF SOLDERING

1.1 Scope

This soldering instruction provides the general and detailed instructions for hand soldering the electrical connections on the AGPU.

1.2 Areas of Soldering

a. Main Control Panel: Engine Control Switch S1; Press to Test Switch S4; Current Limit Selector Switch S11; AC Phase Selector Switch S9;Diodes at Battery Output Switch CR5P; Diodes at Light Terminals CR9T, CR11-CR54, CR10P and CR11P.

b. Lower Tray Assembly: Diodes VR1, VR2, CR7P, CR8P, CR9P; Battery Charger Voltage Selector Switch S1, Tow Bar Fuse F1; Relay Sockets K1, K2 and K3.

c. Lights: Main Control Panel Lights DS101, DS102; Oil Service Light DS103; Fuel Service Light DS104.

2.0 SKILLS AND SPECIFICATIONS

2.1 Skills Requirement

Personnel engaged in soldering the electrical connections shall be certified to either Department of the Navy, Training for High Yield High Production Soldering Technology, Category E Operator, or Lmar Stegler, Inc, Certificate of Soldering.

2.2 Applicable Specifications

EIA-J-STD-006	Flux and Solder (Federal Spec)
MIL-HDBK-454H	Standard General Requirement for Electronic Equipment, Requirement 5, Soldering
MIL-T-81533 or TT-I-735	Trichloroethane 1, 1, 1 (Methyl Chloroform) Inhibited, Vapor Degreasing Isopropyl Alcohol

3.0 MATERIALS AND EQUIPMENT

3.1 Solder: Type RMA solder per EIA-J-STD-006.

3.2 Cleaning Solvent: Isopropyl Alcohol - Ref. TT-I735A

3.3 Cleaning Brush: #1 acid brush with bristles cut to 1/2 in.

3.4 Solder Iron: Electronic Control Soldering Station, variable temperature controlled, such as Weller WEC-D200, Ungar PR000, or equivalent.

3.5 Wire Stripper: AMP P/N 605244-1, or equivalent.

4.0 PROCEDURE AND MANUFACTURING CONTROL

4.1 The work area shall be maintained in a clean and orderly condition. All dirt, grease, oil or any other contamination shall be removed.

4.2 Verify that the soldering equipment of this specification is in proper working condition. The soldering iron tip shall be tight within the iron and oxidation scale shall be removed as necessary.

4.3 Cleaned wire leads and switch terminals shall be handled such that contamination is prevented.

4.4 During the soldering operation, a solder bridge shall be formed between soldering iron and all terminals of the connection. The solder shall then be applied on the side of the connection opposite the heat source.

4.5 The solder connection shall be completed in not less than 2 seconds nor more than 5 seconds.

4.6 Until the solder is solidified, the connection shall not be disturbed.

4.7 All flux and residual impurities shall be removed within 30 minutes of the soldering operation.

4.8 Temperature control for soldering iron shall be set by a certified solderer at an adequate temperature for the mass to be soldered.

5.0 PREPARATION

5.1 Stranded lead wires on the main control panel, lower tray assembly, panel and service lights.

5.1.1 Cut wire to appropriate length.

5.1.2 Strip insulation using wire stripper.

5.1.3 Precin wire using specified solder.

5.2 Switches and light terminals

5.2.1 Using acid brush and a cup or small pan of isopropyl alcohol , scrub terminals.

5.3 Wires to lights and switch terminals

5.3.1 Insert wire into 3/4" heat shrinkable tubing or sleeving.

5.3.2 Using tweezers or long nose pliers, the wire must pass through the hole and be wrapped around a minimum of three sides.

5.3.3 Each wire shall be in contact with the terminal side and to remain on the terminal with no assistance.

5.3.4 The wire insulation shall be 1/16" ± 1/32" away from the edge of terminal (after soldering).

5.3.5 Solder and cleaning sequence as previously specified.

5.3.6 After soldering, cover the soldering area by the 3/4" heat shrinkable tubing or sleeving per 5.3.1, then apply the heat gun to shrink the tubing. NOTE: Care should be taken to prevent damage to the adjacent parts due to the heat gun source.

6.0 INSPECTION

6.1 Visual

One hundred percent visual inspection of all soldered connections shall be performed to ensure that the connections meet the requirements of this specification.

6.2 Approved workmanship standards of Figures 1, 2, and 3 shall be used as inspection standards to determine compliance with the requirements of this specification.

6.3 Product

The main control panel, lower tray and utility lights shall conform to the following.

6.3.1 There shall be no solder splatter on adjacent parts.

6.3.2 Separation of the strands of stranded wire is not acceptable. The conductors shall not be damaged by cuts, nicks, scrapes or broken strands.

