ARMY TM 1-1730-229-13
AIR FORCE TO 35C2-3-473-1

TECHNICAL MANUAL

OPERATOR AND FIELD 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. 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)

* This manual supersedes TM 1-1730-229-13, dated 29 April 2009, including all changes.

HEADQUARTERS, DEPARTMENT OF THE ARMY
17 DECEMBER 2010

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 prior to 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 prior to 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. Cleaning compound 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

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HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C., 17 December 2010

TECHNICAL MANUAL

OPERATOR AND FIELD MAINTENANCE MANUAL

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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)

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-MMA-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 supersedes TM 1-1730-229-13, dated 29 April 2009 including all changes.

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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 1024250. 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 bold upper case letters.

Secondary level paragraphs are denoted by bold 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) Army 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,

HYDRAULIC, PNEUMATIC (AGPU)

WHEEL MOUNTED, SELF-PROPELLED, TOWABLE

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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

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 has 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 model 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 750-8 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-MMA-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
CB	Circuit Breaker
cc	Cubic Centimeter

LIST OF ABBREVIATIONS/ACRONYMS – CONTINUED

Term	De.nition – Continued
CCR	Closed Circuit Refueling
ccw	Counter Clockwise
CG	Center of Gravity
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
GTE	Gas Turbine Engine
GTED	Gas Turbine Engine Driven
HOT	High Oil Temperature
H/P	High Pressure
HYD	Hydraulic
HZ	Hertz
IAT	Internal Air Transport
ID	Identification; Internal Diameter
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
L/P	Low Pressure
m	Meter
M	Monthly
MAC	Maintenance Allocation Chart
MAX	Maximum
MAX. CONT.	Maximum Continuous
MEP	Mobile Electric Power
MIN	Minimum
MOC	Maintenance Operational Check

LIST OF ABBREVIATIONS/ACRONYMS – CONTINUED

Term	Definition – Continued
MWO	Modification Work Order
n.c.	Normally Closed
n.o.	Normally Open
NEG	Negative
NI-CAD	Nickel Cadmium
No.	Number
NSN	National Stock Number
OCONUS	Outside Continental United States
OD	Outer Diameter
PAM	Pamphlet
PF	Power Factor
PH	Phase
PM	Permanent Magnet
PMC	Preventive Maintenance Checklist
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 Gauge
QD	Quick Disconnect
RES	Resistor
RPM	Revolutions per Minute
RPSTL	Repair Parts and Special Tools List
SECM	Shop Equipment Contact Maintenance
SMR	Source Maintenance and Recoverability
SCV	Surge Control Valve
SW or S	Switch
TAMMS	Total Army Maintenance Management System
TASMG	Theater Aviation Sustainment Maintenance Ground
TB	Technical Bulletin; Terminal Board
TEMP	Temperature
TM	Technical Manual
TO	Technical Order
TRU	Transformer Rectifier Unit
Trans	Transmitter
U/I	Unit of Issue
ULLS-A	United Level Logistic System Aviation
ULLS-G	United Level Logistic System Ground
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

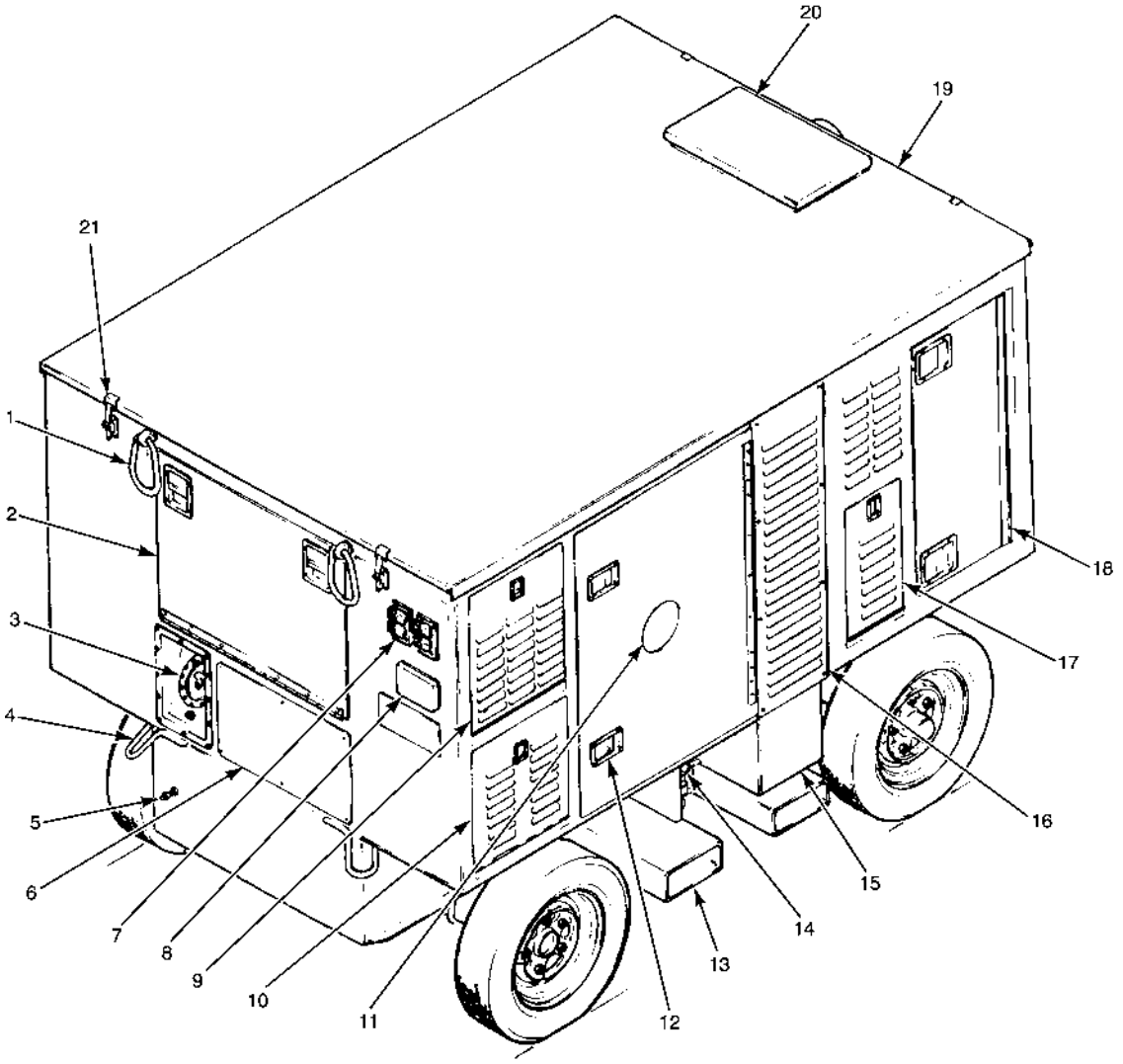
General

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 noted that the tow vehicle pintle should not exceed 28 inches from ground surface to center of pintle height. The AGPU provides simultaneously 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, C-12, CH-47, OH-58, UH-60, AH-1 and UH-1. 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.

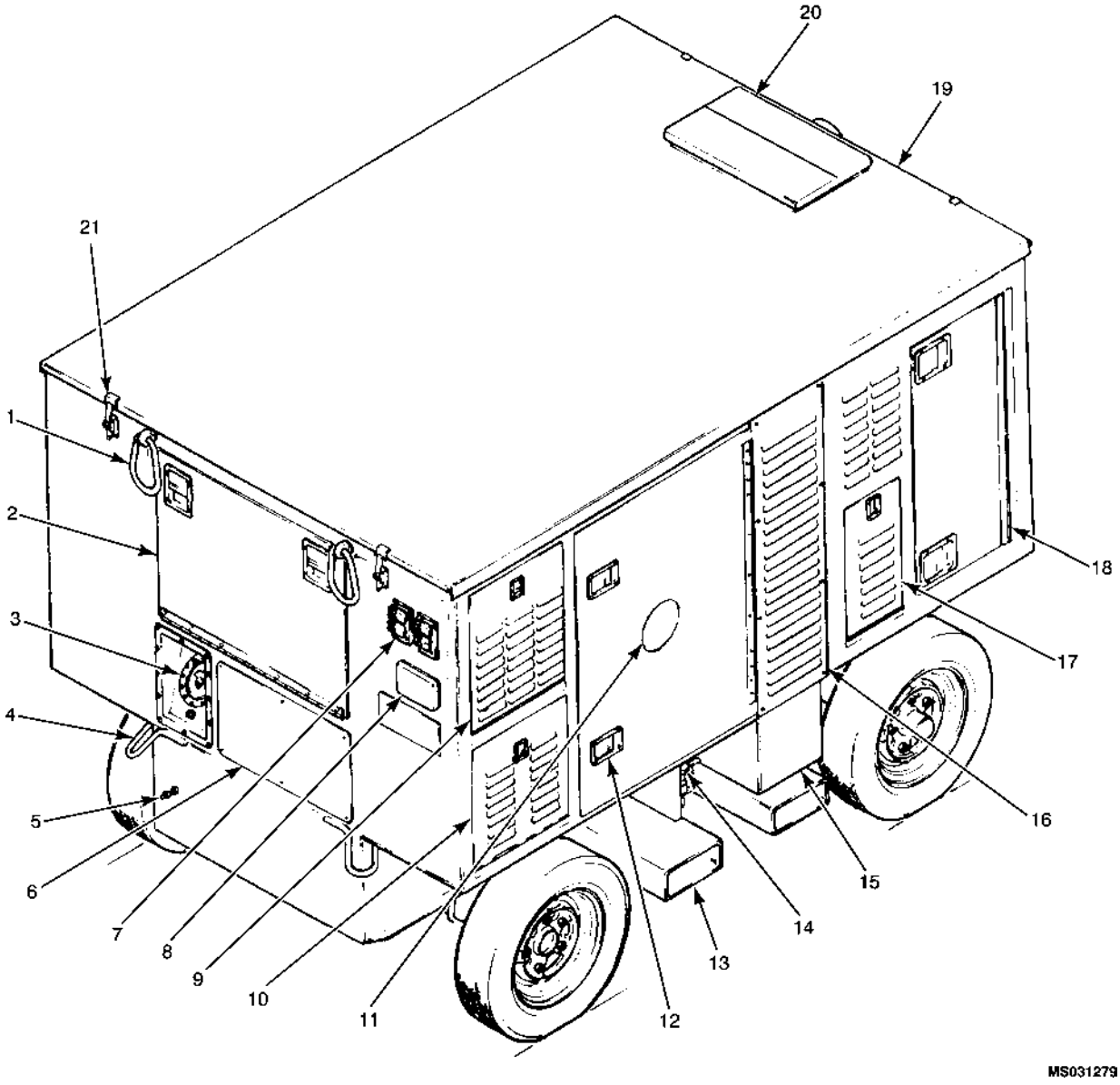
EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



1. Lifting Eye (4)
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 (Fuel)
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
21. Hood Latches (4)

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

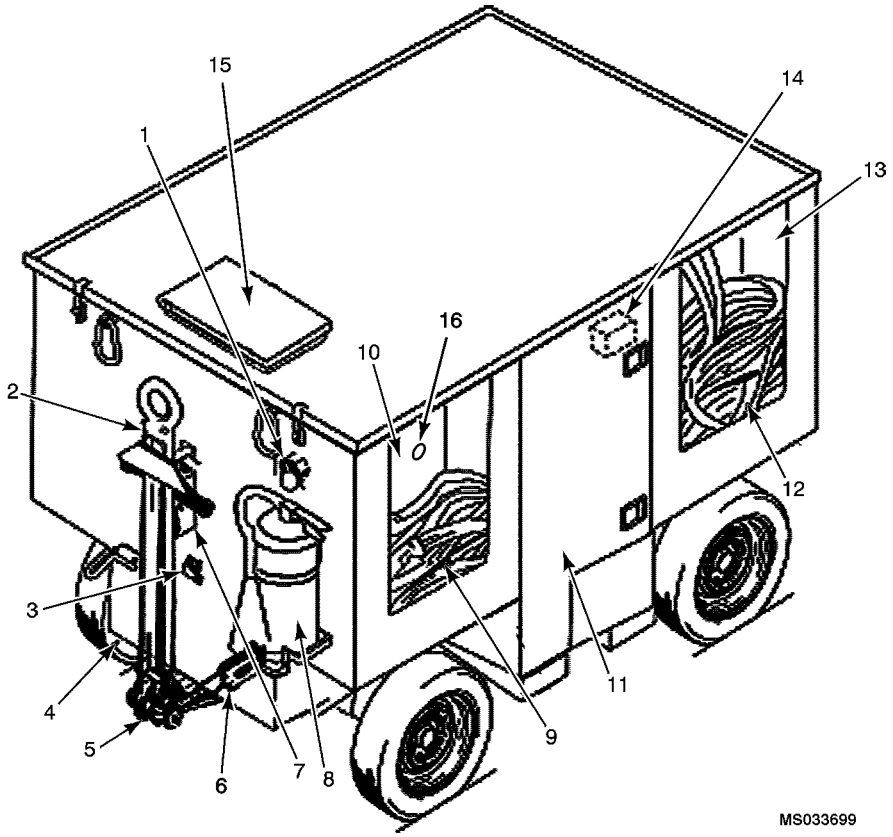
EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



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. Dual Exhaust Flapper (2)
7. Convenience Outlets	14, Four Way Valve (Fuel)	21. Hood Latches (4)

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

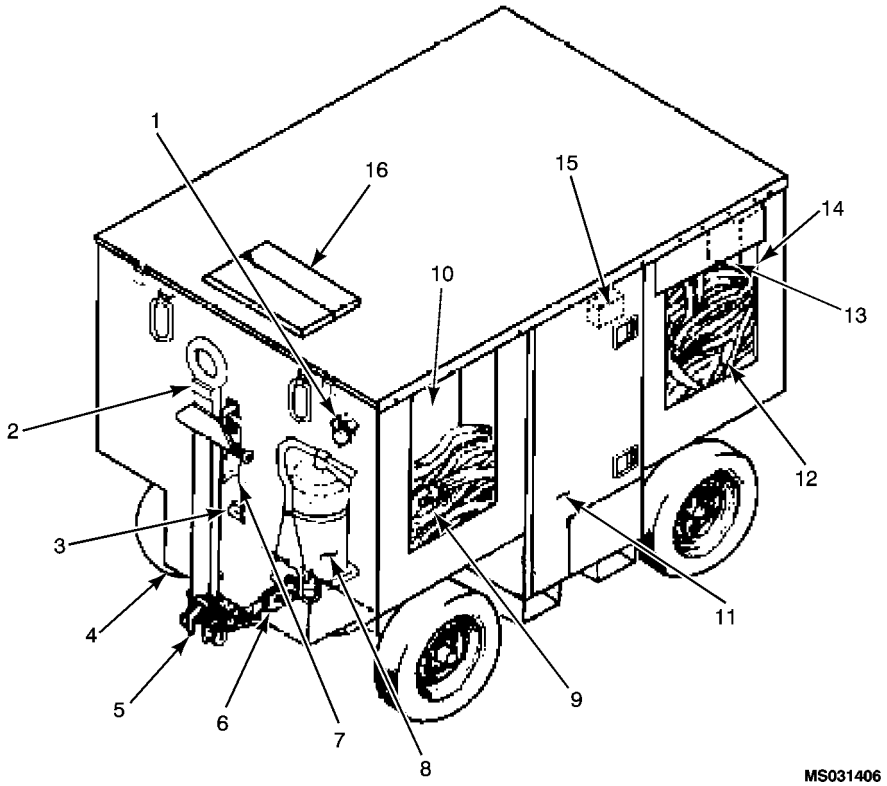
EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



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
14. DC/AC Convertor, 110 VAC, 60 HZ
15. Exhaust Flapper
16. De-Ice Port

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

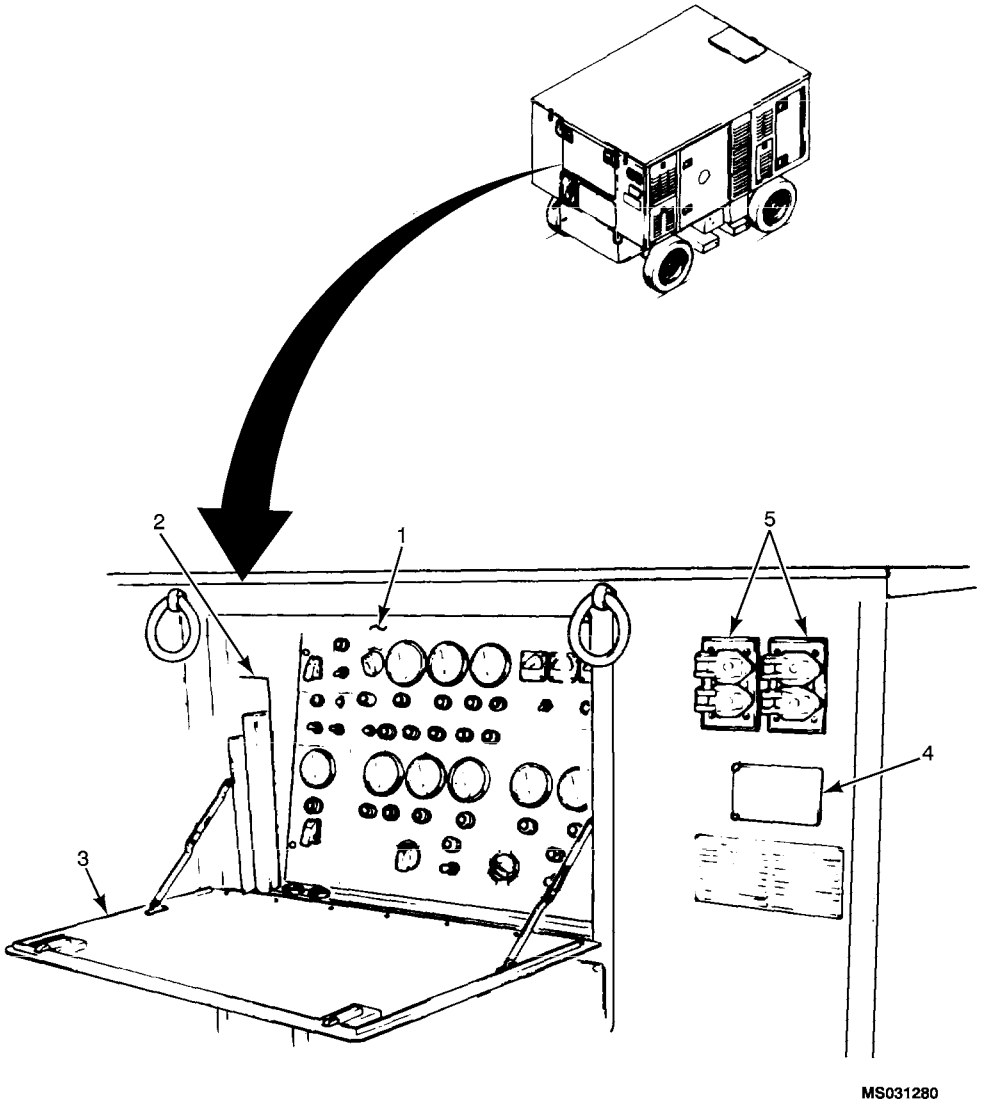
EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



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

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

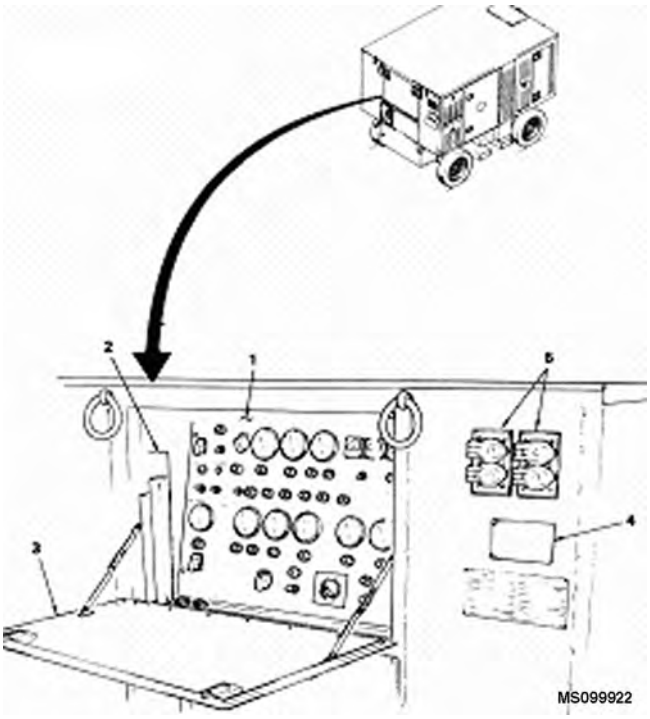
EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



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).

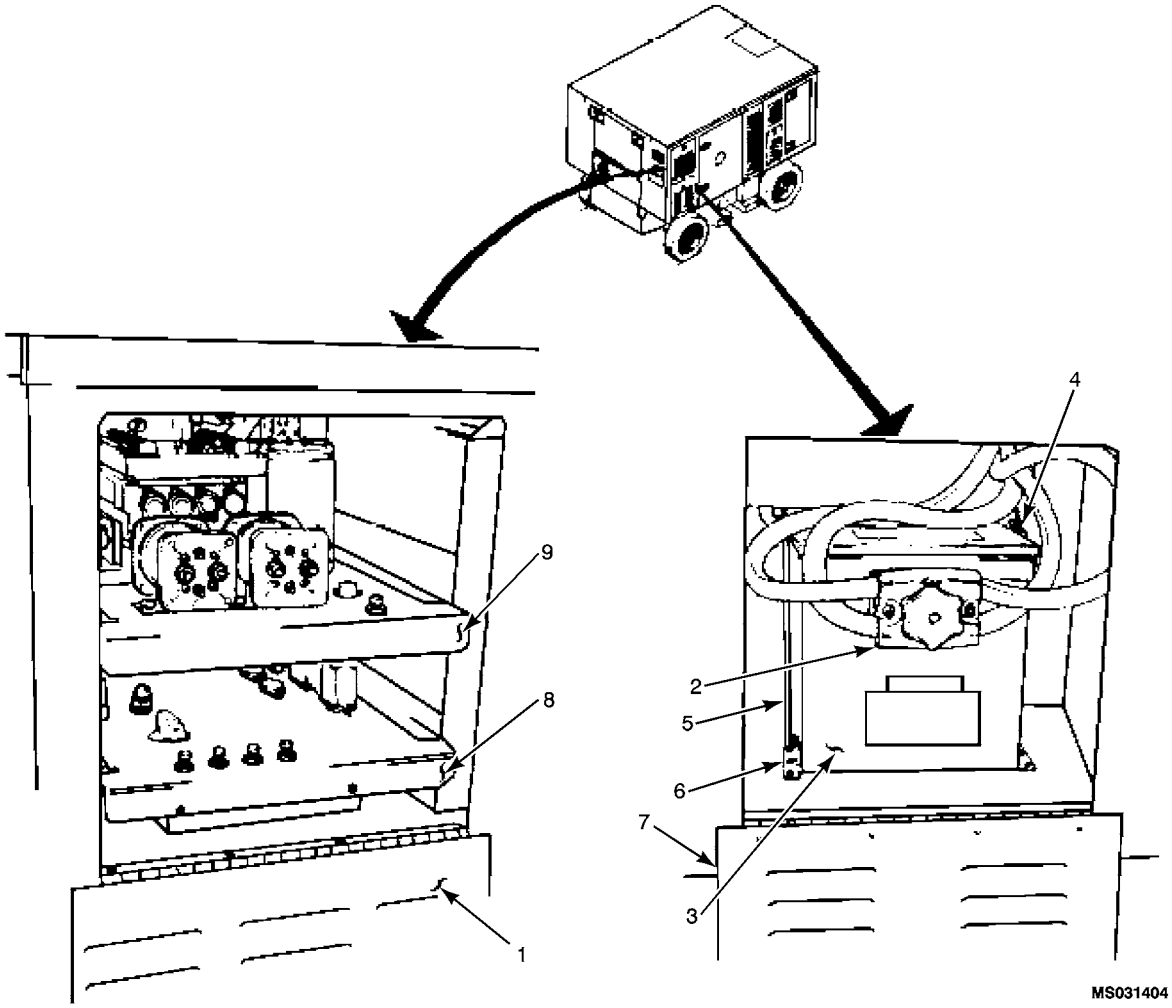
EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



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).

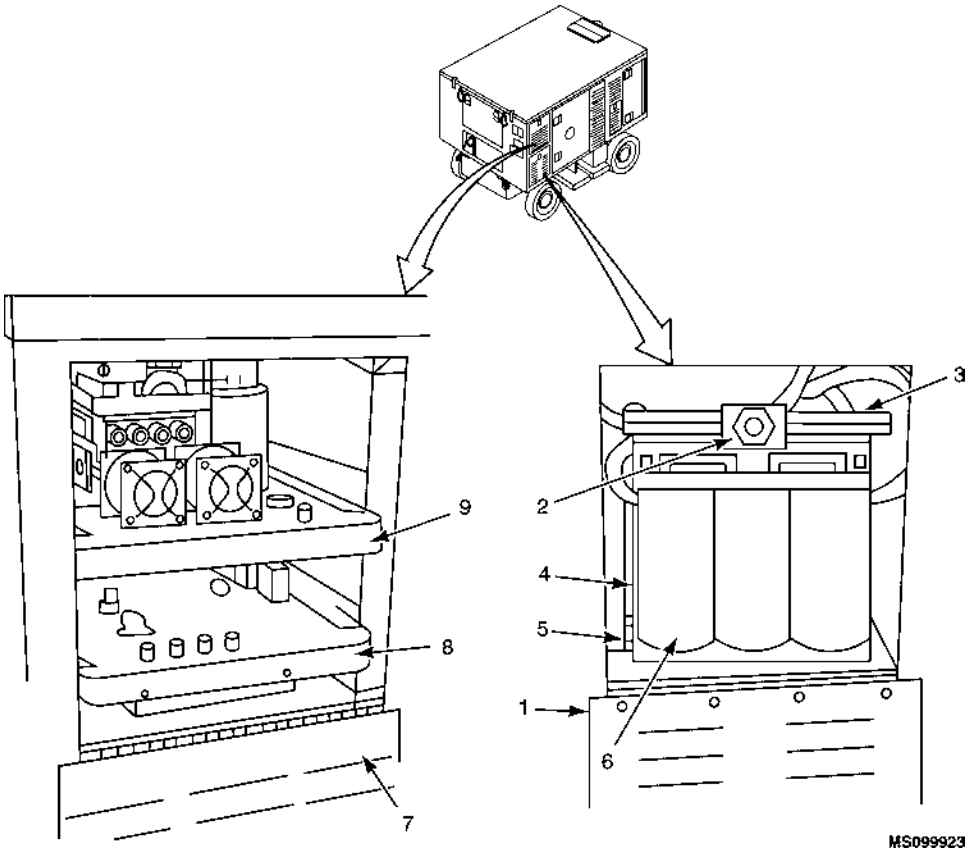
EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



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).

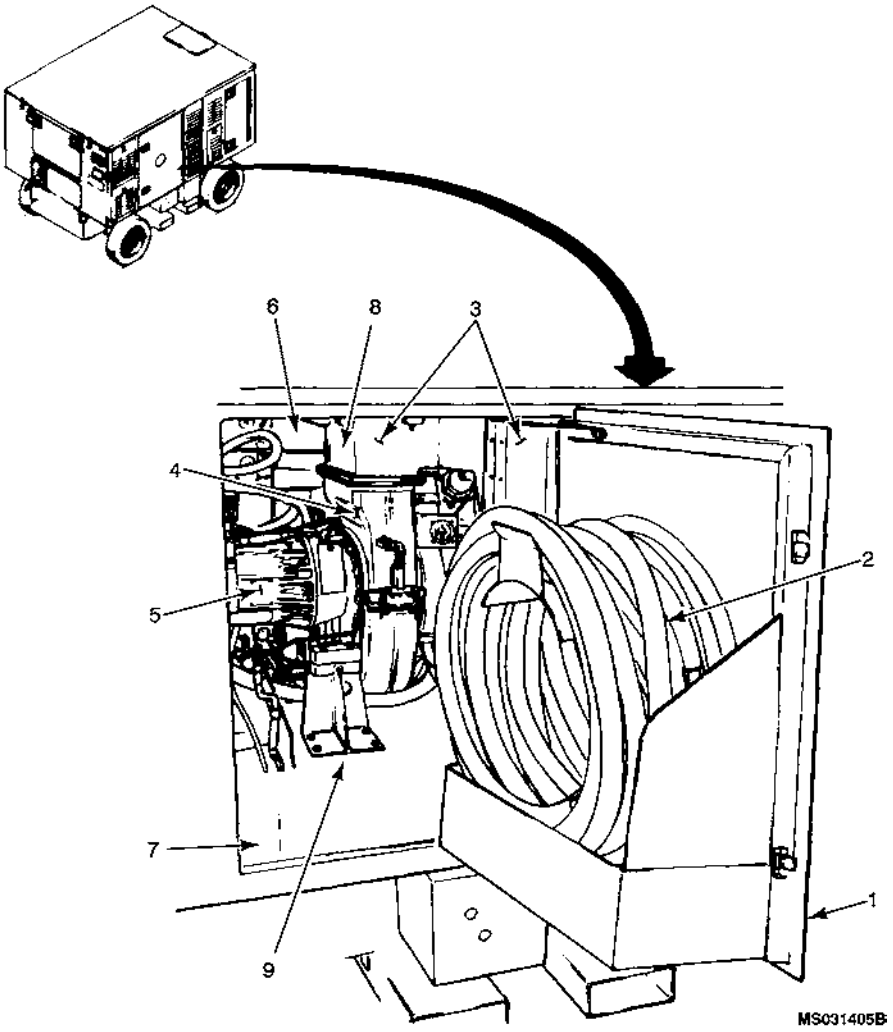
EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



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

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

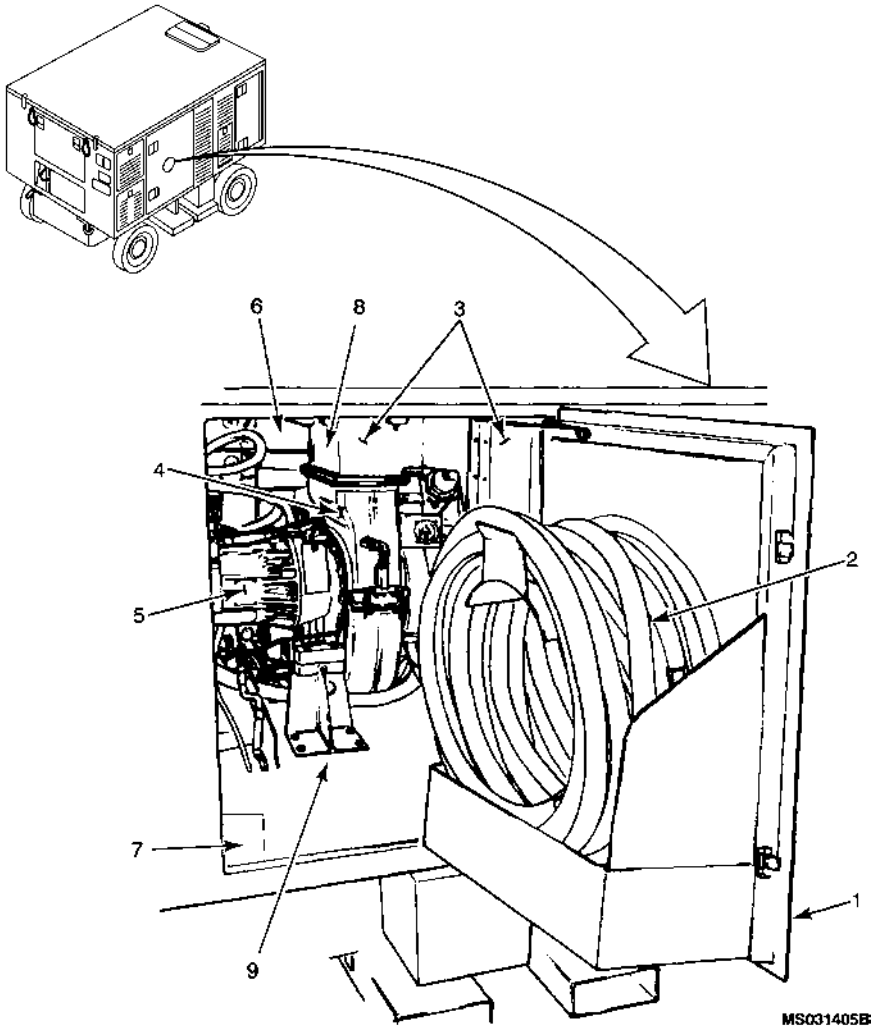
EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



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

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

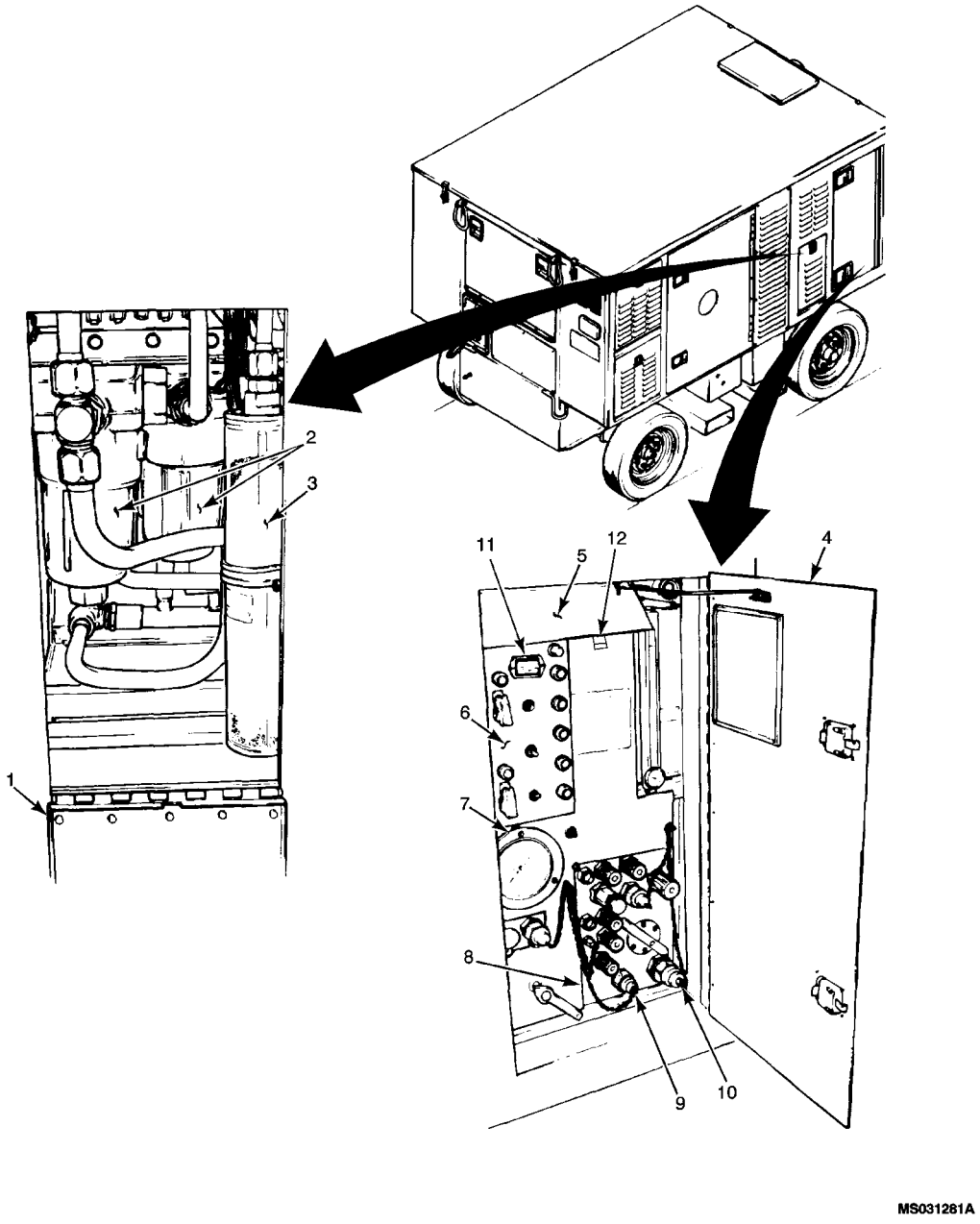
EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



1. Door, Access
2. Hydraulic Hoses (Storage)
3. Air Intake Duct Assembly
4. Engine
5. Alternator
6. Purge/Oil Sample 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).

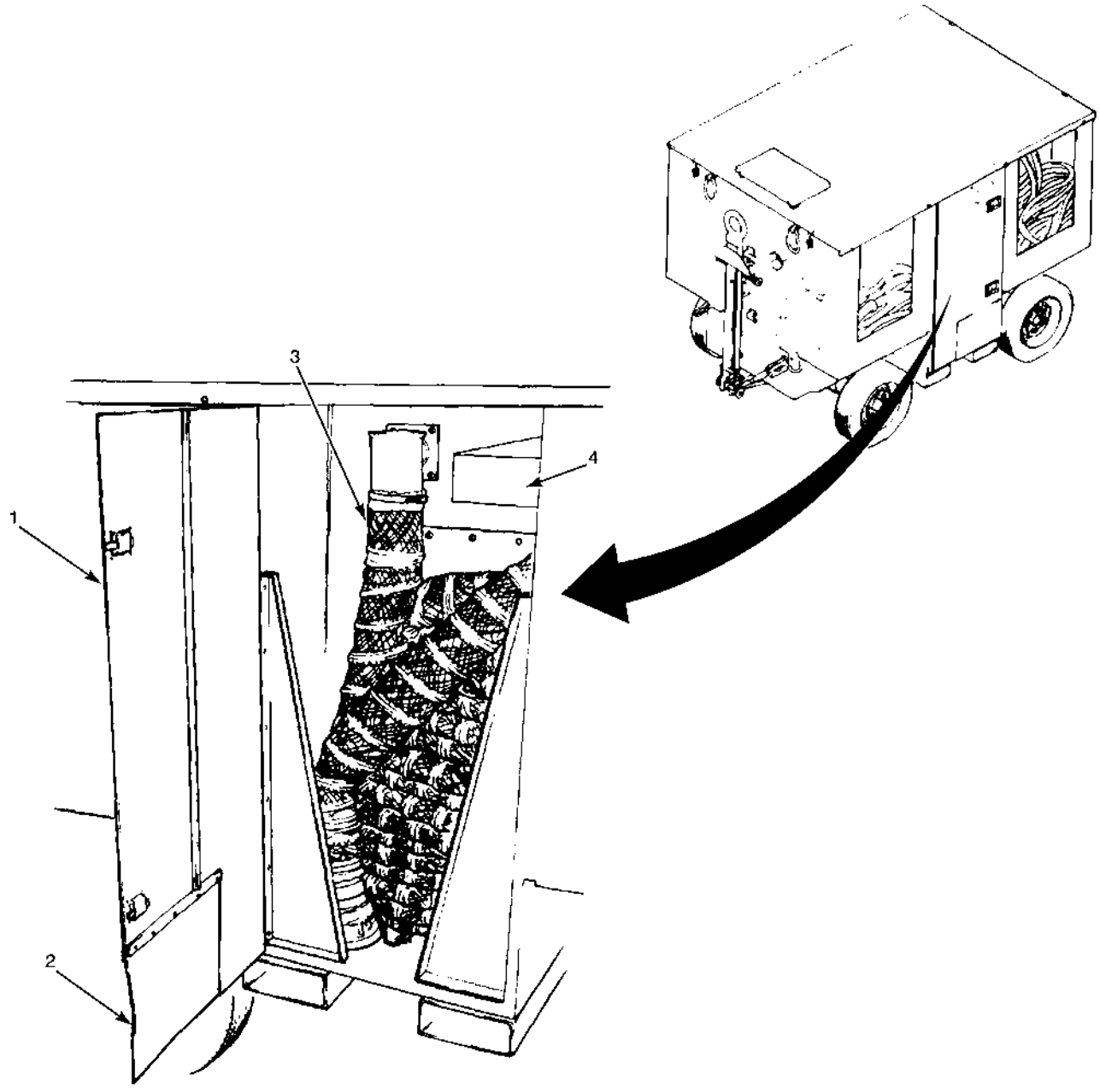
EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



1. Access Door, Hydraulic Filters
2. Hydraulic Filters
3. Vent Dryer
4. Access Door, Hydraulic 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
12. Plug, Reservoir Breather

Figure 11. Hydraulic Filters and Control Panel (All Models).

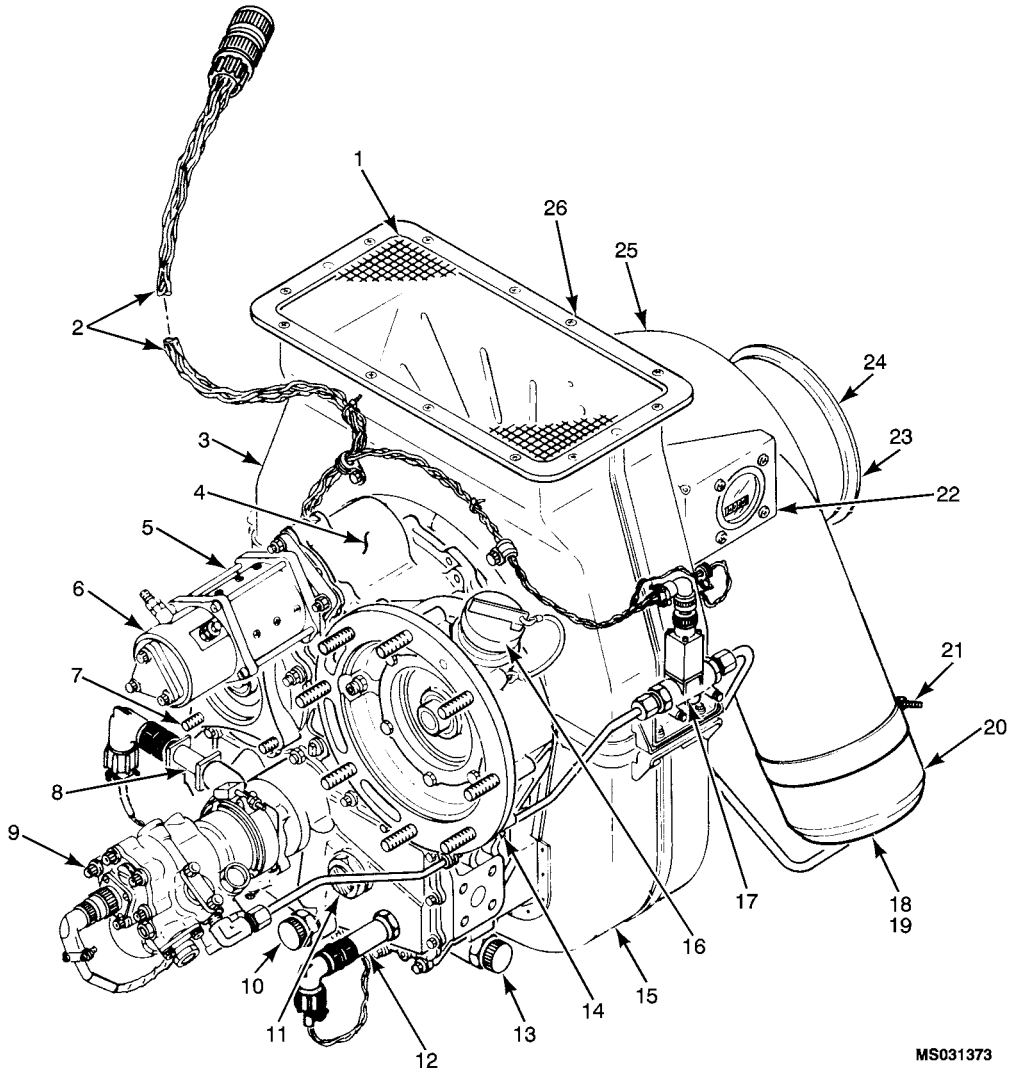
EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



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 (All Models).

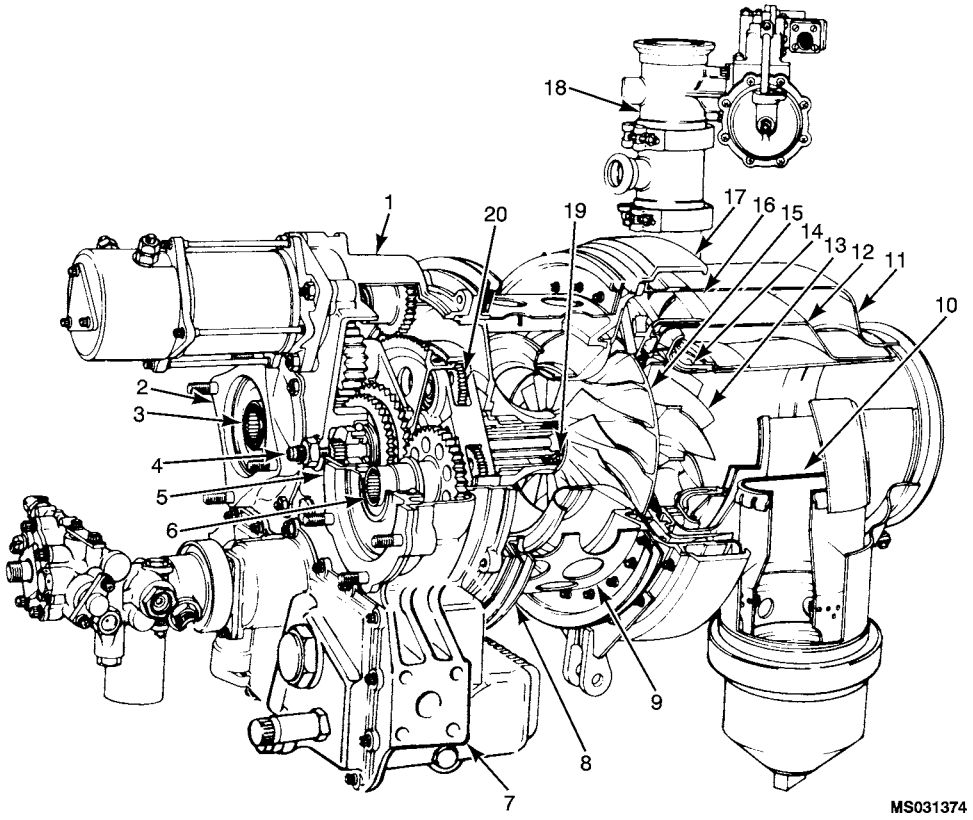
EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



1. Inlet Duct Screen
2. Wiring Harness
3. Inlet Duct (Upper Half)
4. Gearbox 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 (gearbox assembly)
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) (All Models).

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



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

Figure 14. Engine/Gearbox Assembly, Cutaway View (All Models).

ENGINE/GEARBOX ASSEMBLY

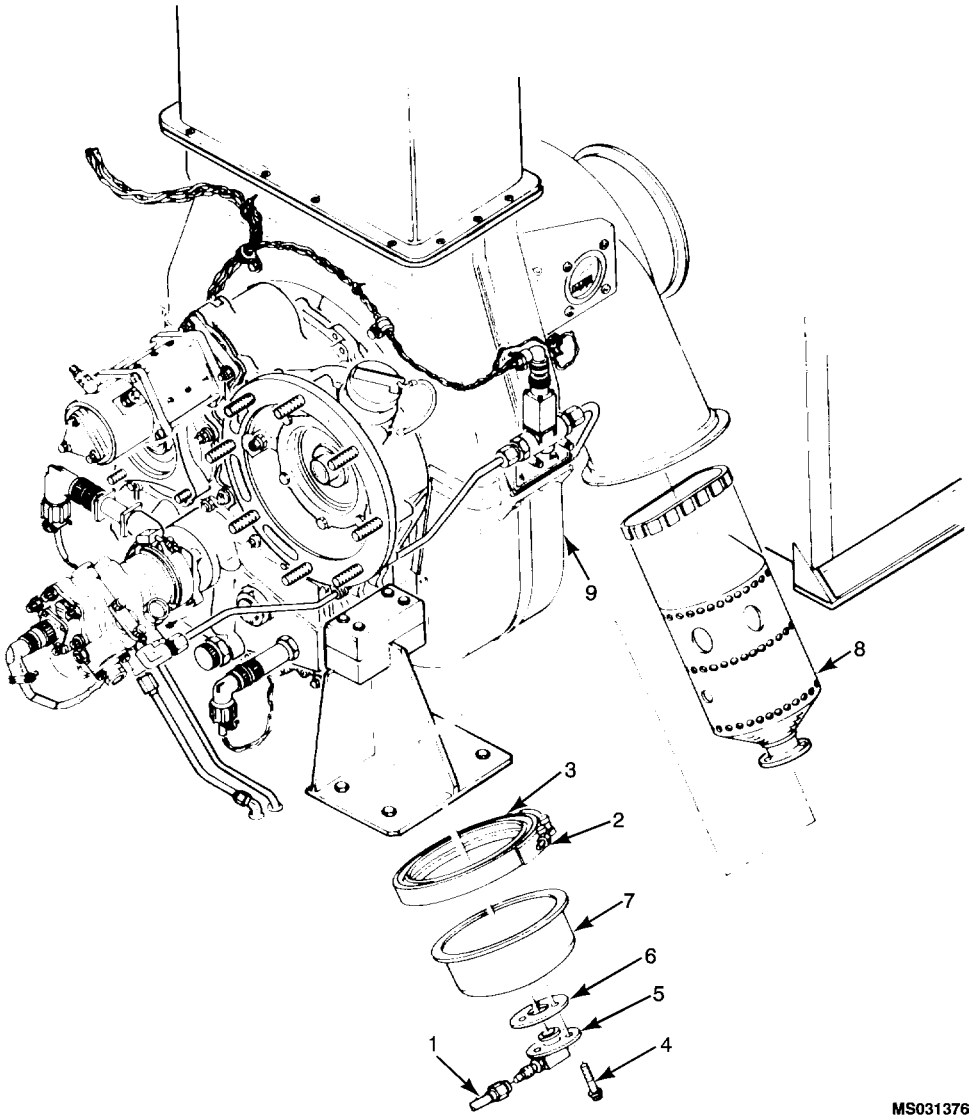
The Gas Turbine Engine (GTE), Figure 13, provides pneumatic power in the form of clean compressed air for operation of the aircraft main engine start system, environmental system and other equipment or systems. The engine also provides mechanical power in the form of rotational shaft power for driving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

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED

Compressor Section

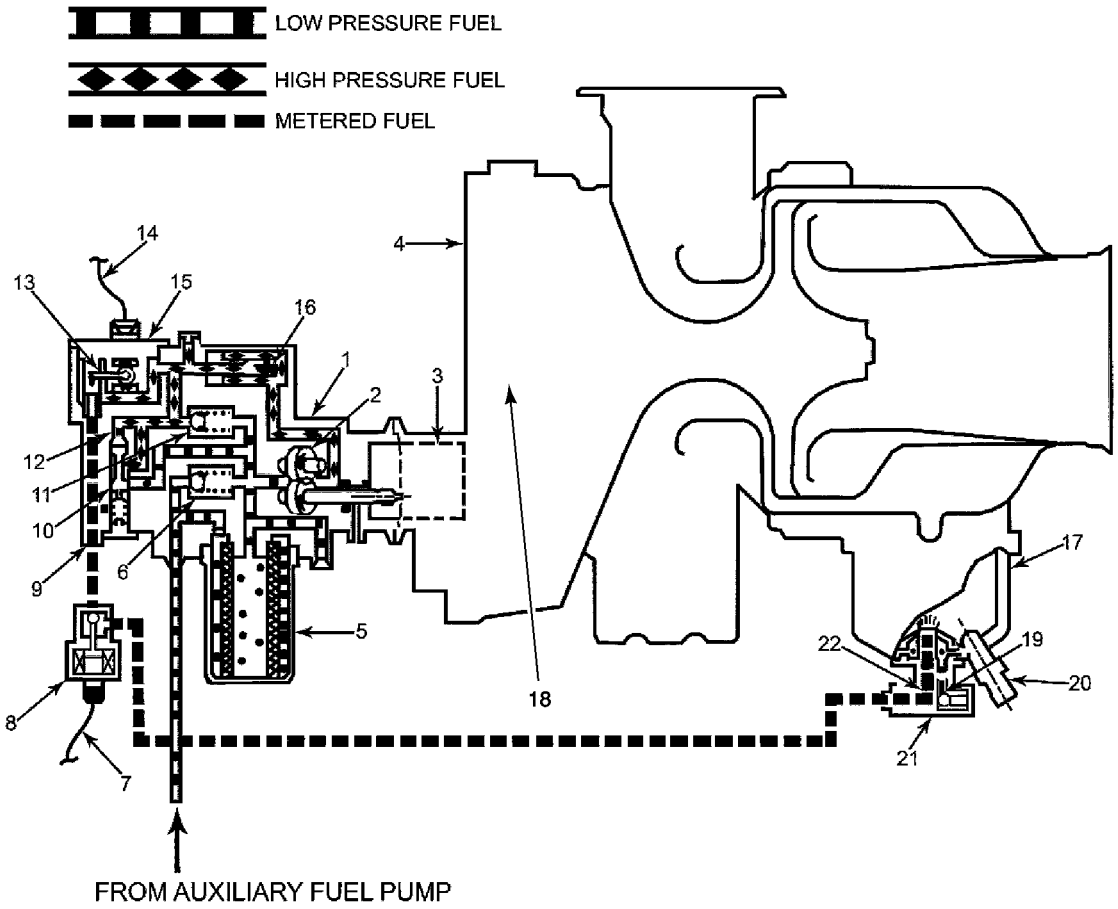
The compressor section, Figure 14, consists of a compressor inlet housing (Figure 14, Item 9), a compressor housing assembly, a single stage centrifugal compressor rotor (Figure 14, Item 15) and a diffuser. The compressor provides compressed air to the turbine section and for external use as bleed air.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

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



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

Figure 16. Fuel Control Schematic (All Models).

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 gearbox 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.

Gearbox Assembly

The gearbox assembly (Figure 13, Item 4) provides pads (Figure 13, Item 7 and Item 14) for mounting and driving a hydraulic pump and a generator/altenator. The gearbox 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 gearbox 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).

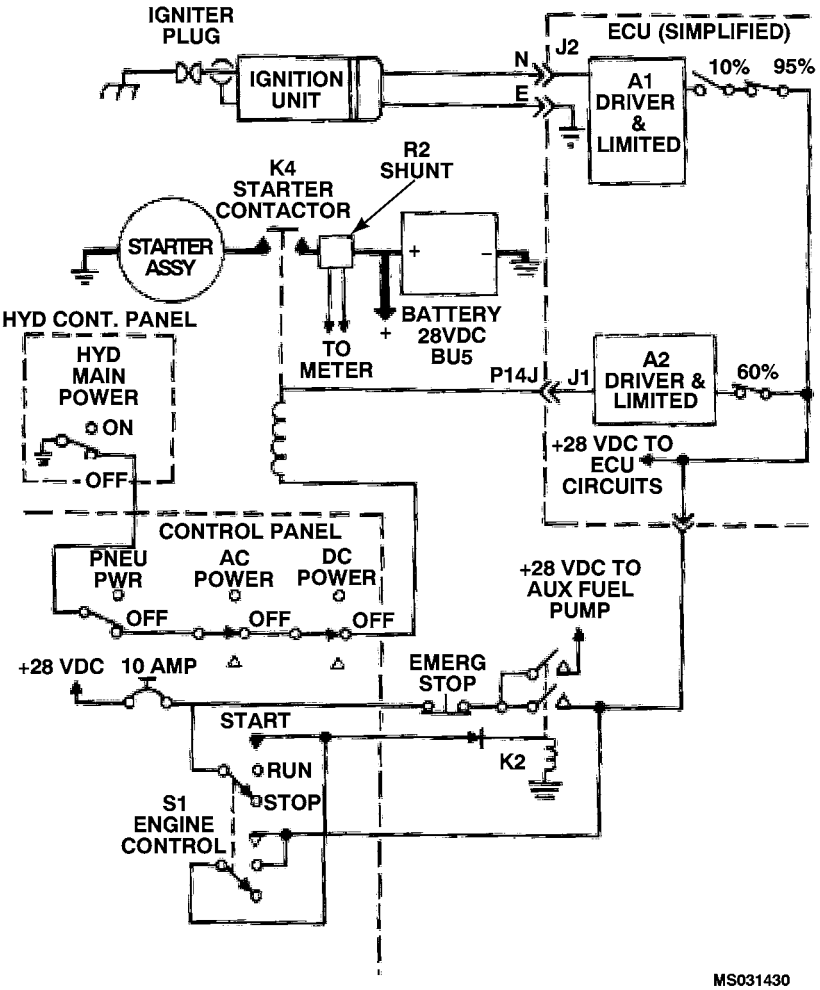


Figure 17. Ignition and Starter Circuits (All Models).

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 0057 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). (WP 0051 00 through WP 0054 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 gearbox assembly 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 0090 00, Figure 1, Item 3) 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).

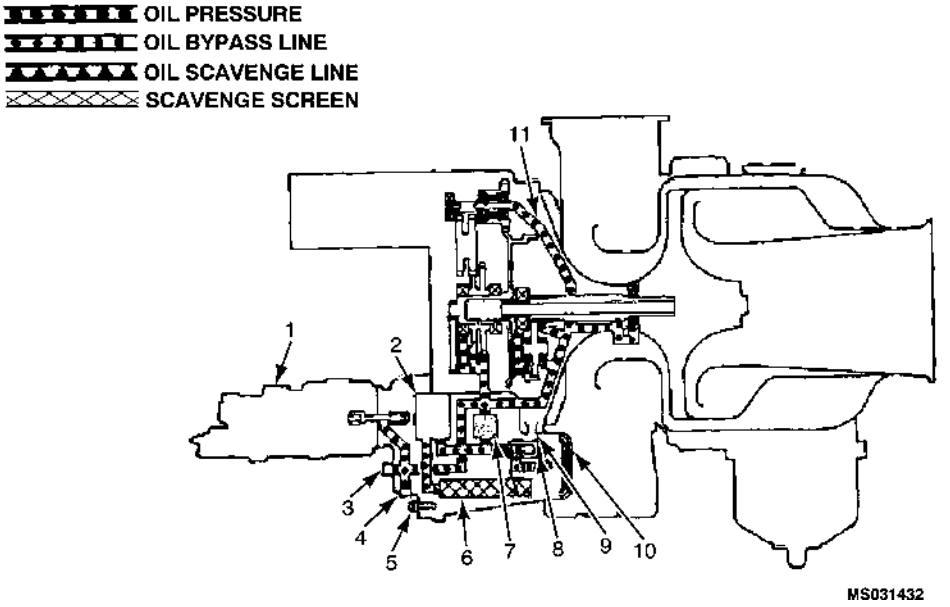
Shutdown Fuel Solenoid

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 (All Models).

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 0052 00 and WP 0053 00).

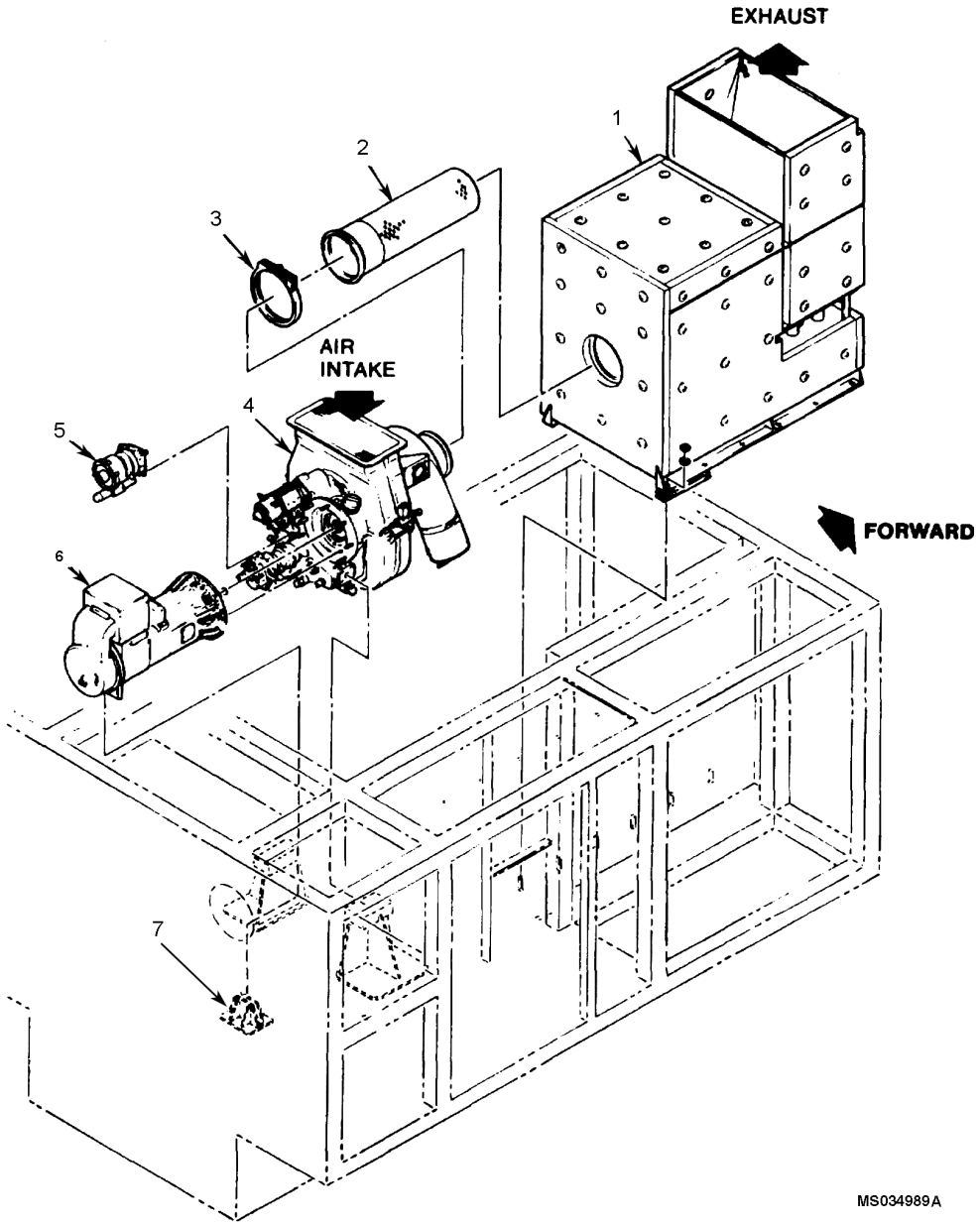
The rotary oil pump assembly is located in the oil pump housing on the gearbox assembly. The pump assembly receives oil from the oil sump through a suction tube connected to a pickup and strainer. The pump supplies oil under pressure to the oil pressure regulating valve, which regulates the oil pressure 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

NOTE

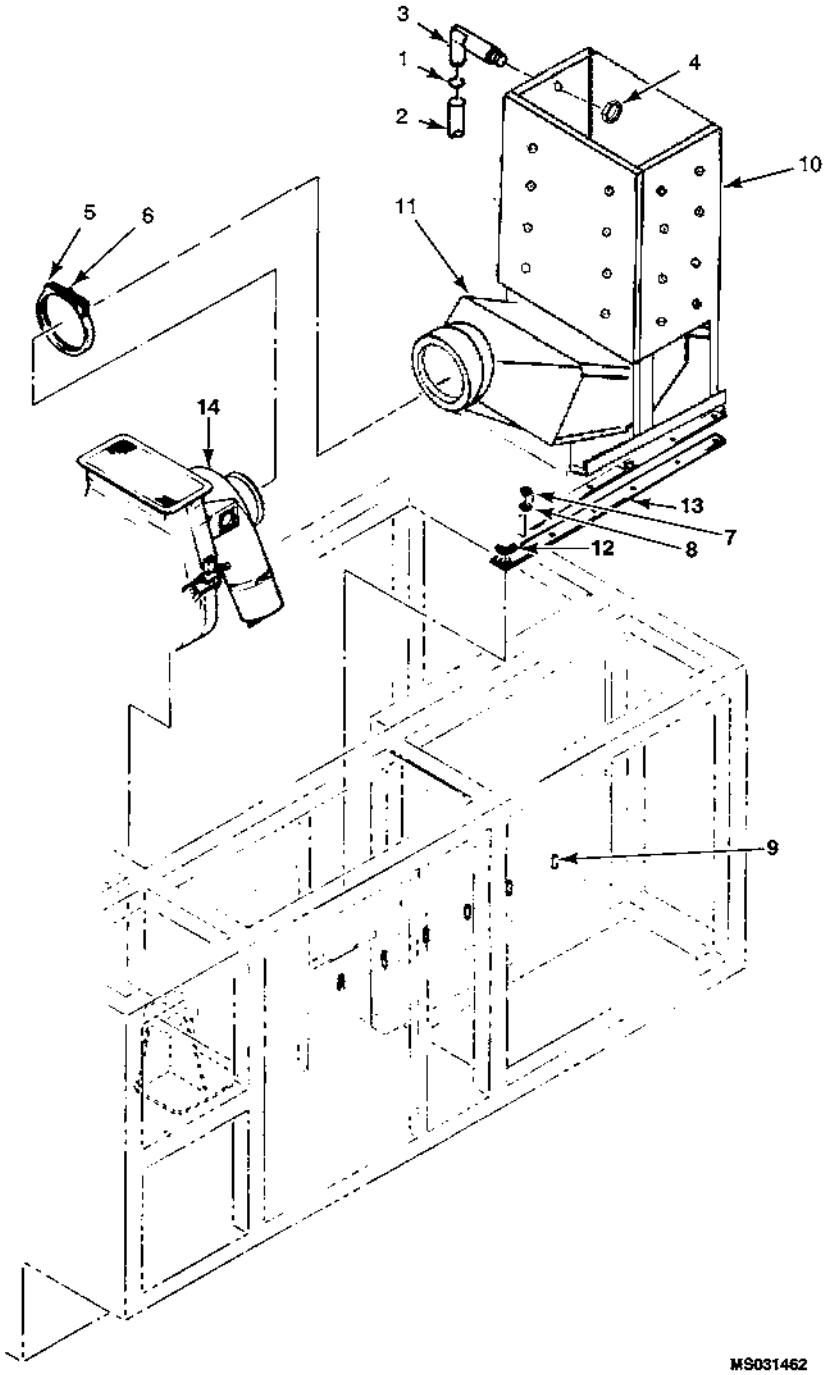
The exhaust ejector (Figure 19, Item 1) and inlet tube (Figure 19, Item 2) are being replaced with a low back-pressure exhaust installation (Figure 20, Item 1). This installation will be incorporated in the 83-360D/E AGPU and on other AGPUs whenever replacement of the current ejector assembly is required.



1. Exhaust Ejector
2. Inlet Tube, Exhaust Ejector
3. Coupling, V-Band
4. Gas Turbine Engine (GTE)
5. Hydraulic Pump
6. A/C Generator
7. Generator Rear Support

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

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



1. Exhaust Ejector
2. Exhaust Plenum
3. Coupling, V-Band
4. Gas Turbine Engine (GTE)
5. Hydraulic Pump
6. A/C Alternator
7. Alternator Rear Support

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

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED

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)

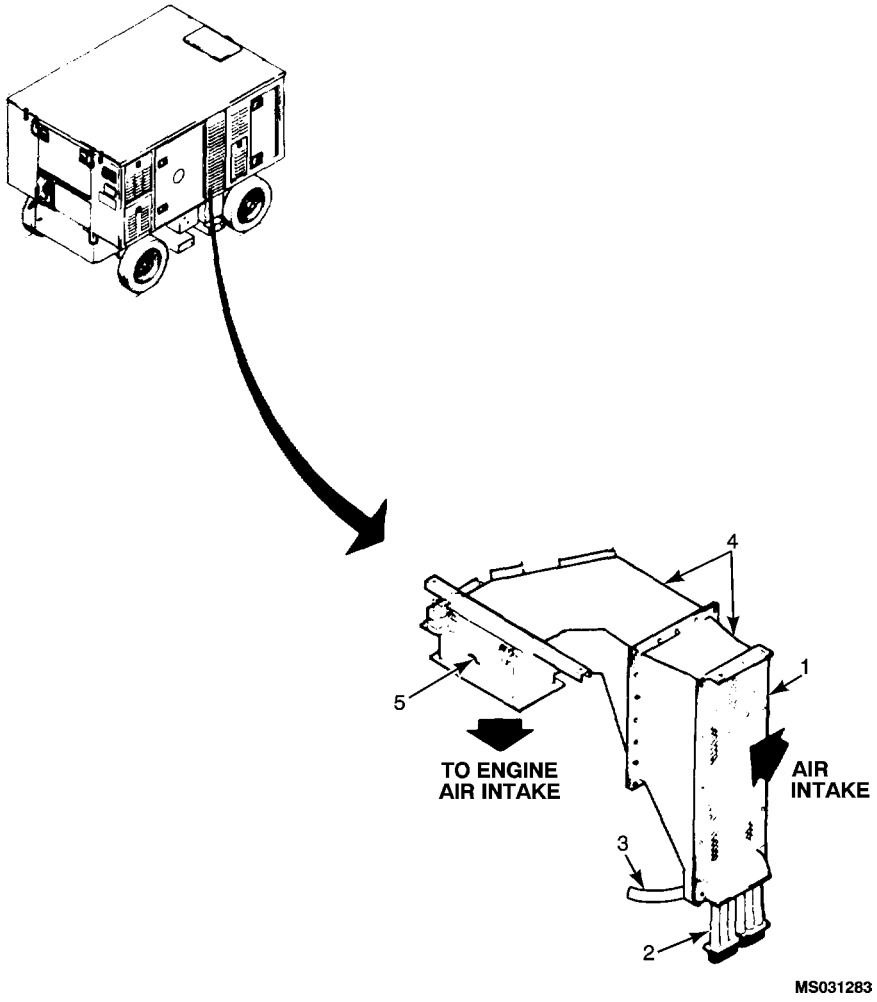
The A/C generator (Figure 19, Item 6) is a self-cooled, continuous duty, AC/DC, self-excited, brushless unit. It includes a permanent magnet stator and rotor, an exciter stator and rotor and a main DC rotating field and AC stator. The main AC stator incorporates three sets of three phase windings. One 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 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.

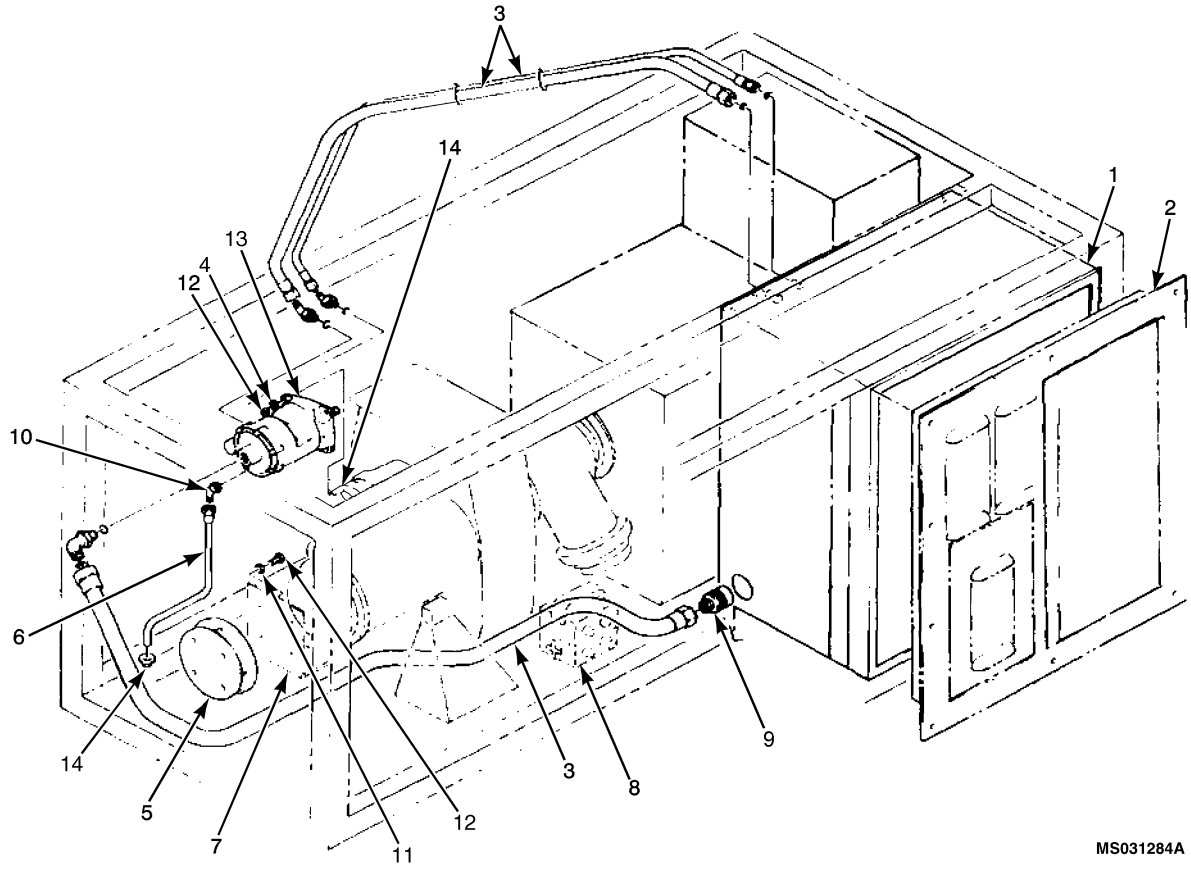
EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



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

Figure 21. Engine Air Intake System (All Models).

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. Gearbox Assembly Pad
4. Hydraulic Pump	9. Pump Fitting	14. Grommet
5. Spacer	10. Elbow Inlet	

Figure 22. Hydraulic Module, Pump, Lines and Hoses (All Models).

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED

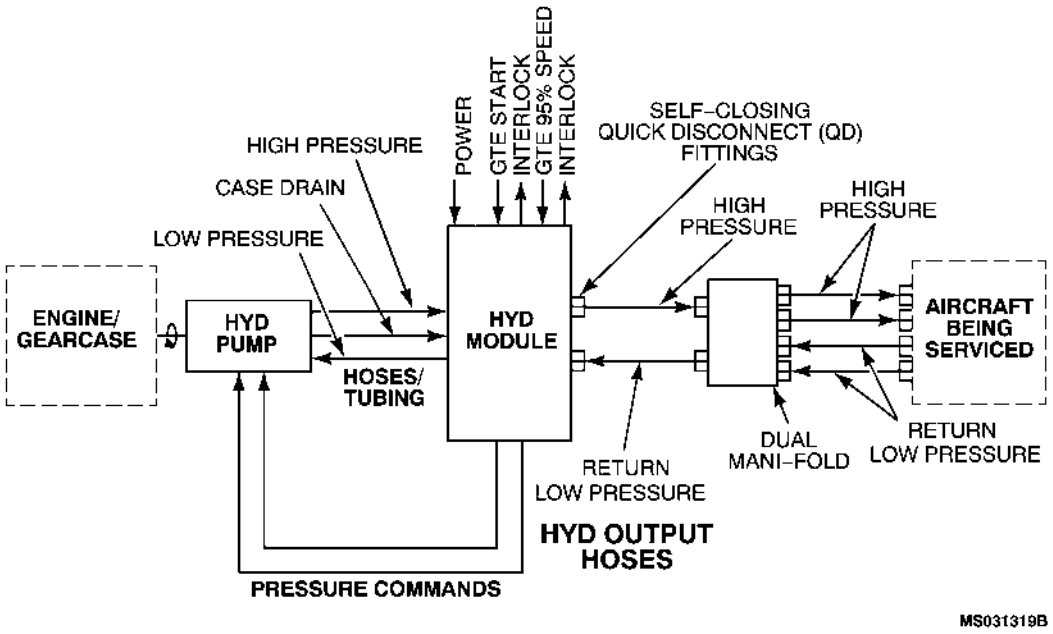


Figure 23. Hydraulic System, Simplified (All Models).

HYDRAULIC SYSTEM

NOTE

Two special adapter hoses (2 foot) are provided to match high pressure and return low pressure hoses to CH-47 connectors.

The hydraulic system (Figure 23) consists of a hydraulic pump (mounted on engine gearbox assembly), 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 °F (-34 °C) MIL-PRF-5606 shall be used.

Hydraulic Pump

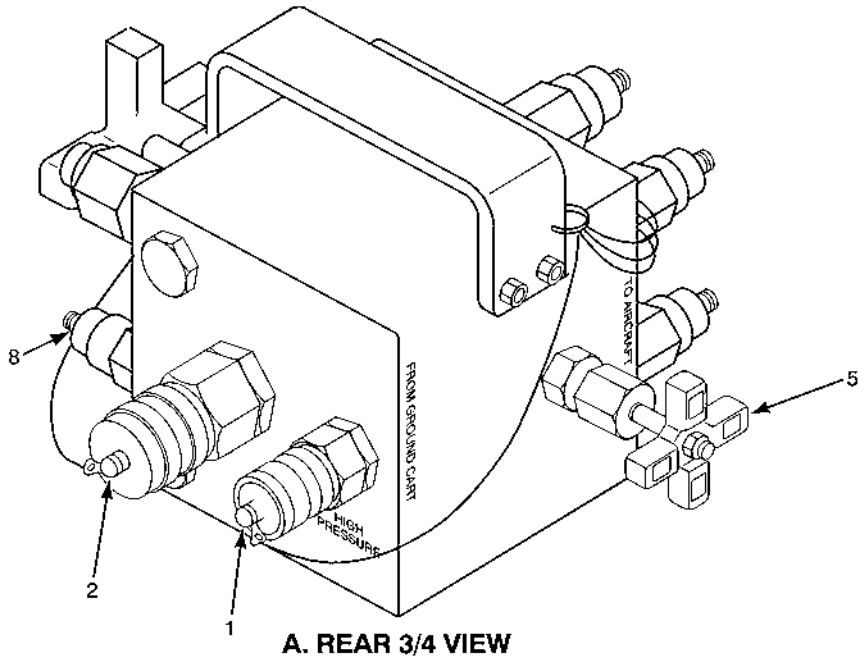
The hydraulic pump (with pressure compensation controls enclosed) bolts to the engine/gearbox assembly pump mounting pad. The pump is driven by the engine/gearbox assembly at approximately 8,000 rpm. For units not requiring hydraulic power, a spacer is provided to bolt between the engine/gearbox assembly 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 **450-500 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.

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED

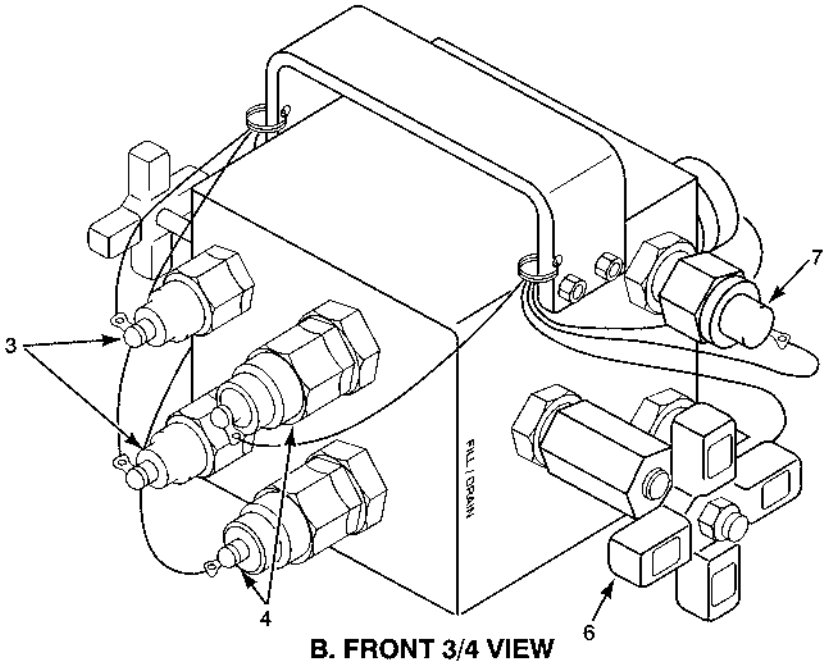
Hydraulic Module

Refer to WP 0124 00 for removal and installation of hydraulic module. The hydraulic module (Figure 22) 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



A. REAR 3/4 VIEW



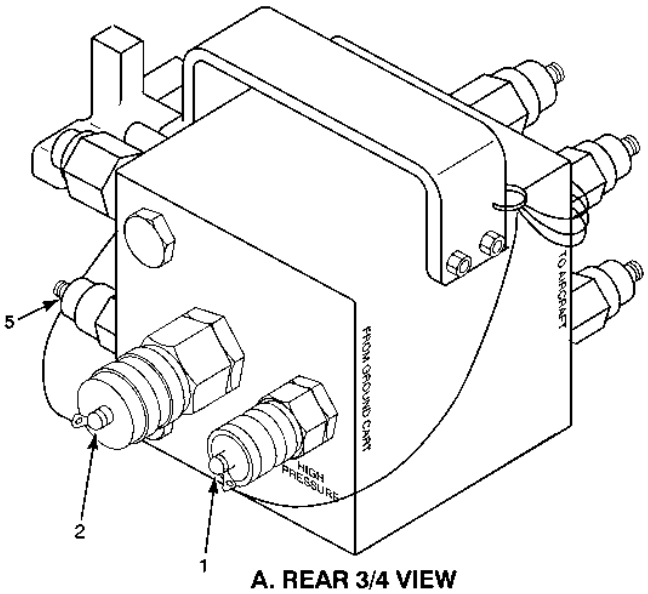
B. FRONT 3/4 VIEW

MS031305

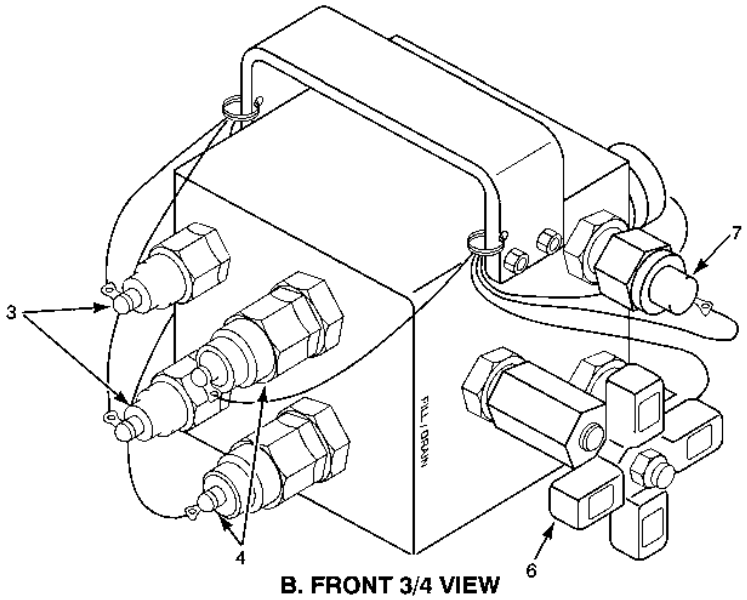
1. High Pressure
2. Return
3. High Pressure
4. Return
5. Bypass/Flush
6. Fill/Drain
7. Drain
8. Quick Disconnect Fill

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

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



A. REAR 3/4 VIEW



B. FRONT 3/4 VIEW

MS035361

1. High Pressure
2. Return
3. High Pressure
4. Return
5. Quick Disconnect Fill
6. Fill/Drain
7. Drain

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

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED

Dual Service Manifold

A separate dual 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.

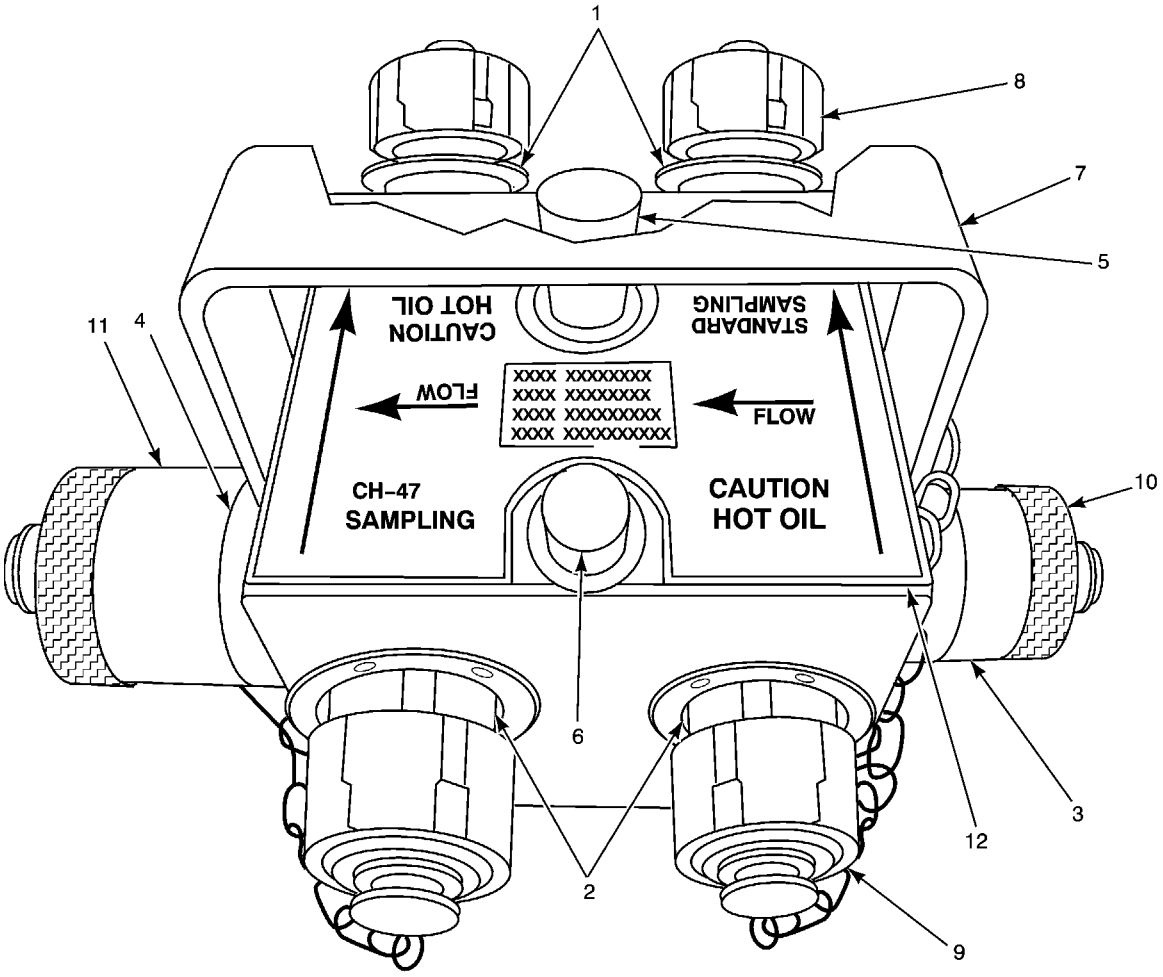
Table 1. Hydraulic 10 ft. and 2 ft. Adapter Hoses.

AIRCRAFT ALL	Output (High Pressure Hose)		Return (Low Pressure Hose)	
	Part Number	Quantity	Part Number	Quantity
AH-64 (Apache)	1013813	2-10 ft.	1013811	2-10 ft.
AH-1 (Huey Cobra)	1013813	2-10 ft.	1013811	2-10 ft.
OH-58 (Kiowa)	1013813	2-10 ft.	1013811	2-10 ft.
UH-1 (Iroquois)	1013813	1-10 ft.	1013811	1-10 ft.
UH-60 (Blackhawk)	1013813	2-10 ft.	1013811	2-10 ft.
CH-47 (Chinook)	1013813 and 1013818	1-10 ft. and 1-2 ft. (adapter)	1013811 and 1013817	1-10 ft. and 1-2 ft. (adapter)
C-12 (Huron)	1013813	2-10 ft.	1013811	2-10 ft.
All Models	1013812	30 ft.	103811	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-filtration process. (This self-filtration process is performed prior to connecting the AGPU to an aircraft to prevent any 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



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. CH-47 QD Low Pressure Dust Cap
5. Oil Sampling Port (Mister) for all Hoses Except CH-47
6. Oil Sampling Port (Mister) for CH-47
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. Low Pressure QD for CH-47 AIRCRAFT ONLY
12. Purge Oil Sampling Adapter Body

Figure 26. Hydraulic Oil Sampling/Purge Adapter (All Models).

Hydraulic System Function

The most common hydraulic system operating mode is supplying hydraulic power to an aircraft. The hydraulic flow diagram for this mode is on Figure FO 10. 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 Figure 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).

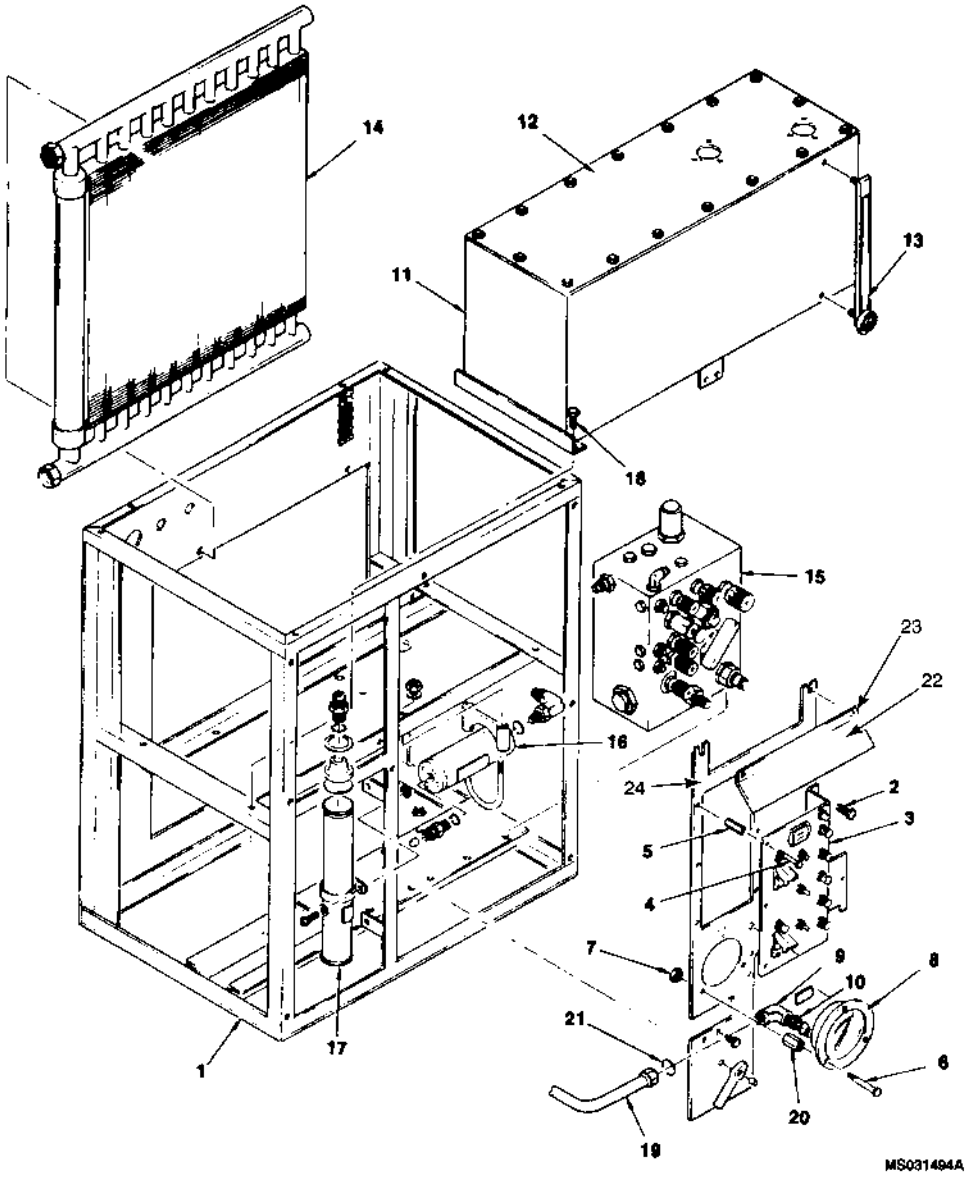
Hydraulic fluid from the AGPU reservoir is routed through a reservoir selector valve and passes four temperature sensors to the hydraulic pump. The temperature sensors (TS1 through TS4 on Figure FO 9) are set to close at various temperatures. The 70 °F sensor (TS1) causes SYSTEM READY light DS5 to illuminate. This indicates

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED

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 .

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED

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 mechanism to move to the position of minimum pressure (**450-500 psig**).

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.

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 Figure FO 9, closure of either pressure switch DS1 or DS2 causes the REPLACE FILTER light to illuminate.