6.3.3 Conductor ends terminating on terminals shall not extend beyond the solder joint. Conductors shall be formed, positioned or held such that they will remain motionless until the solder has solidified.

6.3.4 Solder joints and adjacent areas shall be free of flux residue.

6.4 Insulation

The wire insulation shall not be frayed, burned, split or pinched to expose the conductor wire. Slight charring of insulation edge resulting from thermal stripping operations shall be acceptable.

CAD MAINTAINED. CHANGES SHALL BE INCORPORATED BY THE DESIGN ACTIVITY.

FIND NO.	ZONE	REVISIONS	PART OR IDENTIFYING NO.	QTY REQ'D	NOMENCLATURE OR DESCRIPTION	SPECIFICATION	MATERIAL

PARTS LIST

MS03A012

FO 34. 83-15074 Soldering Instructions (Sheet 1 of 3).

6.5 Rejection Criteria

The following defects are unacceptable in solder joints:

a. Rosin connection

1. Connection has little physical strength, and reduced or no continuity, because of the layer of solidified flux between the wire and terminal.

2. Area of unvaporized flux may also appear on the solder surface.

3. Solder does not feather out on wire or terminal.

b. Cold solder connection

1. Flux has been vaporized, but heat was withdrawn before solder feathered out.

2. Solder does not feather out on wire or terminal.

c. Fractured connection

1. Connection will appear frosty and granulated because of movement of wire or terminal during solder solidification.

d. Insufficient solder connection

1. This connection has characteristics similar to a good solder connection, except that its mechanical strength or electrical conductivity may have been adversely affected because of insufficient solder.

2. The width of the fillet at the narrowest point is less than the diameter of the wire (undercut).

e. Excessive solder connection

1. This connection has characteristics similar to a good condition except that the solder obscures the outline of the wire, the amount of wrapping around the terminal, the outline of the terminal, or the outline of the top or milled portion of a solder cap.

f. Charring, burning or other damage to the insulation.

g. Splattering of solder on adjacent connections or components.

h. Solder points, peaks and icicles.

i. Excessive wicking.

j. Unsoldered connection.

k. Birdcage leads.

l. Cut or nicked leads or wires.

m. Stretched or scraped leads or wires.

n. Unclean connection (e.g., lint, foreign material, dirt, etc., imbedded in connection).

o. Poor wetting.

p. Visible bare copper or bare metal.

q. Improper lead clinch.

r. Excessive lead length.

s. Insufficient lead length.

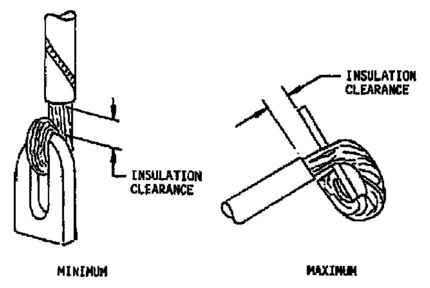
t. Insufficient lead clinch.

u. Overheat connections.

v. Pattern delaminated.

w. Bridging (shorting).

x. Flux residues, oils, greases, or foreign materials on assembly.



NOTE: Wires shown are untinned for clarity.

FIGURE 1

Soldering Items:

1.	Main Control Panel:	Engine Control Switch S1 Current Limit Selector Switch S11 AC Phase Selector Switch S9 Press to Test Switch S4 Panel Lights DS101 and DS102
2.	Lower Tray Assy:	Diodes CR7P, CR8P and CR9P Battery Charger Selector Switch S1 Tow Bar Fuse F1
3.	Service Lights:	Oil Service Light DS103 Fuel Service Light DS104

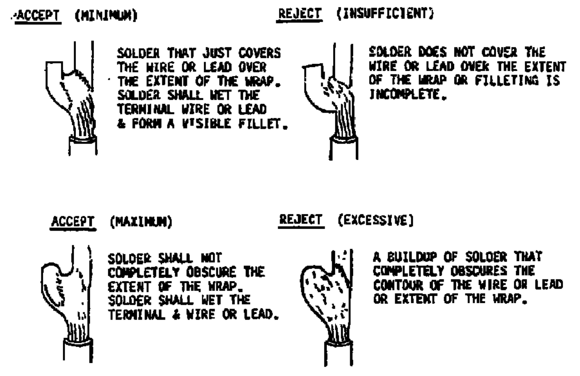


FIGURE 2

Soldering Items:

1.	Main Control Panel:	Battery Output Switch Diode CR6P Comp/Gen Hi Temp Light Diodes CR9E and CR5X AC Over Voltage Light Diode CR1X AC Under Voltage Light Diode CR2X AC Over Current Light Diode CR3X AC Under Frequency Light Diode CR4X DC Voltage Fault Light Diode CR11P DC Over Current Light Diode CR10P
2.	Lower Tray Assy:	Diodes VR1 and VR2

MS038013

FO 34. 83-15074 Soldering Instructions (Sheet 2 of 3).