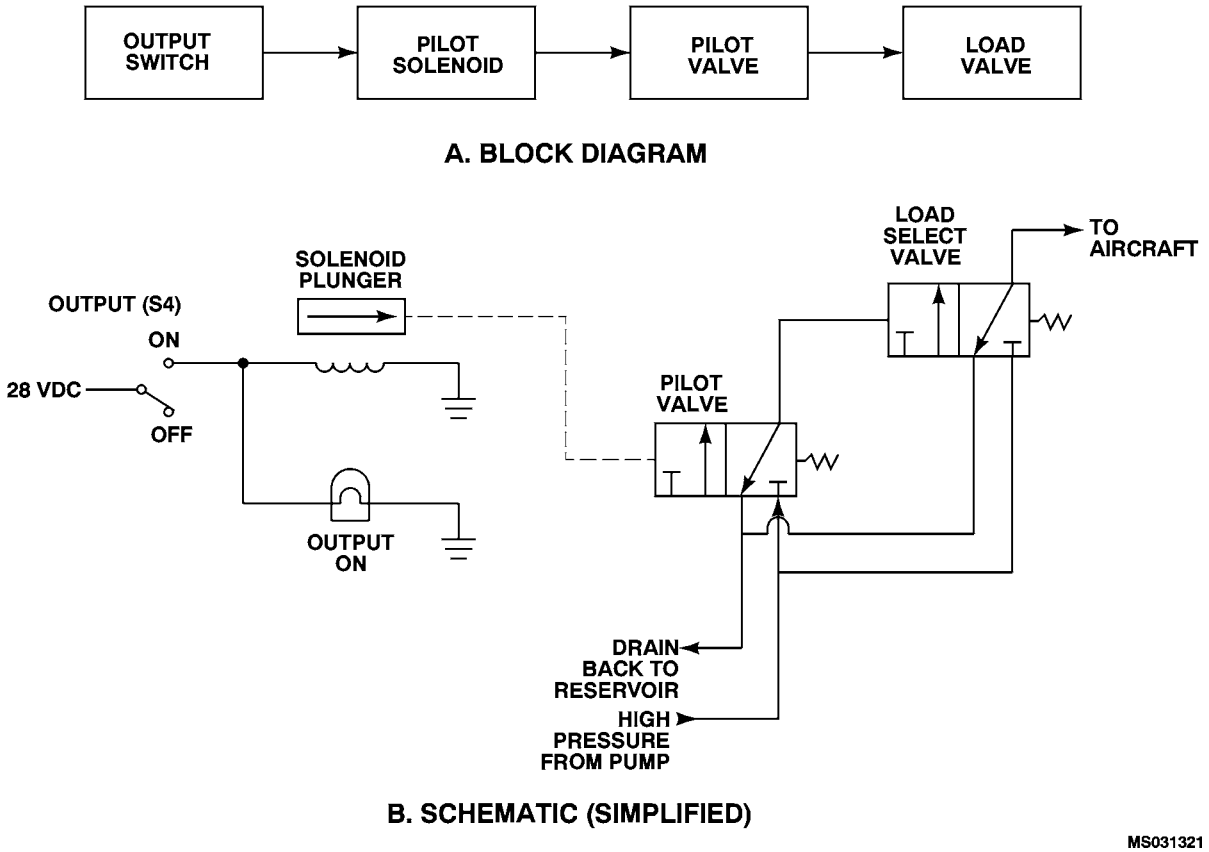


Figure 28. Load Valve Operation.

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED

NOTE

For all hydraulic controls (WP 0011 00, Figure 2).

Load Valve Operation

The accumulator (Figure 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 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. 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.

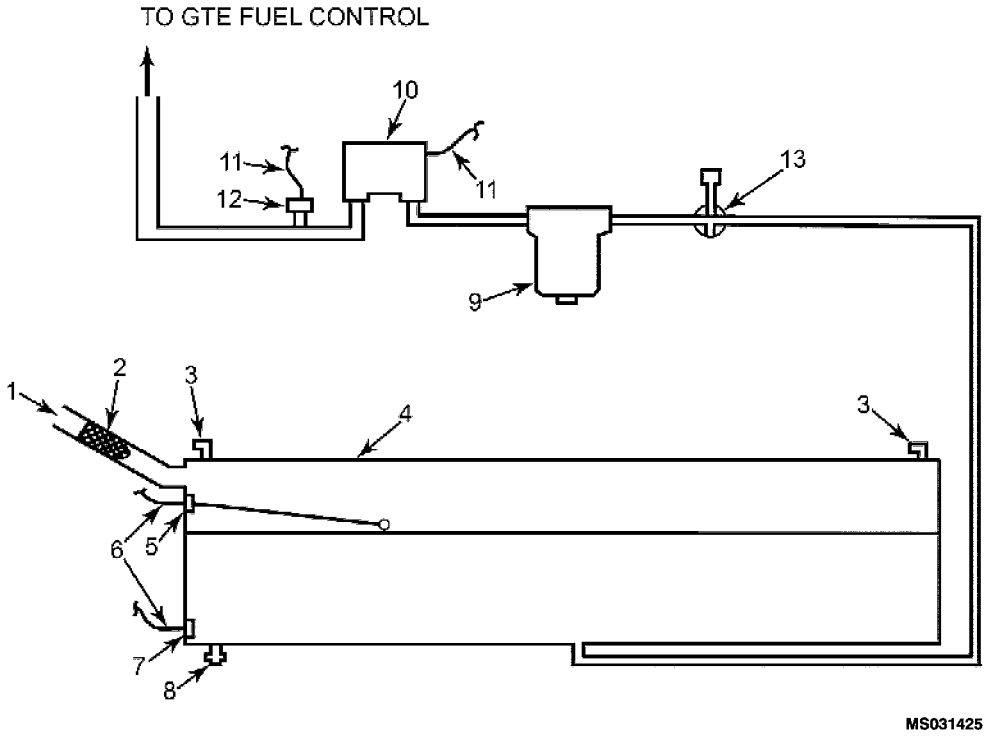
The dual service manifold is provided because some aircraft require two high pressure and two return connections. This need is satisfied by dual connections on the manifold and the use of four 10 foot hoses. The dual manifold provides additional fill and drain ports and valves. Quick disconnects with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

Figure FO 10 shows the main flow path when hydraulic fluid is supplied by the reservoir in the aircraft being serviced. Figure FO 12 and Figure 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.

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



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

Figure 29. Fuel Supply System (All Models).

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 16, Item 1), shutdown fuel solenoid (Figure 16, Item 8) fuel nozzle (Figure 16, Item 21) and a four way fuel selector 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 (Figure 29, Item 5) is electrically connected to a FUEL meter on the control panel.

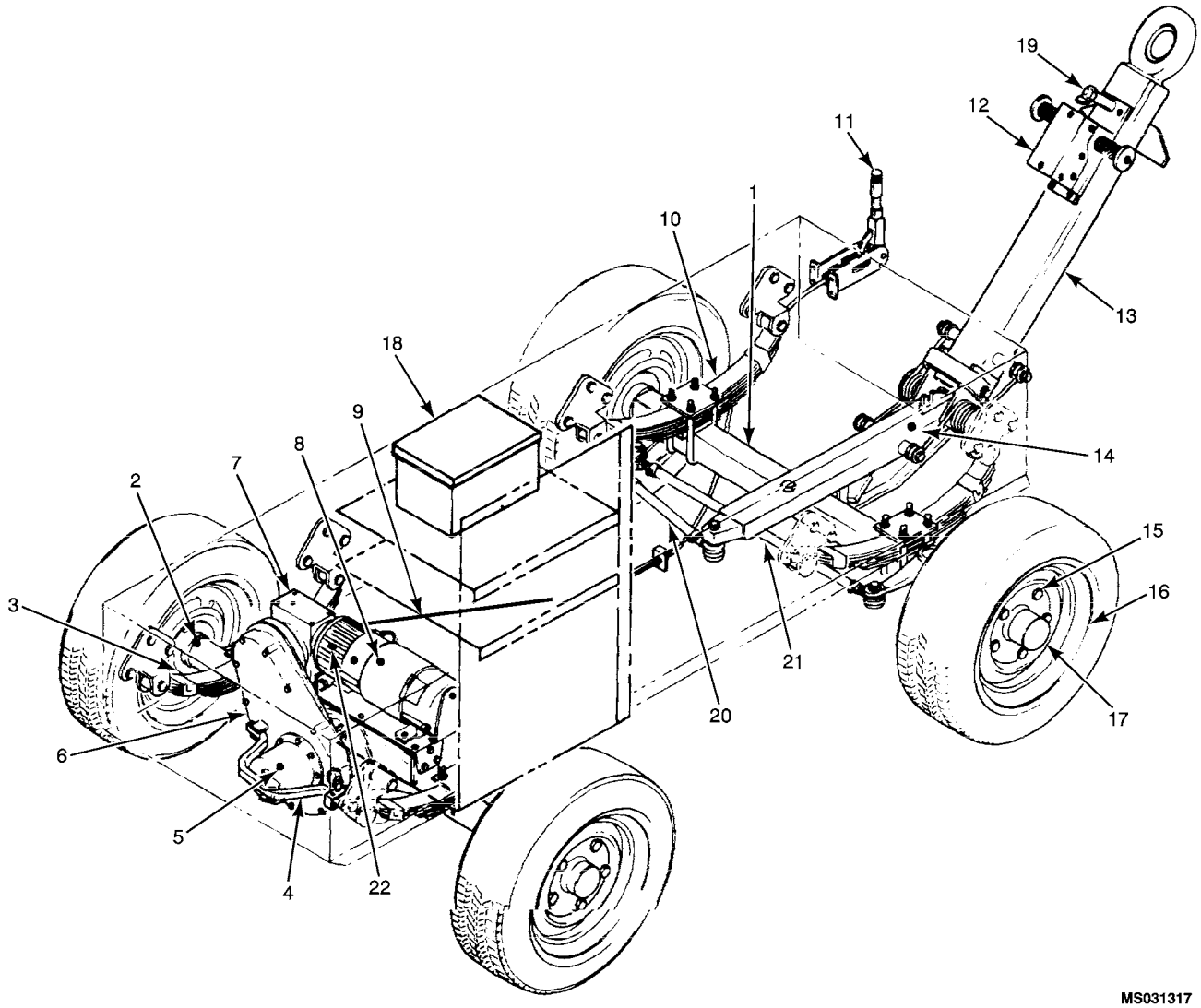
Four Way Fuel Selector Valve

The four way fuel selector valve (Figure 29, Item 13) enables an external fuel source to be connected to the AGPU for operation. 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.

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 (Figure 16).

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



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

Figure 30. Propulsion System (MEP 83-360A).

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED

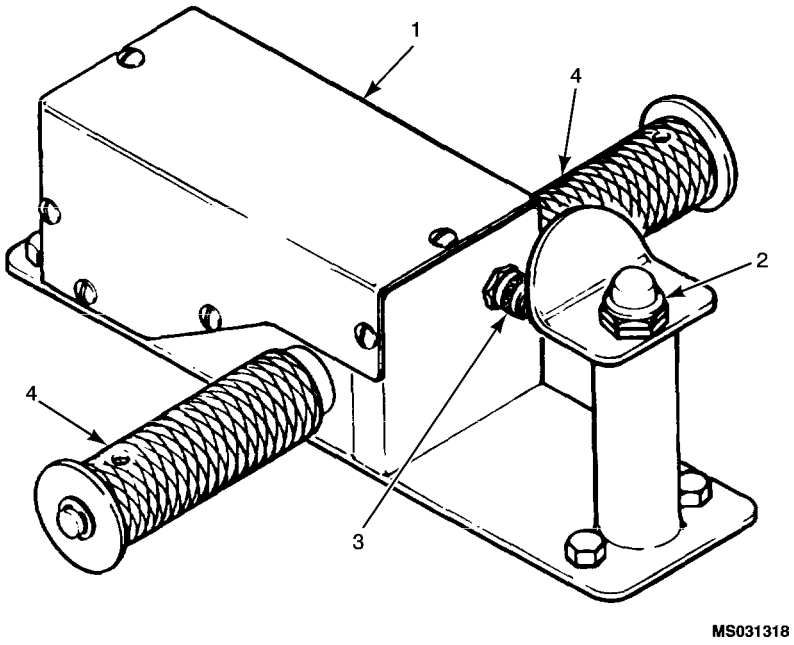
PROPULSION SYSTEM

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 drive (Figure 30, Item 7), chain drive assembly (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.

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



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

Figure 31. Tow Bar Controls (All Models).

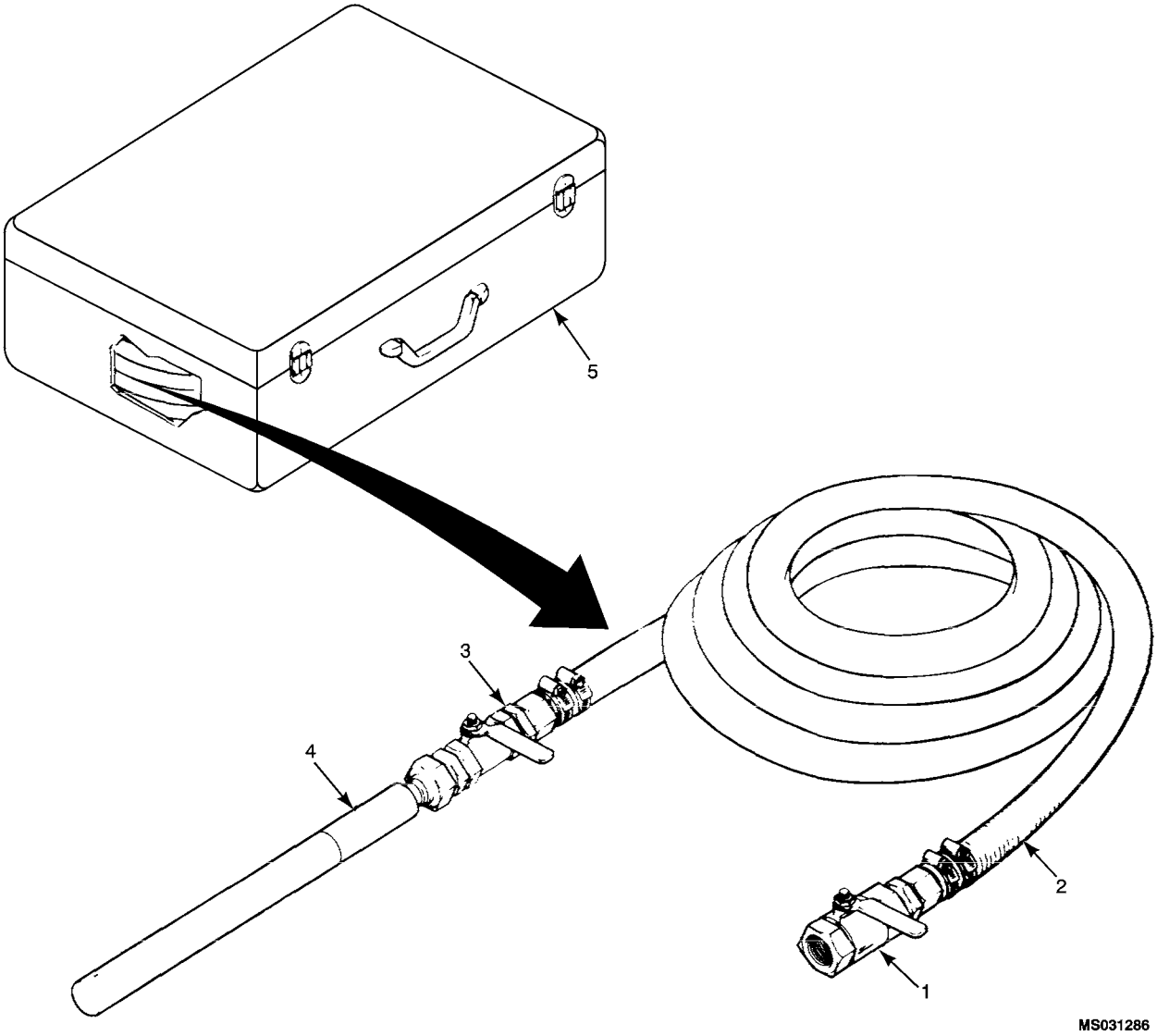
Speed/Direction Control Assembly

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 hand brake (Figure 30, Item 11) connected to the brake cable assembly (Figure 30, Item 9). The brakes are standard, automotive-type drum units using replaceable brake shoes.

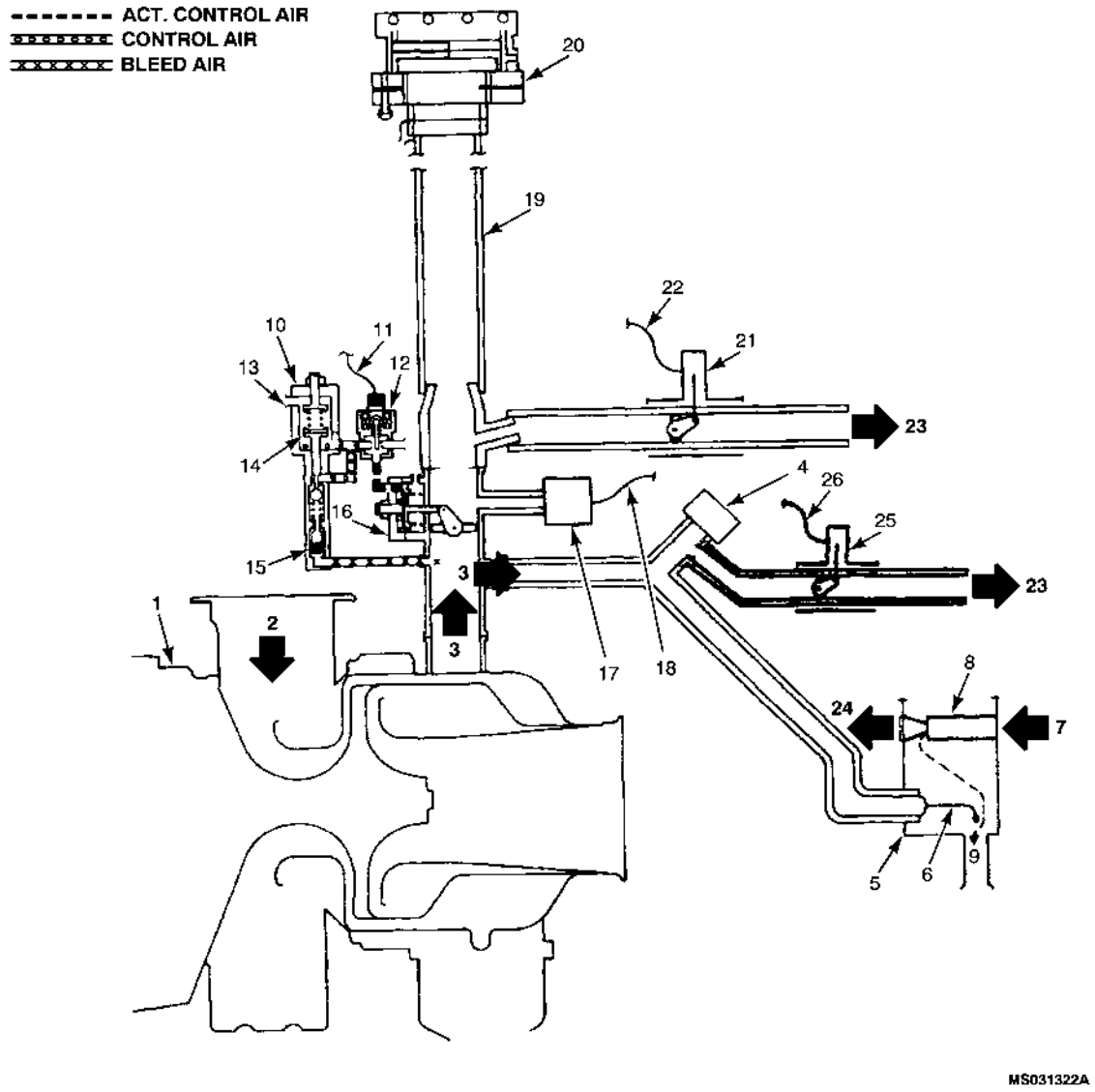
EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



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

Figure 32. Deicer Kit (All Models).

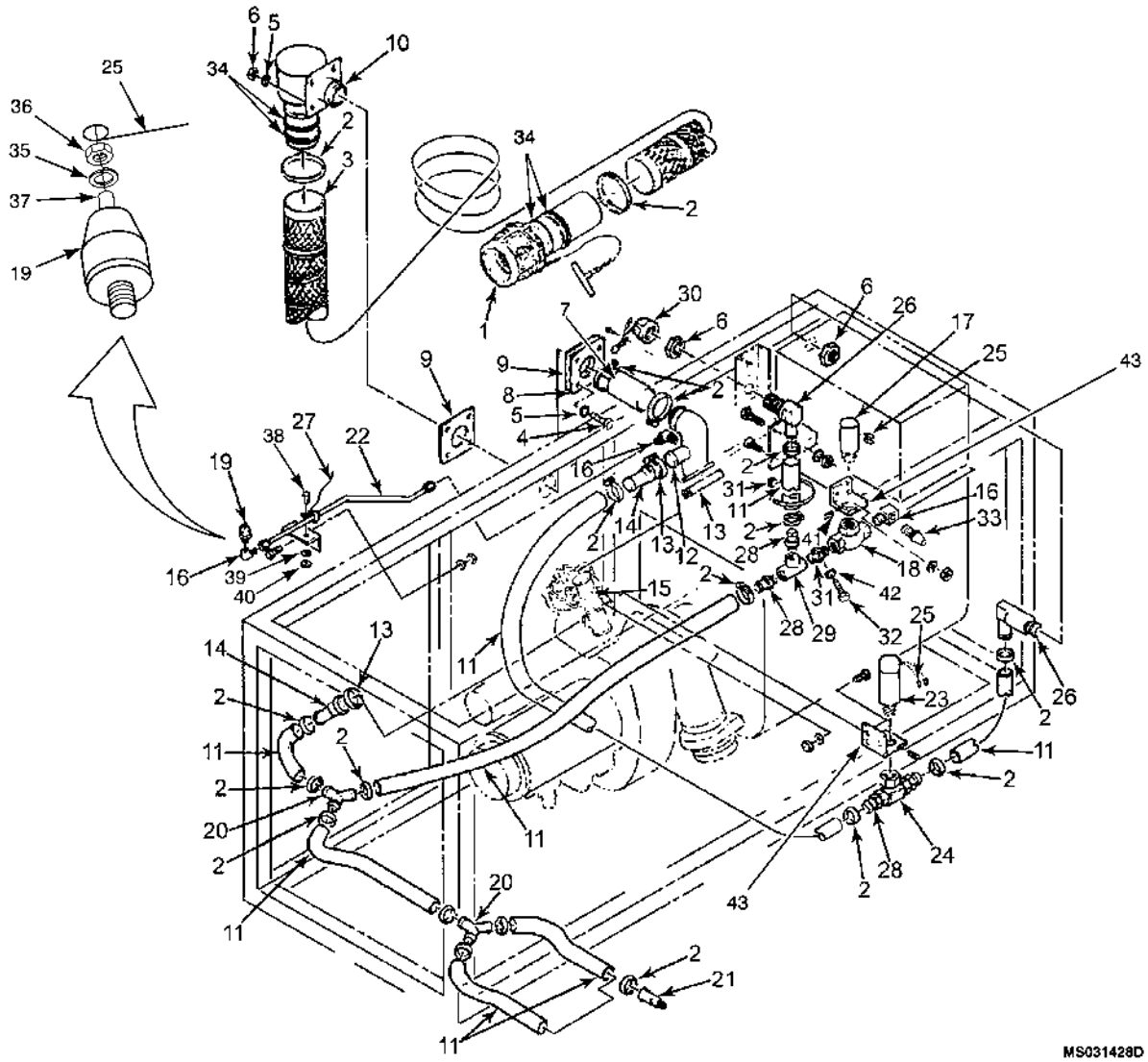
EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



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

Figure 33. Pneumatic System Diagram (All Models).

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED



1. Coupling, Aircraft	12. Manifold, LCV Adapter	23. Solenoid, N.O.	34. Internal Band Clamps
2. Clamp, Hose	13. Clamp, Marmon	24. Valve, Pressure Release	35. Washer, Lock
3. Hose Pneumatic Output	14. Flange, Adapter	25. Electrical Leads	36. Nut
4. Bolt	15. Load Control Valve	26. Elbow, Bulkhead	37. Transducer Terminal
5. Washer	16. Elbow, Pipe	27. Wire, Ground	38. Screw
6. Nut	17. Solenoid, NC	28. Fitting, Pipe	39. Lock Washer
7. Hose, Pneumatic, 2 1/2 ID	18. Valve, Surge Control	29. Tee, Pipe	40. Nut
8. Flange	19. Transducer, Pressure	30. Cap, De-Icing Port	41. Setscrew
9. Gasket, Bulkhead	20. Y Fitting	31. Union, Pipe	42. Washer
10. Elbow, Bulkhead	21. Fitting, Air Cleaner	32. Plug, Self-Tapping Screw (5/16)	43. Mounting Bracket
11. Hose, Pneumatic, 1-inch	22. Tube Assembly	33. Muffler	

Figure 34. Pneumatic System (All Models).

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 0100 00. An optional deicer kit, Figure 32, is available. The kit consists of a fifty-foot hose assembly, a supply valve and a deicer nozzle assembly. The supply valve connects to a normally capped outlet on the left interior bulkhead of the AGPU, A/C 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 (S8) (WP 0006 00, Figure 1, Item 33) 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.

Overtemperature 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 45 KW 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 28 VDC signal to open the valve is routed through both the PNEUMATIC POWER switch S8 and the CURRENT LIMIT

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES – CONTINUED

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 or 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 0144 00, Figure 1), air intake duct assembly (Figure 9) and engine/generator mount (WP 0148 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 inertia inlet air particle separator. A cutaway view of the air cleaner is shown in WP 0034 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 Gas Turbine Engine (GTE), fuel and pneumatic systems.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

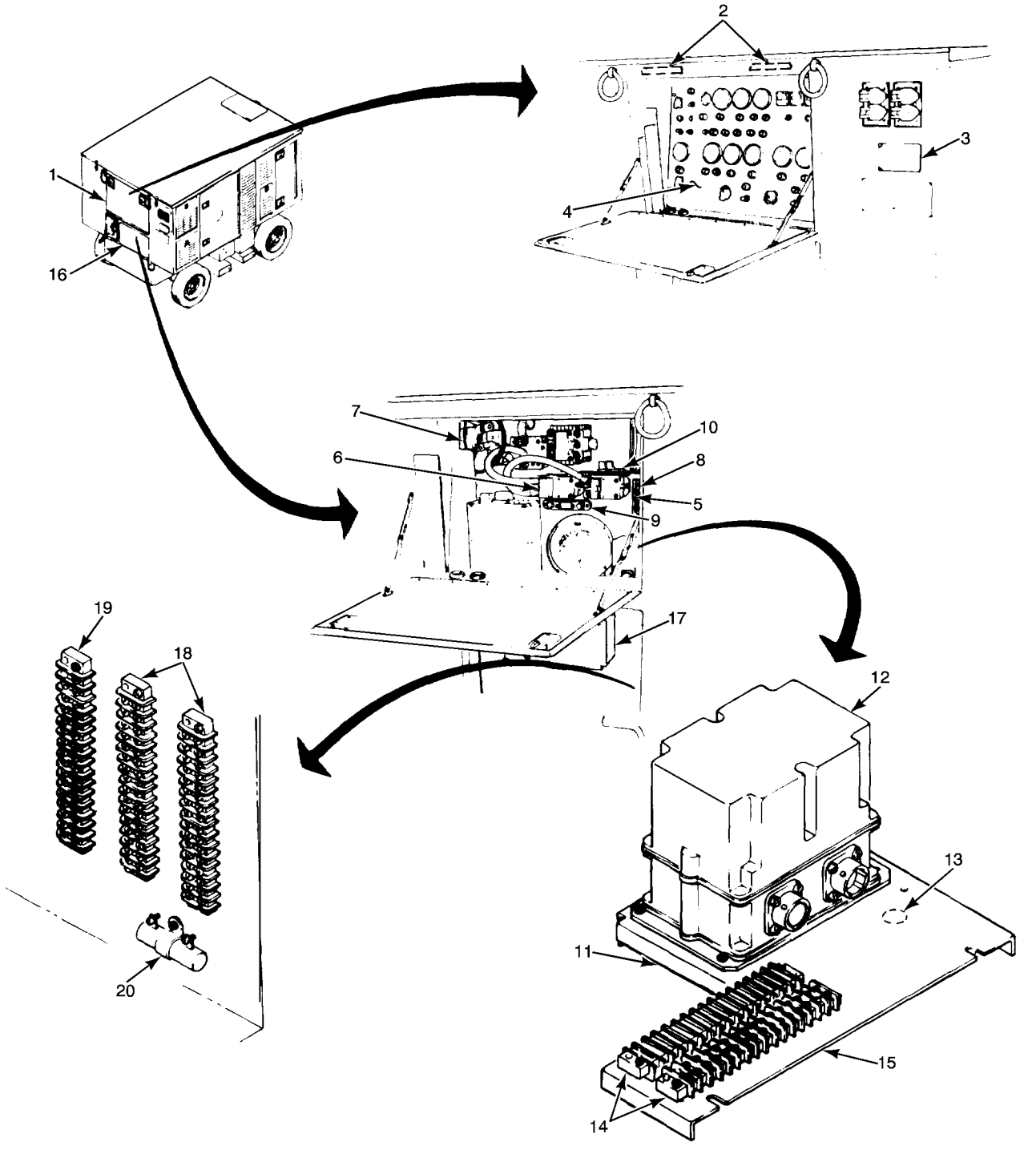


Figure 1. DC Electrical and Control System Components (All Models) (Sheet 1 of 3).

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

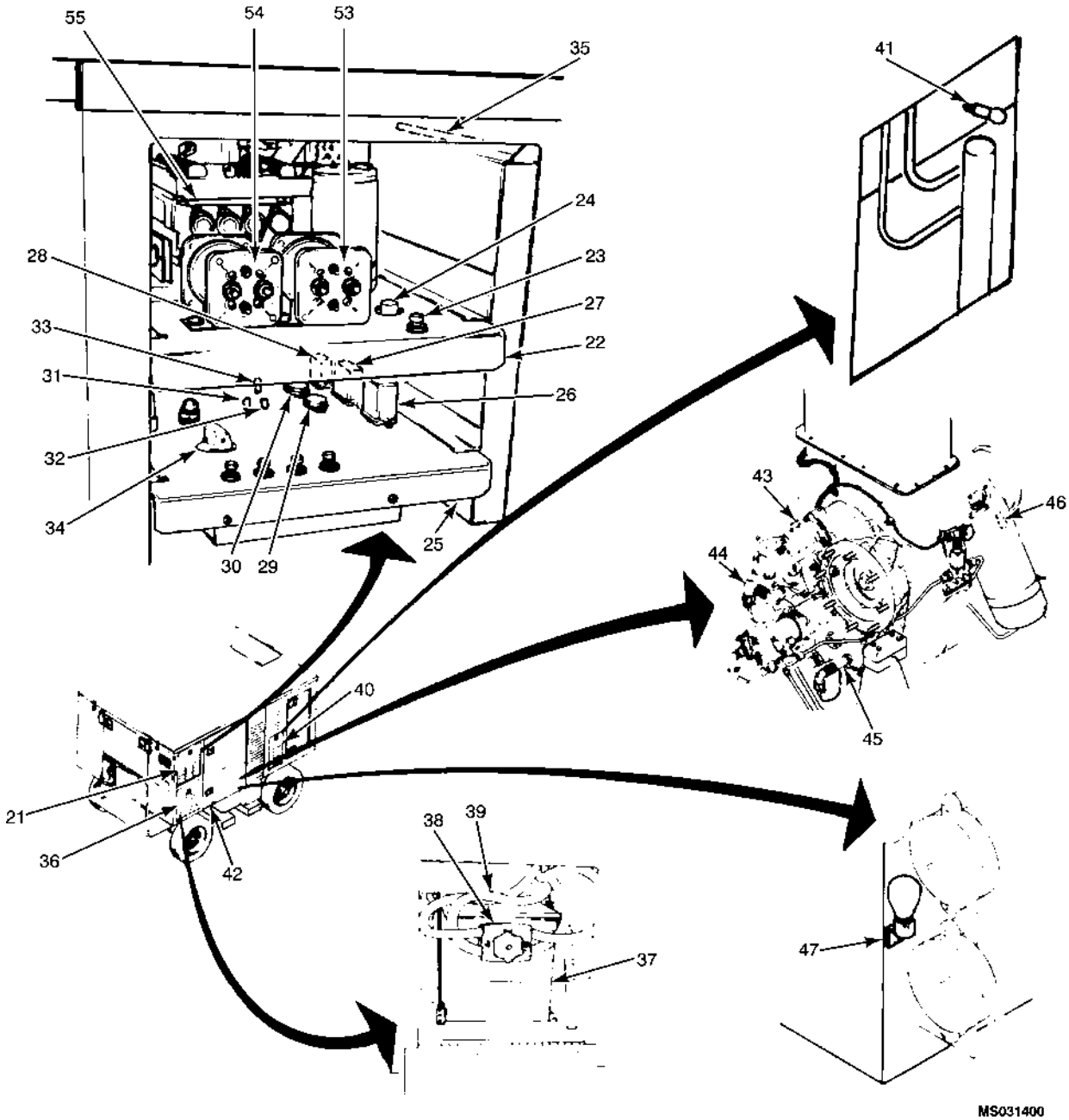


Figure 1. DC Electrical and Control System Components (All Models) (Sheet 2 of 3).

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

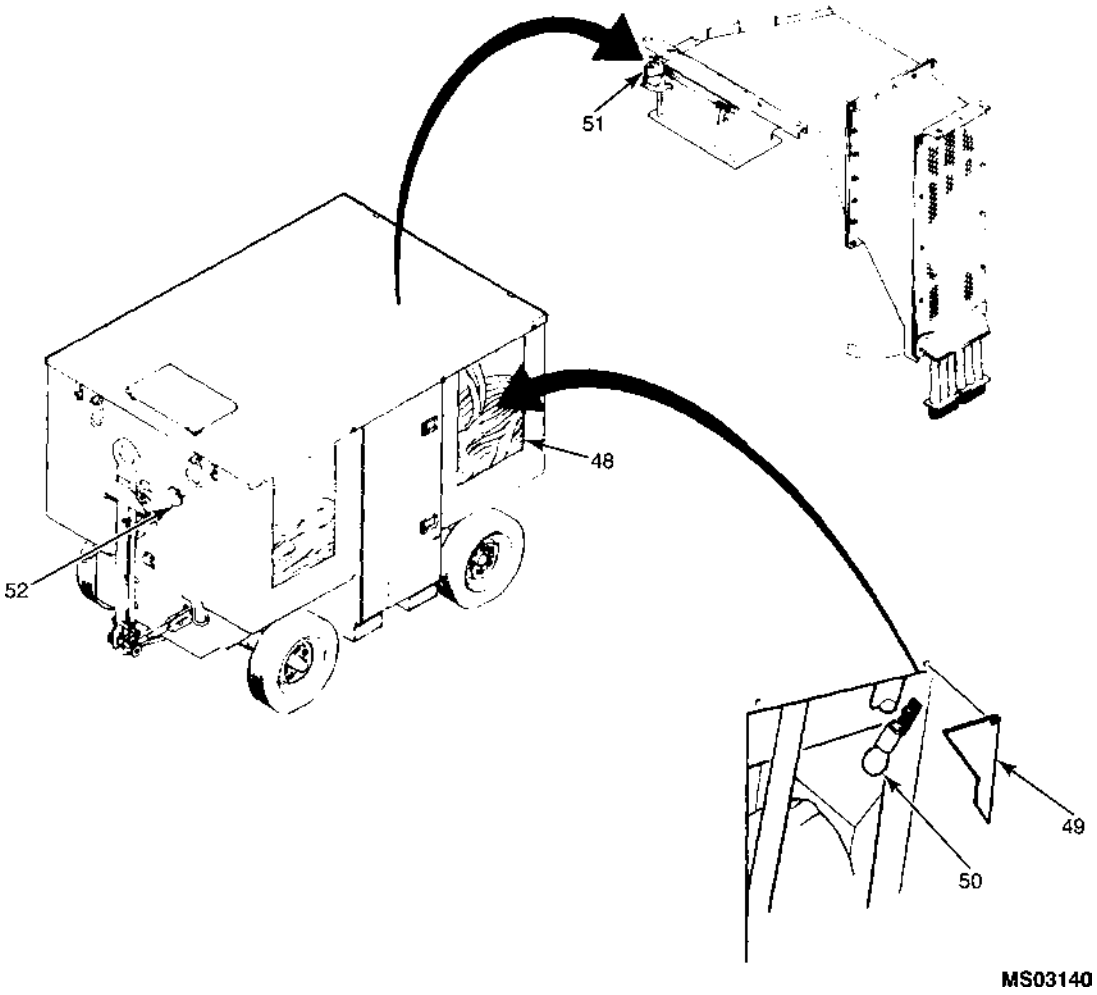


Figure 1. DC Electrical and Control System Components (All Models) (Sheet 3 of 3).

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 0074 00, Figure 1	Figure FO 2
Slave receptacle (J19)	3	WP 0045 00, Figure 1	Figure FO 1
Control panel (ref.)	4		
GTE starter contactor (K4)	5	WP 0084 00, Figure 2	Figure FO 1, Figure FO-3 (Sheet 1 of 2)
Battery output/Traction Motor contactor (K3)	6	WP 0084 00, Figure 2	Figure 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 0084 00, Figure 2	Figure FO 1, Figure FO 5
Starter shunt (R2)	8	WP 0084 00, Figure 2	Figure FO 1
Battery shunt (R3)	9	WP 0084 00, Figure 2	Figure FO 1
Ground terminal board	10	WP 0076 00, Figure 1, WP 0076 00, Figure 5	Figure FO 1, Figure FO 2, Figure FO-3 (Sheet 1 of 2), Figure FO 3 (Sheet 2 of 2), Figure FO 4, Figure FO 5, Figure FO 6 (Sheet 2 of 2), Figure FO 9
Electrical bay subfloor (ref.)	11		
Electronic Control Unit (ECU) (A2)	12	WP 0057 00, Figure 1	Figure FO 3
Electrical compartment temperature switch (S1)	13	WP 0057 00, Figure 1	Figure FO 3 (Sheet 2 of 2)
Terminal board TB1	14	WP 0076 00, Figure 1, WP 0076 00, Figure 2	Figure FO 2, Figure FO-3 (Sheet 1 of 2), Figure FO 4, Figure FO 7
Terminal board TB2	15	WP 0076 00, Figure 1,WP 0076 00, Figure 3	Figure FO 2, Figure FO-3 (Sheet 1 of 2), Figure FO 3 (Sheet 2 of 2), Figure FO 8
Battery charger access cover (ref.)	16		
Battery charger (A3)	17	WP 0047 00, Figure 2	Figure FO 1
Terminal board TB3	18	WP 0076 00, Figure 1, WP 0076 00, Figure 4	Figure FO 1, Figure FO-3 (Sheet 1 of 2), Figure FO 3 (Sheet 2 of 2), Figure FO 8
Terminal board TB4	19	WP 0076 00, Figure 1	Figure FO-3 (Sheet 1 of 2), Figure FO 8
Resistor R6	20	WP 0076 00, Figure 1	Figure FO 7
Electrical trays access door (ref)	21		
Upper Tray	22	WP 0055 00	Figure FO 1, Figure FO 8
Battery Charger Circuit Breaker (35 AMP) (3CB2)	23	WP 0058 00, Figure 1	Figure 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 0058 00, Figure 1	Figure FO 1
Lower tray	25		
95% enable relay (3K1)	26	WP 0056 00, Figure 1	Figure FO-3 (Sheet 1 of 2), Figure FO 5, Figure FO 9
Starter latching relay (3K2)	27	WP 0056 00, Figure 1	Figure FO-3 (Sheet 1 of 2)
Battery/charger transfer (3K3)	28	WP 0056 00, Figure 1	Figure FO 1
Panel lamp voltage regulator (3VR1)	29	WP 0078 00, Figure 1	Figure FO 2
Utility lamp voltage regulator (3VR2)	30	WP 0078 00, Figure 1	Figure FO 2
Power diodes (3CR7P)	31	WP 0073 00, Figure 1	Figure FO 1
Power diodes (3CR8P)	32	WP 0073 00, Figure 1	Figure FO 1
Power diodes (3CR9P)	33	WP 0073 00, Figure 1	Figure FO 1
Battery charger output select switch (3S1)	34	WP 0060 00, Figure 1	Figure FO 1
Generator DC Load Resistor (R4)	35	WP 0077 00, Figure 1	Figure FO 1
Battery Access Door (ref.)	36		
Batteries	37	WP 0045 00, Figure 1	Figure FO 1
Battery Terminal Adapter (PI7)	38	WP 0045 00, Figure 1	Figure FO 1
Battery Cables	39	WP 0045 00, Figure 1	Figure FO 1
Hydraulic Filter Access Door (ref.)	40		
Hydraulic Utility Lamp	41	WP 0074 00, Figure 1	Figure FO 2
Engine Access Door (ref.)	42		
GTE Speed Sensor	43	WP 0051 00, Figure 1	Figure 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 0052 00, Figure 1	Figure FO 3 (Sheet 2 of 2)
High Oil Temperature Switch	45	WP 0053 00, Figure 1	Figure FO 3 (Sheet 2 of 2)
Thermocouple	46	WP 0054 00, Figure 1	Figure FO 3 (Sheet 2 of 2)
Engine Utility Lamp	47	WP 0074 00, Figure 1	Figure FO 2
DC Cable Compartment (ref.)	48		
Fuel Access Cover (ref.)	49		
Fuel Utility Lamp	50	WP 0074 00, Figure 1	Figure FO 2
Inlet Filter Blocked Switch (S3)	51	WP 0064 00, Figure 1	Figure FO 3 (Sheet 2 of 2)
Emergency Stop Switch (S2)	52	WP 0063 00, Figure 1	Figure FO-3 (Sheet 1 of 2), Figure FO 7
Forward propulsion relay (2K1)	53	WP 0055 00, Figure 1	Figure FO 8
Reverse propulsion relay (2K2)	54	WP 0055 00, Figure 1	Figure FO 8
Propulsion motor controller (A1)	55	WP 0055 00, Figure 1	Figure FO 8

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

Master DC Power Control System. (Figure 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 0061 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 0135 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 0118 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 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 (Figure 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.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

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 (Figure 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.

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

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

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
	Activates engine ignition unit
25-95%	Modulates fuel control torque motor
60%	Deactivates starter contactor K4
95%	Enables load control valve
	Disables engine ignition unit
	Activates 95% enable relay which enables generator
	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:
   a. Low oil pressure (less than 31 psi) for more than 10 seconds after the engine reaches 95% rpm.
   b. High oil temperature (greater than 275 °F) for more than 1 second.
   c. Engine speed exceeds 110% rpm.
   d. Loss of speed sensing (no output from monopole speed sensor) after 95% rpm has been reached.
   e. EGT exceeds 1300 °F at engine speed above 60% rpm or exceeds 1255 °F at 100% engine speed.
   f. Loss of EGT sensing (no output from thermocouple).
   g. Current in ECU output circuits (ignition unit, 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 de-

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

scribed 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.
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 EMERGENCY STOP switch. In any case, the starter latching relay is unlatched and removes DC power from the ECU.

Fuel Indication System (Figure 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 0097 00.

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. (Figure 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 pressure relief valve is covered in WP 0101 00.

1. The Load Control Valve (LCV) 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

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

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 83-360D and 83-360D/E.

Propulsion Control System. (Figure FO 8.)

The propulsion control system consists 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 Table 3 of the electrical power generation and control system 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.

Table 3. Electrical Power Generation and Control System.

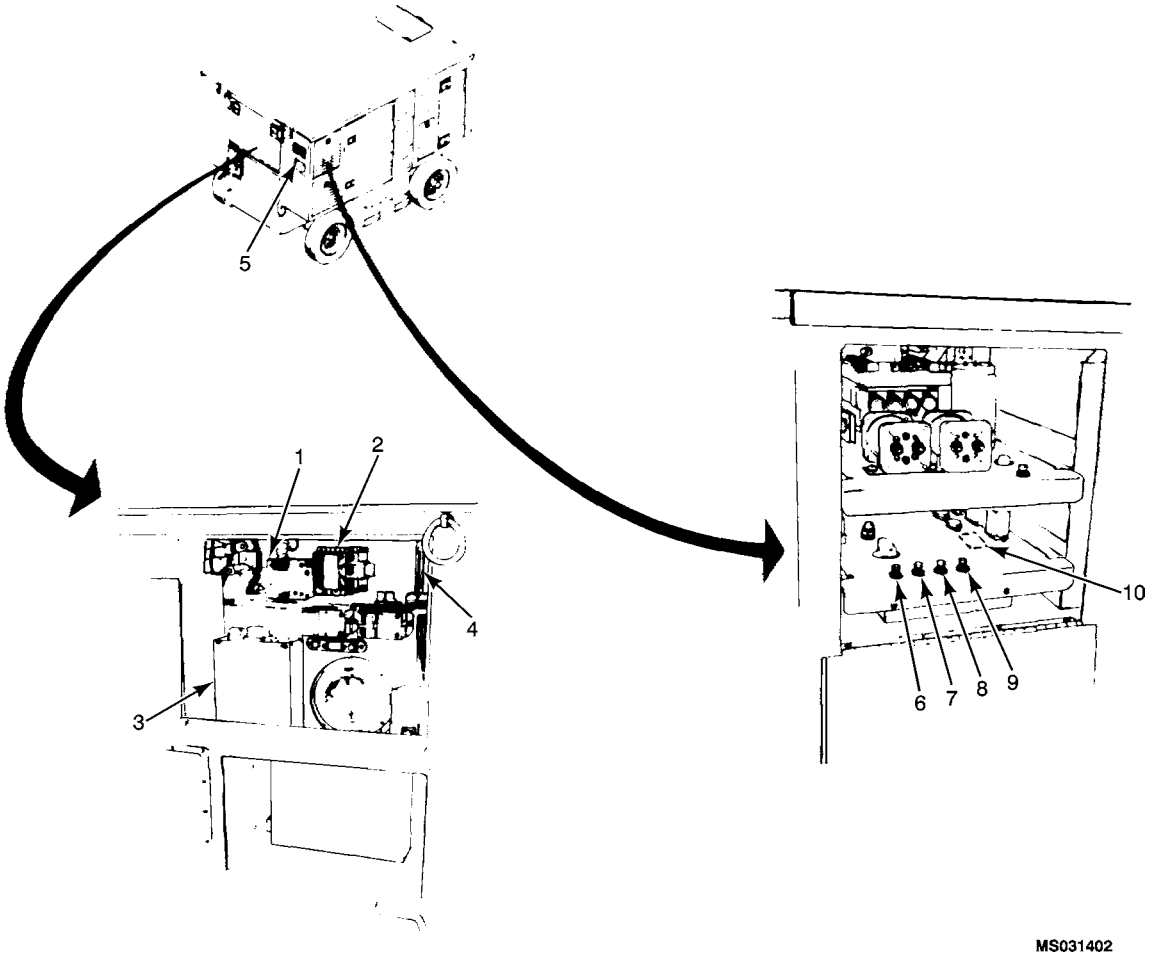
Component	Location	Installation Fig. Ref.	Schematic/Wiring Diagram Fig. Ref.
DC Contactor (K2)	Figure 2, Item 1	WP 0084 00, Figure 1	Figure FO 1, Figure FO 5
AC Contactor (K1)	Figure 2, Item 2	WP 0084 00, Figure 1	Figure FO 6
Generator Control Unit (GCU) (A1)	Figure 2, Item 3	WP 0080 00, Figure 1	Figure FO 5, Figure FO 6
Current Transformers, AC Output (T2-T4)	Figure 3, Item 2 through 4	WP 0082 00, Figure 1. (Sheet 1 of 2)	Figure FO-6 (Sheet 1 of 2)
Current Transformers, GCU Input (T1)	Figure 2, Item 4	WP 0080 00, Figure 1	Figure FO-6 (Sheet 1 of 2)
AC/DC Generator (G1)	Figure 3, Item 1	WP 0079 00, Figure 1	Figure FO 5, Figure FO-6 (Sheet 1 of 2)
AC Alternator (G1) **(83-360D/E only)**	Figure 3, Item 5	WP 0079 00, Figure 2	Figure FO 5, Figure FO-6 (Sheet 1 of 2)
AC to DC Transformer Rectifier Unit (TRU) **(83-360D/E only)**	Figure 4, Item 4	WP 0083 00, Figure 1	Figure FO 2, Figure FO-6 (Sheet 1 of 2)
AC Convenience receptacles (J1-J4)	Figure 2, Item 5	WP 0085 00, Figure 1	Figure FO-6 (Sheet 1 of 2)
AC Circuit Breakers (3CB303CB6)	Figure 2, Item 6 through 9	WP 0085 00, Figure 1	Figure 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.
Frequency Transducer	Figure 2, Item 10	WP 0086 00, Figure 1	Figure FO 6 (Sheet 2 of 2)
DC Output Power Cable (W11)	Figure 4, Item 2	WP 0088 00, Figure 1	Figure FO 5
AC Output Power Cable (W6)	Figure 4, Item 1	WP 0087 00, Figure 1	Figure FO-6 (Sheet 1 of 2)
DC to AC Inverter	Figure 4, Item 3	WP 0089 00, Figure 1	Figure FO 5

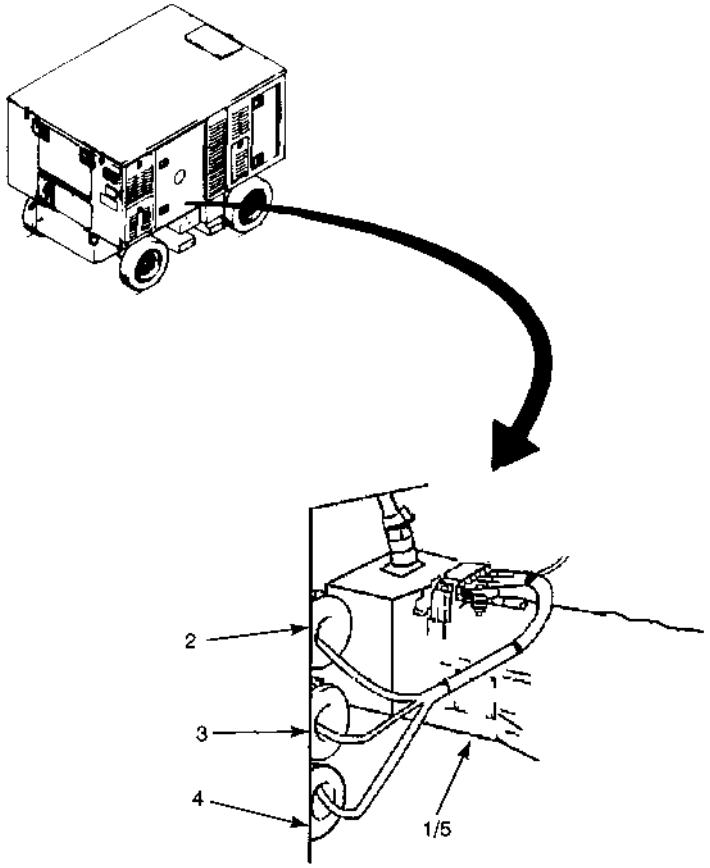
LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED



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 0041 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.

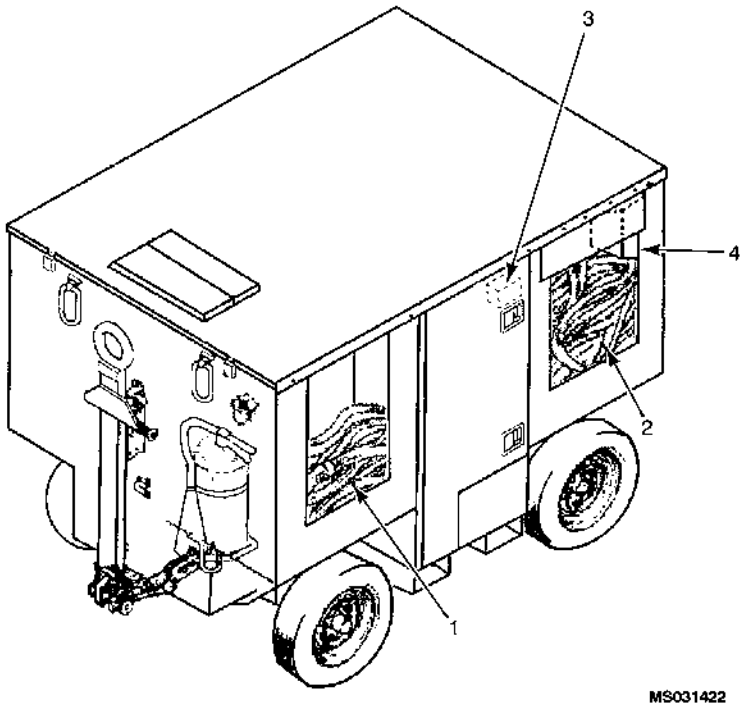
DC Power Generation and Control

This system is shown schematically in the Figure FO 5 for MEP 83-360A and Figure FO 19 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 0057 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 stator windings provide three phase AC voltage. The output of one PM winding is rectified

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

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 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 alternator. 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 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

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

LIMIT SELECTOR switch 1S11 at 200, 500, 700 or 1000 amps, MEP 83-360A model only. When a fault is detected, the GCU system logic deactivates the DC contactor 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 transistorized unit currently used on the AH-64A helicopter to provide essential DC power. It has a minimum continuous output voltage of 26 VDC at a 350 amp and 26 VDC at 350 amp output continuous. Ripple is 1.5 volt maximum. Maximum output is 500 amps for 1 minute, 1000 amps for 5 seconds. Refer to Table 6.

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.
6. 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. Table 6.
7. 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 Figure 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 or an over amperage on the GTE wiring harness exists.
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. On the MEP 83-360 D/E models the 1S11 switch has an AC selection only (no DC).

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

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
<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 drives the AC Hertz meter 1M10.
4. The GCU monitors 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 and 90 KVA. When a fault is detected, the GCU system logic deactivates the AC contactor or removes generator/alternator field excitation to protect the generator and output circuits. The GCU logic

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

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 4 and Table 5 (83-360A only) and Table 6 (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)			
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 (36 A/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.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

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

Fault					Protective Action	Fault Lamp Indication During Fault	Indication (Latched) After Fault
Voltage/Frequency	Current for CURRENT LIMIT SELECTOR Switch Settings						
	17 Kva	38 Kva	59 Kva	90 Kva			
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
Frequency <375 Hz					AC contactor opened	None	UNDER FREQUENCY

NOTE

DC output power is available in any position of the AC selector switch when DC output power switch in the ON position.

CURRENT LIMIT SELECTOR – AC ONLY

Switch Setting

17 KVA 38.4 (48.0 KVA) Cont

38 KVA 30.0 KW (37.5 KVA) cont with 350 ampres 28 VDC output for TRU

59 KVA 66.0 KW (82.5 KVA) for 30 seconds

90 KVA <191

TRU Output

Switch Setting	Actual Current Limit
350 Amps	26 VDC Continuous
500 Amps	1 minute
1000 Amps	5 seconds

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

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 Developmental Sciences Inc. Astronics Division of Lear Siegler Inc., Ontario, CA. Serial numbers 1001 through 1155 were produced by what is now BAE Systems, Ontario, CA

1. Battery Charger: Serial number 001, 002, 004, 005 and 009 have 20 amp battery chargers instead of the 50 amp battery chargers supplied 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 part number has been assigned to selected AGPUs used to support the AH-64D, Longbow Apache helicopter. The AGPUs 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 alternator, 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 will change when MWO 1-1730-229-50-4 is applied (PN 1024250).

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 1000 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 alternator. The connections to the output terminals are changed to maintain the proper direction of rotation (refer to WP 0080 00, Figure 1.)

EQUIPMENT DATA – CONTINUED

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, 110/200 VAC 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 (Figure 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 exhaust 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, 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 to reduce noise.
6. The marking on the current limit selector on the control panel has been changed to identify the higher AC limits and indicates that the DC current limiting is no longer used and the 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 on the control panel.

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 data plate and revised label has been placed by the AC selector switch on the control panel. The TRU can be seen on the upper right of the DC cable 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, it 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.
9. Equipment data plate was also changed to reflect the new part number of the MEP 83-360E model AGPU, PN 1024250.

Table 1. Equipment Data for Aviation Ground Power Unit (AGPU).

Manufacturer (Serial No. 0001-0659)	Developmental Sciences (Cage 90598)
Manufacturer (Serial No. 1001-1155)	BAE System Aircraft Controls, Inc. (Cage 63631)
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, 110/200 VAC 4-wire output cable, 60 feet (18.3m)

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 with 350 amperes 28 VDC output from the TRU

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

66.0 KW (82.5 KVA) for 30 seconds with 350 amperes 28 VDC output from the TRU

DC POWER OUTPUT

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

MEP 83-360E:

NSN: 1730-01-552-2313

38.4 KW (48.0 KVA) 350 continuous with 350 amperes 28 VDC output from the TRU

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

66.0 KW (82.5 KVA) for 30 seconds with 350 amperes 28 VDC output from the TRU

DC power output:

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

EQUIPMENT DATA – CONTINUED

Table 1. Equipment Data for Aviation Ground Power Unit (AGPU). – Continued

DC VOLTAGE OUTPUT

MEP 83-360A:

NSN: 1730-01-144-1897

28 VDC, 200, 500, 700 amperes (1,000 amperes for 30 seconds) with no AC

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

MEP 83-360D:

NSN: 1730-01-466-9371

DC power output:

350 amperes continuous at 26 volts minimum with AC power

500 amperes for 1 minute with AC power

1000 amperes for 5 seconds with AC power

MEP 83-360E

NSN: 1730-01-552-2313

DC power output:

350 amperes continuous at 26 volt minimum with AC power

500 amperes for 1 minute with AC power

1000 amperes for 5 seconds with AC power

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

60 lb/per minute at **40 psig** (sea level) - Temperature 450 °F (232 °C)

26.5 lb/per minute at **24 psig**, 10,000 feet (3048m) altitude - Temperature 420 °F (232 °C)

Output hose, 3.5 inch (8.9 cm) diameter, 30 ft. length (9.1 m)

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

15.2 gpm at **450-500 to 3,300 psig**

Hydraulic fluid MIL-PRF-83282 or MIL-PRF-5606

40 feet pressure and return hoses (CH-47 extension hoses add 2 feet (42 feet CH-47 only))

Aircraft Interface – single or dual connections

Operating Altitude (MEP 83-360A, MEP 83-360D/E)

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

EQUIPMENT DATA – CONTINUED

Table 1. Equipment Data for Aviation Ground Power Unit (AGPU). – Continued

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), less fuel weight

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

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)

Gearbox Assembly Output Drive Pads

Generator drive pad: 9,000 rpm

Hydraulic pump drive pad: 8,000 rpm

Electrical System Voltage

28 VDC nominal

EQUIPMENT DATA – CONTINUED

Table 1. Equipment Data for Aviation Ground Power Unit (AGPU). – Continued

Lubrication System	
Oil: MIL-PRF-23699 or MIL-PRF-7808	
Capacity: 2.3 U.S. quarts (2.2 liters)	
Gearbox Filter: Replaceable element	
Starter Motor	
Voltage: 28 VDC nominal	
Current: Approximately 850 amperes initial start to approximately 200 amperes at 60% GTE rotor speed	
GTE	
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 (17 gph)
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

EQUIPMENT DATA – CONTINUED

Table 1. Equipment Data for Aviation Ground Power Unit (AGPU). – Continued

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	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, 110/200 VAC, 0.8 power factor, DC 1000 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, 110/200 VDC, 0.8 power factor, DC 1000 amperes, 28 VDC

EQUIPMENT DATA – CONTINUED

Table 1. Equipment Data for Aviation Ground Power Unit (AGPU). – 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

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 for Aviation Ground Power Unit (AGPU). – 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 1SR57)

Model

411612-3/FA 100131-001

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 absolute at 20 gpm.

EQUIPMENT DATA – CONTINUED

Table 1. Equipment Data for Aviation Ground Power Unit (AGPU). – 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. AGPU may tow up to 2,000 lbs GVW.
Manual Clutch
Twist-grip Speed/Direction Control, Spring Loaded to Off
Dead-man Control

EQUIPMENT DATA – CONTINUED

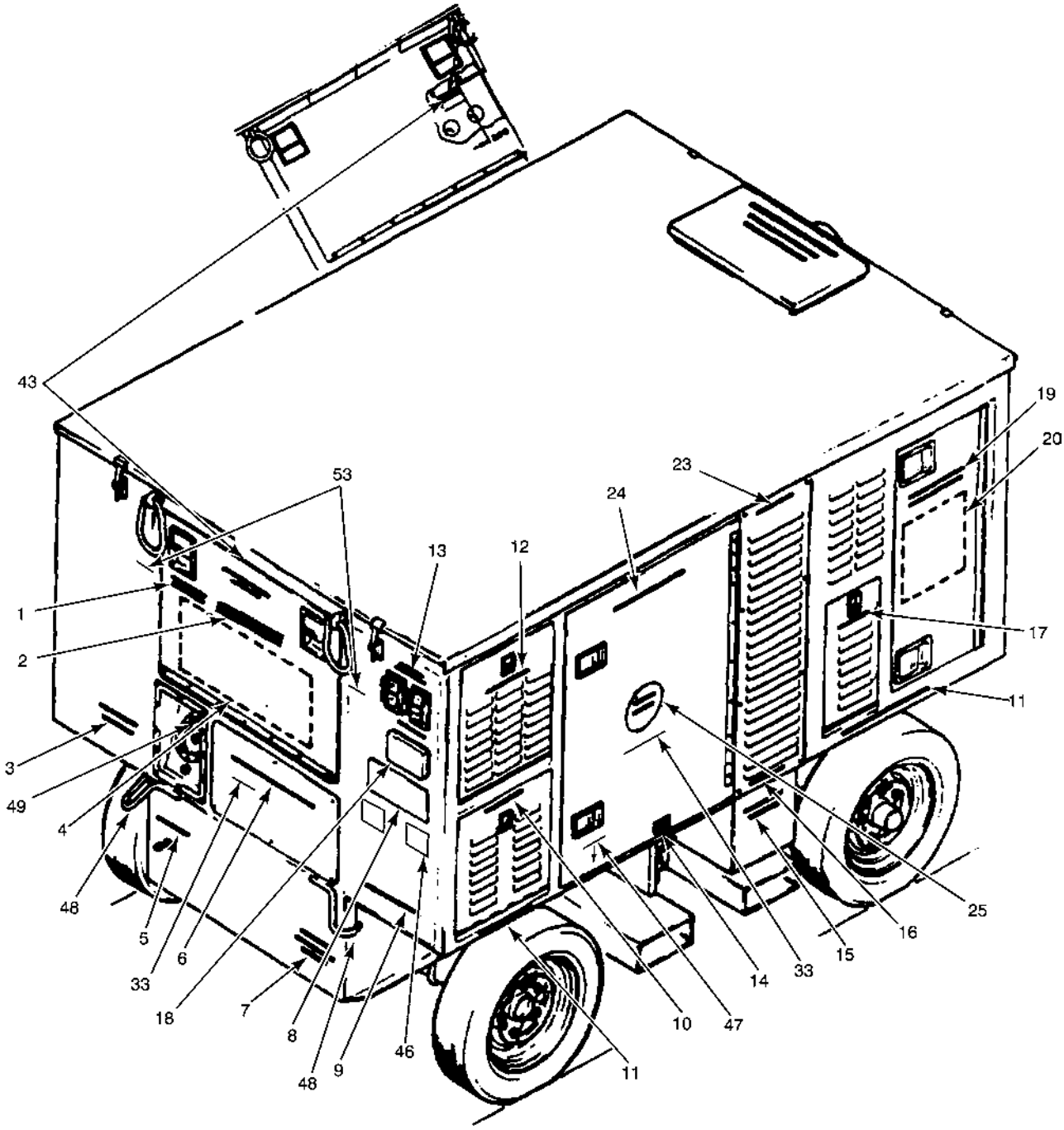


Figure 1. Location of Stenciling and Instruction Plates (Sheet 1 of 3).

EQUIPMENT DATA – CONTINUED

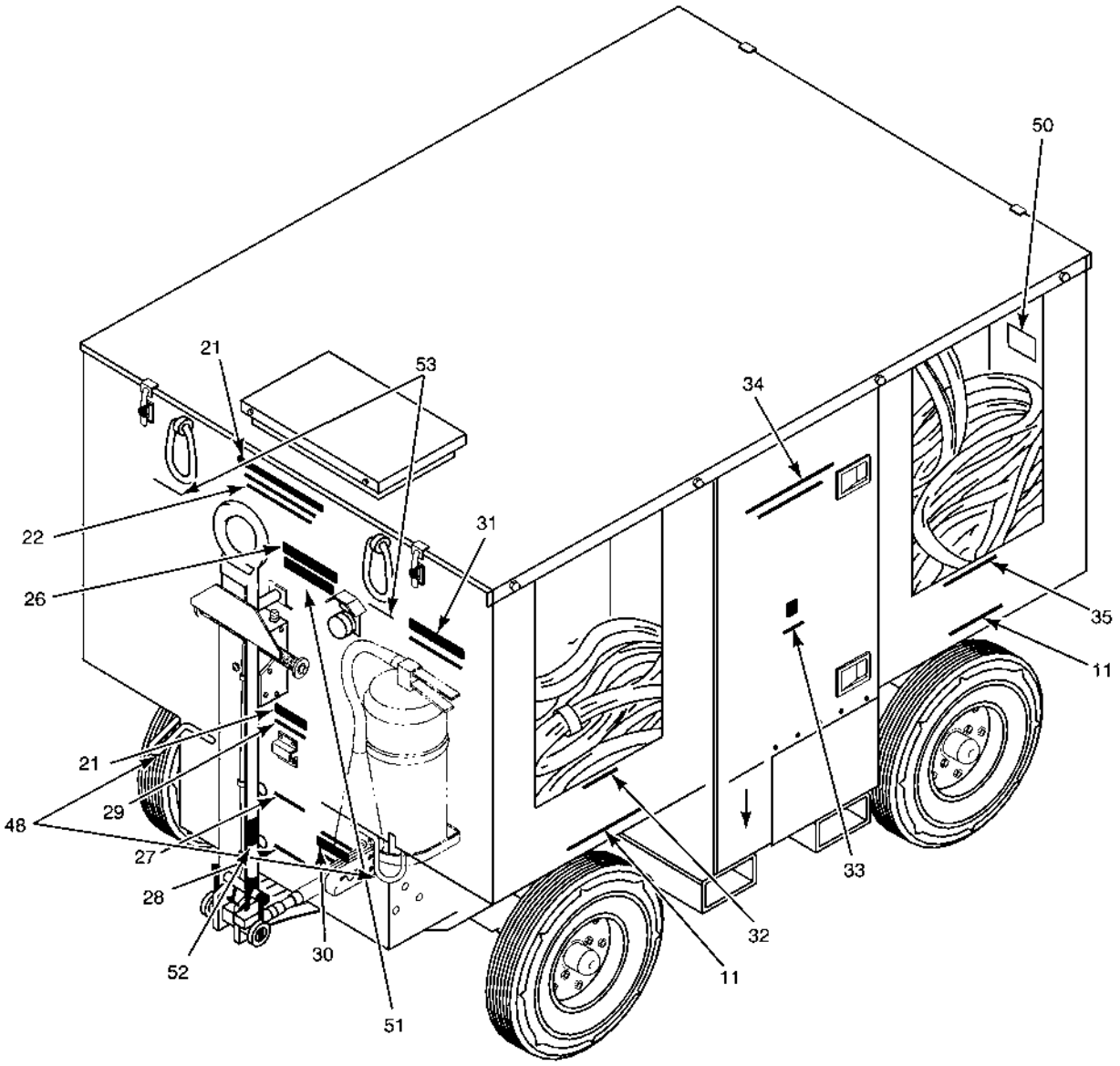


Figure 1. Location of Stenciling and Instruction Plates (Sheet 2 of 3).

EQUIPMENT DATA – CONTINUED

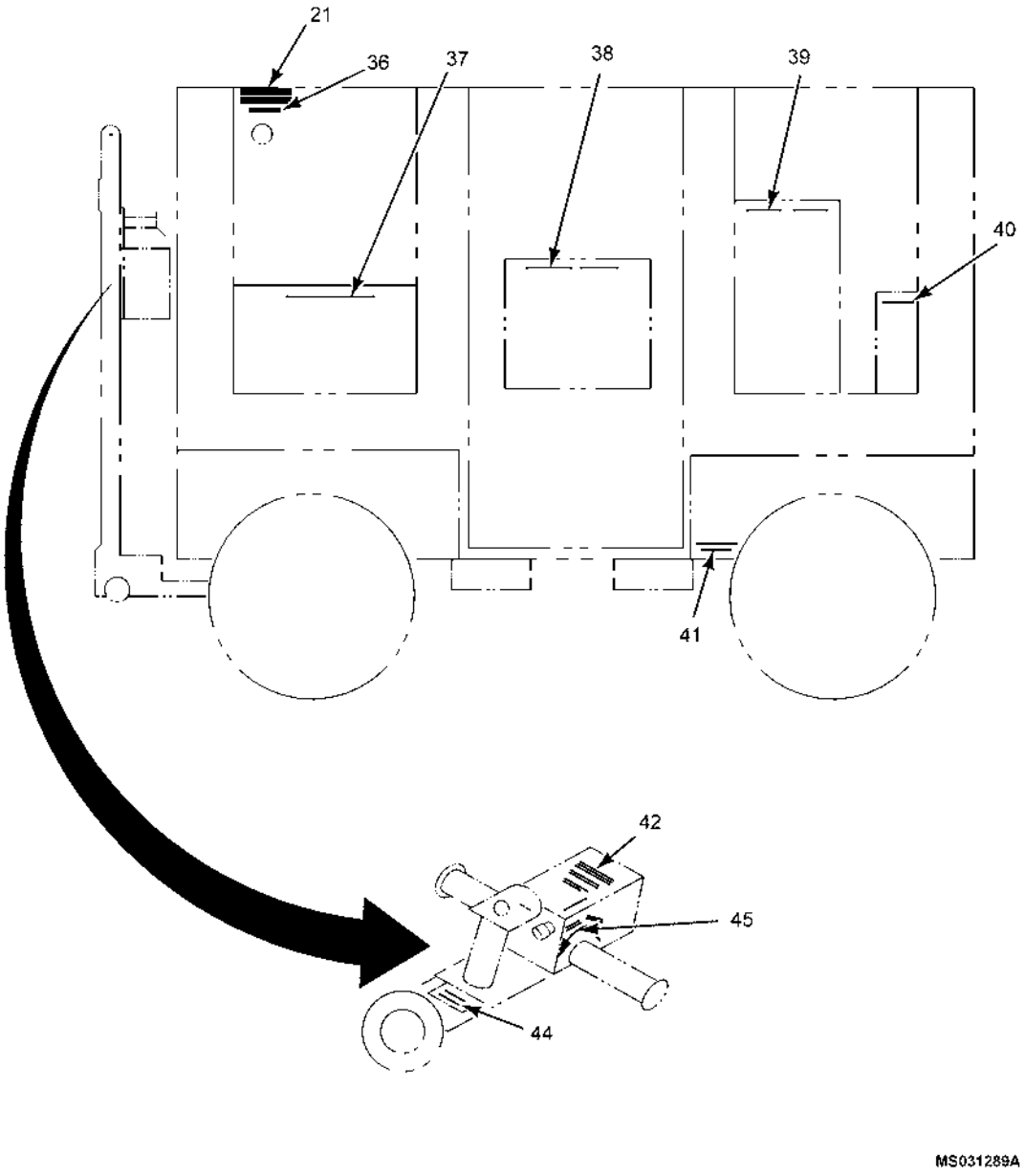


Figure 1. Location of Stenciling and Instruction Plates (Sheet 3 of 3).

EQUIPMENT DATA – CONTINUED

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)	—
5	GROUND	.5
6	BATTERY CHARGER ACCESS	.5
7	CLUTCH LEVER, PULL TO DRIVE, PUSH TO TOW	.5
8	IDENTIFICATION PLATE	—
9	BATTERY VENT (MEP 83-360A only)	.5
10	BATTERY COMPARTMENT	.5
11	TP 35 (X4)	.5
12	ELECTRICAL TRAY ACCESS DOOR	.5
13	110 VAC, 1 PHASE 400 HZ	.5
14	FUEL VALVE, INT, OFF EXT	.5
15	AIR CLEANER, EXHAUST ACCESS	.5
16	DO NOT BLOCK	.5
17	HYDRAULIC FILTERS ACCESS DOOR	.5
18	SLAVE RECEPTACLE 28 VDC	.5
19	HYDRAULIC CONTROL, PANEL ACCESS DOOR	.5
20	INSTRUCTION PLATE (HYD CONTROLS)	—
21	CAUTION (X3)	1.0
22	ENGINE, EXHAUST	.5
23	ENGINE AIR INTAKE	.5
24	ENGINE ACCESS DOOR	.5
25	ENGINE COMPARTMENT PREHEAT DOOR	.5
26	EMERGENCY, STOP	1.0

EQUIPMENT DATA – CONTINUED

Table 2. Stenciling Nomenclature and Instruction Plates. – Continued

Reference	Nomenclature	Character Size (inches) (Color - Black)
27	FUEL-2/3	.5
28	FUEL-1/3	.5
29	HOT AIR VENT	.5
30	OFF, BRAKE, ON	.5
31	FIRE, EXTINGUISHER	1.0
32	AC CABLE STORAGE	.5
33	CG	.5
34	PNEUMATIC HOSE (DC/AC INVERTER ACCESS DOOR)	.5
35	DC CABLE STORAGE	.5
36	CAUTION, ENGINE BLEED AIR, **40 PSIG**, 400 °F	.5
37	EXHAUST ACCESS DOOR	.5
38	ENGINE ACCESS PANEL	.5
39	HYDRAULIC PUMP ACCESS PANEL	.5
40	FUEL HOSE AND NECK ACCESS PANEL	.5
41	FUEL DRAIN , VALVE	.5
42	DO NOT TOW WHEN LIGHTED, CLUTCH, ENGAGED	.5
43	CAUTION	.5
	HIGH INTENSITY NOISE, HEARING PROTECTION REQUIRED (X2)	.25
	REQUIRED	
44	CAUTION	.5
	DISENGAGE, DRIVE CLUTCH, BEFORE TOWING	.25
45	FORWARD ↔ REVERSE	.25
46	MWO APPLIED IDENTIFICATION PLATE	.5
47	FORK LIFT POCKET	.5
48	TIEDOWN (X4)	.5
49	FUEL FILL	.5

EQUIPMENT DATA – CONTINUED

Table 2. Stenciling Nomenclature and Instruction Plates. – Continued

Reference	Nomenclature	Character Size (inches) (Color - Black)
50	TRU	.5
51	DO NOT BACK WITH VEHICLE	.5
52	TOW BAR RELEASE	.5
53	LIFT POINT (X4)	.5

Table 3. Torque Specifications.

Item	Torque Required	Work Package
Igniter Plug	**100 inch-pounds**	WP 0107 00
Igniter Plug Lead	**35 inch-pounds**	WP 0108 00
Ignition Unit Mounting Bolts	**50 inch-pounds**	WP 0109 00
Starter Assembly Mounting Bolts	**100 inch-pounds**	WP 0110 00
Oil Filter Cover Mounting Bolts	**50 inch-pounds**	WP 0106 00
Combustor Assembly Bolts	**50 inch-pounds**	WP 0114 00
Fuel Control Unit (FCU) Clamp Nut	**20 inch-pounds**	WP 0092 00
Fuel Nozzle Mounting Bolts	**50 inch-pounds**	WP 0114 00
Load Control Valve (LCV) clamp nut	**20 inch-pounds**	WP 0100 00
Hydraulic Pump Mounting Nuts	**190 inch-pounds**	WP 0027 00
Wheel Nuts	**45 foot-pounds**	WP 0130 00
Engine Mounts	**50 inch-pounds**	WP 0148 00
Hydraulic Hose (AN-6) Coupling Nuts	**210-230 inch-pounds**	WP 0126 00
Hydraulic Hose (AN-12) Coupling Nuts	**900 to 1,000 inch-pounds**	WP 0126 00
Hydraulic Hose (AN-20) Coupling Nuts	**1,520 to 1,680 inch-pounds**	WP 0126 00
Generator Mounting Nuts	**280 to 300 inch-pounds**	WP 0079 00
Starter Housing to End Bell Bolts	**25 to 30 inch-pounds**	WP 0063 00
Hydraulic Tube Fittings	**135 to 150 inch-pounds**	WP 0126 00
Hydraulic Reservoir Coupling Nut	**900 to 1,000 inch-pounds**	WP 0126 00
Hydraulic Tube Fittings	**450 to 500 inch-pounds**	WP 0126 00
Engine Housing Scroll Bolts	**50 to 55 inch-pounds**	WP 0038 00
Engine Hourmeter Bracket Bolts	**30 to 35 inch-pounds**	WP 0112 00
Hourmeter Screws	**30 to 35 inch-pounds**	WP 0112 00
Igniter Plug	**95 to 100 inch-pounds**	WP 0114 00
Igniter Plug Leads	**30 to 35 inch-pounds**	WP 0114 00

EQUIPMENT DATA – CONTINUED

Table 3. Torque Specifications. – Continued

Item	Torque Required	Work Package
Chain Drive Bolts	**35 to 40 foot-pounds**	WP 0139 00
Drive Pinion Shaft Nut	**45 to 50 foot-pounds**	WP 0139 00
Drive Chain Adjustment Nut	**20 to 25 inch-pounds**	WP 0139 00
Chain Housing Bolts	**35 to 40 foot-pounds**	WP 0139 00
Fuel Filter FCU Bolts	**10 to 15 foot-pounds**	WP 0093 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

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 (simultaneous). The AGPU provides the ground power requirements for aircraft such as the following: AH-64, CH-47, OH-58, 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/Gearbox Assembly

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 gearbox 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, creating hot combustion gases required to drive the turbine motor.

Turbine Section

The turbine section consists of a turbine plenum, a torus scroll, a deswirl assembly, a turbine nozzle, a turbine rotor, a labyrinth seal assembly and a combustion chamber. 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 gearbox 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.

Gearbox Assembly

The gearbox assembly provides pads for mounting and driving a hydraulic pump and a generator. The gearbox assembly also provides mounting bosses for a low oil pressure switch, a speed sensor and a high oil temperature

AVIATION GROUND POWER UNIT – CONTINUED

switch. An oil pump housing is located on the lower front of the gearbox 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, this battery type was the BT1 and the Aircraft NI-CAD battery. The current battery configuration consists of two 12 volt DC, maintenance free lead acid batteries (gel type). 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 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.

AVIATION GROUND POWER UNIT – CONTINUED

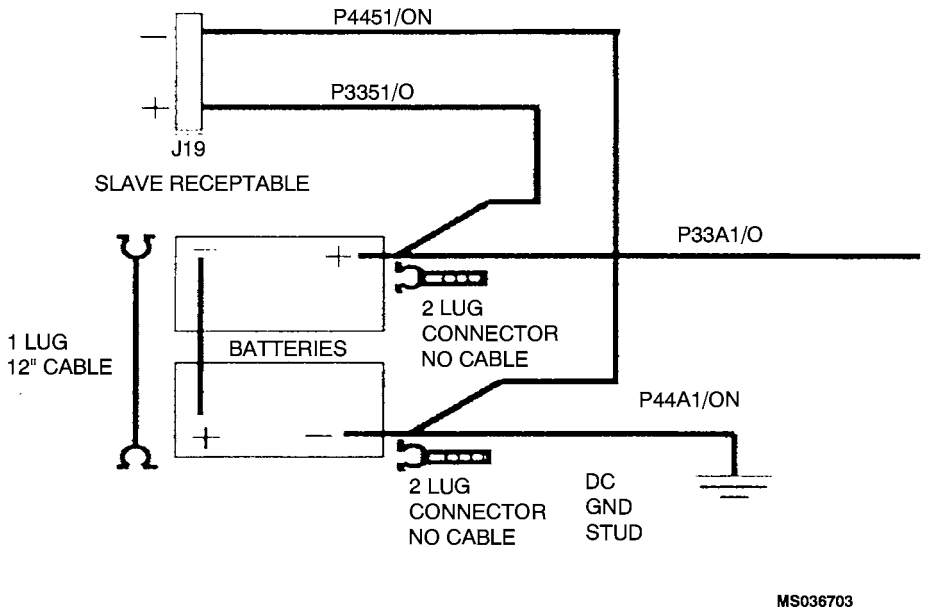


Figure 1. Current Polarity Configuration of Batteries and Wiring.

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 FCU is mounted on the front of the gearbox assembly 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 FCU passes

AVIATION GROUND POWER UNIT – CONTINUED

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 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 alternator is also a self-cooled, continuous duty, self-excited, brushless unit like the generator except the DC winding and rectifier have been removed. The rectangular box on top of the alternator is eliminated. It contained the DC output terminals. The alternator control unit (GCU) (P/N CSV3370-3) is located in the primary electrical housing behind the control panel of the AGPU. 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. GSC CSV3370-3 can **ONLY** be used on MEP 83-360D/E models.

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 gearbox assembly), 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/gearbox assembly pump mounting pad. The pump is driven by the engine/gearbox assembly at approximately 8,000 rpm. For units not requiring hydraulic power, a spacer is provided to bolt between the engine/gearbox assembly and pump. This

AVIATION GROUND POWER UNIT – CONTINUED

spacer disconnects the pump from the drive gear. This eliminates unnecessary wear on the pump reduces load on the engine (since the pump must maintain a minimum **450-500 psig** pressure for self-lubrication). The hydraulic system must never be operated without sufficient hydraulic fluid or pump will be damaged. The pump receives 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 contains all controls (fluid and electrical) for the hydraulic system. The module contains a 9 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 4 (two output and two return) hoses are 10 feet long. Two 2 foot adapter 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 pin G (P-16) 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.

AVIATION GROUND POWER UNIT – CONTINUED

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.

FUEL SUPPLY SYSTEM

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

AVIATION GROUND POWER UNIT – CONTINUED

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 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 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 45 KW 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 28 VDC 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

OPERATOR 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)

OPERATOR INSTRUCTIONS

**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 AND USE OF OPERATOR CONTROLS AND INDICATORS

CONTROL PANEL

Table 1. through Table 5. will describe the use and function of operating controls and indicators. Learn the locations and function of all controls and indicators prior to operating the AGPU.

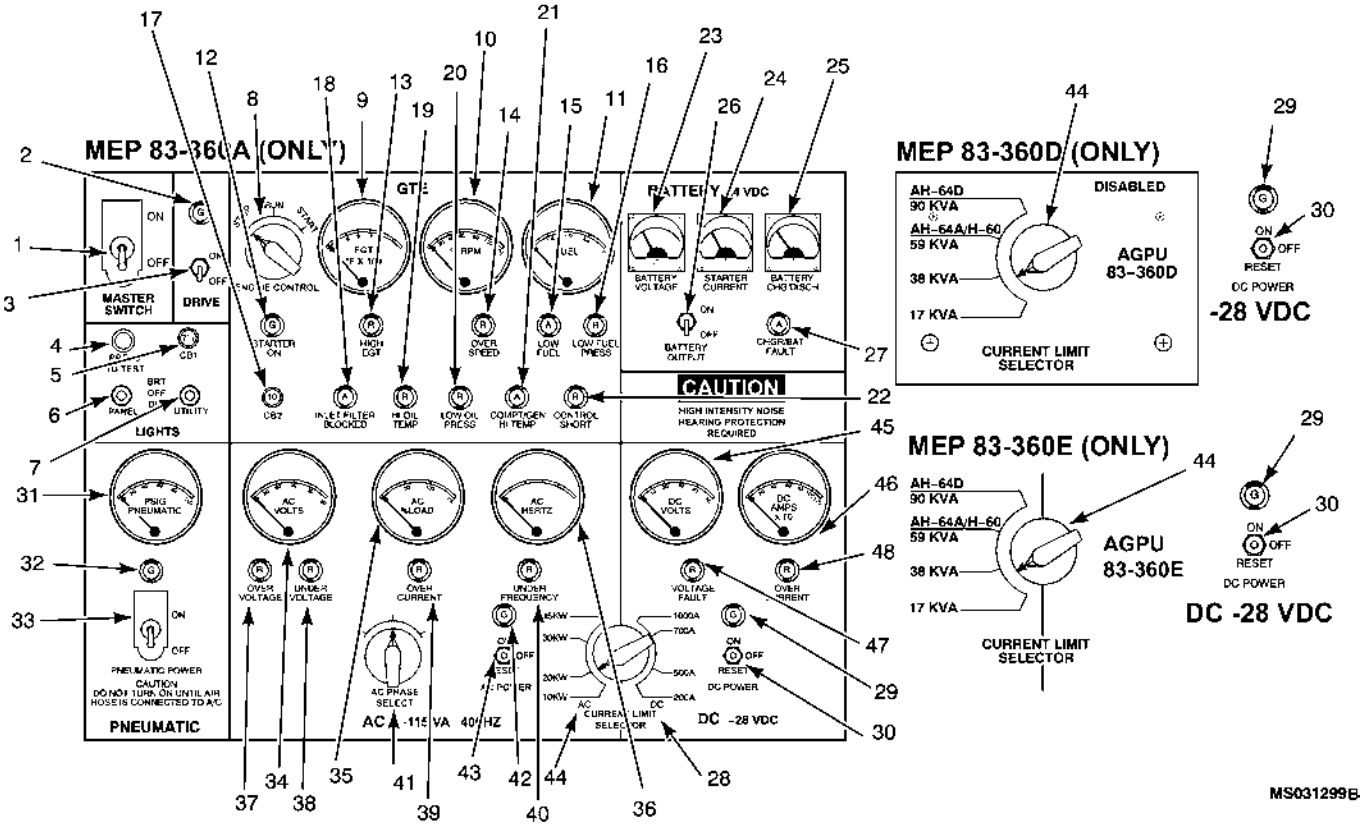


Figure 1. Control Panel.

Table 1. Control Panel, Controls and Indicators.

Key	Control/Indicator	Function
1	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.
2	DRIVE Indicator (DS1)	Green indicator light. Illuminates when DRIVE switch, MASTER switch, BATTERY OUTPUT or DC POWER switch are on and clutch is engaged.
3	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.
4	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.
5	7.5 Circuit Breaker (CB1)	7.5 AMP push-pull circuit breaker. Protects against overloads in lighting, fuel indication and pneumatic control circuits.
6	PANEL Lights Switch (S6)	Three position (BRT/OFF/DIM) toggle switch. Controls intensity of lights above control panel and shuts lights off.
7	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.
8	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.
9	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.
10	% 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.
11	FUEL Gauge (M3)	E (empty) to F (full) scale with 1/8-tank divisions. Indicates fuel level. F (full) = 65 gallons
12	STARTER ON Indicator (DS2)	Green indicator light. Illuminates when GTE starter contact is energized.
13	HIGH EGT Indicator (DS3)	Red warning indicator light. Illuminates if GTE is shut down because of high EGT.
14	OVER SPEED Indicator (DS4)	Red warning indicator light. Illuminates if GTE shuts down because of overspeed.
15	LOW FUEL Indicator (DS5)	Amber caution indicator light. Illuminates when 15 to 30 minutes of fuel remain.

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

Key	Control/Indicator	Function
16	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).
17	10 amp Circuit Breaker (CB2)	10 amp push-pull circuit breaker. Protects against overloads in engine DC circuits.
18	INLET FILTER (AIR CLEANER) BLOCKED Indicator (DS8)	Amber caution indicator light. Illuminates if GTE inlet air flow is restricted, causing bypass door to open.
19	HI OIL TEMP Indicator (DS9)	Red warning indicator light. Illuminates if GTE shuts down because of high oil temperature.
20	LOW OIL PRESS Indicator (DS10)	Red warning indicator light. Illuminates if GTE shuts down because of low oil pressure (Oil pressure must be below **12 psig** for 10 seconds after GTE rpm reaches 95% before GTE is shut down).
21	COMPT/GEN HI TEMPIindicator (DS11)	Amber caution indicator light. Illuminates if electrical bay temperature or generator AC winding temperature is high.
22	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).
23	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.
24	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.)
25	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.
26	BATTERY OUTPUT Switch (S5)	Two-position (ON/OFF) toggle switch. Used to connect battery/charger to external DC cable. DC POWER switch (S12) 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.
27	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.
28	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 models, the DC side of this switch is not used all DC settings have been removed. DC current is limited only by the capacity of the TRU.
29	DC POWER Indicator (DS21)	Green indicator light. Illuminates when DC contactor is closed.
30	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 DC fault logic (extinguishes DC red warning indicator lights). BATTERY OUTPUT switch must be set to OFF when DC POWER switch (S12) is ON.

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

Key	Control/Indicator	Function
31	PSIG PNEUMATIC Gauge (M7)	**0 to 100 psig** scale. Green band at **24-60 psig**. Indicates pressure in pneumatic output hose.
32	PNEUMATIC POWER Indicator (DS13)	Green indicator light. Illuminates when PNEUMATIC POWER switch is on.
33	PNEUMATIC POWER Switch (S8)	Two-position (ON/OFF) toggle switch (guarded). Activates GTE LCV. Also closes normally open (n.o.) dump solenoid valve.
34	AC VOLTS Meter (M8)	0 to 150 volts scale. Green band at 108-118 volts. Indicates voltage of selected phase.
35	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.
36	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.
37	OVER VOLTAGE Indicator (DS14)	Red warning indicator light. Illuminates when GCU opens AC contactor because of over voltage.
38	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.
39	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.
40	UNDER FREQUENCY Indicator (DS17)	Red warning indicator light. Illuminates when GCU opens AC contactor due to under frequency on all models.
41	AC PHASE SELECT Switch (S9)	Three-position (A/B/C) rotary switch. Connect selected phase to AC VOLTS, AC % LOAD and AC HERTZ meters.
42	AC POWER Indicator (DS20)	Green indicator light. Illuminated when AC contactor is closed.
43	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).

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

Key	Control/Indicator	Function
44	CURRENT LIMIT SELECTOR Switch (all models)	Rotary switch with four AC positions (10 KW, 20 KW, 30 KW and 45 KW) MEP 83-360 A model (only). The selector switch selects generator maximum AC output for all phases. (If the switch is set for 30 KW AC, the maximum output per phase is 10 KW AC or 100% of the AC % LOAD meter rating.) On the MEP 83-360D/E, the AC current limit selections are: 17 KVA, 38 KVA, 59 KVA for (UH-60/AH-64A) and 90 KVA for the (AH-64D). When the CURRENT LIMIT SELECTOR switch is set at 45 KW AC or 1000 AMP DC (MEP 83-360A only) or AH-64D/90 KVA AC setting (MEP 83-360D/E only), this switch also opens the surge control valve to increase available GTE shaft horsepower.
45	DC VOLTS Meter (M11)	0 to 50 volts scale. Green band at 22-32 volts.
46	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.
47	VOLTAGE FAULT Indicator (DS18)	Red warning indicator light. On the MEP 83-360A model AGPU only, indicator light illuminates if GCU opens DC contactor or removes generator field excitation due to low or high voltage, high ripple or an over current condition. On the MEP 83-360D model AGPU, the light is present on the control panel but will not illuminate if a fault occurs. On the MEP 83-360E model AGPU, the light has been eliminated from the control panel.
48	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.

PNEUMATIC SECTION

FUEL SUPPLY SYSTEM

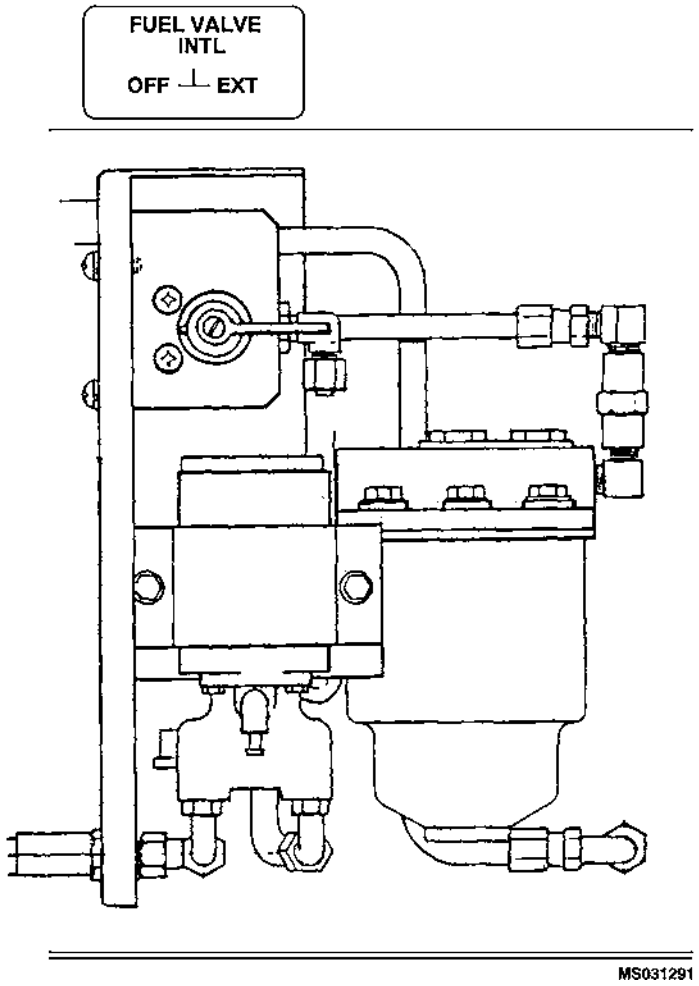


Figure 2. Fuel Supply System.

Table 2. Fuel System, Controls and Indicators.

Key	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)

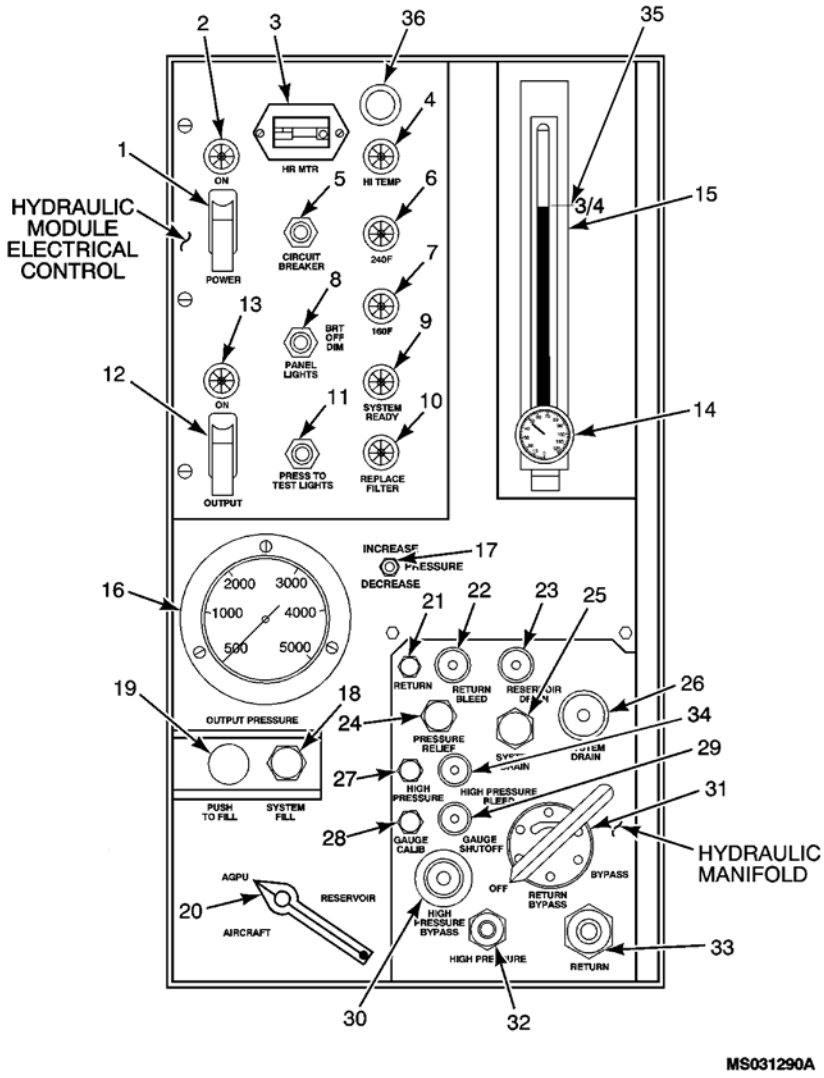


Figure 3. Hydraulic Control Panel (All Models).