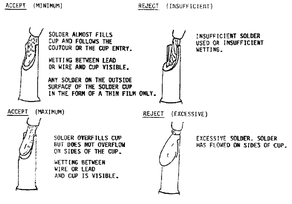


FIGURE 3

Soldering Items:

1. Lower Tray Assy: Relay Sockets K1, K2 and K3

7.0 Training and certification.

7.1 Achievement of certified status. To be certified in categories B, C, and H, personnel shall attend and successfully complete an 80-hour formal training program conducted by the Naval Weapons Center, China Lake, CA 93555 or other facility, including the Naval Avionics Center, Indianapolis, IN 46218, approved by the Naval Weapons Center. To be certified in categories D and E, personnel shall attend and successfully complete a 40-hour formal training program.

7.1.1 Category A - senior examiner.

7.1.1.1 Category A personnel. Category A senior examiners shall be Government personnel who are actively involved in the research and development of methods, techniques, and standards and have been certified.

7.1.1.2 Category A authority. Category A personnel are authorized to train and to require recertification of personnel of all other categories. Category A personnel are also authorized to monitor soldering processes, workmanship, training program, and facilities for conformance to this specification. Category A personnel may delegate selected tasks to category B personnel.

7.1.2 Category B - instructor/examiner.

7.1.2.1 Category B personnel. Category B personnel shall be Government personnel who have been certified after satisfactory completion of an 80-hour soldering course conducted in accordance with 7.0. Category B personnel certification and performance shall be reviewed on an annual basis.

7.1.2.2 Category B authority. Category B personnel are authorized to require recertification of personnel of categories C, D, E, F, and H; to inspect contractor soldering processes, training, and workmanship for conformance to this specification, and to perform soldering operations or inspections at Government facilities for conformance with this specification.

7.1.2.3 Category B training authority. Category B personnel are authorized to train other Government personnel, categories D, E, and H, to this specification and, when designated by category A personnel, to train categories B, C, and H personnel to this specification.

7.1.3 Category C - instructor/examiner.

7.1.3.1 Category C personnel. Category C personnel shall be contractor personnel certified after satisfactory completion of an 80-hour soldering course (see 7.1). Category C personnel certification and conformance shall be reviewed on an annual basis.

7.1.3.2 Category C authority. Category C personnel are authorized to train or require recertification of contractor personnel in categories D, E, and H; to require recertification of category B contractor personnel; to monitor soldering processes and workmanship for compliance to this specification; to perform inspections for conformance with this specification; and to determine the operations and procedures that are appropriate for a category B contractor inspector or operator.

7.1.4 Category D - inspector.

7.1.4.1 Category D personnel. Category D contractor personnel shall be certified by the contractor after satisfactory completion of a 40-hour soldering course conducted by a certified category C instructor/examiner. Category D Government personnel shall be certified by the appropriate facility after satisfactory completion of a 40-hour soldering course conducted by a certified category B instructor/examiner.

7.1.4.2 Category D authority. Category D personnel are authorized to perform inspections for conformance with this specification.

7.1.5 Category E - operator.

7.1.5.1 Category E personnel. Category E contractor personnel shall be certified by the contractor after satisfactory completion of a 40-hour soldering course conducted by a certified category C instructor/examiner. Category E Government personnel shall be certified by the appropriate facility after satisfactory completion of a 40-hour soldering course conducted by a certified category B instructor/examiner.

7.1.5.2 Category E authority. Category E personnel are authorized to perform soldering operations in conformance with this specification.

7.1.6 Category R - restricted operator/inspector.

7.1.6.1 Category R personnel. Category R personnel shall be selected for performance of a limited number of operations or procedures. The training program shall, as a minimum, include the operations or procedures for which the category R is to be certified. Functions or operations using a category R operator or inspector require prior approval of the procuring activity. Similar operations conducted by a subcontractor requires approval of the prime contractor and is subject to review by category A, B, or H Government personnel in accordance with 7.1.1.2, 7.1.2.2 and 7.1.7.1.

7.1.7 Category H - process examiner.

7.1.7.1 Category H personnel. Category H personnel shall be certified by the Government after satisfactory completion of an 80-hour soldering course, with primary emphasis on inspection and machine processes, conducted in accordance with 7.1. Category H personnel certification and performance shall be reviewed on an annual basis.

7.1.7.2 Category H authority. Category H Government personnel are authorized to recommend recertification of category H contractor personnel and personnel of categories C, D, E, and R, to inspect soldering processes and workmanship for conformance to this specification, to perform quality assurance actions, and to participate in material review board (MRB) decisions. Category H contractor personnel are authorized to recommend recertification of contractor personnel of categories D, E, and R, to inspect contractor soldering processes and workmanship for conformance to this specification, to perform quality assurance actions, and to participate in material review board decisions.

MS038014

FO 34. 83-15074 Soldering Instructions (Sheet 3 of 3).

By Order of the Secretary of the Army:

GEORGE W. CASEY, JR.
General, United States Army
Chief of Staff

Official:

JOYCE E. MORROW
Administrative Assistant to the
Secretary of the Army
0911207

Distribution:
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These are the instructions for sending an electronic 2028

The following format must be used if submitting an electronic 2028. The subject line must be exactly the same and all fields must be included; however only the following fields are mandatory: 1, 3, 4, 5, 6, 7, 8, 9, 10, 13, 15, 16, 17, and 27.

From: “Whomever” whomever@wherever.army.mil
To: 2028@redstone.army.mil

Subject: DA Form 2028

1 ***From: Joe Smith***
2 *Unit: home*
3 ***Address: 4300 Park***
4 ***City***: Hometown
5 ***St: MO***
6 ***Zip: 77777***
7 ***Date Sent***: 19--OCT--93
8 ***Pub no***: 55--2840--229--23
9 ***Pub Title: TM***
10 ***Publication Date***: 04--JUL--85
11 *Change Number*: 7
12 *Submitter Rank*: MSG
13 ***Submitter FName***: Joe
14 *Submitter MName*: T
15 ***Submitter LName***: Smith
16 ***Submitter Phone***: 123--123--1234
17 ***Problem: 1***
18 *Page: 2*
19 *Paragraph: 3*
20 *Line: 4*
21 *NSN: 5*
22 *Reference: 6*
23 *Figure: 7*
24 *Table: 8*
25 *Item: 9*
26 *Total: 123*

27 ***Text***:
This is the text for the problem below line 27.

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 25--30; the proponent agency is ODISC4.	Use Part II (*reverse*) for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/ Supply Manuals (SC/SM)	DATE 8/30/02

TO: (*Forward to proponent of publication or form)(Include ZIP Code*)	FROM: (*Activity and location)(Include ZIP Code*)
Commander, U.S. Army Aviation and Missile Command ATTN: AMSAM--MMC--MA--NP Redstone Arsenal, AL 35898	MSG, Jane Q. Doe 1234 Any Street Nowhere Town, AL 34565

PART 1 - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER	DATE	TITLE
TM 9-1005-433-24	16 Sep 2002	Organizational, Direct Support, And General Support Maintenance Manual for Machine Gun, .50 Caliber M3P and M3P Machine Gun Electrical Test Set Used On Avenger Air Defense Weapon System

ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO. *	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON
1	WP0005 PG 3		2			Test or Corrective Action column should identify a different WP number.

* *Reference to line numbers within the paragraph or subparagraph.*

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/ AUTOVON, PLUS EXTENSION	SIGNATURE
MSG, Jane Q. Doe, SFC	788-1234	

TO: (Forward direct to addressee listed in publication)	FROM: (Activity and location) (Include ZIP Code)	DATE
Commander, U.S. Army Aviation and Missile Command ATTN: AMSAM-MMC-MA-NP Redstone Arsenal, AL 35898	MSG, Jane Q. Doe 1234 Any Street Nowhere Town, AL 34565	8/30/02

PART II - REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION NUMBER	DATE	TITLE

PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION

PART III - REMARKS (*Any general remarks or recommendations or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.*)

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TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
1 decimeter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 32.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
1 decigram = 10 centigrams = 1.54 grains
1 gram = 10 decigram = .035 ounce
1 decagram = 10 grams = .35 ounce
1 hectogram = 10 decagrams = 3.52 ounces
1 kilogram = 10 hectograms = 2.2 pounds
1 quintal = 100 kilograms = 220.46 pounds
1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliters = .34 fl. ounce
1 deciliter = 10 centiliters = 3.38 fl. ounces
1 liter = 10 deciliters = 33.81 fl. ounces
1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10 dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
inches	centimeters	2.540	ounce-inches	Newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29,573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	Newton-meters	1.356	metric tons	short tons	1.102
pound-inches	Newton-meters	.11296			

Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

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