Table 3. Hydraulic Control Panel, Controls and Indicators (All Models).

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.

Table 3. Hydraulic Control Panel, Controls and Indicators (All Models). – Continued

Key	Control/Indicator	Function
4	HI TEMP Indicator (DS1)	Red warning light. Illuminates when hydraulic fluid temperature exceeds 275 °F (135 °C).
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/DECREASE) 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.
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	

Table 3. Hydraulic Control Panel, Controls and Indicators (All Models). – Continued

Key	Control/Indicator	Function
21	RETURN Fluid Observation Window/LP	Site glass. Permits viewing fluid that passes through the LP RETURN 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 SITE GLASS	Permits viewing fluid that passes through HIGH PRESSURE BLEED valve.
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.
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	HIGH PRESSURE BLEED VALVE	Cartridge shutoff valve (manual). Permits (when open) bleeding of air bubbles from High Pressure System.
35	3/4 Hydraulic Reservoir Mark	Operational Level of System Hydraulic Fluid.
36	Panel Light	Illuminates Hydraulic Control Panel

ELECTRICAL TRAYS

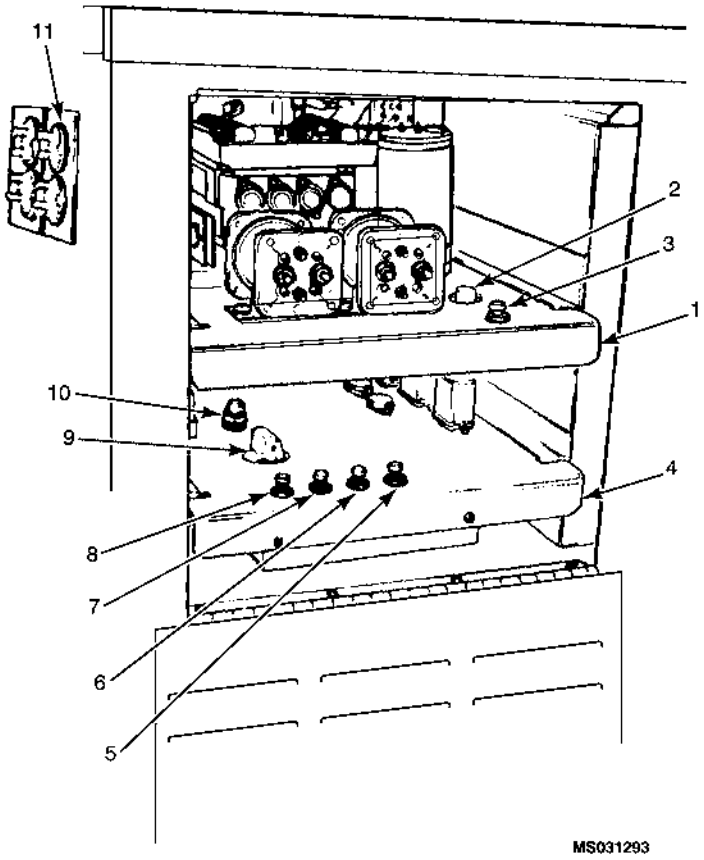


Figure 4. Electrical Trays.

Table 4. Electrical Trays, Controls and Indicators.

Key	Control/Indicator	Function
1	**Upper Tray**	
2	BATTERY CHARGER 70 AMP Circuit Preaker (CB1)	Circuit breaker. Protects against overloads in 50 amp section of battery charger.
3	BATTERY CHARGER 35 AMP 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).

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: 30.5 VDC - for NI-CAD battery (normal). 28.5 VDC - for lead acid battery (hot or cold) or NI-CAD battery (hot). 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	Cirucit Breaker for Tow Bar Light (CB7)	2 AMP Push-Pull circuit breaker. Protects against overload in propulsion control circuits.
11	115V/400 Hz	Convenience receptacles

PROPULSION CONTROLS AND DEADMAN SWITCH

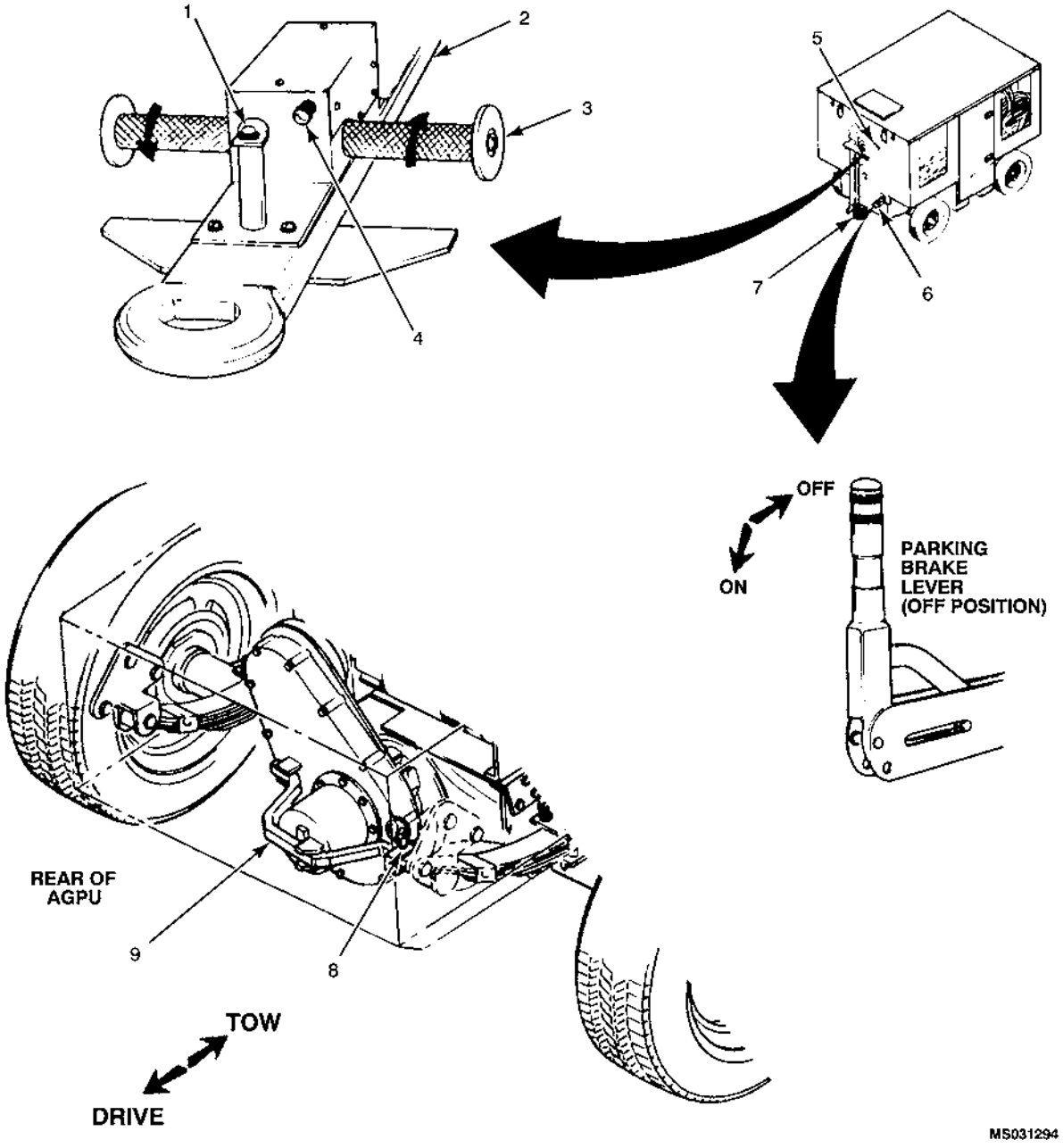


Figure 5. Propulsion Controls and DEADMAN Switch.

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.

OPERATOR INSTRUCTIONS

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

OPERATOR'S PREVENTIVE MAINTENANCE CHECKLIST (PMC) INTRODUCTION

INITIAL SETUP:

References	References (cont.)
WP 0029 00	
TO 35C2-3	TM 11275-15/1

GENERAL

Refer to the required Preventive Maintenance Checklist (PMC) (WP 0029 00) 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 (PMCS) that are to be performed by operator personnel are listed and described in WP 0029 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, WP 0029 00 for detailed procedures. Marine Corps users should refer to current issue of TM 11275-15/1.

Determining PMC Intervals

Operator PMC on the AGPU should be performed on a before (B), during (D) and/or after (A).

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 prior to 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:

B - Before Operation
D - During Operation

EXPLANATION OF COLUMNS - CONTINUED

A - After Operation

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.

END OF WORK PACKAGE

OPERATOR INSTRUCTIONS

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

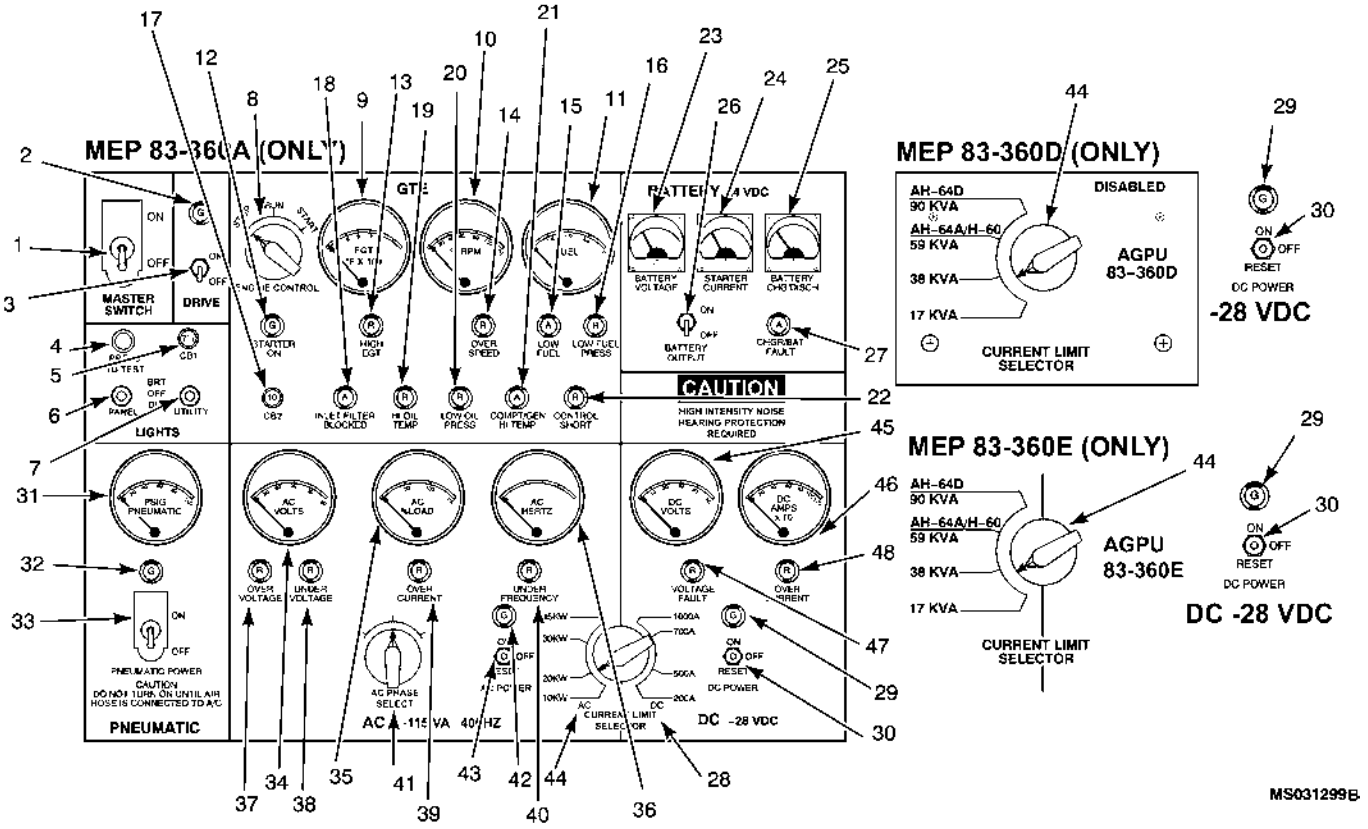
STARTUP/SHUTDOWN PROCEDURES

INITIAL SETUP:

References

WP 0029 00

ENGINE START PROCEDURES



1. MASTER Switch (S2)	13. HIGH EGT Indicator (DS3)	25. BATTERY CHG/DISCH Meter (M6)	37. OVER VOLTAGE Indicator (DS14)
2. DRIVE Indicator (DS1)	14. OVER SPEED Indicator (DS4)	26. BATTERY OUTPUT Switch (S5)	38. UNDER VOLTAGE Indicator (DS15)
3. DRIVE Switch (S3)	15. LOW FUEL Indicator (DS5)	27. CHRGR/BATT FAULT Indicator (DS7)	39. OVER CURRENT Indicator (DS16)
4. PRESS TO TEST Switch (S4)	16. LOW FUEL PRESS Indicator (DS6)	28. DC CURRENT LIMIT SELECTOR Switch (S11) (MEP 83-360A Only)	40. UNDER FREQUENCY Indicator (DS17)
5. 7.5 Circuit Breaker (CB1)	17. 10 amp Circuit Breaker (CB2)	29. DC POWER Indicator (DS21)	41. AC PHASE SELECT Switch (S9)
6. PANEL lights Switch (S6)	18. INLET FILTER (AIR CLEANER) BLOCKED Indicator (DS8)	30. DC POWER Switch (S12)	42. AC POWER Indicator (DS20)
7. UTILITY lights Switch (S7)	19. HI OIL TEMP Indicator (DS9)	31. PSIG PNEUMATIC Gauge (M7)	43. AC POWER Switch (S10)
8. ENGINE CONTROL Switch (S1)	20. LOW OIL PRESS Indicator (DS10)	32. PNEUMATIC POWER Indicator (DS13)	44. AC CURRENT LIMIT SELECTOR Switch (S11) (all models) (Operational on MEP 83-360A only, removed on MEP 83-360E)
9. EGT °F X 100 Meter (M1)	21. COMPT/GEN HI TEMPI Indicator (DS11)	33. PNEUMATIC POWER Switch (S8)	45. DC VOLTS Meter (M11)
10. % RPM Meter (M2)	22. CONTROL SHORT Indicator (DS12)	34. AC VOLTS Meter (M8)	46. DC AMPS x 10 Meter (M12)
11. FUEL Gauge (M3)	23. BATTERY VOLTAGE Meter (M4)	35. AC % LOAD Meter (M9)	47. VOLTAGE FAULT Indicator (DS18)
12. STARTER ON Indicator (DS2)	24. STARTER CURRENT Meter (M5)	36. AC HERTZ Meter (M10)	48. OVER CURRENT Indicator (DS19)

Figure 1. Control Panel.

ENGINE START PROCEDURES - CONTINUED

CAUTION

If engine exhaust is gray fog during the starting procedure and the GTE EGT meter does not show an increase, set the ENGINE CONTROL switch to STOP. Do not attempt to restart until problem is resolved. Excessive fuel could cause booming or flaming start and damage engine.

CAUTION

Starter Duty Cycle. Observe the following:

Never attempt to start until engine has completely stopped turning. Starter/gearbox assembly damage may result.

Unsuccessful Start Attempts. Three consecutive attempts (30 seconds each maximum) are allowed. After three attempts, wait a minimum of 20 minutes for starter to cool down before a fourth attempt. Notify your supervisor if engine will not start in four attempts.

Successive Starts. Six successive starts in a one hour period at 10 minute intervals are allowed. After this period, one hour starter cool-down time is required.

CAUTION

Set the ENGINE CONTROL switch to STOP to prevent damage to AGPU if any of the following occurs:

BATTERY STARTER CURRENT meter reads more than 800 amps after initial cranking.

GTE RPM meter appears hung up at some speed below 95%.

GTE EGT meter reads above 1600 °F for more than 30 seconds.

GTE STARTER ON light illuminated for more than 30 seconds.

GTE EGT meter reads abnormally low (500 °F or below) with no load. ECU may have a malfunction which could result in severe damage to engine when load is applied.

CAUTION

OUTPUT PRESSURE gauge on hydraulic control panel does not indicate a minimum of **450-500 psig** immediately after engine start (unless hydraulic pump spacer is installed). Hydraulic pump will be damaged if run without hydraulic fluid pressure. Immediately shut down engine.

Unusual noises heard.

Fuel or oil leakage observed.

NOTE

Refer to WP 0029 00, for indicators and meters that must be monitored during (D) operation.

1. Perform PMC Before (B) steps (WP 0029 00) and observe precautions in Engine Start Procedures and warning pages located in front of manual.
2. MASTER SWITCH (Figure 1) to ON.
3. Push PRESS TO TEST pushbutton (Figure 1) and check that all indicator lights on control panel illuminate.

ENGINE START PROCEDURES - CONTINUED

NOTE

On the MEP 83-360D, the DC voltage monitoring function of the GCU has been disabled. The DC VOLTAGE FAULT will not illuminate when the PRESS TO TEST button is pushed. On the MEP 83-360E, the lamp has been removed.

4. Momentarily set ENGINE CONTROL switch (Figure 1) to START and then release to RUN and observe the following:
   a. STARTER ON light (Figure 1) illuminates.
   b. STARTER CURRENT meter (Figure 1) indicates 500 amp to 800 amp during cranking.
   c. LOW FUEL PRESS light (Figure 1) goes out within 10 seconds after initiating start sequence.
   d. LOW OIL PRESS light (Figure 1) goes out within 10 seconds after engine reaches 95% speed.
   e. EGT meter (Figure 1) increases at combustion after engine % RPM meter reads above 10%.
   f. % RPM meter (Figure 1) reads more than 60% within 30 seconds after Step 2.
   g. STARTER CURRENT meter (Figure 1) reads zero when % RPM meter exceeds 60%.
   h. STARTER ON light (Figure 1) goes out when % RPM meter exceeds 60%.
   i. EGT meter (Figure 1) reads in green band within 60 seconds of initiating start sequence.
   j. % RPM meter (Figure 1) reads in green band.
   k. BATTERY CHG/DISCH meter (Figure 1) indicates CHARGE.
   l. CHG/BAT fault indicator light (Figure 1) goes out.
5. Perform PMC During (D) steps in WP 0029 00.

CAUTION

Check that OUTPUT PRESSURE gauge on hydraulic control panel indicates a minimum of **450-500 psig** (unless hydraulic pump spacer is installed). If less than **450-500 psig** , immediately set ENGINE CONTROL switch to STOP to prevent damage to hydraulic pump.

AGPU SHUTDOWN PROCEDURE

1. Set control panel ENGINE CONTROL switch (Figure 1) to STOP.
2. Check that control panel LOW FUEL PRESSURE (Figure 1), LOW OIL PRESSURE (Figure 1) and BATT CHG/DISCH (Figure 1) lights illuminate.
3. Set control panel MASTER switch (Figure 1) to OFF and leave battery connected. If not continuing operation disconnect battery.
4. Perform PMC After (A) steps (WP 0029 00).

END OF WORK PACKAGE

OPERATOR INSTRUCTIONS

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OPERATION UNDER USUAL CONDITIONS - AC/DC OPERATIONS

INITIAL SETUP:

References
WP 0006 00
WP 0008 00
WP 0019 00

References (cont.)
WP 0027 00
WP 0029 00

SECURITY MEASURES FOR ELECTRONIC DATA

NA

ASSEMBLY AND PREPARATION FOR USE

WARNING

Do not put AGPU under a main rotor blade. Main rotor blade damage may occur from extreme heat of AGPU exhaust.

1. Position the AGPU next to the aircraft as identified in the aircraft TM as applicable. Location must provide access to aircraft ground servicing connections and a tested static ground.

WARNING

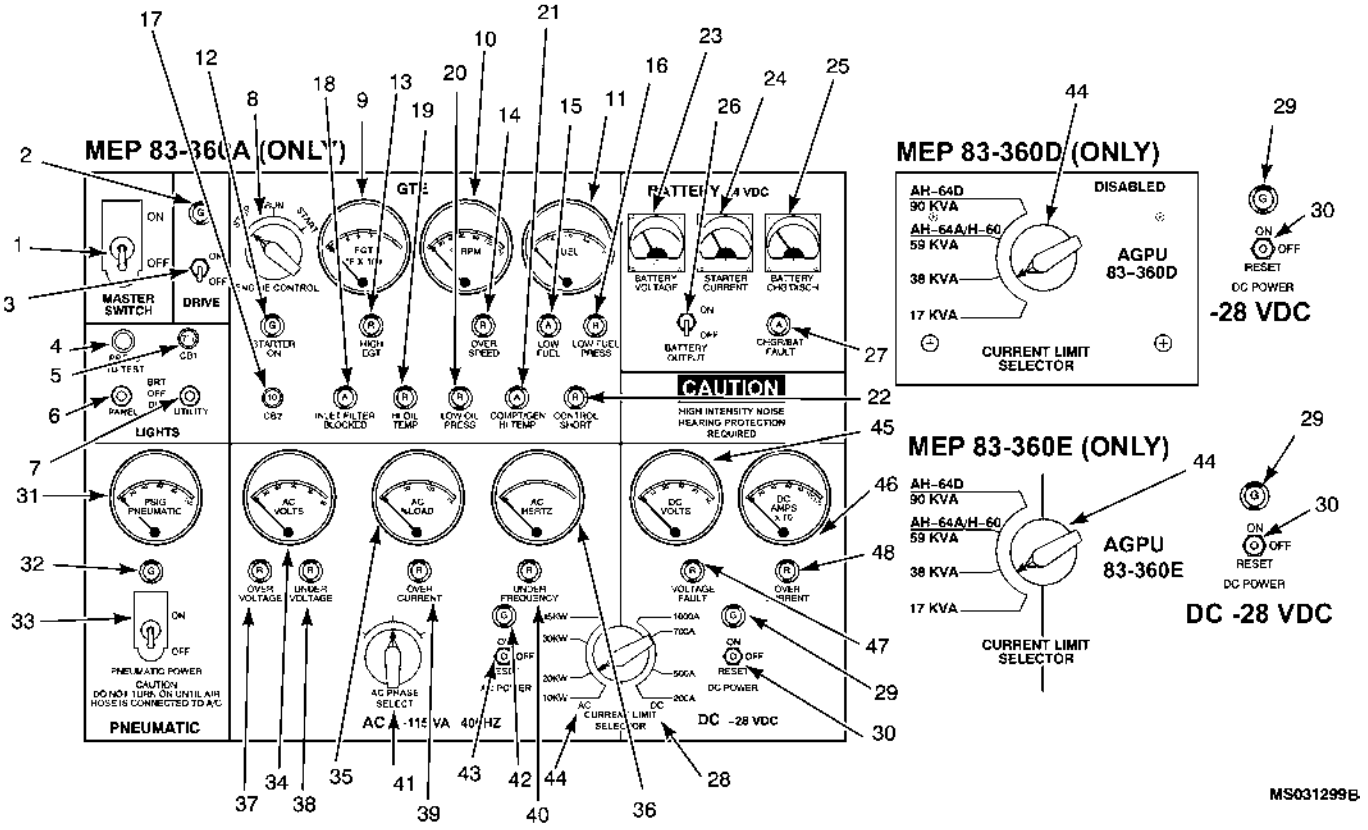
Do not operate the AGPU until ground stud has been connected to a suitable ground.

2. Ground the AGPU (WP 0027 00, Figure 1).
3. Perform PMC Before (B) steps (WP 0029 00).

ASSEMBLY AND PREPARATION FOR USE – CONTINUED

CAUTION

Check that hydraulic reservoir is at least 3/4 full. Low fluid level could result in hydraulic pump damage. Ensure that hydraulic module RESERVOIR selector is set to AGPU position.



1. MASTER Switch (S2)	13. HIGH EGT Indicator (DS3)	25. BATTERY CHG/DISCH Meter (M6)	37. OVER VOLTAGE Indicator (DS14)
2. DRIVE Indicator (DS1)	14. OVER SPEED Indicator (DS4)	26. BATTERY OUTPUT Switch (S5)	38. UNDER VOLTAGE Indicator (DS15)
3. DRIVE Switch (S3)	15. LOW FUEL Indicator (DS5)	27. CHRGR/BATT FAULT Indicator (DS7)	39. OVER CURRENT Indicator (DS16)
4. PRESS TO TEST Switch (S4)	16. LOW FUEL PRESS Indicator (DS6)	28. DC CURRENT LIMIT SELECTOR Switch (S11) (MEP 83-360A Only)	40. UNDER FREQUENCY Indicator (DS17)
5. 7.5 Circuit Breaker (CB1)	17. 10 amp Circuit Breaker (CB2)	29. DC POWER Indicator (DS21)	41. AC PHASE SELECT Switch (S9)
6. PANEL lights Switch (S6)	18. INLET FILTER (AIR CLEANER) BLOCKED Indicator (DS8)	30. DC POWER Switch (S12)	42. AC POWER Indicator (DS20)
7. UTILITY lights Switch (S7)	19. HI OIL TEMP Indicator (DS9)	31. PSIG PNEUMATIC Gauge (M7)	43. AC POWER Switch (S10)
8. ENGINE CONTROL Switch (S1)	20. LOW OIL PRESS Indicator (DS10)	32. PNEUMATIC POWER Indicator (DS13)	44. AC CURRENT LIMIT SELECTOR Switch (S11) (all models) (Operational on MEP 83-360A only, removed on MEP 83-360E)
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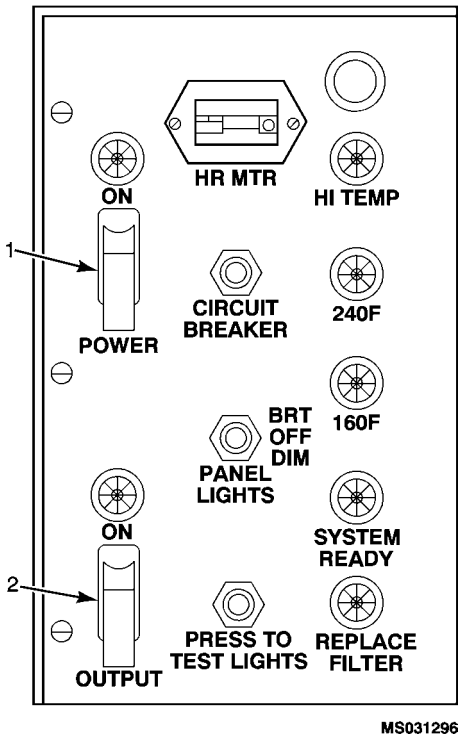
10. % RPM Meter (M2)	22. CONTROL SHORT Indicator (DS12)	34. AC VOLTS Meter (M8)	46. DC AMPS x 10 Meter (M12)
11. FUEL Gauge (M3)	23. BATTERY VOLTAGE Meter (M4)	35. AC % LOAD Meter (M9)	47. VOLTAGE FAULT Indicator (DS18)
12. STARTER ON Indicator (DS2)	24. STARTER CURRENT Meter (M5)	36. AC HERTZ Meter (M10)	48. OVER CURRENT Indicator (DS19)

Figure 1. Control Panel.

ASSEMBLY AND PREPARATION FOR USE – CONTINUED

4. Set switches on control panel (Figure 1) as follows:
   a. MASTER SWITCH to OFF.
   b. Drive switch to OFF.
   c. ENGINE CONTROL switch to STOP.
   d. BATTERY OUTPUT switch to OFF.
   e. DC POWER switch to OFF.
   f. AC POWER switch to OFF.
   g. PNEUMATIC POWER switch to OFF.



1. POWER switch 2. OUTPUT Switch

Figure 2. Hydraulic Control Panel.

5. Set switches on hydraulic control panel (Figure 2) as follows:
   a. POWER switch to OFF.
   b. OUTPUT switch to OFF.
6. Set fuel system four-way valve, WP 0006 00, Figure 2 as follows:
   a. If internal fuel supply is to be used, set four-way valve control handle to INTL.
   b. If external fuel supply is to be connected and used, remove cap nut and connect external fuel supply. Set four-way valve control handle to EXT. Purge fuel system of air (WP 0027 00, PRELIMINARY CHECKS AND ADJUSTMENTS, Step 13).

AC MODE OPERATION

LOAD CONNECTION

WARNING

Never attempt to connect or disconnect power cables to/from aircraft with power applied or without a proper ground on the AGPU ground stud and aircraft, otherwise severe arching may occur, causing burns and equipment failure.

CAUTION

During the conduct of this procedure the operator of the AGPU must be in intercom communication with the aircraft pilot or mechanic at all times.

1. Remove AC cable from storage compartment on forward left side of AGPU.
2. Connect AC cable to connector on aircraft.
3. Ensure that AC POWER switch (Figure 1) is set to OFF.
4. Perform WP 0008 00, Engine Start Procedures.

AC POWER APPLICATION

1. Set **AIRCRAFT** AC load control switches (Figure 1) to OFF.

CAUTION

Never adjust CURRENT LIMIT SELECTOR switch with both AC or DC POWER switch on.

2. Set CURRENT LIMIT SELECTOR switch (Figure 1) to the model **AIRCRAFT** to be powered up or to the desired current limit.

NOTE

The MEP 83-360D/E has been modified specifically to meet the combined AC, hydraulic and pneumatic servicing requirements of the AH-64D. When the CURRENT LIMIT SELECTOR switch is set to AH-64D, the maximum AC current is available to handle transient power requirements.

3. Set AC POWER switch (Figure 1) to ON (check that green indicator light illuminates).
4. Set AC PHASE SELECT switch (Figure 1) to A, B and C positions and observe that AC VOLTS and AC HERTZ meters read in green band for all three phases.

AC MODE OPERATION - CONTINUED

NOTE

The maximum continuous output for the MEP 83-360D/E (green range) is extended to 133% LOAD.

NOTE

If an overload or malfunction occurs and AC power is automatically shutdown, observe AC malfunction indicator lights. Record any lights illuminated prior to setting AC power switch to RESET or MASTER SWITCH to OFF.

5. Set **AIRCRAFT** AC load control switches to ON.
6. Set AC PHASE SELECT switch to A, B and C positions and observe that AC % LOAD meter (Figure 1) reads in green for all three phases.
7. Remove AC power from **AIRCRAFT** by performing Steps 8 through 11
8. Set **AIRCRAFT** AC load control switches to OFF.
9. Set AC POWER switch (Figure 1) to OFF on AGPU.
10. Shutdown AGPU (WP 0008 00, AGPU Shutdown Procedure).
11. Disconnect AC cable from **AIRCRAFT**.

DC OPERATION (ALL MODELS)

CAUTION

During the conduct of this procedure, the operator of the AGPU must be in intercom communication with the aircraft pilot or mechanic at all times. The battery output switch on the control panel must be in the OFF position prior to DC power application (Figure 1).

NOTE

The MEP 83-360D/E only operates in the AC mode. All DC output power is obtained by converting AC through the TRU. The CURRENT LIMIT SELECTOR switch should be set to one of the four AC marked locations (left side of switch) for DC operations or combined AC and DC operations.

Load Connection

WARNING

Never attempt to connect or disconnect power cable to/from aircraft with power applied, otherwise severe arcing may occur, causing burns and/or equipment damage.

1. Remove DC cable from storage compartment on rear left side of AGPU.
2. Connect DC cable to connector on aircraft.
3. Ensure that DC POWER switch (Figure 1) is set to OFF.
4. Perform WP 0008 00, Engine Start Procedures.

DC OPERATION (ALL MODELS) - CONTINUED

DC POWER APPLICATION

1. Set **AIRCRAFT** DC load control switches to OFF.
2. Set CURRENT LIMIT SELECTOR switch (Figure 1) set to desired DC range. For the MEP 83-360D/E, DC may be supplied with the CURRENT LIMIT SELECTOR switch (Figure 1) at any of the AC settings.
3. Set DC POWER switch (Figure 1) to ON (check that green indicator light illuminates).
4. Check that DC VOLTS meter (Figure 1) reads in the green range.
5. Set **AIRCRAFT** DC load control switches to ON.
6. Observe that DC AMPS meter (Figure 1) does not read in red range. On the MEP 83-360D/E, insure that the DC AMPS meter (Figure 1) does not read above 350 AMPS except during aircraft starting (or slave start of another AGPU).

NOTE

If an overload or malfunction occurs and DC power is automatically shutdown, observe DC malfunction indicator light. Record any lights illuminated prior to setting DC POWER to RESET or MASTER SWITCH to OFF.

7. Remove DC power from aircraft by performing Steps 8 through 11.
8. Set **AIRCRAFT** DC load control switches to OFF.
9. Set DC POWER switch (Figure 1) to OFF on AGPU.
10. Refer to WP 0008 00, AGPU Shutdown Procedure.
11. Disconnect DC cable from **AIRCRAFT**.

EMERGENCY ENGINE SHUTDOWN

WP 0019 00, Emergency Engine Shutdown.

SECURING AGPU AFTER OPERATION

Perform PMC After (A) steps (WP 0029 00).

END OF WORK PACKAGE

OPERATOR INSTRUCTIONS

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

OPERATION UNDER USUAL CONDITIONS - PNEUMATIC SYSTEM

INITIAL SETUP:

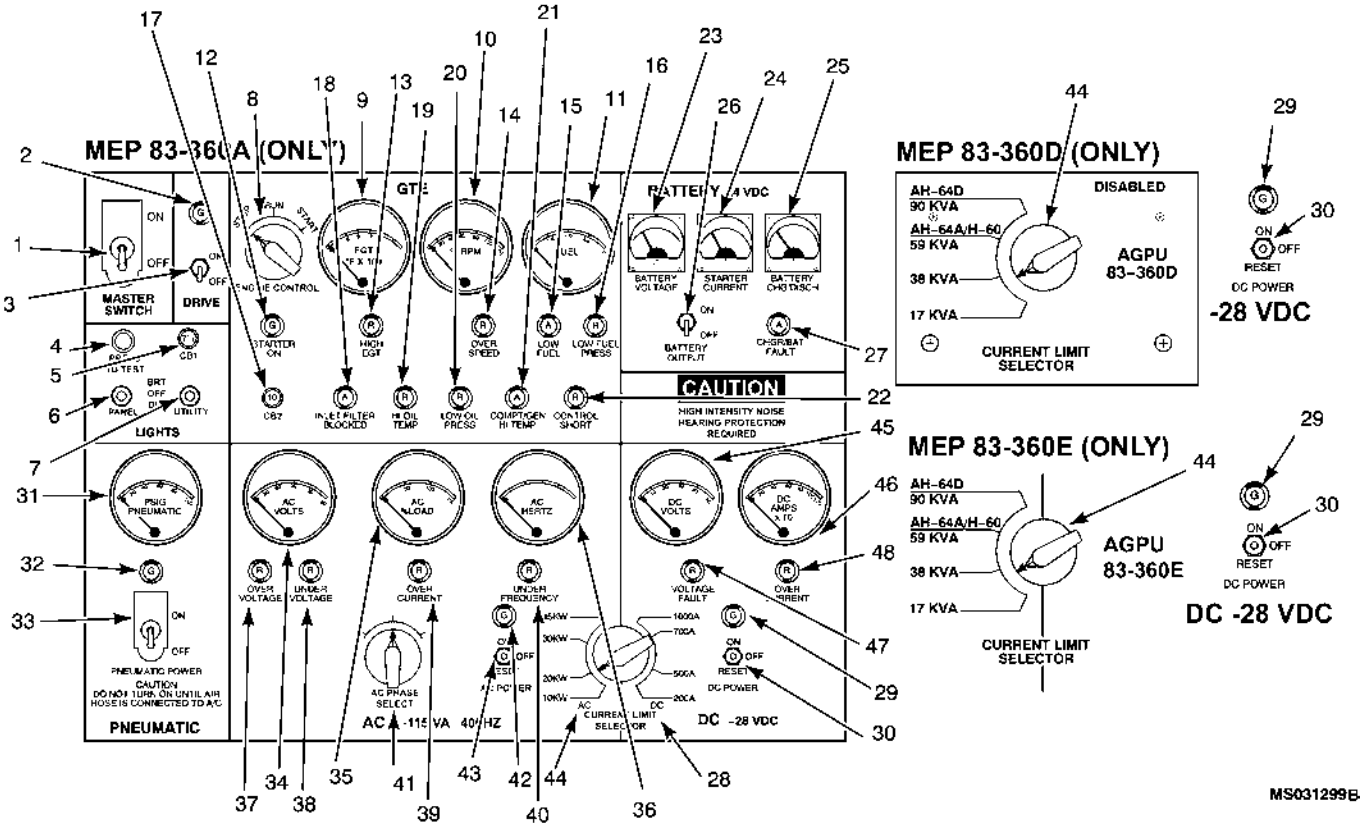
References
WP 0008 00
WP 0019 00

References (cont.)
WP 0029 00

CAUTION

During the conduct of this procedure, the operator of the AGPU must be in intercom communication with the aircraft pilot or mechanic at all times.

PNEUMATIC SYSTEM OPERATION



1. MASTER Switch (S2)
2. DRIVE Indicator (DS1)
3. DRIVE Switch (S3)
4. PRESS TO TEST Switch (S4)
5. 7.5 Circuit Breaker (CB1)
6. PANEL lights Switch (S6)
7. UTILITY lights Switch (S7)
8. ENGINE CONTROL Switch (S1)
9. EGT °F X 100 Meter (M1)
10. % RPM Meter (M2)
11. FUEL Gauge (M3)
12. STARTER ON Indicator (DS2)
13. HIGH EGT Indicator (DS3)
14. OVER SPEED Indicator (DS4)
15. LOW FUEL Indicator (DS5)
16. LOW FUEL PRESS Indicator (DS6)
17. 10 amp Circuit Breaker (CB2)
18. INLET FILTER (AIR CLEANER) BLOCKED Indicator (DS8)
19. HI OIL TEMP Indicator (DS9)
20. LOW OIL PRESS Indicator (DS10)
21. COMPT/GEN HI TEMPI Indicator (DS11)
22. CONTROL SHORT Indicator (DS12)
23. BATTERY VOLTAGE Meter (M4)
24. STARTER CURRENT Meter (M5)
25. BATTERY CHG/DISCH Meter (M6)
26. BATTERY OUTPUT Switch (S5)
27. CHRGR/BATT FAULT Indicator (DS7)
28. DC CURRENT LIMIT SELECTOR Switch (S11) (MEP 83-360A Only)
29. DC POWER Indicator (DS21)
30. DC POWER Switch (S12)
31. PSIG PNEUMATIC Gauge (M7)
32. PNEUMATIC POWER Indicator (DS13)
33. PNEUMATIC POWER Switch (S8)
34. AC VOLTS Meter (M8)
35. AC % LOAD Meter (M9)
36. AC HERTZ Meter (M10)
37. OVER VOLTAGE Indicator (DS14)
38. UNDER VOLTAGE Indicator (DS15)
39. OVER CURRENT Indicator (DS16)
40. UNDER FREQUENCY Indicator (DS17)
41. AC PHASE SELECT Switch (S9)
42. AC POWER Indicator (DS20)
43. AC POWER Switch (S10)
44. AC CURRENT LIMIT SELECTOR Switch (S11) (all models) (Operational on MEP 83-360A only, removed on MEP 83-360E)
45. DC VOLTS Meter (M11)
46. DC AMPS x 10 Meter (M12)
47. VOLTAGE FAULT Indicator (DS18)
48. OVER CURRENT Indicator (DS19)

Figure 1. Control Panel.

LOAD CONNECTION

WARNING

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. Wear proper gloves and eye protection (goggles or face shield) when operating pneumatic system.

WARNING

Pneumatic hose and adapter fitting become extremely hot when pneumatic power is applied. Never touch hose or adapter fitting until pneumatic power is removed and hose and adapter fitting have cooled. Wear proper gloves and eye protection (goggles or face shield) when operating pneumatic system.

1. Ensure that PNEUMATIC POWER switch (Figure 1) is set to OFF.

CAUTION

Handle hose with care so spiral wrap and netting are not damaged. Keep hose off ground if wet or muddy (use suitable supports).

2. Open access door and remove pneumatic hose from storage compartment. Route hose out of compartment so access door can be closed and hose is routed under rubber flap at bottom of door.
3. Straighten out hose to remove any kinks.
4. Connect pneumatic hose fitting to aircraft.
5. Perform WP 0008 00, Engine Start Procedures.

PNEUMATIC POWER APPLICATION

WARNING

Pneumatic hose and adapter fitting become extremely hot when pneumatic power is applied. Never touch hose or adapter fitting until pneumatic power is removed and hose and adapter have cooled. Wear proper gloves and eye protection.

1. Set PNEUMATIC POWER switch (Figure 1) to ON (check that green indicator light illuminates).
2. Observe that PSIG PNEUMATIC gauge (Figure 1) indicates in green range.

NOTE

Pneumatic pressure will modulate engine EGT. If EGT becomes too high, load control valve will automatically reduce pneumatic output until engine EGT is lowered to acceptable level.

3. Remove pneumatic power from aircraft by performing Steps 4 through 8.
4. Set PNEUMATIC POWER switch (Figure 1) to OFF.

PNEUMATIC POWER APPLICATION - CONTINUED

5. Refer to WP 0008 00, AGPU Shutdown Procedure.
6. Disconnect pneumatic hose fitting from aircraft.
7. Open access door and carefully store hose in compartment.
8. Close access door.

REMOVE AGPU FROM OPERATION

AGPU SHUTDOWN

WP 0008 00, AGPU Shutdown Procedure.

EMERGENCY ENGINE SHUTDOWN

WP 0019 00, Emergency Engine Shutdown.

SECURING AGPU AFTER OPERATION

Perform PMC After (A) steps (WP 0029 00).

END OF WORK PACKAGE

OPERATOR INSTRUCTIONS

**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**

OPERATION UNDER USUAL CONDITIONS - HYDRAULIC SYSTEM

INITIAL SETUP:

References

DA PAM 738-751
MWO 1-1730-229-20-1
TB 43-0211
WP 0002 00
WP 0008 00

References (cont.)

WP 0009 00
WP 0010 00
WP 0028 00
WP 0029 00

HYDRAULIC SYSTEM OPERATION

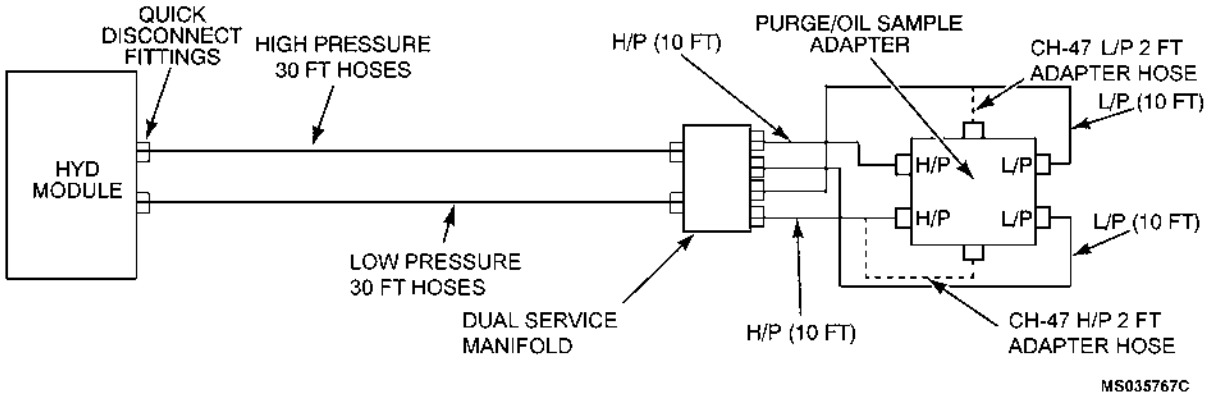


Figure 1. Purge/Oil Sampling Connections/Schematic .

PRE-OPERATION HOSE CONNECTIONS (ALL APPLICATIONS)

WARNING

EYE, HEARING AND HAND PROTECTION must be worn during all Hydraulic operations.

The AGPU is equipped with all hoses and adapters to properly and safely service the aircraft listed in Table 1. The use of other hoses, extensions, adapters, etc., not supplied by AGPU will degrade performance and could cause damage to aircraft and/or AGPU hydraulic pump.

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 could cause damage to the AIRCRAFT and personnel.

Ensure AGPU GTE is in the STOP position and the MASTER switch is in the OFF position prior to connecting all hoses and quick disconnects.

CAUTION

Do not let the AGPU reservoir go empty. Extensive damage to the AGPU hydraulic pump will occur.

Prior to performing hydraulic operations, perform a full PMCS (daily) (WP 0029 00) and ensure fuel system and all oil levels are at the optimum compactly.

During the conduct of this procedure, the operator of the AGPU must be in intercom communication with the AIRCRAFT pilot or mechanic at all times.

Inspect and remove all foreign matter from quick disconnects prior to connecting hose to AGPU and dual service manifold block and purge oil sample adaptor or AIRCRAFT.

NOTE

Hydraulic system may operate continuously with 160 °F light illuminated on Hydraulic Control Panel.

Ensure all hydraulic hose connectors on the AGPU control panel, the dual service manifolds and hoses are protected from contamination with a cap or plug. When making connections, reconnect the removed cap and plug to protect against contamination while hoses are being used.

References to purge block/oil sampling adapter applies only to AGPU's modified with MWO 1-1730-229-20-1.

Utilizing the purge block/oil sampling adapter for purging and/or sampling AGPU hydraulic system and hoses is the best method. It is recommended that AGPUs without purge block/sampling adapters be modified with MWO 1-1730-229-20-1.

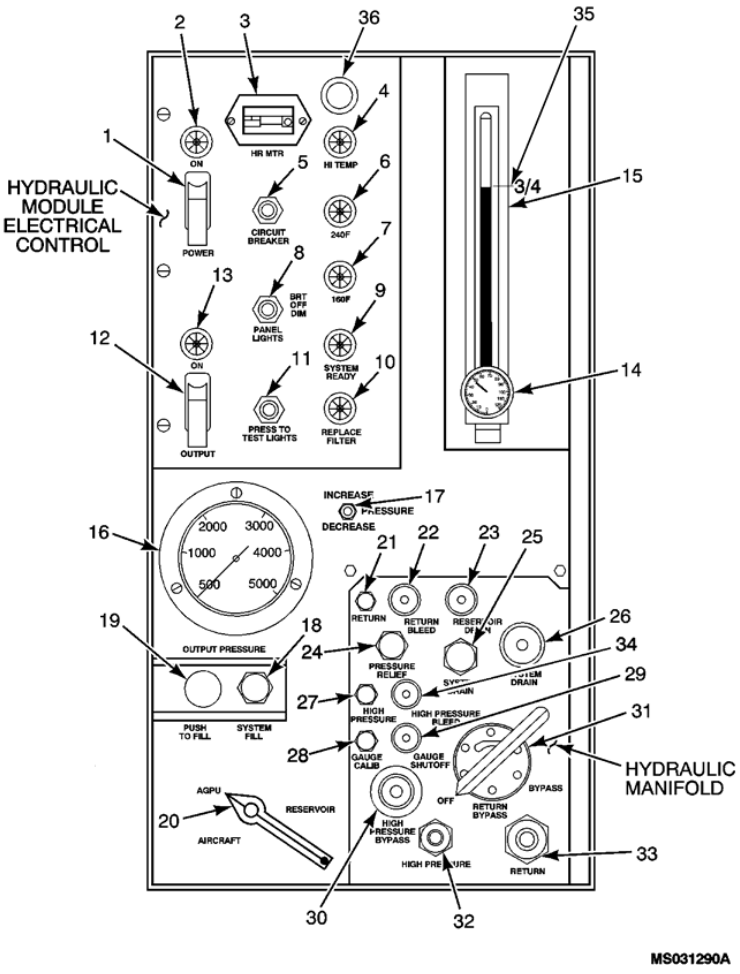
Hydraulic Purging Operations should be performed prior to supplying Hydraulic power to any type AIRCRAFT.

PRE-OPERATION HOSE CONNECTIONS (ALL APPLICATIONS) - CONTINUED

Table 1. Hydraulic Hoses.

AIRCRAFT ALL	Output (High Pressure Hose)		Return (Low Pressure Hose)	
	Part Number	Quantity	Part Number	Quantity
AH-64 (Apache)	1013813	2-10 ft.	1013811	2-10 ft.
AH-1 (Huey Cobra)	1013813	2-10 ft.	1013811	2-10 ft.
OH-58 (Kiowa)	1013813	2-10 ft.	1013811	2-10 ft.
UH-1 (Iroquois)	1013813	1-10 ft.	1013811	1-10 ft.
UH-60 (Blackhawk)	1013813	2-10 ft.	1013811	2-10 ft.
CH-47 (Chinook)	1013813 and 1013818	1-10 ft. and 1-2 ft. (adapter)	1013811 and 1013817	1-10 ft. and 1-2 ft. (adapter)
C-12 (Huron)	1013813	2-10 ft.	1013811	2-10 ft.
All Models	1013812	1-30 ft.	103811	2-10 ft.

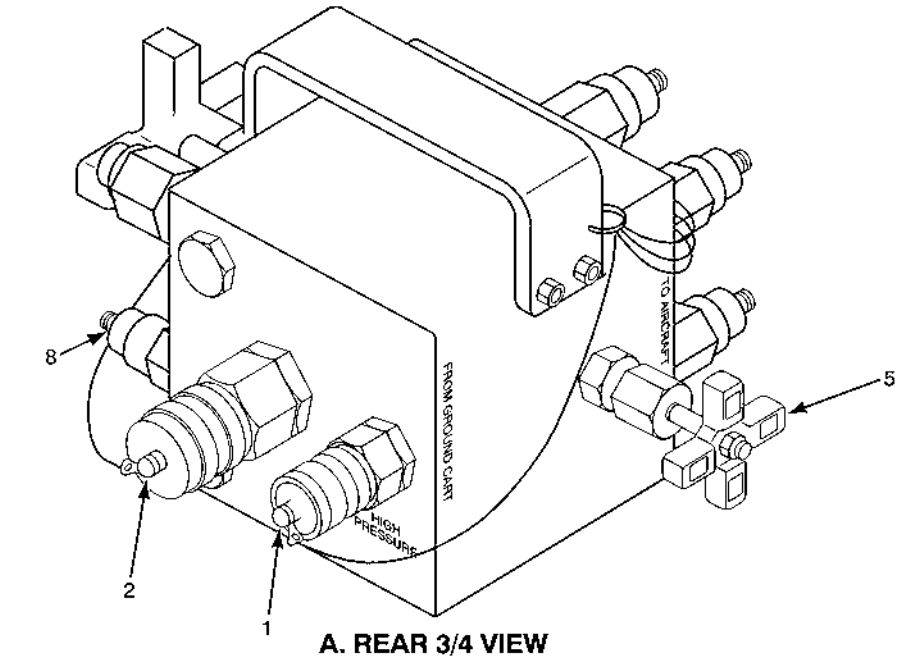
PRE-OPERATION HOSE CONNECTIONS (ALL APPLICATIONS) - CONTINUED



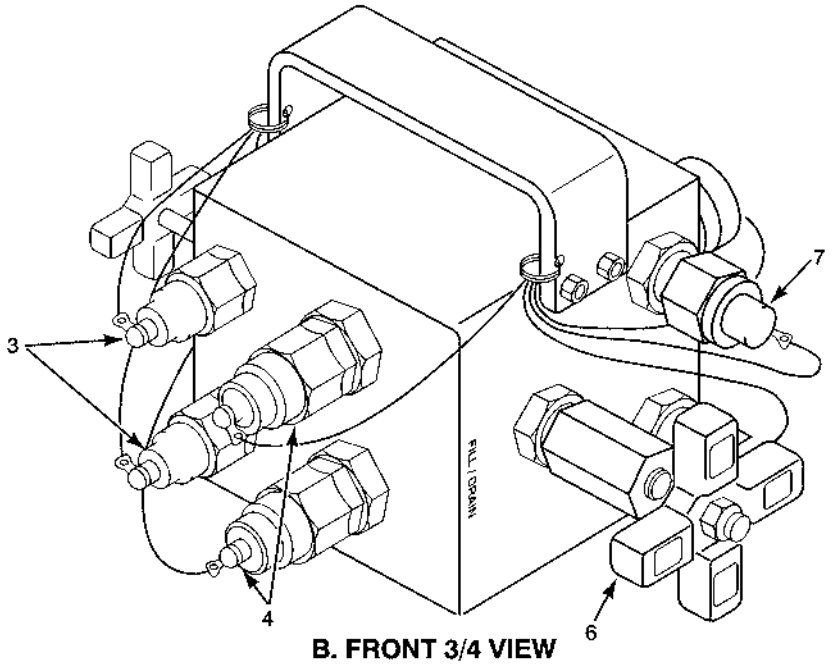
1. Hydraulic Power Master Switch
2. Master Switch (ON) Light
3. Hour Meter
4. High Temp Light
5. Control Panel Circuit Breaker
6. 240 F Hydraulic Oil Temperature Light
7. 160 F Hydraulic Oil Temperature Light
8. Control Panel Light Switch
9. System Ready Lamp
10. Filter Replacement Lamp
11. Press to Test Switch
12. Hydraulic Output Switch
13. Hydraulic Pressure Output Lamp (ON)
14. Hydraulic Oil Visual Thermometer (Reservoir)
15. Hydraulic Fluid Level Sight Glass
16. Output Pressure Gauge
17. Increase/Decrease Pressure Switch
18. System Fill Port
19. Push to Fill Valve
20. Reservoir Selector Valve
21. Hydraulic Oil Return Sight Glass
22. Return Bleed Valve
23. Reservoir Drain Valve
24. Pressure Relief Valve
25. System Drain Port
26. System Drain Valve
27. High Pressure Sight Glass
28. Gauge Calibration Port
29. Gauge Shut Off Valve
30. High Pressure Bypass Valve
31. Return Bypass Valve
32. High Pressure Output Port
33. Return Low Pressure Port
34. High Pressure Bleed Relief Valve
35. 3/4 Hydraulic Reservoir Mark
36. Panel Light

Figure 2. Hydraulic Power Operation - Hydraulic Control Panel Functions.

PRE-OPERATION HOSE CONNECTIONS (ALL APPLICATIONS) - CONTINUED



A. REAR 3/4 VIEW



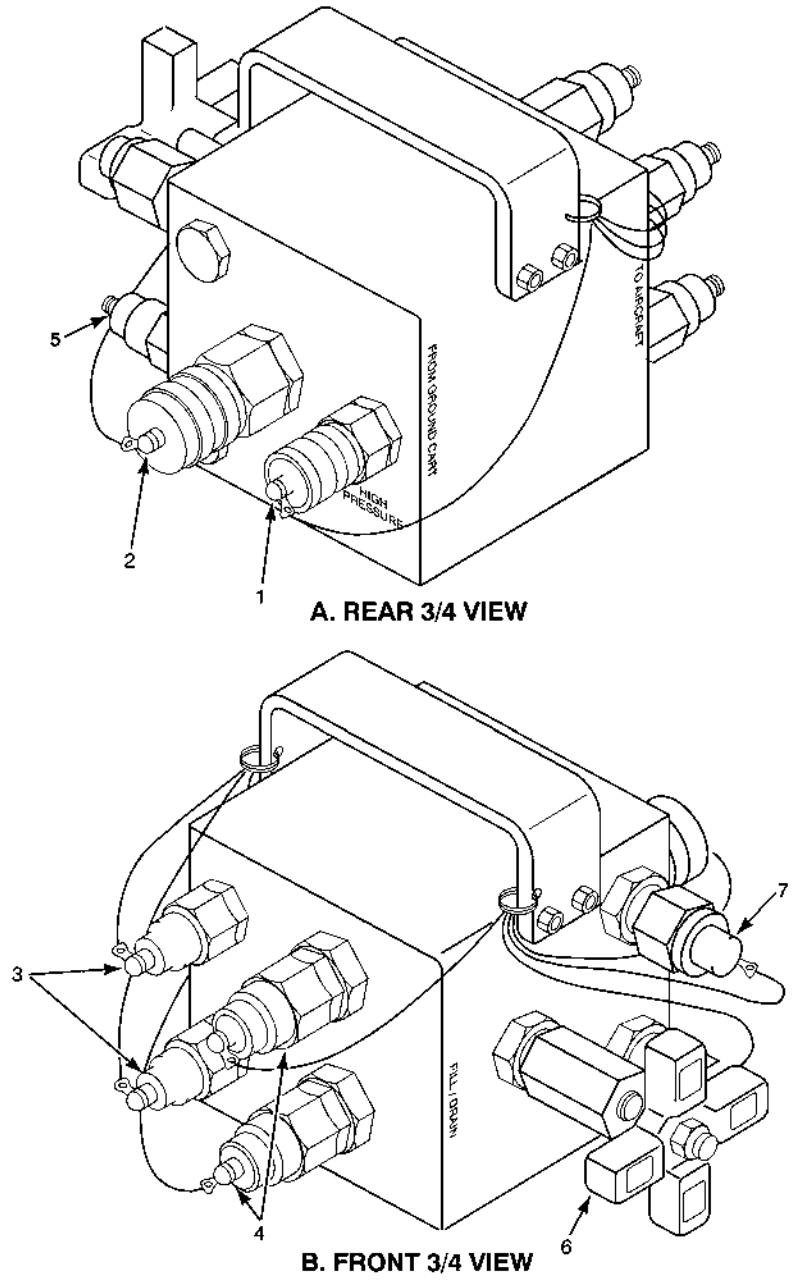
B. FRONT 3/4 VIEW

MS031305

1. HIGH PRESSURE FROM AGPU
2. RETURN TO AGPU
3. HIGH PRESSURE OUTPUT TO AIRCRAFT
4. RETURN FROM AIRCRAFT
5. BYPASS/FLUSH VALVE
6. FILL/DRAIN VALVE
7. DRAIN PORT CAP
8. FILL PORT

Figure 3. Dual Service Manifold (Old Type).

PRE-OPERATION HOSE CONNECTIONS (ALL APPLICATIONS) - CONTINUED



1. HIGH PRESSURE FROM AGPU
2. RETURN TO AGPU
3. HIGH PRESSURE OUTPUT TO AIRCRAFT
4. RETURN FROM AIRCRAFT
5. FILL PORT
6. FILL/DRAIN VALVE
7. DRAIN PORT CAP

Figure 4. Dual Service Manifold (New Type).

HOSE CONNECTIONS (ALL MODELS OF AIRCRAFT)

WARNING

During Hydraulic connections of the AGPU Hydraulic system, ensure AGPU is shut down, GTE is off and Hydraulic system is in the OFF position.

1. Remove the appropriate hydraulic hoses and the appropriate 2 ft adapter hoses listed in Table 1 from storage bin behind engine access door (WP 0002 00, Figure 9 or Figure 10).

WARNING

When hydraulic Master power switch (Figure 2, Item 1) is turned ON and the Hydraulic output switch (Figure 2, Item 12) is places in the ON position, the hydraulic hoses will be under extremely high pressure. Make sure that all quick disconnect fittings are secure and hoses are not kinked before turning system ON. Injury from flailing hoses could result. Wear proper gloves and eye protection (goggles or face shield) when operating hydraulic equipment.

CAUTION

Prior to performing hydraulic operations, perform a full PMCS (daily) and ensure fuel system and all oil levels are at the optimum compactly.

During the conduct of this procedure, the operator of the AGPU must be in intercom communication with the AIRCRAFT pilot or mechanic at all times when servicing Aircraft.

Inspect and remove all foreign matter from quick disconnects before connecting hose to AGPU, dual service manifold, purge/oil sample adapter or AIRCRAFT.

NOTE

30 foot hoses (HIGH and LOW pressure) and dual service manifold will be used with all Hydraulic applications.

2. Layout entire lengths of hydraulic hoses (Table 1). Straighten all hydraulic hoses to eliminate loops and kinks.
3. Remove the dual service manifold (old or new type) (Figure 3 or Figure 4) from its storage location in the AGPU engine compartment and place on a large drip pan or other clean surface approximately 25 feet from the AGPU.
4. Remove protective caps from AGPU hydraulic module HIGH PRESSURE output connector and LOW PRESSURE RETURN connector (Figure 2, Item 32) and LOW PRESSURE RETURN connector (Figure 2, Item 33).
5. Connect 30 foot hoses to AGPU hydraulic module as follows:
   a. Connect one end of the 30 foot LOW PRESSURE hose to the RETURN port (Figure 2, Item 33) on the AGPU hydraulic lower control panel.
   b. Connect one end of the 30 foot HIGH PRESSURE hose to the HIGH PRESSURE OUTPUT port (Figure 2, Item 32) on the AGPU hydraulic lower control panel.

HOSE CONNECTIONS (ALL MODELS OF AIRCRAFT) - CONTINUED

6. Connect the Dual Service Manifold Block (new or old type) to AGPU 30 foot output and return hoses as follows:
   a. Connect the other end of the 30 foot LOW PRESSURE hose to the RETURN port to AGPU port (Figure 3, Item 2 or Figure 4, Item 2) on the dual service manifold.
   b. Connect the other end of the 30 foot HIGH PRESSURE hose to the HIGH PRESSURE from AGPU port (Figure 3, Item 1 or Figure 4, Item 1) on the dual service manifold.
7. Manually verify all line/hose connections prior to applying hydraulic pressure to system.

NOTE

On the new type Dual Service Manifold, the BYPASS/FLUSH valve has been removed.

8. On old type dual service manifold close BYPASS/FLUSH valve (Figure 3, Item 5) and close the FILL/DRAIN valve (Figure 3, Item 6) on the dual service manifold. On new type dual service manifold close the FILL/DRAIN valve (Figure 4, Item 6) on the dual service manifold. The bypass/flush valve has been removed on the new type dual service manifold.

WARNING

If dual service manifold drain port cap (Figure 3, Item 7 and Figure 4, Item 7) is not tightened prior to operation it may cause high pressure fluid leakage and bodily injury.

9. Check that the dual service manifold DRAIN port cap (Figure 4, Item 7) has been tightened.
10. Connect one end of the 10 foot LOW PRESSURE hose to the RETURN from aircraft (Figure 3, Item 4 or Figure 4, Item 4) on the dual service manifold. Repeat procedure for the second 10 foot LOW PRESSURE hose if duel servicing of Aircraft is required.
11. Connect one end of the 10- foot HIGH PRESSURE hose to the HIGH PRESSURE output to aircraft (Figure 4, Item 3) on the dual service manifold. Repeat procedure for the second 10 foot HIGH PRESSURE hose.

NOTE

When servicing the CH-47 Aircraft, follow Step 12 and Step 13 for single line servicing. If dual line servicing is required (Figure 7), another set of 2 foot adapter hoses will be required for the other set of 10 foot hoses to service the aircraft.

12. Connect the 2 foot LOW PRESSURE CH-47 adapter hose to the end of one 10 foot LOW PRESSURE hose connected to the dual service manifold return port. Refer to Figure 1 for hose schematic and hook up CH-47.
13. Connect the 2 foot HIGH PRESSURE CH-47 adapter hose to the end of one 10 foot HIGH PRESSURE hose connected to one of the dual service manifold output port. Refer to Figure 1 for hose schematic and hook up CH-47.

HOSE CONNECTIONS (ALL MODELS OF AIRCRAFT) - CONTINUED

CAUTION

If purging/oil sampling operations have been preformed, proceed to Step 14. Do not hook up to Aircraft until Purging of Hydraulic system is performed. Damage to AGPU or Aircraft may occur.

NOTE

If AGPU is modified with MWO 1-1730-229-20-1 (Purge/Oil Sampling Adaptor), proceed to Hydraulic Purge/Oil Sampling Adapter, sampling steps. Refer to Figure 1 and Figure 5.

14. Straighten out all hoses and remove all kinks.
15. Connect 10 foot hoses and 2 foot adapter hoses, if applied, to AIRCRAFT. Refer to hose schematics Figure 6 and Figure 7.

NOTE

For CH-47 Hydraulic Servicing, refer to Table 1 for hose connections.

16. Check all hose connections from AGPU hydraulic module to dual service manifold ports ad Aircraft. Lock all dust caps together from all hoses.
17. Open GAUGE SHUTOFF valve (Figure 2, Item 29) 1/4 turn on Hydraulic Control Panel.
18. Verify that the oil reservoir is at the 3/4 fluid level mark (Figure 2, Item 15 and 35).
19. Verify RETURN BYPASS (Figure 2, Item 31) selector is in the OFF position.
20. Close RETURN BLEED valve (Figure 2, Item 22).
21. Close HIGH PRESSURE BLEED valve (Figure 2, Item 34).
22. Close the RESERVOIR DRAIN valve (Figure 2, Item 23).
23. Close SYSTEM DRAIN valve (Figure 2, Item 26).
24. Set RESERVOIR SELECTOR valve (Figure 2, Item 20) to AGPU position.
25. Reverify all hose connections are secure and dust caps are protected (locked together) from debris.
26. Start AGPU GTE (WP 0008 00).
27. Immediately confirm Hydraulic OUTPUT PRESSURE gauge (Figure 2, Item 16) reads approximately **450-500 psig**. If insufficient pressure is indicated, shut down GTE and notify maintenance supervisor.
28. Place the hydraulic POWER master switch (Figure 2, Item 1) to ON and ensure master switch light (Figure 2, Item 2) illuminates.
29. Depress PRESS TO TEST switch (Figure 2, Item 11) and ensure all panel lights illuminate.

NOTE

System ready light may go out for a moment until fluid in hoses returns to the AGPU and warms up, the System ready light will come on after fluid is warm to 70 °F.

30. SYSTEM READY lamp (Figure 2, Item 9) should be ON. If not, wait for 5 minutes. This will allow system to warm-up. If lamp still remains off, perform Hydraulic Fluid Warm-up.
31. Place the hydraulic OUTPUT switch (Figure 2, Item 12) to ON and ensure panel light (Figure 2, Item 13) illuminates.
32. The Hydraulic system is now ready for systems operations, Single or Dual line operations.

HYDRAULIC FLUID WARM-UP

WARNING

Pre-Operation Hose Connections (All Applications), Steps 1 through 25 or System Purge Operation, Steps 1 through 3, is required to be completed before performing Hydraulic Fluid Warm-up procedure below. Failure to do so can cause personnel injury and/or equipment damage.

WARNING

When hydraulic Master power switch (Figure 2, Item 1) is turned ON and the Hydraulic out-put switch (Figure 2, Item 12) is place in the ON position, the hydraulic hose will be under extremely high pressure. Make sure that all quick disconnect fittings are secure and hoses are not kinked before turning system ON. Injury from flailing hoses could result. Wear proper gloves and eye protection (goggles or face shield) when operating hydraulic equipment.

NOTE

System ready light may go out for a moment until fluid in hoses returns to the AGPU and warms up, the System ready light will come on after fluid is warm to 70 °F.

Insure that all hose connections, Dual Service Manifold and Purge/oil sample adapter (if required) are properly connected before performing the following operation.

1. Start AGPU GTE (WP 0008 00).
2. Set hydraulic POWER master switch (Figure 2, Item 1) to ON and ensure master switch (ON) light (Figure 2, Item 2) is ON.
3. Depress PRESS TO TEST switch (Figure 2, Item 11) and ensure all panel lights illuminate.
4. Ensure all valves on the control panel are closed (clockwise) except the GAUGE SHUT-OFF valve (Figure 2, Item 29).
5. Place the hydraulic OUTPUT switch (Figure 2, Item 12) in the ON position.
6. Hold INCREASE/DECREASE PRESSURE switch (Figure 2, Item 17) to the INCREASE position until the OUTPUT PRESSURE gauge (Figure 2, Item 16) reading stabilizes at approximately **700 psig** and then release switch.
7. Open HIGH PRESSURE BYPASS valve (Figure 2, Item 30) 1/4 turn counterclockwise.
8. Observe hydraulic oil visual thermometer (reservoir) (Figure 2, Item 14) for an increase to approximately 70 °F.

NOTE

System ready light may go out for a moment until fluid in hoses returns to the AGPU and warms up, the System ready light will come on after fluid is warm to 70 °F.

9. Wait until SYSTEM READY lamp (Figure 2, Item 9) illuminates.
10. Continue operation until fluid temperature reaches 70 ºF to illuminate the SYSTEM READY lamp (Figure 2, Item 9).

HYDRAULIC FLUID WARM-UP - CONTINUED

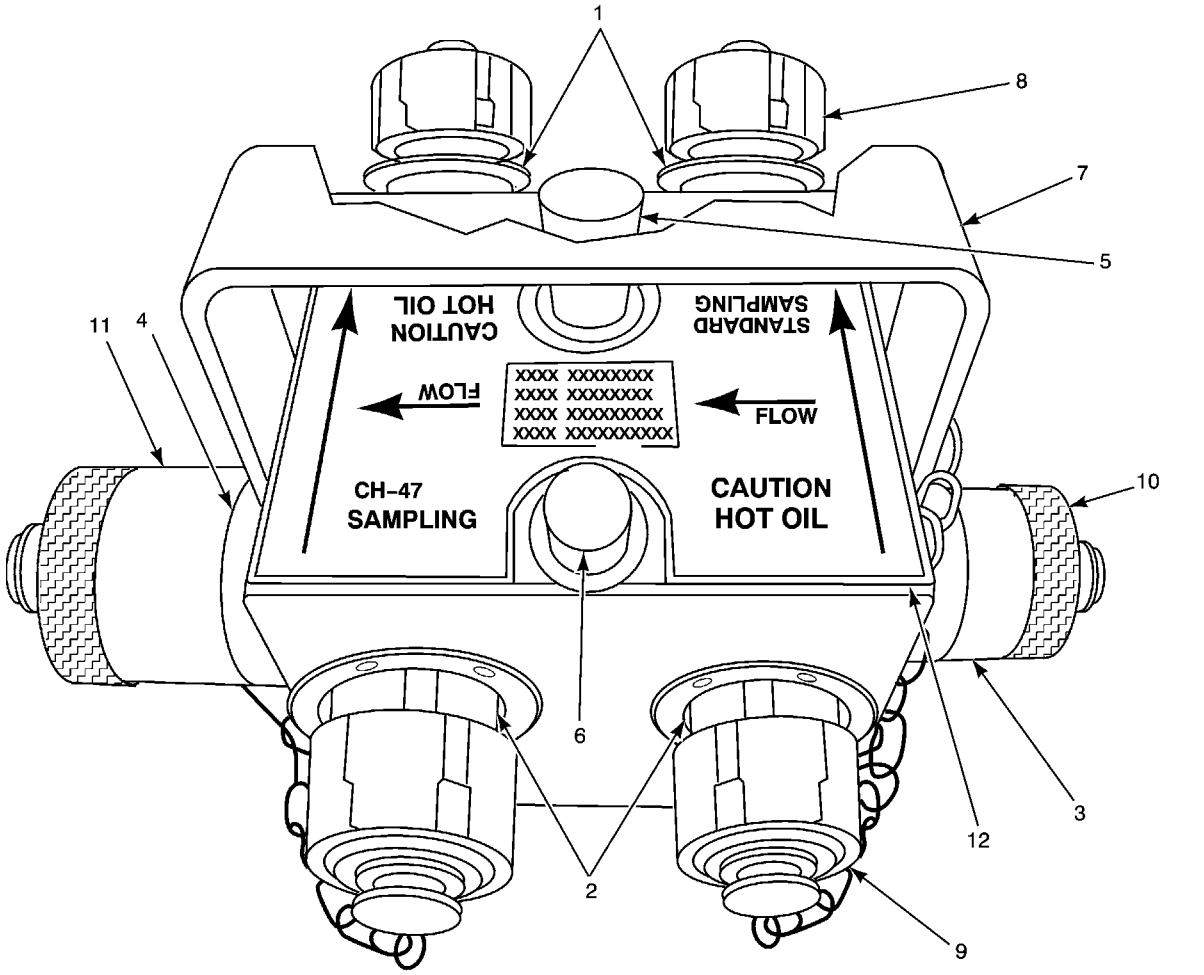
11. Close the HIGH PRESSURE BYPASS valve (Figure 2, Item 30).

NOTE

If the Hydraulic pressure will not decrease as the pressure switch (Figure 2, Item 17) is pressed to the decrease position, open the HIGH PRESSURE BYPASS valve (Figure 2, Item 30) 1/4 turn counter clockwise at the same time. This will allow pressure to decrease to **450 to 500 psig**. Close the HIGH PRESSURE BYPASS valve (Figure 2, Item 30) after pressure is decreased and release the pressure switch (Figure 2, Item 17).

12. Hold INCREASE/DECREASE PRESSURE switch (Figure 2, Item 17) to the DECREASE position until the OUTPUT PRESSURE gauge (Figure 2, Item 16) reading stabilizes at approximately **450-500 psig** and then release switch.
13. Place the hydraulic OUTPUT switch (Figure 2, Item 12) in the OFF position.
14. Set hydraulic POWER master switch (Figure 2, Item 1) to OFF position.
15. Shut down APU (WP 0008 00).

HYDRAULIC FLUID WARM-UP - CONTINUED



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
12. Purge Oil Sampling Adapter Body

Figure 5. Purge/Oil Sampling Adaptor.

SYSTEM PURGE OPERATION

WARNING

All Hydraulic hose and dual service manifold connections should be made before performing System Purge Operation procedure below. Failure to do so could cause personnel injury and/or equipment damage.

NOTE

DO NOT exceed **700 psig** when performing Purge/Oil Sampling Operation. If **700 psig** is exceeded during this operation, compensator motor on the hydraulic pump may stick and allow decrease in hydraulic pressure during shut down operation. If this occurs and pressure is not relieved from hydraulic system, AGPU GTE may fail to restart.

If AGPU is not equipped with the purge/oil sample adapter (Figure 5) only the AGPU hydraulic system with the 30 foot hoses and dual service manifold will be purged.

1. Perform Hose Connections (All Models of Aircraft), Steps 1 through 13, for applicable model of aircraft (Table 1).
2. Place oil catch pan under Purge/Oil Sampling Adapter.

NOTE

For Purging of the 2 ft adapter hoses, the hoses must be connected to the Low and High pressure 10 ft hoses before connecting to Purge/Oil Sample Adapter (Figure 1) for connections/schematic.

3. Connect the Purge/Oil Sample Adapter (Figure 5) to the 10 ft High pressure and 10 ft Low pressure hoses as shown in Purge/Oil Sampling Connections/Schematic (Figure 1).
4. Start AGPU GTE (WP 0008 00).
5. Set hydraulic POWER master switch (Figure 2, Item 1) to OFF and ensure master switch (ON) light (Figure 2, Item 2) is ON.
6. Depress PRESS TO TEST light switch (Figure 2, Item 11) and ensure all panel lights illuminate.
7. Ensure all valves on the control panel are closed (clockwise) except the GAUGE SHUT-OFF valve (Figure 2, Item 29).
8. Place hydraulic OUTPUT switch (Figure 2, Item 12) in the ON position.
9. Increase the hydraulic oil pressure to **700 psig** by using INCREASE/DECREASE PRESSURE switch (Figure 2, Item 17).
10. Open the RETURN BLEED valve (Figure 2, Item 22) and HIGH PRESSURE BLEED valve (Figure 2, Item 34) and turn valves counter clockwise.
11. Perform purge operation for 30 minutes until hydraulic oil RETURN and HIGH PRESSURE sight glasses (Figure 2, Item 21 and 27) are clear (purged of air) prior to oil sampling or servicing AIRCRAFT.
12. Close RETURN BLEED valve (Figure 2, Item 22) and HIGH PRESSURE BLEED relief valve (Figure 2, Item 34) by turning valves clockwise.

SYSTEM PURGE OPERATION - CONTINUED

NOTE

If the Hydraulic pressure will not decrease as the pressure switch (Figure 2, Item 17) is pressed to the decrease position, open the HIGH PRESSURE BYPASS valve (Figure 2, Item 30) 1/4 turn counter clockwise at the same time. This will allow pressure to decrease to **450 to 500 psig**. Close the HIGH PRESSURE BYPASS valve (Figure 2, Item 30) after pressure is decreased and release the pressure switch (Figure 2, Item 17).

13. Decrease hydraulic oil pressure to **450-500 psig** by using INCREASE/DECREASE PRESSURE switch (Figure 2, Item 17), if sight glasses (Figure 2, Item 21 and 27) are clear.
14. Turn off hydraulic OUTPUT switch (Figure 2, Item 12) and ensure hydraulic pressure output lamp (Figure 2, Item 13) goes out.
15. Turn off hydraulic POWER master switch (Figure 2, Item 1).

CAUTION

After performing purge/oil sampling operations and prior to disconnecting and connecting to AIRCRAFT, AGPU and Hydraulic module operations must be shut down. DO NOT attempt to connect hydraulic hoses to AIRCRAFT while AGPU is in operation or hydraulic system is operational under pressure.

16. Shut down AGPU GTE (WP 0008 00).

HYDRAULIC OIL SAMPLING AT HYDRAULIC CONTROL PANEL

WARNING

Ensure AGPU is shutdown prior to taking oil sample from hydraulic control panel system drain port.

CAUTION

Do not let the AGPU reservoir go empty. Extensive damage to the AGPU hydraulic pump will occur.

NOTE

If MWO 1-1730-229-20-1 is installed, DO NOT perform the following procedures. Follow procedures in Hydraulic Oil Sampling at Purge/Oil Sampling Adapter.

NOTE

Hydraulic system must operate for 30 minutes prior to taking oil sample or an erroneous oil sample will result.

1. After the AGPU has run for 30 minutes and fluid temperature is 70 °F proceed as follows:
   a. Shut down hydraulic operations as follows:
      (1) Close RETURN BLEED valve (Figure 2, Item 22) and HIGH PRESSURE BLEED relief valve (Figure 2, Item 34) by turning valves clockwise.

HYDRAULIC OIL SAMPLING AT HYDRAULIC CONTROL PANEL - CONTINUED

NOTE

If the Hydraulic pressure will not decrease as the pressure switch (Figure 2, Item 17) is pressed to the decrease position, open the HIGH PRESSURE BYPASS valve (Figure 2, Item 30) 1/4 turn counter clockwise at the same time. This will allow pressure to decrease to **450 to 500 psig**. Close the HIGH PRESSURE BYPASS valve (Figure 2, Item 30) after pressure is decreased and release the pressure switch (Figure 2, Item 17).

(2) Decrease hydraulic oil pressure to **450-500 psig** by using INCREASE/DECREASE PRESSURE switch (Figure 2, Item 17), if sight glasses (Figure 2, Item 21 and 27) are clear.

(3) Turn off hydraulic OUTPUT switch (Figure 2, Item 12) and ensure hydraulic pressure output lamp (Figure 2, Item 13) goes out.

(4) Turn off hydraulic POWER master switch (Figure 2, Item 1).

CAUTION

After performing purge/oil sampling operations and prior to disconnecting and connecting to AIRCRAFT, AGPU and Hydraulic module operations must be shut down. DO NOT attempt to connect hydraulic hoses to AIRCRAFT while AGPU is in operation or hydraulic system is operational under pressure.

b. Shut down AGPU GTE (WP 0008 00).

2. Remove cap from SYSTEM DRAIN port (Figure 2, Item 25) on hydraulic control panel.
3. Obtain clean oil sampling bottle and remove cap from bottle.
4. Clean SYSTEM DRAIN port (Figure 2, Item 25) with shop towel.
5. Place oil sampling bottle under SYSTEM DRAIN port (Figure 2, Item 25) and open reservoir drain valve (Figure 2, Item 23) counterclockwise until oil sampling bottle is at least 3/4 full with hydraulic fluid, dump sample bottle and re-fill.
6. Close reservoir drain valve (Figure 2, Item 23) clockwise to stop flow of hydraulic fluid.
7. Place cap on oil sampling bottle and follow procedures outlined in DA PAM 738-751 and TB 43-0211 for AOAP oil lab processing.
8. Install system drain cap on SYSTEM DRAIN port (Figure 2, Item 25) and tighten to **25 inch-pounds**.
9. Check hydraulic fluid level sight glass (Figure 2, Item 15) and service if not 3/4 full (WP 0029 00) after sampling.
10. Clean up any hydraulic fluid spill on Hydraulic Control Panel.

HYDRAULIC OIL SAMPLING AT PURGE/OIL SAMPLING ADAPTER

NOTE

All hoses and Dual/Service Manifold with Purge/Oil Sampling adaptor will be setup as shown in Figure 1.

1. Perform Hose Connections (All Models of Aircraft), Steps 1 through 13 for applicable model of aircraft (reference Table 1).
2. Place oil catch pan under Dual Service Manifold and Purge/Oil Sampling Adapter Purge Block/Oil Sampling Adapter (Figure 3, Figure 4 and Figure 5). Connect the Purge/Oil Sample Adapter (Figure 5) to the 10 ft High pressure and 10 ft low pressure hoses as shown in purge/oil sampling connections/schematic (Figure 1).
3. Open GAUGE SHUTOFF valve (Figure 2, Item 29) 1/4 turn counterclockwise on hydraulic control panel.

HYDRAULIC OIL SAMPLING AT PURGE/OIL SAMPLING ADAPTER - CONTINUED

4. Verify that the oil reservoir is at the 3/4 fluid level mark (Figure 2, Item 25 and 35).
5. Verify bypass RETURN valve is in the OFF position (Figure 2, Item 31).
6. Close RETURN BLEED valve (Figure 2, Item 22).
7. Close HIGH PRESSURE BLEED relief valve (Figure 2, Item 34).
8. Close the RESERVOIR DRAIN valve (Figure 2, Item 23).
9. Close SYSTEM DRAIN valve (Figure 2, Item 26).
10. Set RESERVOIR SELECTOR valve (Figure 2, Item 20) to AGPU position.
11. Reverify all hose connections are secure and dust caps are protected (locked together) from debris.

NOTE

Hydraulic system must operate for 30 minutes prior to taking oil sample or an erroneous oil sample will result.

12. Start AGPU GTE (WP 0008 00).
13. Immediately confirm hydraulic OUTPUT PRESSURE gauge (Figure 2, Item 16) reads approximately **450-500 psig** . If insufficient pressure is indicated, shut down GTE and notify maintenance supervisor.
14. Place the hydraulic POWER master switch (Figure 2, Item 1) to ON, on the Hydraulic Control Panel and ensure master switch (ON) light (Figure 2, Item 2) illuminates.
15. Depress PRESS TO TEST light switch (Figure 2, Item 11) and ensure all panel lights illuminate.
16. System Ready lamp (Figure 2, Item 9) should be ON. If not, wait for 5 minutes, this will allow system to warm-up. If lamp still remains off, perform Hydraulic Fluid Warm-up.
17. Open the RETURN BLEED valve (Figure 2, Item 22) and HIGH PRESSURE BLEED valve (Figure 2, Item 34) 1/4 quarter turn counter clockwise until hydraulic oil RETURN and HIGH PRESSURE sight glasses (Figure 2, Item 21 and 27) are clear. Close the RETURN BLEED valve (Figure 2, Item 22) and HIGH PRESSURE BLEED valve (Figure 2, Item 34) 1/4 turn clockwise.
18. Place the hydraulic OUTPUT switch (Figure 2, Item 12) to ON and ensure hydraulic pressure OUTPUT light (ON) (Figure 2, Item 13) illuminates.

NOTE

DO NOT exceed **700 psig** when performing Purge/Oil Sampling Operation. If **700 psig** is exceeded during this operation compensator motor on hydraulic pump may stick and not allow decrease in hydraulic pressure during shut down operation. If this occurs and pressure is not relieved from hydraulic system, AGPU GTE may fail to restart.

19. HOLD INCREASE/DECREASE PRESSURE switch (Figure 2, Item 17) to the INCREASE position until the OUTPUT PRESSURE gauge (Figure 2, Item 16) reading stabilizes at approximately **700 psig** and then release switch.
20. Perform purge operation for 30 minutes until hydraulic oil RETURN and HIGH PRESSURE sight glasses (Figure 2, Item 21 and 27) are clear prior to oil sampling.
21. During Hydraulic purge operation, after hydraulic oil is above 70 °F, unscrew the protective cap on the oil sampling port (mister) (Standard and CH-47) (Figure 5, Item 5 and 6) on Purge Block/Oil Sample Adapter (Figure 5).
22. Connect oil sampling tube and bottle to oil sampling port (mister) (Standard and CH-47) (Figure 5, Item 5 and 6) on Purge Block/Oil Sample Adapter (Figure 5).

HYDRAULIC OIL SAMPLING AT PURGE/OIL SAMPLING ADAPTER - CONTINUED

23. Push in (DOWN) on the top of the oil sampling port (mister) (Standard and CH-47) (Figure 5, Item 5 and 6) until oil sample bottle is full. Discard first fill of bottle and re-fill oil sample bottle.

NOTE

Never re-use oil sample tubing.

24. Remove oil sample tubing and discard.
25. Reconnect the protective cap on the oil sampling port (mister) (Standard and CH-47) (Figure 5, Item 5 and 6) on Purge Block/Oil Sample Adapter (Figure 5).
26. Follow procedures outlined in DA PAM 738-751 and TB 43-0211 for AOAP oil lab processing.

CAUTION

After performing purge/oil sampling operations and prior to disconnecting and connecting to AIRCRAFT, AGPU and Hydraulic module operations must be shut down. DO NOT attempt to connect hydraulic hoses to AIRCRAFT while AGPU is in operation or hydraulic system is operational under pressure.

27. Close RETURN BLEED valve (Figure 2, Item 22) and HIGH PRESSURE BLEED relief valve (Figure 2, Item 34) by turning valves clockwise.

NOTE

If the Hydraulic pressure will not decrease as the pressure switch (Figure 2, Item 17) is pressed to the decrease position, open the HIGH PRESSURE BYPASS valve (Figure 2, Item 30) 1/4 turn counter clockwise at the same time. This will allow pressure to decrease to **450 to 500 psig**. Close the HIGH PRESSURE BYPASS valve (Figure 2, Item 30) after pressure is decreased and release the pressure switch (Figure 2, Item 17).

28. Decrease hydraulic oil pressure to **450-500 psig** by using INCREASE/DECREASE PRESSURE switch (Figure 2, Item 17), if sight glasses (Figure 2, Item 21 and 27) are clear.
29. Turn off hydraulic OUTPUT switch (Figure 2, Item 12) and ensure hydraulic pressure output lamp (Figure 2, Item 13) goes out.
30. Turn off hydraulic POWER master switch (Figure 2, Item 1).
31. Shut down AGPU GTE (WP 0008 00).

NOTE

If servicing of aircraft after oil sampling operation, disconnect purge/oil sample adapter (Figure 5) from hydraulic lines and connect directly to aircraft as required (Figure 6 or Figure 7).

32. Disconnect Purge Block/Oil Sampling Adapter from 10 foot hoses. Cap all hoses, connections and store in AGPU engine compartment.
33. Clean up spilled oil and equipment along with drip pans used.

SINGLE LINE AND DUAL LINE SERVICING OF AIRCRAFT (LOW/HIGH PRESSURE) OPERATION

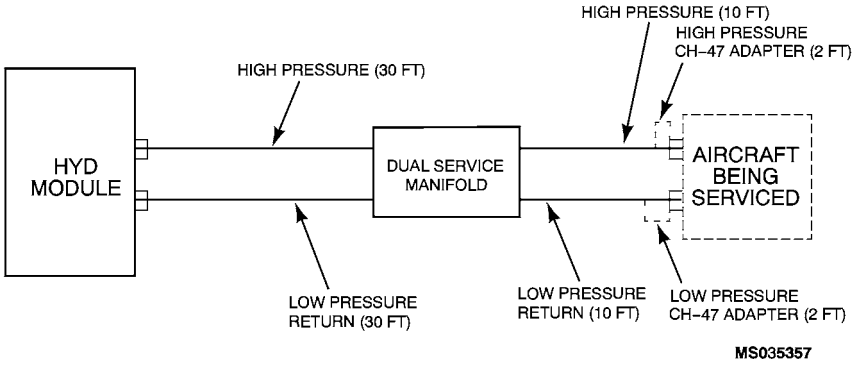


Figure 6. Single Aircraft System Servicing.

Table 2. AGPU Maximum Output Pressures to Aircraft (Reference Only).

AIRCRAFT Type	Maximum Operating Pressure (psig)	Pressure Relief Setting (psig)	Reservoir Selection	Return BYPASS Position
AH-64 (Apache)	3,100	3,100	AGPU	*OFF
UH-60 (Blackhawk)	3,000	3,000	AGPU	*OFF
**CH-47 (Chinook) (Utility) & (Flight Controls)	3,300	3,300	AIR-CRAFT	**ON
AH-1 (Huey Cobra)	1,500	1,500	AGPU	*OFF
UH-1 (Iroquois)	1,000	1,000	AGPU	*OFF
OH-58A (Kiowa)	1,250	1,250	AGPU	*OFF
OH-58D	1,250	1,250	AGPU	*OFF
* When using the return bypass in the OFF position, the AIRCRAFT reservoir may fill to the full position. This is satisfactory for hydraulic operation.				
** On CH-47D model aircraft, the RESERVOIR selector valve (Figure 2, Item 20) must be in the AGPU position until the hydraulic OUTPUT switch (Figure 2, Item 12) is set to the ON position. The aircraft will then be supplied with hydraulic power. The RESERVOIR selector valve is then placed in the aircraft position and the Return BYPASS to BYPASS position. When hydraulic operations are completed, the RESERVOIR selector valve is set to AGPU position and the bypass valve is cycled to the OFF position to fill aircraft reservoir. Set the valve to the BYPASS position to drain aircraft reservoir within the aircraft reservoir operating range.				

SINGLE LINE AND DUAL LINE SERVICING OF AIRCRAFT (LOW/HIGH PRESSURE) OPERATION - CONTINUED

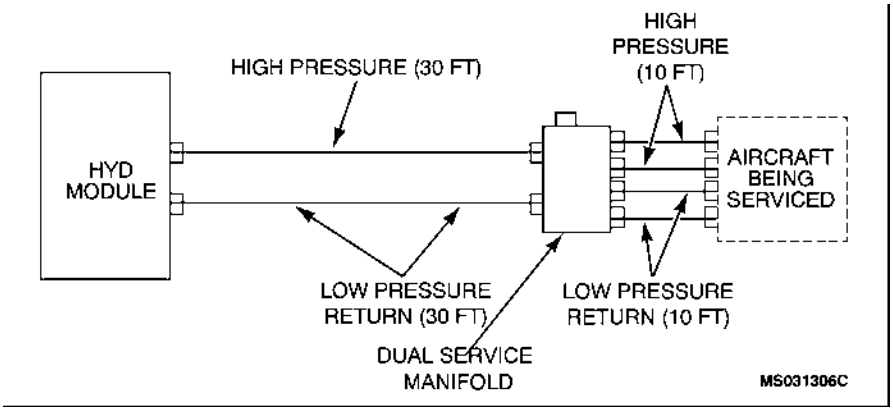


Figure 7. Dual Line Aircraft System Servicing.

WARNING

EYE, HEARING AND HAND PROTECTION must be worn during all hydraulic operations.

Hydraulic fluid under pressure can causes serious bodily injury or death.

Ensure AGPU GTE is in the STOP position and the MASTER switch is in the OFF position prior to connecting all hoses and quick disconnects.

Hydraulic system is designed to perform only with hoses provided in Table 1. Extension or “Y” hoses degrade AGPU hydraulic performance. Degraded performance will damage AIRCRAFT systems, AGPU hydraulic pump and could cause personal injury.

When connecting 2 foot adapter hoses for the CH-47 application to both low pressure and high pressure 10 ft output hoses from dual service manifold, insure both adaptor hoses are attached to the lower or upper outputs of the dual service manifold. (Upper or lower outputs Figure 3, Item 3 and 4 and Figure 4, Item 3 and 4.)

The High Pressure and Low Pressure Hydraulic Lines used for the adaptor hoses **must not be crossed** between upper and lower output ports of the dual service manifold.

Refer to individual aircraft technical manuals for specific aircraft requirements and limitations for external hydraulic servicing prior to connecting hoses to aircraft. Table 2 is used as reference for pressure setting for the Aircraft only. Settings should be in accordance with Aircraft TM for the type servicing required. Aircraft hydraulic system damage will occur if individual aircraft Technical Manual procedures are not followed.

SINGLE LINE AND DUAL LINE SERVICING OF AIRCRAFT (LOW/HIGH PRESSURE) OPERATION - CONTINUED

CAUTION

The AGPU TM does not have specific aircraft servicing pressures. Reference aircraft TMs only to obtain aircraft hydraulic demands and pressures.

Reverify all hose connections and control panel settings prior to supplying aircraft with hydraulic power.

During the conduct of this procedure, the operator of the AGPU must be in intercom communication with the aircraft pilot or technician at all times.

Do not let the AGPU reservoir (Figure 2, Item 15 and 35) go empty. Extensive damage to the AGPU hydraulic pump and/or Aircraft will occur.

NOTE

Oil sampling must be certified (WP 0029 00) and System Purge Operation must be preformed prior to servicing aircraft. Refer to Figure 6 or Figure 7 for single-line or dial line hose connections/schematics.

Some aircraft may require other power such AC/DC (WP 0009 00) and/or pneumatic air (WP 0010 00) in conjunction with hydraulic servicing. Refer to aircraft TM.

1. Remove the cap from the (HIGH PRESSURE) GROUND SERVICE port on the AIRCRAFT to be serviced. Disconnect the 10 ft high pressure hose or hoses from the Purge/Oil Sampling Adaptor and immediately connect the 10 ft high pressure hose or hoses to AIRCRAFT input port to be serviced. (For CH-47 only, use 2 ft adaptor hoses.)
2. Remove the cap from the (LOW PRESSURE) GROUND SERVICE port on the AIRCRAFT to be serviced. Disconnect the 10 ft low pressure hose or hoses from the Purge/Oil Sampling Adaptor and immediately connect the 10 ft low pressure hose or hoses to the AIRCRAFT input port to be serviced. (For CH-47 only use 2 ft adaptor hose.)
3. Reverify all hose connections going to and from AGPU, DUAL SERVICE MANIFOLD to AIRCRAFT are secure and dust caps are locked together to protect them from debris.
4. Start AGPU GTE (WP 0008 00).
5. Immediately confirm Hydraulic OUTPUT PRESSURE gauge (Figure 2, Item 16) reads approximately **450-500 psig**. If insufficient pressure is indicated and gauge shut off valve (Figure 2, Item 29) is open, shut down GTE and notify maintenance supervisor.
6. Place the hydraulic POWER Master switch to ON (Figure 2, Item 1) position and ensure Master switch (ON) (Figure 2, Item 2) illuminates.
7. Depress PRESS TO TEST light switch (Figure 2, Item 11) and ensure all panel lights illuminate.
8. SYSTEM READY lamp (Figure 2, Item 9) should be ON. If not, wait for 5 minutes. This will allow system to warm-up. If light still remains off, perform Hydraulic Fluid Warm-up.
9. Open the RETURN BLEED valve (Figure 2, Item 22) and HIGH PRESSURE BLEED valve (Figure 2, Item 34) 1/4 turn counter clockwise. Insure there are no bubbles in sight glass (Figure 2, Item 21 and 27). Close the RETUN BLEED valve (Figure 2, Item 22) and HIGH PRESSURE BLEED valve (Figure 2, Item 34) 1/4 turn clockwise.
10. Place the hydraulic OUTPUT switch (Figure 2, Item 12) to ON and ensure hydraulic pressure output lamp (ON) (Figure 2, Item 13) illuminates.

SINGLE LINE AND DUAL LINE SERVICING OF AIRCRAFT (LOW/HIGH PRESSURE) OPERATION - CONTINUED

CAUTION

Refer to individual aircraft technical manuals for specific aircraft requirements and limitations for external hydraulic servicing. Aircraft hydraulic system damage will occur if individual aircraft technical manual procedures are not followed for pressure and flow of hydraulic fluid. Table 2 in this work package is a reference guide for AGPU to aircraft maximum output pressures only.

Inspect all hydraulic hose connections from AGPU to dual service manifold and from dual service manifold to AIRCRAFT have no leakage of hydraulic fluid. If presence of hydraulic fluid leakage is evident, shut down hydraulic control panel and AGPU to perform necessary corrections to eliminate hydraulic fluid leakage.

11. Perform settings on hydraulic control panel as required by specific aircraft TM.
12. When using AIRCRAFT reservoir (CH-47) place the RETURN BYPASS valve (Figure 2, Item 31) to the BYPASS position and then place the RESERVOIR selector valve (Figure 2, Item 20) to the AIRCRAFT position.
13. On the AH-64 and other Aircraft, ensure the RETURN BYPASS (Figure 2, Item 31) is in the OFF position.
14. On the UH-60 ensure the RETURN BYPASS (Figure 2, Item 31) is in the OFF position.

NOTE

If desired pressure cannot be obtained when holding the INCREASE/DECREASE PRESSURE switch (Figure 2, Item 17) in INCREASE position, then check PRESSURE RELIEF valve (Figure 2, Item 24) setting.

15. Hold the INCREASE/DECREASE PRESSURE switch (Figure 2, Item 17) to INCREASE position until the specified AIRCRAFT operation pressure is reached.
16. Set PRESSURE RELIEF valve (Figure 2, Item 24) as follows:
    a. Unlock locking ring by turning the ring counter clockwise.
    b. Turn PRESSURE RELIEF valve (Figure 2, Item 24) clockwise or counter clockwise until applicable aircraft TM pressure is obtained and hydraulic OUTPUT pressure gauge needle (Figure 2, Item 16) is steady. Do not set above aircraft pressure setting.
    c. Ensure locking ring on pressure relief valve is locked by turning it clockwise after verification of pressure setting.
    d. To obtain Aircraft pressure it may be necessary to increase or decrease hydraulic pressure by holding the INCREASE/DECREASE PRESSURE switch (Figure 2, Item 17) to obtain desired pressure after Aircraft system is powered. The PRESSURE RELIEF valve (Figure 2, Item 24) must be reset if the pressure is increased or decreased. Reset the PRESSURE RELIEF valve (Figure 2, Item 24) setting Steps 16a through 16c, if this adjustment is necessary.
17. Check that AIRCRAFT reservoir levels are properly filled per applicable aircraft TM both during and after operation.
18. After HYDRAULIC SINGLE SERVICING OPERATIONS to aircraft has been completed, shut down hydraulic operation (Steps 19 through 24).

NOTE

If the Hydraulic pressure will not decrease as the pressure switch (Figure 2, Item 17) is pressed to the decrease position, open the HIGH PRESSURE BYPASS valve (Figure 2, Item 30) 1/4 turn counter clockwise at the same time. This will allow pressure to decrease to **450 to 500 psig**.

SINGLE LINE AND DUAL LINE SERVICING OF AIRCRAFT (LOW/HIGH PRESSURE) OPERATION - CONTINUED

Close the HIGH PRESSURE BYPASS valve (Figure 2, Item 30) after pressure is decreased and release the pressure switch (Figure 2, Item 17).

19. Decrease hydraulic oil pressure to **450-500 psig** by using INCREASE/DECREASE PRESSURE switch (Figure 2, Item 17).
20. Turn off hydraulic output lamp (Figure 2, Item 12) and ensure hydraulic pressure output lamp (Figure 2, Item 13) goes out.
21. Shut down AGPU (WP 0008 00, AGPU Shutdown Procedure).
22. Wipe all hoses and adaptors before stowing.
23. Disconnect HOSES, reinstall all CAPS, PLUGS and stow DUAL SERVICE MANIFOLD, PURGE/OIL SAMPLING ADAPTOR (if not stowed) and HOSES in storage compartment on AGPU.
24. Perform PMC After (A) steps (WP 0029 00).

FLUSH AIRCRAFT FLIGHT CONTROL SYSTEM

Refer to Aircraft Technical Manual (TM) for Aircraft Hydraulic Flushing of aircraft flight control system.

END OF WORK PACKAGE

OPERATOR INSTRUCTIONS

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

OPERATION UNDER USUAL CONDITIONS - COMBINED LOADS

INITIAL SETUP:

References
WP 0008 00
WP 0009 00

References (cont.)
WP 0010 00
WP 0011 00

WARNING

EYE, HEARING AND HAND PROTECTION must be worn during all Hydraulic operations.

Hydraulic system is designed to perform only with hoses provided in Table 1. Extension or “Y” hoses degrade AGPU hydraulic performance. Degraded performance will damage AIRCRAFT systems and AGPU hydraulic pump.

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 could cause damage to the AIRCRAFT and personnel.

Ensure AGPU GTE is in the STOP position and the MASTER switch is in the OFF position prior to connecting all hoses and quick disconnects.

AGPU must be grounded to an earth ground during these procedures.

CAUTION

Battery output power cannot be used if AGPU DC POWER switch is set to ON.

During the conduct of this procedure, the operator of the AGPU must be in intercom communication with the aircraft pilot or mechanic at all times.

When applying power under combined output operation, observe the sequence as specified in the applicable aircraft TM.

NOTE

For Models MEP 83-360D/E refer to COMBINED OUTPUT OPERATION (MEP 83-360D/E only).

COMBINED OUTPUT OPERATION MEP 83-360A (ONLY)

1. Combined output operation is the same as described in WP 0009 00 through WP 0011 00. Electrical, AC/DC, hydraulic and pneumatic power may be used simultaneously. There are, however, certain restrictions and limitations as described below.
   a. On the MEP 83-360A AGPU there is a restriction on simultaneous use of AC and DC power. The CURRENT LIMIT SELECTOR switch (Figure 1) on the control panel select either AC or DC output from the generator. When set to DC positions, no AC power is available. When set to AC positions, no DC power is available (from generator). However, when operating in the AC mode, 50 amps DC power is available from the battery/battery charger circuits (if AC load is less than 27.5 KW). Operation in this mode is described in Table 1.
   b. There are limitations on maximum outputs under combined output operations. Maximum outputs under combined operations are:
      (1) Condition 1: AC 20 KW 0.8 pf or DC 50 amp; Hydraulic-**1,500 psig** at 6.0 GPM; Pneumatic- 60 lb/min at **35 psig**.
      (2) Condition 2: AC 20 KW 0.8 pf or DC 50 amp; Hydraulic-**3,300 psig** at 15.2 GPM; Pneumatic- 60 lb/min at **35 psig**.
2. **Combined Output Operation.** Refer to Table 1 and perform the following steps.
   a. Select desired output from column 1, Table 1.
   b. Make load connections by performing applicable steps referenced in column 4, Table 1.

CAUTION

When applying power under combined output operation, observe the sequence specified in applicable aircraft TM.

   c. Apply power to aircraft by performing applicable steps referenced in column 4, Table 1.
   d. Remove power from aircraft by performing applicable steps referenced in column 5, Table 1.

COMBINED OUTPUT OPERATION MEP 83-360A (ONLY) - CONTINUED

Table 1. Combined Output Operation (Model 83-360A).

1. Desired Outputs	2. Load Connections Steps	3. Pre-Power Application Steps	4. Power Application Steps	5. Remove Power Steps
a. AC Power	WP 0009 00, Load Connection, Steps 2 through 4.	WP 0009 00, AC Power Application, Steps 1 through 2.	WP 0009 00, AC Power Application, Steps 3 through 6.	WP 0009 00, AC Power Application, Steps 8 through 11.
b. DC Power (No AC Power) MEP 83-360A (ONLY)	WP 0009 00, Load Connection, Steps 2 through 4.	WP 0009 00, DC Power Application, Steps 1 through 2.	WP 0009 00, DC Power Application, Steps 3 through 6.	WP 0009 00, DC Power Application, Steps 8 through 11.
c. Pneumatic Power	WP 0010 00, Load Connection, Steps 5 through 1.	WP 0010 00, Load Connection, Steps 1 through 1.	WP 0010 00, Pneumatic Power Application, Steps 1 through 8.	WP 0010 00, Pneumatic Power Application, Steps 1 through 8.
d. Hydraulic Power	WP 0011 00, Hose Connections (All Models of Aircraft), Steps 1 through 13.	WP 0011 00, Hose Connections (All Models of Aircraft), Steps 14 through 32	WP 0011 00, Single Line and Dual Line Servicing of Aircraft (Low/High Pressure) Operation, Steps 1 through 17	WP 0011 00, Single Line and Dual Line Servicing of Aircraft (Low/High Pressure) Operation, Steps 18 through 24

3. **Obtain DC Power.** To obtain DC power (50 amps maximum) while operating in AC mode, perform the following steps as specified in Table 1:

   a. Set CURRENT LIMIT SELECTOR switch to AC 10 KW, 20 KW or 30 KW position.

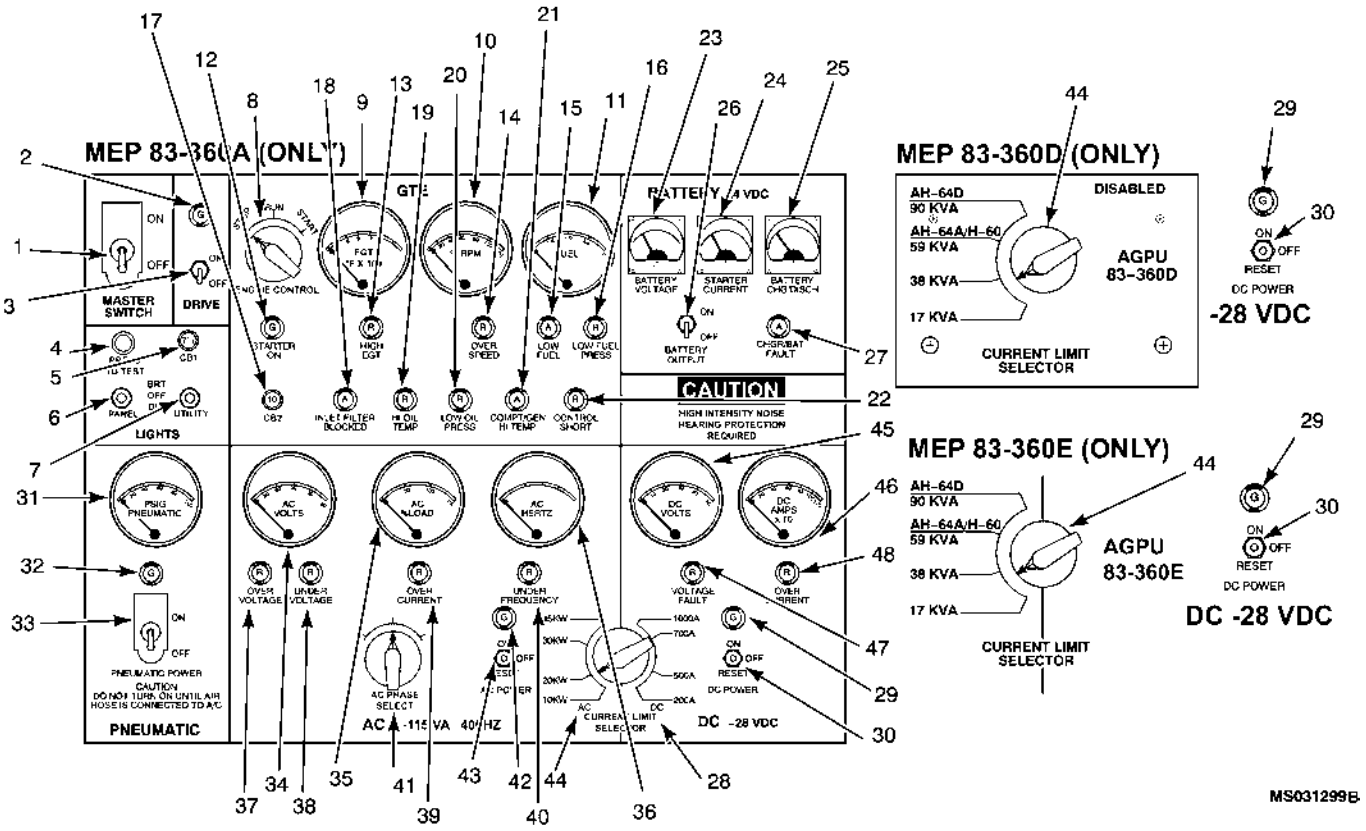
WARNING

Battery power cannot be used if DC POWER switch is set to ON (Figure 1).

   b. Ensure that DC POWER switch is set to OFF (Figure 1).

   c. Set BATTERY OUTPUT switch to ON (Figure 1) and observe the following gauges: BATT CHG/DISCH (Figure 1) for DC amperage output and BATT Voltage gauge (Figure 1) for DC Voltage output rating (28-32 VDC).

   d. After operation is complete, shut down GTE (WP 0008 00, AGPU Shutdown Procedure).



1. MASTER Switch (S2)	13. HIGH EGT Indicator (DS3)	25. BATTERY CHG/DISCH Meter (M6)	37. OVER VOLTAGE Indicator (DS14)
2. DRIVE Indicator (DS1)	14. OVER SPEED Indicator (DS4)	26. BATTERY OUTPUT Switch (S5)	38. UNDER VOLTAGE Indicator (DS15)
3. DRIVE Switch (S3)	15. LOW FUEL Indicator (DS5)	27. CHRGR/BATT FAULT Indicator (DS7)	39. OVER CURRENT Indicator (DS16)
4. PRESS TO TEST Switch (S4)	16. LOW FUEL PRESS Indicator (DS6)	28. DC CURRENT LIMIT SELECTOR Switch (S11) (MEP 83-360A Only)	40. UNDER FREQUENCY Indicator (DS17)
5. 7.5 Circuit Breaker (CB1)	17. 10 amp Circuit Breaker (CB2)	29. DC POWER Indicator (DS21)	41. AC PHASE SELECT Switch (S9)
6. PANEL lights Switch (S6)	18. INLET FILTER (AIR CLEANER) BLOCKED Indicator (DS8)	30. DC POWER Switch (S12)	42. AC POWER Indicator (DS20)
7. UTILITY lights Switch (S7)	19. HI OIL TEMP Indicator (DS9)	31. PSIG PNEUMATIC Gauge (M7)	43. AC POWER Switch (S10)
8. ENGINE CONTROL Switch (S1)	20. LOW OIL PRESS Indicator (DS10)	32. PNEUMATIC POWER Indicator (DS13)	44. AC CURRENT LIMIT SELECTOR Switch (S11) (all models) (Operational on MEP 83-360A only, removed on MEP 83-360E)
9. EGT °F X 100 Meter (M1)	21. COMPT/GEN HI TEMPI Indicator (DS11)	33. PNEUMATIC POWER Switch (S8)	45. DC VOLTS Meter (M11)
10. % RPM Meter (M2)	22. CONTROL SHORT Indicator (DS12)	34. AC VOLTS Meter (M8)	46. DC AMPS x 10 Meter (M12)
11. FUEL Gauge (M3)	23. BATTERY VOLTAGE Meter (M4)	35. AC % LOAD Meter (M9)	47. VOLTAGE FAULT Indicator (DS18)
12. STARTER ON Indicator (DS2)	24. STARTER CURRENT Meter (M5)	36. AC HERTZ Meter (M10)	48. OVER CURRENT Indicator (DS19)

Figure 1. AC Power Application – Control Panel Function.

COMBINED OUTPUT OPERATION (MEP 83-360D/E ONLY)

WARNING

AGPU must be grounded to an earth ground during these procedures.

CAUTION

During the conduct of this procedure, the operator of the AGPU must be in intercom communication with the aircraft pilot or mechanic at all times.

1. Combined output operation is the same as described in WP 0009 00 through WP 0011 00. Electrical, AC/DC, hydraulic and pneumatic power may be used simultaneously. However there are certain restrictions and limitations as described below.
   a. On the MEP 83-360D/E AGPU, all the DC to the aircraft comes from the TRU, which is powered by the AC output alternator. The CURRENT LIMIT SELECTOR (Figure 1) switch position must be considered for both AC and DC output loads. The generator control unit regulates the DC output by removing the excitation to the alternator if an AC over amperage condition occurs. In addition, on the MEP-83-360D/E, the AH64D position of the CURRENT LIMIT SELECTOR switch opens the surge control valve to provide additional shaft horse power from the engine.
   b. There are limitations on maximum outputs under combined output operations. Maximum outputs under combined operations are:
      (1) Condition 1 MEP 83-360D/E (only): AC 17 kva 0.8 pf and DC 350 amp; Hydraulic-**1,500 psig** at 6 GPM; Pneumatic-ON, 60 lbs/min at **35 psig**.
      (2) Condition 2 MEP 83-360D/E (only): AC 90 kva at 0.8 pf and DC 350 amp; Hydraulics – **3300 psig** at 15.2 GPM; Pneumatic-ON, 60 lbs/min at **35 psig**.

NOTE

While MEP 83-360D/E still has the capacity of providing 50 amps DC output from the battery charger in combination with AC, this operation is not recommended. Using normal DC output procedures (Table 2), the TRU can deliver 5-7 times the DC output with no danger of overloading and burning out the battery charger. For the MEP 83-360D/E, DC output power is obtained when the DC output power switch (Figure 1) is placed in the on position. The CURRENT LIMIT SELECTOR (Figure 1) switch no longer has the DC power selection side. Battery power cannot be used if DC POWER switch is set to ON (Figure 1).

2. **Combined Output Operation.** Refer to Table 2 and perform the following steps:
   a. Select desired output from column 1, Table 2.
   b. Make load connections by performing applicable steps referenced in column 4, Table 2.

CAUTION

When applying power under combined output operation, observe the sequence specified in applicable aircraft TM.

   c. Apply power to aircraft by performing applicable steps referenced in column 4, Table 2.
   d. Remove power from aircraft by performing applicable steps referenced in column 5, Table 2.

COMBINED OUTPUT OPERATION (MEP 83-360D/E ONLY) - CONTINUED

Table 2. Combined Output Operation (Model 83-360D/E).

1. Desired Outputs	2. Load Connections Steps	3. Pre-Power Application Steps	4. Power Application Steps	5. Remove Power Steps
a. AC Power	WP 0009 00, Load Connection, Steps 2 through 4.	WP 0009 00, AC Power Application, Steps 1 through 2.	WP 0009 00, AC Power Application, Steps 3 through 6.	WP 0009 00, AC Power Application, Steps 8 through 11.
b. DC Power (In Combination with AC Power)	WP 0009 00, Load Connection, Steps 2 through 4.	WP 0009 00, DC Power Application, Steps 1 through 2.	WP 0009 00, DC Power Application, Steps 3 through 6.	WP 0009 00, DC Power Application, Steps 8 through 11.
c. Pneumatic Power	WP 0010 00, Load Connection, Steps 5 through 1.	WP 0010 00, Load Connection, Steps 1 through 1.	WP 0010 00, Pneumatic Power Application, Steps 1 through 8.	WP 0010 00, Pneumatic Power Application, Steps 1 through 8.
d. Hydraulic Power	WP 0011 00, Hose Connections (All Models of Aircraft), Steps 1 through 13.	WP 0011 00, Hose Connections (All Models of Aircraft), Steps 14 through 32	WP 0011 00, Single Line and Dual Line Servicing of Aircraft (Low/High Pressure) Operation, Steps 1 through 17	WP 0011 00, Single Line and Dual Line Servicing of Aircraft (Low/High Pressure) Operation, Steps 18 through 24

3. **Obtain DC Power.** To obtain DC power (350 amps maximum) while operating in AC mode, perform the following steps as specified in Table 2:

   a. Set CURRENT LIMIT SELECTOR switch (Figure 1) to AC 17 kva, 38 kva, 59 kva or 90 kva position.

WARNING

Battery output switch must be set to OFF position (Figure 1). If in the ON position during DC power output failure of battery charger will occur.

   b. Set BATTERY OUTPUT switch (Figure 1) to OFF.

   c. Ensure that DC POWER switch is set to ON (Figure 1).

   d. After DC operations are complete place the DC POWER output switch in the OFF position (Figure 1).

   e. Shut down GTE (WP 0008 00, AGPU Shutdown Procedure).

END OF WORK PACKAGE

OPERATOR INSTRUCTIONS

**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**

OPERATION UNDER USUAL CONDITIONS - SLAVE START OPERATION FROM DC GENERATOR

INITIAL SETUP:

References	References (cont.)
WP 0002 00	WP 0008 00
WP 0004 00	WP 0019 00
WP 0006 00	WP 0029 00

SLAVE START OPERATION

Slave start may be accomplished by three methods:

1. A DC generator supplying 22 to 32 VDC, 800 amp minimum.
2. An external 24 VDC battery.
3. Another AGPU.

NOTE

DC generator used to start AGPU in this procedure may be another AGPU or any generator set capable of supplying between 22 to 32 VDC, 800 amp minimum current. Generator set must have electrical aircraft type (slave) cable that will mate with AGPU slave receptacle (WP 0004 00, Figure 1, Item 18).

WARNING

Ensure that BATTERY OUTPUT switch (WP 0012 00, Figure 1) on AGPU remains in OFF position at all times when starting from a DC generator.

1. On DC generator, ensure that DC power switch is set to OFF.
2. Connect slave cable from DC generator to slave receptacle on AGPU (WP 0004 00, Figure 1, Item 18).
3. On DC generator, set current limit selector (if applicable) to maximum position.
4. Start DC generator.
5. On DC generator, set DC power output switch to ON position. (If applicable adjust voltage setting not to exceed 32 VDC) in accordance with equipment TM.

SLAVE START OPERATION - CONTINUED

CAUTION

Observe the following AGPU starter duty cycle when starting AGPU from a DC generator, otherwise AGPU starter will overheat.

6. Observe following start duty cycle for AGPU:
   a. Two consecutive unsuccessful start attempts for a maximum of 15 seconds each are allowed.
   b. After two unsuccessful start attempts, a minimum of 20 minutes off time is required. After 20 minutes, two additional 15 second start attempts may be made consecutively. After this, 40 minutes off time is required before any additional attempts can be made.
7. On AGPU that is to be slaved, perform WP 0008 00, Engine Start Procedures.
8. When AGPU has been started, set DC power output switch on DC generator to OFF and disconnect DC generator slave cable from slave receptacle (WP 0004 00, Figure 1, Item 18) on AGPU.
9. Shutdown DC generator per applicable equipment TM.

REMOVE AGPU FROM OPERATION

1. Ensure that control panel DC POWER, AC POWER and PNEUMATIC POWER switches are set to OFF and check that associated indicator lights are out.
2. Check that BATTERY OUTPUT switch is set to OFF.

AGPU SHUTDOWN

WP 0008 00, AGPU Shutdown Procedure.

EMERGENCY ENGINE SHUTDOWN

WP 0019 00, Emergency Engine Shutdown.

SECURING AGPU AFTER OPERATION

Perform PMC After (A) steps (WP 0029 00).

SLAVE START OPERATION (FAILING BATTERY CHARGER) FROM BATTERY POWER MEP 83-360A, MEP 83-360D/E

NOTE

External DC power used to start the AGPU in this procedure may come from another AGPU. The electrical (slave) cable on the slave AGPU will mate to the slave receptacle on the AGPU to be slaved.

1. On the AGPU used to perform the slave operation, perform WP 0008 00, Engine Start Procedures and observe precautions.
2. On the slave AGPU, ensure that battery output switch (WP 0012 00, Figure 1) is set to OFF position.
3. Connect the slave cable to slaved AGPU receptacle (WP 0002 00, Figure 1, Item 18).
4. Ensure all switches on the slaved AGPU are set to the OFF position and that the batteries are connected.

SLAVE START OPERATION (FAILING BATTERY CHARGER) FROM BATTERY POWER MEP 83-360A, MEP 83-360D/E - CONTINUED

CAUTION

Observe the following AGPU starter duty cycle when starting from an external battery, otherwise AGPU starter will overheat.

5. On the slave AGPU place the DC output power switch (WP 0012 00, Figure 1) to the ON position. Observe the DC output voltage gauge reads 28-32 volts DC and the percent load gauge reads no more than 60 percent.
6. On the slaved AGPU place the master switch to the ON position and observe the battery voltage gauge (WP 0012 00, Figure 1) reads 28-32 volts, green band.
7. Observe the following start duty cycle for slaved AGPU:
   a. Three consecutive unsuccessful start attempts for a maximum of 30 seconds each are allowed.
   b. After three unsuccessful start attempts, a minimum of 20 minutes off time is required. After 20 minutes, two additional 30-second start attempts may be made consecutively. After two start attempts, 40 minutes off time is required before any additional attempts can be made.
   c. Six unsuccessful starts can be made in a one hour period at ten minute intervals. After this period, one hour off time is required.
8. On slaved AGPU, perform WP 0008 00, Engine Start Procedures.
9. When the slaved AGPU has been started, observe all control panel gauges (WP 0008 00).
10. On the slave AGPU place the DC output switch (WP 0012 00, Figure 1) to the OFF position.
11. On the slave AGPU disconnect DC power cable from slave receptacle (WP 0004 00, Figure 1, Item 18) on slaved AGPU.
12. Shutdown slave AGPU (WP 0008 00, AGPU Shutdown Procedure).
13. Operate slaved AGPU for approximately 30 minutes and ensure battery voltage gauge (WP 0012 00, Figure 1) is reading in the green band.
14. Shutdown slaved AGPU (WP 0008 00, AGPU Shutdown Procedure).

EMERGENCY ENGINE SHUTDOWN

WP 0019 00, Emergency Engine Shutdown.

SECURING AGPU AFTER OPERATION

Perform PMC After (A) steps (WP 0029 00).

END OF WORK PACKAGE

OPERATOR INSTRUCTIONS

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

OPERATION UNDER USUAL CONDITIONS - PROPULSION SYSTEM

INITIAL SETUP:

References	References (cont.)
WP 0008 00	
WP 0019 00	WP 0029 00

PRIMARY MODE PROPULSION (GTE OPERATING)

NOTE

The propulsion system may be operated in two modes. The primary mode is with the engine running to charge the battery. The alternate mode is without engine running, operating on battery power. The primary mode should be used for movement in excess of 500 feet.

1. Start engine (WP 0008 00, Engine Start Procedures).
2. Remove quick release pin and engage the rear axle drive mechanism by pulling the clutch lever directly to the rear. Reinstall the quick release pin.
3. Set BATTERY OUTPUT POWER switch to ON.
4. Remove grounding cable if AGPU is grounded and stow.
5. Set DRIVE switch to the ON position and check that DRIVE indicator illuminates.
6. Release the tow bar latch by pressing down on the latch release lever. Lower the tow bar to the desired position.

NOTE

If clutch is engaged, DO NOT TOW light should illuminate when tow bar is lowered to approximately 60 degrees from horizontal.

7. Release the parking brake lever by moving it to the vertical position.

PRIMARY MODE PROPULSION (GTE OPERATING) - CONTINUED

WARNING

Prior to depressing the DEADMAN switch in preparation for self-propulsion, personnel must ascertain that the speed control moves freely and recenters when released. If the speed control appears to be binding, extreme caution must be exercised while moving unit under its own power.

8. Press down and hold the DEADMAN switch located on the speed/direction control assembly. Listen for audible click from electric brake to ensure electric brake is released.

WARNING

A ground guide is required when operating AGPU in reverse.

9. To move the AGPU forward, slowly twist either of the speed/direction twist grips forward. To reverse direction, turn either of the grips in the opposite direction. Operate controls from left side of tow bar.

WARNING

Remain clear of downgrade side of AGPU if operating on a slope.

10. To steer the AGPU, move the tow bar from left to right.

CAUTION

Under normal operations, release DEADMAN switch only after the AGPU has come to a complete stop. Release of the DEADMAN switch while the AGPU is in motion will instantly apply the electric brake. While this feature is needed in an emergency, stopping the AGPU in this manner can damage the rear axle drive chain.

11. To stop the drive movement, release the hand grip. An internal spring mechanism will return the grip to the centered or “OFF” position (releasing DEADMAN switch will also stop AGPU drive and apply the electric brake).
12. 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 DRIVE switch to the OFF position and check that the light goes out.
    d. Set the BATTERY OUTPUT POWER switch to OFF and observe that the DC power indicator goes out.
    e. Set ENGINE CONTROL switch to STOP position.
    f. Set MASTER SWITCH to OFF position, wait until GTE stops.
    g. Remove the quick release pin and push in the clutch lever at the rear of the AGPU to disengage the drive mechanism.
    h. Reinstall the quick release pin.
    i. Connect ground cable to static ground point.

PRIMARY MODE PROPULSION (GTE OPERATING) - CONTINUED

j. Disconnect battery if usage is not required.

AGPU SHUTDOWN

WP 0008 00, AGPU Shutdown Procedure.

EMERGENCY ENGINE SHUTDOWN

WP 0019 00, Emergency Engine Shutdown.

SECURING AGPU AFTER OPERATION

Perform PMC After (A) steps (WP 0029 00).

ALTERNATE MODE PROPULSION (GTE NOT OPERATING)

NOTE

The propulsion system may be operated in two modes. The primary mode is with the engine running to charge the battery. The alternate mode is without engine running, operating on battery power. The primary mode should be used for movement in excess of 500 feet.

1. Connect battery and stow grounding cable.
2. Remove quick release pin and engage the rear axle drive mechanism by pulling the clutch lever directly to the rear. Reinstall the quick release pin.
3. Set MASTER switch to ON.
4. Set BATTERY OUTPUT POWER switch to ON.
5. Set DRIVE switch to the ON position and check that DRIVE indicator illuminates.
6. Release the tow bar latch by pressing down on the latch release lever. Lower the tow bar to the desired position.

NOTE

If clutch is engaged, DO NOT TOW light should illuminate when tow bar is lowered to approximately 60 degrees from horizontal.

7. Release the parking brake lever by moving it to the vertical position.

WARNING

Prior to depressing the DEADMAN switch in preparation for self-propulsion, personnel must ascertain that the speed control moves freely and recenters when released. If the speed control appears to be binding, extreme caution must be exercised while moving unit under its own power.

8. Press down and hold the DEADMAN switch located on the speed/direction control assembly. Listen for audible click from electric brake to ensure electric brake is released.

ALTERNATE MODE PROPULSION (GTE NOT OPERATING) - CONTINUED

WARNING

A ground guide is required when operating AGPU in reverse.

9. To move the AGPU forward, slowly twist either of the speed/direction twist grips forward. To reverse direction, turn either of the grips in the opposite direction. Operate controls from left side of tow bar.

WARNING

Remain clear of downgrade side of AGPU if operating on a slope.

10. To steer the AGPU, move the tow bar from left to right.

CAUTION

Under normal operations, release DEADMAN switch only after the AGPU has come to a complete stop. Release of the DEADMAN switch while the AGPU is in motion will instantly apply the electric brake. While this feature is needed in an emergency, stopping the AGPU in this manner can damage the rear axle drive chain.

11. To stop the drive movement, release the hand grip. An internal spring mechanism will return the grip to the centered or “OFF” position (releasing DEADMAN switch will also stop AGPU drive and apply the electric brake).
12. 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 DRIVE switch to the OFF position and check that the light goes out.
    d. Set the BATTERY OUTPUT POWER switch to off and observe that the battery power indicator goes out.
    e. Set MASTER SWITCH to OFF position.
    f. Remove the quick release pin and push in the clutch lever at the rear of the AGPU to disengage the drive mechanism.
    g. Reinstall the quick release pin.
    h. Connect ground cable to static ground point.
13. Disconnect battery if usage is not required.

AGPU SHUTDOWN

WP 0008 00, AGPU Shutdown Procedure.

SECURING AGPU AFTER OPERATION

Perform PMC After (A) steps (WP 0029 00).

END OF WORK PACKAGE

OPERATOR INSTRUCTIONS

**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**

OPERATION OF AUXILIARY EQUIPMENT

INITIAL SETUP:

References	References (cont.)
WP 0002 00	
WP 0008 00	WP 0029 00
WP 0019 00	WP 0101 00

DEICING KIT INSTALLATION

WARNING

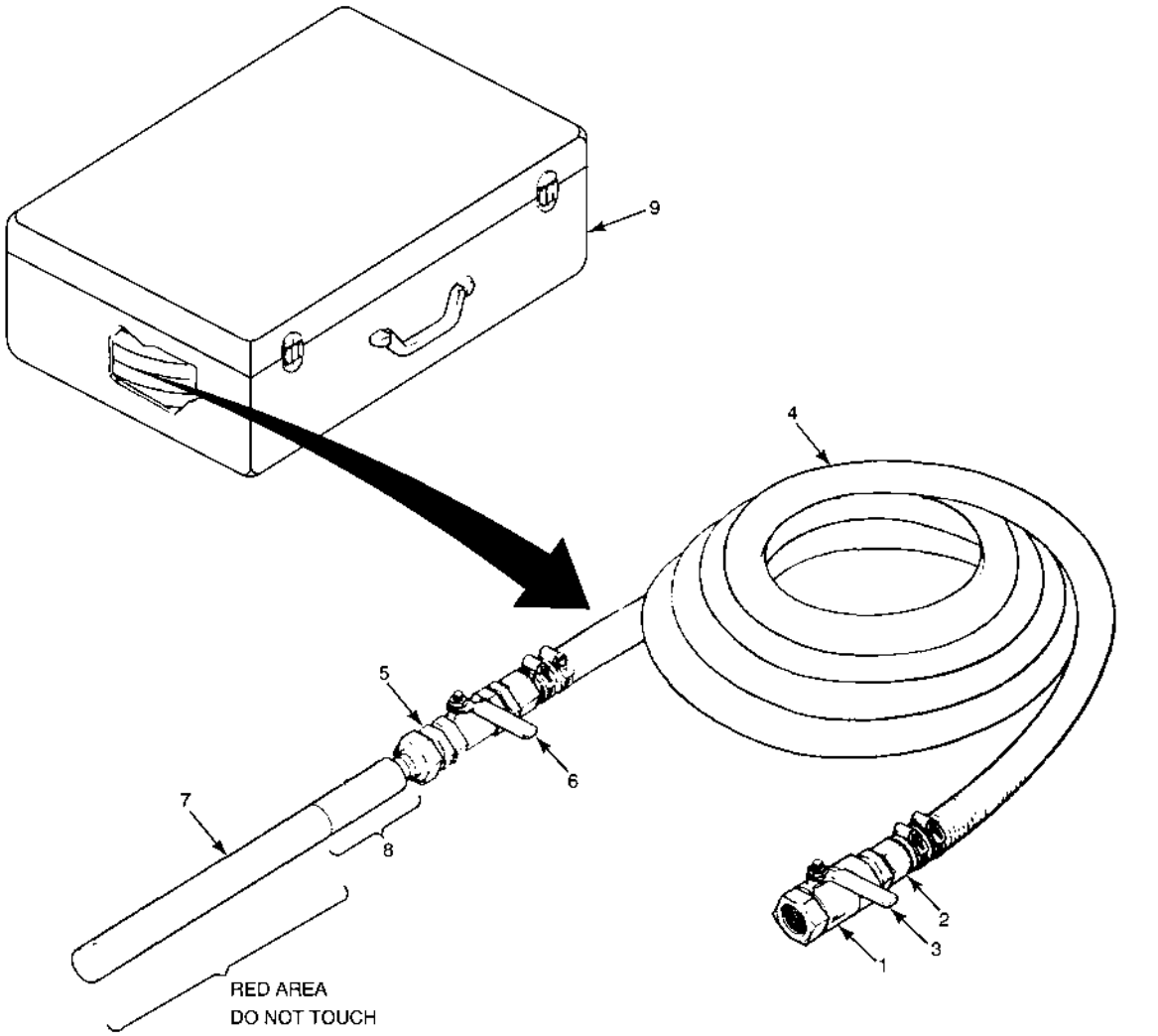
Ear protection, goggles and hand protection (gloves) must be worn when operating deicing kit.

CAUTION

If engine is running, shut system down (WP 0008 00, AGPU Shutdown Procedure).

1. Remove cap from engine bleed air fitting (WP 0002 00, Figure 4, Item 10).
2. Layout hose to remove kinks.
3. Loosen hose coupling nut (Figure 1, Item 2) and remove hose shutoff valve (Figure 1, Item 1).
4. Install hose shutoff valve (Figure 1, Item 1) on engine bleed air fitting (WP 0002 00, Figure 4, Item 10). Tighten hand tight.
5. Attach hose (Figure 1, Item 4) to hose shutoff valve (Figure 1, Item 1) and tighten coupling nut hand tight.
6. Attach hose to nozzle shutoff valve (Figure 1, Item 5) and tighten hose coupling nut hand tight.
7. Set shutoff levers (Figure 1, Item 3 and 6) to OFF position.

DEICING KIT INSTALLATION - CONTINUED



1. Shutoff Valve, Hose
2. Hose Coupling Nut
3. Shutoff Lever (shown in OFF position)
4. Hose
5. Shutoff Valve, Nozzle
6. Nozzle Shutoff Lever (shown in OFF position)
7. Nozzle, Deicer
8. Hand Hold Area
9. Case, Storage

Figure 1. Deicer Kit.

DEICING KIT OPERATION

1. Start AGPU, WP 0008 00, Engine Start Procedures.
2. Slowly turn hose shutoff lever (Figure 1, Item 3) on hose shutoff valve (Figure 1, Item 1) to open position.

DEICING KIT OPERATION - CONTINUED

WARNING

Heat protective gloves (supplied with kit) must be worn when operating deicing kit.

3. Put on heat protective gloves supplied with kit.

WARNING

High velocity hot air (400 °F) can cause injury or damage. Never direct hot air at another person.

4. Grasp nozzle securely at hand hold area (Figure 1, Item 8) and slowly turn nozzle shutoff lever (Figure 1, Item 6) to open position.

CAUTION

Keep nozzle at least 8 inches away from area being deiced. Slowly move nozzle around area being deiced to prevent excessive heat buildup in one area.

DEICING KIT SHUTDOWN OPERATION

WARNING

Heat protective gloves should be worn during this operation.

1. Grasp nozzle securely at hand hold area (Figure 1, Item 8) and slowly turn shutoff lever (Figure 1, Item 6) to the OFF position.
2. Slowly turn hose shutoff lever (Figure 1, Item 3) to the OFF position.
3. Shutdown AGPU (WP 0008 00, AGPU Shutdown Procedure).
4. Disconnect deicing hoses and valves and stow in the storage case (Figure 1, Item 9).
5. Replace cap from engine bleed air fitting (WP 0101 00, Figure 1, Item 14).

EMERGENCY ENGINE SHUTDOWN

WP 0019 00, Emergency Engine Shutdown.

SECURING AGPU AFTER OPERATION

Perform PMC After (A) steps (WP 0029 00).

END OF WORK PACKAGE

OPERATOR INSTRUCTIONS

**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**

TOWING

INITIAL SETUP:

NA

WARNING

Never back the AGPU with a tow vehicle to prevent personnel injury and equipment damage.

CAUTION

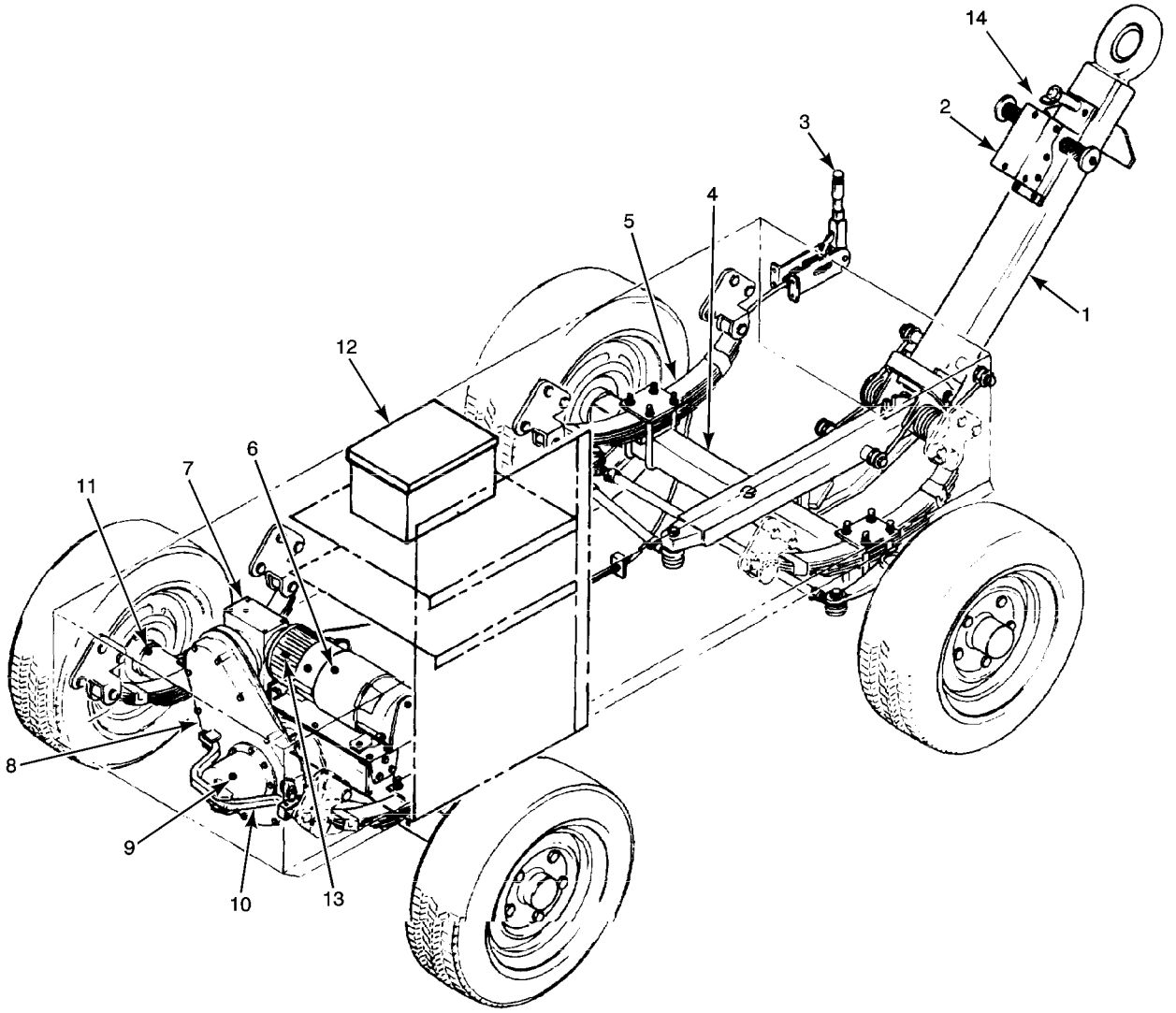
Maximum towing speed on improved surfaces is 20 mph. Maximum off road speed is 10 mph. Maximum turn angle is 20 degrees. Do not make sharp turns while towing.

CAUTION

On models MEP 83-360D/E (only) when the batteries are disconnected the tow alarm will still sound if the Tow clutch lever is engaged. If alarm is sounding, disengage the tow clutch lever to prevent severe damage to the AGPU drive unit.

PREPARATION FOR MOVEMENT

TOWING



1. Tow Bar
2. Speed Direction Control Assembly
3. Brake Lever
4. Front Axle Assembly
5. Spring
6. Traction Motor
7. Gear Drive
8. Chain Drive Assembly
9. Clutch Assembly
10. Clutch Lever
11. Rear Axle Assembly
12. Controller
13. Electric Brake
14. DO NOT TOW Light

Figure 1. Propulsion System.

PREPARATION FOR MOVEMENT – CONTINUED

TOWING – CONTINUED

1. Verify that the clutch lever (Figure 1, Item 10) is pushed to TOW to disengage the drive mechanism and quick-release pin is installed.
2. Check that the DO NOT TOW light (Figure 1, Item 14) is out on speed directional control and that the audible alarm is not sounding.
3. Place tow bar ring with the pintle on the towing vehicle.
4. Release the AGPU parking brake lever (Figure 1, Item 3).
5. Ensure that all doors are closed, cable and hoses are secure prior to towing.

END OF WORK PACKAGE

UNIT LEVEL INSTRUCTIONS

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

PREPARATION FOR MOVEMENT

INITIAL SETUP:

References

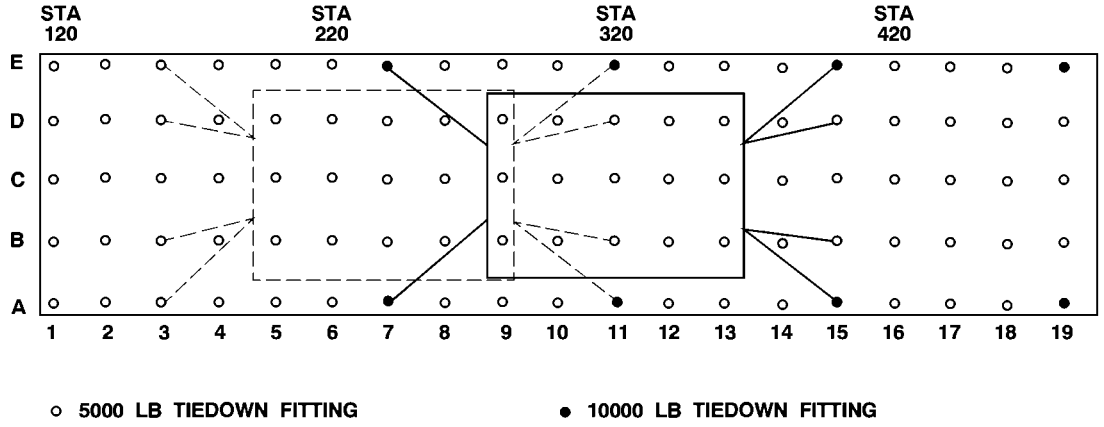
WP 0014 00

References (cont.)

WP 0016 00

PREPARATION FOR MOVEMENT

TIEDOWN



DESCRIPTION OF ITEM	ITEM FACING	LOCATION OF R.P.		APPROX WT (LB)
		R.P.	STA	
AVIATION GROUND POWER UNIT (AGPU)	AFT	CENTERED	320	4000

MS031315

Figure 1. Tiedown of AGPU for Internal Air Transport (IAT) (CH-47).

PREPARATION FOR MOVEMENT – CONTINUED

TIEDOWN – CONTINUED

Table 1. Tiedown of AGPU for IAT.

	Capacity in 1,000 lbs		
Tiedown fitting number	**Fitting (A/C)**	**Tiedown (MB-1)**	**Directions**
A-7	10	10	Pass the chain and grabhook across to and through the right rear frame tiedown point. Engage a link of the chain in the grabhook. Engage opposite end of chain to turnbuckle at A-7.
E-7	10	10	Pass the chain and grabhook across to and through the left rear frame tiedown point. Engage a link of the chain in the grabhook. Engage opposite end of chain to turnbuckle at E-7.
A-15	10	10	Pass the chain and grabhook across to and through the right front frame tiedown point. Engage a link of the chain in the grabhook. Engage opposite end of chain to turnbuckle at A-15.
E-15	10	10	Pass the chain and grabhook across to and through the left front frame tiedown point. Engage a link of the chain in the grabhook. Engage opposite end of chain to turnbuckle at E-15.
B-15	5	10	Pass the chain and grabhook through the right front lift ring. Engage a link of the chain in the grabhook. Engage opposite end of chain to turnbuckle at B-15.
D-15	5	10	Pass the chain and grabhook through the left front lift ring. Engage a link of the chain in the grabhook. Engage opposite end of chain to turnbuckle at D-15.

NOTE

The following two tiedowns are required for AFT restraint if the AGPU is not centered at station 320, as illustrated on sheet 1.

B-3	5	10	Pass the chain and grabhook through the right rear lift ring. Engage a link of the chain in the grabhook. Engage opposite end of chain to turnbuckle at B-3.

PREPARATION FOR MOVEMENT – CONTINUED

TIEDOWN – CONTINUED

Table 1. Tiedown of AGPU for IAT. – Continued

	Capacity in 1,000 lbs		
Tiedown fitting number	**Fitting (A/C)**	**Tiedown (MB-1)**	**Directions**
D-3	5	10	Pass the chain and grabhook through the left rear lift ring. Engage a link of the chain in the grabhook. Engage opposite end of chain to turnbuckle at D-3.

PREPARATION FOR GROUND MOVEMENT

1. Store all cables and hoses.
2. Close and latch all doors.
3. Disconnect ground cable.
4. If self-propulsion mode is used, perform the applicable steps in WP 0014 00 if moved less than 500 ft.
5. If AGPU is to be towed, perform the steps in WP 0016 00.

PREPARATION FOR AIRLIFT – INTERNAL AIR TRANSPORT (IAT)

Prepare AGPU for IAT by CH-47 helicopter as follows:

1. Prepare AGPU for airlift.
   a. Store all cables and hoses.
   b. Close and latch all doors.
   c. Disconnect ground cable.
   d. Ensure that fuel tank is not more than 3/4 full. Remove fuel if required.
2. Prepare helicopter.
   a. Stow the troop seats in the folded position.
   b. Lower the helicopter ramp and position the auxiliary ramps.
   c. Obtain following shoring materials:
      (1) Two 2 inch by 12 inch by 4 foot boards.
      (2) Two 2 inch by 12 inch by 9 foot boards.
      (3) Two 2 inch by 12 inch by 14 foot boards.
   d. Lay the shoring on the helicopter's ramps and cargo compartment floor for the AGPU to roll on during loading.
3. Prepare AGPU for self-propulsion mode (WP 0014 00).
4. Load AGPU into helicopter.
   a. Position one person to the rear of AGPU to observe lateral clearances. Position another person in front of the AGPU to observe clearances and give hand signals to the AGPU operator.
   b. Using propulsion controls on AGPU back the AGPU up the helicopter ramp in to the cargo compartment. Stop when the AGPU is centered at station 320 (Figure 1).
   c. When AGPU is in position at station 320, set parking brake.

PREPARATION FOR MOVEMENT – CONTINUED

TIEDOWN – CONTINUED

PREPARATION FOR AIRLIFT – INTERNAL AIR TRANSPORT (IAT) – CONTINUED

d. Set DRIVE switch, DC POWER and MASTER SWITCH on AGPU control panel to OFF positions. Disengage clutch and latch tow bar to stored position.

NOTE

The AGPU is resting on and supported by the parking brake and shoring during transport. Remove the rolling shoring and secure it inside the helicopter cargo compartment for downloading.

5. Tiedown AGPU.
   a. Prepare eight tiedown devices according to Table 1.
   b. Connect tiedown devices to AGPU tiedown brackets (Figure 1).
   c. Complete tie down operation to aircraft.

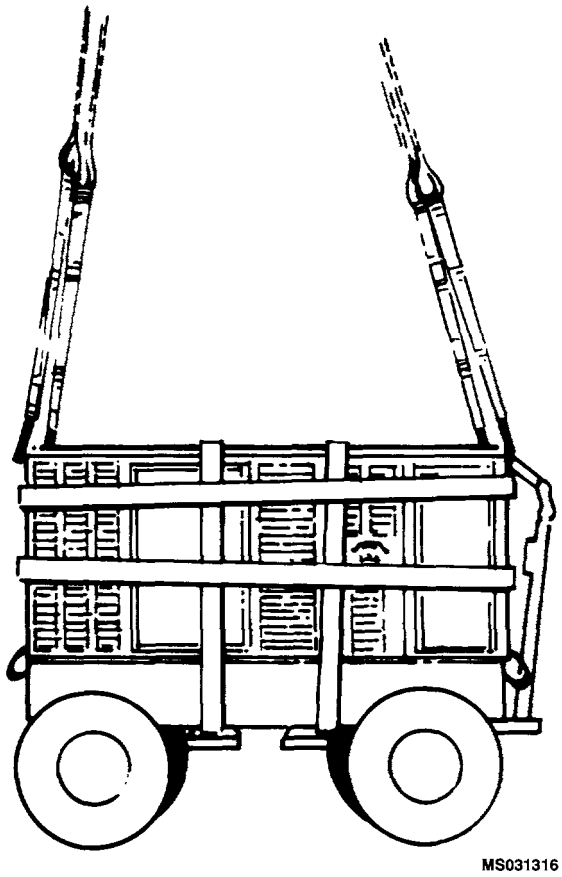


Figure 2. Airlift Hookup.

PREPARATION FOR AIRLIFT - EXTERNAL AIR TRANSPORT (EAT)

Prepare AGPU for EAT by UH-60, CH-47 and CH-53 helicopters as follows:

PREPARATION FOR MOVEMENT – CONTINUED

TIEDOWN – CONTINUED

PREPARATION FOR AIRLIFT - EXTERNAL AIR TRANSPORT (EAT) – CONTINUED

NOTE

The load of 4,190 pounds is suitable for UH-60 and CH-47 helicopters at airspeeds of 90 knots and 110 knots, respectively, for single-point hookup. Dual-point hookup is suitable for airspeed of 100 knots.

1. Prepare AGPU for EAT by UH-60, CH-47 and CH-53 helicopters as follows:
   a. Stow and secure the tow bar with Cord, Nylon, Type III.
   b. Close all doors, secure handles with Tape, adhesive pressure sensitive and attach four CGU-1/B tiedown straps (Figure 2), straps are to be through forklift guides and secure roof.
   c. Secure all equipment inside the unit with cord, nylon, Type III.

NOTE

Particular attention should be given to securing the exhaust cover to preclude possible damage during flight. If cover cannot be adequately secured then it should be removed.

   d. Secure exhaust cover with 2 inch tape, adhesive, pressure sensitive.
   e. Ensure that fuel tank is not more than 3/4 full. Inspect fuel tank cap, oil filler caps and battery caps for proper installation and that they are secure.
   f. Engage the parking brake and disengage the clutch lever.
2. Rigging (verify lift rings are fully seated and secure) as follows:
   a. Route outer sling legs 1 and 2 to the rear of the AGPU.
   b. Route inner sling legs 3 and 4 to the front of the AGPU.
   c. Loop the chain end of all sling legs through their respective lift ring and place link number 3 in the grabhook assembly.
   d. Cluster and tie off all sling legs with 80 pound cotton webbing or tape to prevent fouling during hookup.
   e. Dual hook rigging procedures are identical except that two apex clevis assemblies are used. Sling legs 1 and 2 on the rear of the AGPU go to the rear apex fitting assembly. Sling legs 3 and 4 on the front of the AGPU go to the front apex fitting assembly.
3. Hookup is as follows: Hookup team should kneel on top of load. Assistant hookup person discharges static electricity with the static probe. Hookup person then places apex on the aircraft cargo hook. If performing dual-point hookup, the front sling leg apex should be hooked first to aircraft cargo hook No. 1 and the rear sling leg apex should be hooked to aircraft cargo hook No. 3. Both persons carefully dismount but remain close to the load as helicopter removes slack in sling legs. When successful hookup is assured, hookup team briskly exits the area underneath the helicopter.

END OF WORK PACKAGE

UNIT LEVEL INSTRUCTIONS

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

OPERATION UNDER UNUSUAL CONDITIONS

INITIAL SETUP:

References
TB 1-1730-229-30-2
WP 0028 00
WP 0029 00

References (cont.)
WP 0094 00
WP 0099 00

SECURITY MEASURES FOR ELECTRONIC DATA

NA

UNUSUAL ENVIRONMENT/WEATHER

ADVERSE WEATHER CONDITIONS

OPERATION IN EXTREME HEAT

NOTE

The AGPU is designed to self cool with roof panels and doors closed. Removing the roof panels and doors will cause AGPU to run hot and over heat.

General

Continuous operation of the AGPU may cause the engine Exhaust Gas Temperature (EGT) to reach upper limit, thereby shutting down engine. The generator may also overheat, shutting down output. Avoid continuous use whenever possible. Be alert for overheating and shutdown the AGPU for a cooling-off period whenever necessary and if the tactical situation permits.

Battery

Optima and NiCad batteries will not be serviced. If batteries need servicing, perform TB 1-1730-229-30-2.

Lubrication

Lubricate the AGPU in accordance with the current lubrication order WP 0028 00 and WP 0029 00, Lubrication.

Fuel System

Do not fill tank to capacity when fueling. Allow sufficient room for expansion of fuel. Ensure that fuel is clean and not contaminated with water. Any water that forms in the fuel tank will be carried to the auxiliary fuel filter (WP 0094 00, Figure 1). It may be necessary to drain the auxiliary fuel filter drain valve (WP 0099 00, Figure 1. (Sheet 1 of 2), Item 15) more frequently than under normal conditions. Open fuel tank drain valve (WP 0099 00, Figure 1. (Sheet 1 of 2), Item 15) and drain out a small amount of fuel into a container WP 0099 00. Check for water in fuel. If water is present, continue draining until fuel is clean.

UNUSUAL ENVIRONMENT/WEATHER – CONTINUED

ADVERSE WEATHER CONDITIONS – CONTINUED

OPERATION IN EXTREME HEAT – CONTINUED

Body and Chassis

Paint pitting and blistering will occur in hot climates. Protect all exposed exterior painted surfaces from deterioration by touch-up painting. Electrical cables should not be continuously exposed to direct sunlight and heat.

Hydraulic System

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 automatically stop. Hydraulic system may operate continuously with 160 °F light illuminated on Hydraulic Control Panel.

OPERATION IN EXTREME COLD (BELOW 0 °F/-18 °C)

General

Extreme cold will cause lubricants to thicken or congeal; freeze batteries or prevent them from furnishing sufficient current for cold weather starting; crack insulation and cause electrical short circuits; prevent fuel from vaporizing and properly combining with air to form a combustible mixture for starting. Extreme cold will also cause the various materials or components to become hard, brittle and easily damaged or broken. The operator must always be on the alert for indication of the effects of cold weather on the AGPU. The operator must be very cautious when starting, towing or operating the AGPU after a shutdown for extended periods of time. Congealed lubricants may cause failure of parts. Tires may be frozen to the ground or frozen in the shape of a flat spot while under-inflated. Brake shoes may be frozen. Each condition must be taken into account by the operator in order to prevent damage to the AGPU.

Parking

When halted for short shutdown periods, park the AGPU in a sheltered spot out of the wind if possible. For long shutdown periods, if high, dry ground is not available, prepare a footing of planks. Chock in place if necessary. Also, under conditions below -25 °F (-32 °C), exercise care to park the vehicle on a level surface to relieve distortion or body twist. For overnight or extended parking in temperatures at -50 °F (-46 °C) or lower, overinflate tires to **45 psig** to reduce flat spots. Reduce pressure to normal (**35 psig**) prior to moving AGPU.

Lubrication

Lubricate the AGPU in accordance with the current lubrication order WP 0028 00 and WP 0029 00. It is not necessary to drain engine oil (subzero) as it will remain fluid even though unheated.

Battery

Ensure that battery is fully charged at all times. The battery should be removed and stored in a warm place if AGPU is not going to be used.

Electrical System

Prior to starting the engine, ensure that electrical components are free of ice and snow. Do not disturb the wiring since it becomes brittle with extreme cold.

Exhaust System

Ensure that exhaust flappers are not frozen shut before attempting to start engine.

UNUSUAL ENVIRONMENT/WEATHER – CONTINUED

ADVERSE WEATHER CONDITIONS – CONTINUED

OPERATION IN EXTREME COLD (BELOW 0 °F/-18 °C) – CONTINUED

CAUTION

If AGPU must be started/run with iced air cleaner inlet, open GTE access door until ice melts from air cleaner inlet. This allows air duct bypass door to draw outside air into engine. Failure to do this will cause excessive heat buildup in AGPU interior (exhaust gases will be recirculated).

Air Intake System

Ensure that air intake louvered cover and air cleaner are not obstructed with ice or snow.

Fuel System

Keep the fuel tank as full as possible at all times to prevent condensation. Use JP-4 for temperatures below -40 °F (-40 °C).

System Preheat

The prolonged storage of the AGPU under extreme cold conditions, below -25 °F (-32 °C), may require preheating the system prior to operation. This can be accomplished by moving the AGPU to a warm building or using a heating unit with hose inserted through the engine PRE HEAT ACCESS door. The deicing air system from another AGPU can also be used for preheating.

OPERATION IN SNOWY CONDITIONS

General

Procedures for operation under snowy conditions are very similar to procedures required to operate in extreme cold. Prior to starting the engine, clear snow accumulation from the exhaust ejector flap. When operating the AGPU in snow, make certain that the chassis remains clear of snow and ice. Keep doors and panels free of snow and ice to allow the free flow of air to the unit.

After-Operation Procedures

Remove accumulations of ice and snow from under the AGPU. Specific attention should be given to the following areas: wheels, axles, steering knuckles and arms, clutch lever, brake cable and lever and air intake louvered panel.

OPERATION IN RAINY OR HUMID CONDITIONS

Start engine daily and operate for 30 minutes to dry out systems. Keep the fuel tank full to prevent the forming of condensation. Check fuel for water daily by draining off a small amount of fuel into a container WP 0099 00. If water is present, continue draining until fuel is clean.

ADVERSE ENVIRONMENTAL CONDITIONS

OPERATION IN DUSTY AND SANDY AREAS

Protection

Keep all doors closed and covers installed. Keep the unit as clean as possible, paying special attention to air cleaner, controls and moveable parts.

Lubrication

In dusty or sandy areas, filters and strainers must be serviced more frequently than under normal conditions. Change engine oil, hydraulic oil and filters more frequently in dusty areas. Clean all lubrication points carefully before and after lubrication. Be sure that all lubricant containers are tightly sealed and stored in an area as free as possible from dust and sand.

UNUSUAL ENVIRONMENT/WEATHER – CONTINUED

ADVERSE ENVIRONMENTAL CONDITIONS – CONTINUED

OPERATION IN DUSTY AND SANDY AREAS – CONTINUED

Fuel System

Take all necessary precautions to keep dirt and grit out of the fuel tank. Fuel filters should be serviced more frequently.

OPERATION IN SALT WATER AREAS

General

Salt water causes corrosive action on metal. Care must be taken to avoid contact with salt water. If the unit is exposed to salt water or spray, wash the unit thoroughly with clean, fresh water.

Protection

Keep unit clean and free from dirt and grease that can trap salt water. If possible, wash unit down with fresh water weekly.

OPERATION AT HIGH ALTITUDE

The AGPU is designed to operate at elevations up to 10,000 feet (3048 meters) above sea level.

Above 10,000 feet (3048 meters) the AGPU output power will be reduced. Additionally, the engine exhaust gas temperature (EGT) will be higher. Automatic shutdown of engine may occur under heavy loads. Keep air cleaner serviced.

END OF WORK PACKAGE

UNIT LEVEL INSTRUCTIONS

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 PROCEDURES

INITIAL SETUP:

References	References (cont.)
WP 0006 00	
WP 0008 00	WP 0096 00
WP 0093 00	WP 0113 00
WP 0094 00	WP 0115 00

EMERGENCY PROCEDURES

EMERGENCY ENGINE SHUTDOWN

NOTE

Engine shutdown can only be accomplished by removing fuel source. If shutdown fuel solenoid or associated control circuit should fail, engine shutdown can be accomplished by setting control panel MASTER SWITCH to OFF (this removes voltage from auxiliary fuel pump and stops fuel flow).

1. Set control panel ENGINE CONTROL switch to STOP or push red EMERGENCY STOP pushbutton switch on front of AGPU.
2. If Step 1 fails to shutdown engine, set control panel MASTER SWITCH to OFF.
3. If Step 2 fails to shutdown engine, pull 10 amp circuit breaker on control panel (CB2). Then open battery compartment door and disconnect battery connector.

EMERGENCY OPERATION

Automatic Shutdown

Built-in protective circuits and sensors will automatically shutdown the AGPU if design limits are exceeded or if a sensor fails. The AGPU cannot be restarted until problem is corrected.

FUEL

Diesel fuel MIL-G-5572 or VVF-800 may be used for emergency fuel. Do not use for more than 25 hours engine operation. After using diesel fuel for 25 hours the following inspection will be accomplished:

1. Inspect the combustor can for caking or buildup of carbon. Clean with glass beads or suitable abrasive (WP 0115 00).
2. Remove and inspect the fuel nozzle. If caked or heavily carbonized it should be replaced (WP 0096 00).
3. Both fuel filters (cart and engine) must be replaced (WP 0093 00 and WP 0094 00).

FUEL – CONTINUED

4. The cart and engine fuel system must be purged as follows:
   a. Disconnect the fuel input line to the combustor (WP 0113 00, Figure 2, Item 5).
   b. Turn on the Master switch (WP 0006 00, Figure 1).
   c. Turn on AC power switch (WP 0006 00, Figure 1).
   d. Turn engine control switch (WP 0006 00, Figure 1) to start, to energize the auxiliary fuel pump until a minimum of 2 quarts of fuel is collected from the fuel system output.
   e. Tighten all lines and check for fuel leakage.
5. Start AGPU (WP 0008 00, Engine Start Procedures).
6. If problems with AGPU performance exist repeat Steps 2 through 5.

FIRE

1. If fire starts inside AGPU, immediately set control panel MASTER SWITCH to OFF (or press red EMERGENCY STOP push button switch on front of AGPU).
2. **DO NOT** immediately open engine access door. Insert nozzle of fire extinguisher through round ENGINE PRE HEAT ACCESS door (in center of engine access door) and operate fire extinguisher.
3. Once fire is extinguished, open battery access door and disconnect battery connector.
4. Open all access doors and use fire extinguisher on hot spots if required.

END OF WORK PACKAGE

CHAPTER 3

FIELD 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)

FIELD MAINTENANCE

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SCOPE AND INTRODUCTORY INFORMATION

SCOPE

This chapter contains instructions for field 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 0021 00 and is used for locating and correcting operating troubles which may develop in the AGPU, electrical system, fuel system, engine, pneumatics, 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 WP 0008 00 and the PMC Before (B) steps (WP 0029 00).

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 0050 00 wire harness and pin connector numbers for J/P5, J/P6, J/P7, J/P8 and J/P9.

• FO numbers referenced in Field Troubleshooting are located at the end of this manual.

END OF WORK PACKAGE

FIELD MAINTENANCE

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TROUBLESHOOTING INDEX

Malfunction/Symptom — Troubleshooting Procedure

Malfunction/Symptom | Troubleshooting Procedure

HYDRAULIC/PNEUMATIC – CONTINUED

PROPULSION

ELECTRICAL

Malfunction/Symptom | Troubleshooting Procedure

ELECTRICAL – CONTINUED

Malfunction/Symptom | Troubleshooting Procedure

ELECTRICAL – CONTINUED

PNEUMATIC ELECTRICAL

END OF WORK PACKAGE

FIELD MAINTENANCE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
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TROUBLESHOOTING PROCEDURES: ENGINE

INITIAL SETUP:

References
WP 0002 00
WP 0029 00
WP 0028 00
WP 0034 00
WP 0041 00
WP 0043 00
WP 0044 00
WP 0052 00
WP 0053 00
WP 0054 00
WP 0056 00
WP 0057 00
WP 0059 00
WP 0063 00

References (cont.)
WP 0064 00
WP 0068 00
WP 0073 00
WP 0076 00
WP 0080 00
WP 0090 00
WP 0092 00
WP 0093 00
WP 0095 00
WP 0096 00
WP 0100 00
WP 0106 00
WP 0109 00
WP 0112 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, check battery and cables (WP 0043 00 and WP 0044 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

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, proceed to 9. ENGINE MOTORS ABOVE 10% RPM BUT NO LIGHT OFF (START).

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/gearbox assembly oil level. Add oil if required (WP 0028 00 and WP 0029 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/gearbox assembly oil level and add oil if required (WP 0028 00 and WP 0029 00, Lubrication). If symptom continues, shutdown engine, notify maintenance supervisor.

7. AUTOMATIC ENGINE SHUTDOWN DURING NORMAL OPERATION

SYMPTOM

MALFUNCTION
AUTOMATIC ENGINE SHUTDOWN DURING NORMAL OPERATION

CORRECTIVE ACTION

Check and record all illuminated indicators on control panel prior to 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 (START)

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 0090 00) and FCU fuel filter (WP 0093 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 (troubleshooting procedure 110. IGNITION UNIT MALFUNCTION).
   a. Replace ignition unit if defective (WP 0109 00) and perform MOC.
   b. If ignition unit is okay, continue with next step.
6. Test fuel control unit (troubleshooting procedure 111. FUEL CONTROL UNIT MALFUNCTION).
   a. Replace fuel control unit if defective (WP 0092 00) and perform MOC.
   b. If fuel control unit is okay, continue with next step.
7. Remove, inspect and clean fuel nozzle (WP 0096 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 (troubleshooting procedure 112. FUEL SHUTDOWN SOLENOID MALFUNCTION).
   a. Replace shutdown solenoid if defective (WP 0095 00) and perform MOC.

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

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

9. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E). On MEP 83-360E only disconnect J-1 and P-1 connector. Disconnect engine harness connectors P2 from ECU, P4 from fuel shutoff solenoid, P7 from ignition unit and P9 from fuel control unit torque motor (Figure FO 3 (Sheet 2 of 2)). Check for continuity between the following points.

NOTE

Refer to Figure FO 20 and Figure FO 21 for MEP 360E.

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 0057 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, perform troubleshooting procedure 9. ENGINE MOTORS ABOVE 10% RPM BUT NO LIGHT OFF (START).
   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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E). On MEP 83-360E only disconnect J-1 and P-1 connector. Disconnect lower control panel (WP 0041 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 (Figure FO 3 or Figure FO 20 and Figure FO 21 for MEP 360E).
   a. If no continuity, replace wire (E31C20 or E41A20N) or notify maintenance supervisor.
   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 0100 00) with engine operating.
   a. If valve is not fully closed perform troubleshooting procedure 116. 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 0096 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 0096 00, Fuel Nozzle). Test ignition unit (troubleshooting procedure 110. IGNITION UNIT MALFUNCTION).
   a. Replace any defective component.
   b. If no defective components are found, check for water in fuel.
   c. 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 perform troubleshooting procedure 21. GTE CONTROL SHORT INDICATOR ILLUMINATED - ENGINE SHUT DOWN through 23. GTE OVER SPEED INDICATOR ILLUMINATED - 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 perform troubleshooting procedure 17. ENGINE SHUTS DOWN DURING NORMAL OPERATION.

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

SYMPTOM

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

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

CORRECTIVE ACTION

Check GTE indicator lights.

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

b. If all GTE warning lamps are extinguished perform 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Disconnect lower control panel (WP 0041 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 0055 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 (Figure FO 3 or Figure FO 20 and Figure FO 21 for MEP 360E).

   If no continuity, replace wire (E31C20 or E41A20N or E31A20) and perform MOC.
4. Remove, inspect and clean fuel nozzle (WP 0096 00, Fuel Nozzle). Test ignition unit (troubleshooting procedure 110. IGNITION UNIT MALFUNCTION), GTE Speed sensor (troubleshooting procedure 105. SPEED SENSOR MALFUNCTION) and fuel control unit (troubleshooting procedure 111. FUEL CONTROL UNIT MALFUNCTION).
   a. Replace any defective components.
   b. If all components and wiring test good, replace ECU (WP 0057 00).
   c. Perform MOC.

16. ENGINE OIL CONSUMPTION OR SMOKE EXCESSIVE

SYMPTOM

MALFUNCTION

ENGINE OIL CONSUMPTION OR SMOKE EXCESSIVE

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 perform troubleshooting procedure 21. GTE CONTROL SHORT INDICATOR ILLUMINATED - ENGINE SHUT DOWN through 23. GTE OVER SPEED INDICATOR ILLUMINATED - ENGINE SHUT DOWN.
   b. If all GTE warning indicators are extinguished, continue with next step.
2. Test power diodes 3CR7 through 3CR9 (troubleshooting procedure 102. BATTERY/CHARGER TRANSFER RELAY 3K3 AND POWER DIODE MALFUNCTIONS, Step 2).
   a. Replace defective diodes (WP 0073 00) and perform MOC.
   b. If diodes are good, continue with Step 3.
3. Check diodes TB3-CR3 through TB3-CR7 (troubleshooting procedure 99. TERMINAL BOARD DIODE MALFUNCTIONS).
   a. Replace any defective diodes (WP 0076 00) and perform MOC.
   b. If all diodes are good, continue with next step.
4. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Disconnect lower control panel (WP 0041 00) (Figure FO 3 or Figure FO 20 and Figure FO 21 for MEP 360E). Check wiring between diodes (TB3-CR3 through CR7) and indicator lamps and between diodes and P 4 as follows :

17. ENGINE SHUTS DOWN DURING NORMAL OPERATION – Continued

NOTE

Refer to Figure FO 20 and Figure FO 21 for MEP 360E.

From	To	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
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. Test fuel shutdown solenoid (troubleshooting procedure 112. FUEL SHUTDOWN SOLENOID MALFUNCTION).

   a. Replace fuel shutdown solenoid if defective (WP 0095 00).

   b. If fuel shutdown solenoid is good, replace ECU (WP 0057 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 0063 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 perform troubleshooting

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

procedure 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS) and EMERG STOP switch troubleshooting procedure 83. 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 0095 00). If engine is shutdown this way, purge fuel system prior to next start or engine will not start on next attempt.

3. Check starter latch relay 3K2 (101. STARTER LATCH RELAY 3K2 MALFUNCTION).
   a. Replace relay 3K2 if defective (WP 0056 00).
   b. If relay tests good, replace ECU (WP 0057 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, gearbox assembly or hydraulic pump. Notify maintenance supervisor.

20. GTE HIGH EGT INDICATOR ILLUMINATED - ENGINE SHUT DOWN

SYMPTOM

MALFUNCTION
GTE HIGH EGT INDICATOR ILLUMINATED - ENGINE SHUT DOWN

CORRECTIVE ACTION

1. Place MASTER SWITCH in OFF position and check visual position on side of LCV (WP 0100 00, Figure 1, Item 5).
   a. If valve is fully closed, proceed to Step 1b.
   b. If valve is not fully open, replace LCV (WP 0100 00) and perform MOC.
2. Test thermocouple (troubleshooting procedure 108. THERMOCOUPLE MALFUNCTION).
   a. Replace thermocouple if defective (WP 0054 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 0100 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 0057 00).
   b. If resistance is not okay, replace LCV (WP 0100 00).
   c. Perform MOC.

21. GTE CONTROL SHORT INDICATOR ILLUMINATED - ENGINE SHUT DOWN

SYMPTOM

MALFUNCTION
GTE CONTROL SHORT INDICATOR ILLUMINATED - ENGINE SHUT DOWN

CORRECTIVE ACTION

1. If engine will not motor, disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Lower control panel. Disconnect main harness connector P4 from ECU and measure resistance from pin J of harness connector P4 to ground (Figure FO 3 or Figure FO 20 and Figure FO 21 for MEP 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 0057 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 0109 00). Restart engine.
   a. If engine now motors beyond 10%, test ignition unit perform troubleshooting procedure 110. 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 0095 00). Restart engine.
   a. If engine now motors beyond 10% rpm, test fuel shutdown solenoid (troubleshooting procedure 112. FUEL SHUTDOWN SOLENOID MALFUNCTION). If not, proceed to Step 3).
   b. Disconnect leads from hour meter (WP 0112 00). Restart engine. If engine now motors normally, replace hour meter. If not, perform Step 3c.
   c. If CONTROL SHORT indicator still illuminates at 10% rpm, disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Check engine harness wiring to ignition unit, hour meter and fuel shutdown solenoid. If wiring is not shorted to ground, replace ECU (WP 0057 00).
   d. Perform MOC.
4. If engine shuts down at 95% rpm, disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Lower control panel. Disconnect main harness connector P4 from ECU and measure resistance from pin S of harness connector P4 and ground (Figure FO 3 or Figure FO 20 and Figure FO 21 for MEP 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 0057 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 LCV (WP 0100 00). Measure resistance between pins A and C of load control valve.
   a. If resistance is less than 30 ohms, replace LCV (WP 0100 00).

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

b. If resistance is 38 ohms or more, disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. 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 0057 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 0095 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 0095 00).

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 0057 00).

c. Perform MOC.

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

SYMPTOM

MALFUNCTION
GTE HI OIL TEMP INDICATOR ILLUMINATED - ENGINE SHUT DOWN

CORRECTIVE ACTION

1. Check oil level (WP 0028 00 and WP 0029 00).

   Add oil if required.

2. Test high oil temperature (HOT) switch (troubleshooting procedure 107. HIGH OIL TEMPERATURE SWITCH MALFUNCTION).

a. Replace switch if defective (WP 0053 00) and perform MOC.

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

23. GTE OVER SPEED INDICATOR ILLUMINATED - ENGINE SHUT DOWN

SYMPTOM

MALFUNCTION
GTE OVER SPEED INDICATOR ILLUMINATED - ENGINE SHUT DOWN

CORRECTIVE ACTION

Test fuel control unit (troubleshooting procedure 111. FUEL CONTROL UNIT MALFUNCTION).

a. Replace fuel control unit if defective (WP 0092 00).

b. If fuel control unit tests good, replace ECU (WP 0057 00).

c. Perform MOC.

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

SYMPTOM

MALFUNCTION
GTE LOW OIL PRESS INDICATOR ILLUMINATED - ENGINE SHUT DOWN

CORRECTIVE ACTION

1. Check oil level (WP 0028 00 and WP 0029 00).

   Add oil if required.

2. Check oil filter element (WP 0106 00, Figure 1, Item 7).

24. GTE LOW OIL PRESS INDICATOR ILLUMINATED - ENGINE SHUT DOWN – Continued

3. Check low oil pressure switch (troubleshooting procedure 106. LOW OIL PRESSURE SWITCH MALFUNCTION). Replace oil filter element and seals if required.
   a. Replace switch if defective (WP 0052 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 0057 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 illuminated perform 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 0057 00) or EGT meter 1M1 (WP 0068 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 illuminated perform 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 0057 00) or % RPM meter 1M2 (WP 0068 00).
c. Perform MOC.

28. GTE INLET FILTER BLOCKED INDICATOR ILLUMINATED

SYMPTOM

MALFUNCTION
GTE INLET FILTER BLOCKED INDICATOR ILLUMINATED

CORRECTIVE ACTION

Check switch (troubleshooting procedure 109. INLET FILTER BLOCKED SWITCH MALFUNCTION).

a. Replace switch if defective (WP 0064 00) and perform MOC.

b. If switch tests good, inspect engine air cleaner (WP 0034 00).

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

SYMPTOM

MALFUNCTION
GTE COMPT/GEN HI TEMP INDICATOR ILLUMINATED (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 illuminated. Continued operation could damage ECU.

1. Shut down engine, disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Lower control panel (WP 0041 00, Lower Control Panel for Maintenance). Place thermometer on electrical bay subfloor (WP 0002 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only. Remove thermometer.

NOTE

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

2. Shut down engine. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. 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 prior to operating. Continued operation could damage ECU.
3. Disconnect GCU harness connector P12 (WP 0080 00, Figure 1, Item 36) from generator control unit. Check resistance between pins G and H of harness connector P12 (Figure FO 3 or Figure FO 20 and Figure FO 21 for MEP 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.

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

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 (WP 0002 00, Figure 1, Item 6). Disconnect main harness connector P5 from control panel connector J5 (Figure FO 3 or Figure FO 20 and Figure FO 21 for MEP 360E) for J5 and P5 pinout. 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 0059 00).

   b. If open circuit between pins 10L and 6L of P5, replace GCU (WP 0080 00).

   c. Perform MOC.

END OF WORK PACKAGE

FIELD MAINTENANCE

**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: HYDRAULIC/PNEUMATIC

INITIAL SETUP:

References
WP 0011 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 obstruction.
3. If defects are found, notify maintenance supervisor.

32. 450-500 PSIG HYDRAULIC PRESSURE NOT DEVELOPED AFTER ENGINE START

SYMPTOM

MALFUNCTION
450-500 PSIG HYDRAULIC PRESSURE NOT DEVELOPED AFTER ENGINE START

CORRECTIVE ACTION

NOTE

Not applicable if hydraulic 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.
6. Attempt to restart, if not successful notify maintenance supervisor.

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.

1. If GAUGE SHUTOFF valve is closed, open valve 1/4 turn counterclockwise.
2. If still no pressure reading, notify maintenance supervisor.

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.

1. If CIRCUIT BREAKER on hydraulic electrical panel tripped, reset CIRCUIT BREAKER.
2. If lamp still not operational, replace bulb.
3. If lamp still doesn't come on, notify maintenance supervisor.

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 WP 0011 00, Hydraulic Fluid Warm-up.
2. Temperature sensor is defective, notify maintenance 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 are not working properly, 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.

1. If valve lock is set, release lock.
2. If valve still doesn't turn, notify maintenance supervisor.

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. FILTER INDICATOR ILLUMINATED DUE TO DIRTY FILTER

SYMPTOM

MALFUNCTION
FILTER INDICATOR ILLUMINATED DUE TO DIRTY FILTER

CORRECTIVE ACTION

NOTE

Not applicable if hydraulic pump spacer is installed.

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 maintenance supervisor.

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. If hydraulic fluid continues to drain into AGPU while using correct procedure, notify maintenance supervisor.

END OF WORK PACKAGE

FIELD MAINTENANCE

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 0014 00
WP 0033 00
WP 0074 00
WP 0043 00
WP 0044 00

References (cont.)
WP 0055 00
WP 0134 00
WP 0133 00
WP 0138 00
WP 0142 00
WP 0143 00

TROUBLESHOOTING PROCEDURE

42. 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. If AGPU still doesn't drive, notify maintenance supervisor.

43. 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 illuminated, continue with Step 3.

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

b. If DRIVE light is not illuminated perform troubleshooting procedure 89. DRIVE POWER ON INDICATOR DOES NOT LIGHT WHEN PROPULSION MODE OPERATION ATTEMPTED.

NOTE

Make sure battery voltage is up prior to 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 (WP 0014 00, PRIMARY MODE PROPULSION (GTE Operating)). 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 (Figure FO 8 and Figure 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 (WP 0143 00).

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.

WARNING

Stand clear of rear wheels.

4. Operate AGPU in alternate (battery) propulsion mode (WP 0014 00, PRIMARY MODE PROPULSION (GTE Operating)). While an assistant operates the speed/direction control assembly, measure the dc voltage at terminals A1, A2, S1 and S2 of the traction motor. Voltage should be +24 VDC between A1 and dc ground when the speed/direction control handgrips are rotated for forward motion (Figure FO 8 for MEP 83-360A and D models and Figure 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.

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

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 battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Check cable G11C2 between shunt R1 and relay K1 and cable G21A2N between motor speed control and ground stud (Figure FO 8 and Figure FO 27).

5. Set power switches off and disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only. Inspect motor brushes.

   Replace brushes (WP 0142 00) if required. Perform bench test. If new brushes do not correct problem, replace motor (WP 0142 00) and perform MOC.

6. Bench test traction motor.

   a. Remove traction motor (WP 0142 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.

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

   g. If the motor operates properly, install motor (WP 0142 00). Proceed to Step 7.

7. Check voltage adjustment on the motor controller.

NOTE

Removal of the roof (WP 0033 00) 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 (WP 0014 00).

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

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

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 (WP 0055 00).

8. Set power switches off and disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. 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 0142 00).

   b. If rear wheels cannot be easily rotated, check brakes (WP 0133 00) and chain drive systems (WP 0138 00).

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

    a. If voltage is present, perform Step 11.

    b. If voltage is not present, disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. 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.

    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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Replace speed/direction control assembly (WP 0134 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Replace speed/direction control assembly (WP 0134 00).

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

14. Set power switches off and disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. 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 0142 00).
15. Set power switches off and disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. 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 (Figure FO 8 and Figure 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 0134 00).
16. Check wires between TB4 and terminals 1, 2 and 3 on motor controller (WP 0055 00).
    a. Replace any open wires.
    b. If wiring is good, replace motor controller (WP 0055 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. 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 0134 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.
    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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. 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 0134 00).
19. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Check cable G10A2 (between upper tray

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

relay 2K2 and motor speed controller) and wires G18B20N and G18C20N (between relay 2K2 and ground TB)(WP 0055 00). Replace or repair open cables or wires if found bad.

END OF WORK PACKAGE

FIELD MAINTENANCE

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 0006 00
WP 0008 00
WP 0010 00
WP 0014 00
WP 0032 00
WP 0033 00
WP 0041 00
WP 0043 00
WP 0044 00
WP 0045 00
WP 0046 00
WP 0047 00
WP 0049 00
WP 0051 00
WP 0052 00
WP 0053 00
WP 0054 00
WP 0056 00
WP 0057 00
WP 0058 00
WP 0060 00
WP 0063 00
WP 0064 00
WP 0065 00
WP 0066 00
WP 0067 00

References (cont.)

WP 0068 00
WP 0069 00
WP 0070 00
WP 0071 00
WP 0072 00
WP 0076 00
WP 0077 00
WP 0078 00
WP 0079 00
WP 0080 00
WP 0082 00
WP 0084 00
WP 0086 00
WP 0089 00
WP 0092 00
WP 0093 00
WP 0095 00
WP 0097 00
WP 0098 00
WP 0107 00
WP 0110 00
WP 0062 00
WP 0119 00
WP 0120 00
WP 0122 00
WP 0124 00
WP 0139 00

TROUBLESHOOTING PROCEDURE

44. 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.

45. 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. 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 0043 00 and WP 0044 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) prior to connecting battery.
2. Lower control panel (WP 0041 00) and proceed to Step 3.

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 (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only. Set MASTER SWITCH to ON and measure DC voltage between positive (+) and negative (-) terminals of BATTERY VOLTAGE meter 1M4 (Figure FO 1 for all models).
   a. If not voltage, proceed to Step 4.
   b. If voltage is good (22 to 26 VDC), disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Replace BATTERY VOLTAGE meter 1M4 (WP 0069 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

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

a. If no voltage, replace battery terminal adapter (WP 0045 00) and perform MOC.

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 0045 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 0049 00, Figure 1, Item 28 and 29).

   a. If no continuity, replace shunt (WP 0049 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Test MASTER SWITCH 1S2 (troubleshooting procedure 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS).

   a. Replace switch if defective (WP 0066 00) and perform MOC.

   b. If switch tests good, proceed to Step 10.

10. Check for continuity between the following points (Figure FO 1 and Figure FO 5 for MEP 83-360A and D models and Figure FO 19 and Figure FO 23 for MEP 83-360E model).

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 0076 00, Figure 1 for 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 0076 00, Figure 1, Item 2) (Figure FO 2 for MEP 83-360A and D model and Figure FO 20 for MEP 83-360E model).

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

46. CHRG/BAT FAULT INDICATOR NOT ILLUMINATED (MASTER SWITCH ON, ENGINE NOT RUNNING)

SYMPTOM

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

CORRECTIVE ACTION

1. Push PRESS TO TEST switch.
   a. If BATTERY CHG/DISCH indicator does not illuminate perform troubleshooting procedure 50. 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Test diode TB3-CR5 (Figure FO 1 and troubleshooting procedure 99. TERMINAL BOARD DIODE MALFUNCTIONS) all models.
   a. If diode tests good, proceed to Step 2.
   b. Replace diode if defective (WP 0076 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 0076 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 0056 00). Refer to Figure FO 1 for all models 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 0056 00).
   b. If continuity, replace relay 3K3 with new relay (WP 0056 00).
   c. After replacing wire or relay, reconnect all connectors and wires and perform MOC.

47. CHRG/BAT FAULT INDICATOR ILLUMINATED (ENGINE RUNNING AT 100% RPM)

SYMPTOM

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

CORRECTIVE ACTION

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 illuminated, proceed to Step 1b.
   b. If indicator did not light perform troubleshooting procedure 65. 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 35 amp and 70 amp circuit breakers are closed, proceed to Step 3.
   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, battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Perform 98. CHARGER CIRCUIT MALFUNCTION, Step 5c (2CB1) or Step 6c (2CB2).
3. Shut down engine and disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. 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 0058 00), and perform MOC.
4. Check battery/charger transfer relay (troubleshooting procedure 102. BATTERY/CHARGER TRANSFER RELAY 3K3 AND POWER DIODE MALFUNCTIONS).
   a. If relay tests good, proceed to Step 5.
   b. If relay test is not good, check wiring (102. BATTERY/CHARGER TRANSFER RELAY 3K3 AND POWER DIODE MALFUNCTIONS, Step 1k).
5. Remove battery charger access cover. Disconnect main harness connectors P1 (WP 0047 00, Figure 2, Item 4) and P2 (6) from battery charger connectors J1 (5) and J2 (7). Disconnect harness connector P9 from lower tray J9. Check for continuity between the following points (Figure FO 1 all models):

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

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
2CB2	K2-A1	P2C8

a. If no continuity, replace indicated wire.

b. If all continuity checks good, replace battery charger (WP 0047 00).

c. Reconnect all connectors and wires and perform MOC.

48. 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 0041 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Lower control panel (WP 0041 00, Lower Control Panel for Maintenance) and remove battery charger access cover (WP 0032 00, Figure 1, Item 5). Check for continuity between the following points (Figure FO 1 for MEP 83-360A and D models and Figure FO 19 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 are good, check battery charger (troubleshooting procedure 98. CHARGER CIRCUIT MALFUNCTION).

49. BATTERY VOLTAGE METER READS HIGH (ENGINE RUNNING)

SYMPTOM

MALFUNCTION
BATTERY VOLTAGE METER READS HIGH (ENGINE RUNNING)

CORRECTIVE ACTION

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 (to troubleshooting procedure 98. CHARGER CIRCUIT MALFUNCTION).

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

50. 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
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 Figure FO 2 (Figure FO 20 for MEP 83-360E model) and locate diode associated with indicator light. Test diode (troubleshooting procedure 99. TERMINAL BOARD DIODE MALFUNCTIONS).
   a. If diode tests good, proceed to Step 4.
   b. Replace diode if defective and perform MOC.
4. Check indicator light wiring (Figure FO 2 (Figure FO 20 for MEP 83-360E model).
   a. Replace or repair any defective wiring.
   b. If all wiring is good, replace lamp socket (WP 0070 00).
   c. Perform MOC.

51. 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 counter-clockwise.
2. Check BATTERY VOLTAGE meter.
   a. If meter does not read in green zone perform troubleshooting procedure 45. BATTERY VOLTAGE METER READS LOW (MASTER SWITCH ON, ENGINE NOT RUNNING) or troubleshooting procedure 48. BATTERY VOLTAGE METER READS LOW (ENGINE RUNNING).
   b. If meter reads in green zone, proceed to Step 3.
3. Check LIGHTS 7.5 circuit breaker on control panel (WP 0006 00, Figure 1).
   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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Check all circuits fed by circuit breaker 1CB1 (Figure FO 1) 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Test PRESS TO TEST switch 1S4 (troubleshooting procedure 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS).
   a. Replace switch if defective (WP 0067 00) and perform MOC.
   b. If switch tests are good, check switch wiring (Figure FO 2 or Figure FO 20 for MEP 83-360E model). Replace any defective wiring and perform MOC.
6. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Lower control panel (WP 0041 00, Lower Control Panel for Maintenance). Check for continuity between positive receptacle of battery terminal adapter and terminal 2 on MASTER SWITCH 1S2 (Figure FO 1).
   a. If continuity, continue with Step 7.
   b. If no continuity, proceed to Step 9.
7. With battery disconnected, 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 0066 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 0071 00) and perform MOC.
   b. If continuity, check wire P36A20 between circuit breaker and MASTER SWITCH.

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

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 0049 00) and perform MOC.
   b. If no continuity, proceed to Step 11.
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 perform troubleshooting procedure 102. BATTERY/CHARGER TRANSFER RELAY 3K3 AND POWER DIODE MALFUNCTIONS, Step 1k.

52. 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 perform troubleshooting procedure 50. CONTROL PANEL INDICATOR LIGHT TEST FAILS - ONE INDICATOR DOES NOT LIGHT or troubleshooting procedure 51. CONTROL PANEL INDICATOR LIGHT TEST FAILS - NO INDICATORS LIGHT.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Lower control panel (WP 0041 00, Lower Control Panel for Maintenance). Disconnect wire from negative (-) terminal of FUEL meter

52. FUEL METER READING INACCURATE – Continued

1M3 (Figure FO 4 or Figure FO 22 for MEP 83-360E model). Tape wire terminal lug to prevent shorting.

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 (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only. 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
   a. If voltage is between 4.6 VDC and 5.6 VDC (normal), proceed 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 0076 00, Figure 1and Figure 2 for TB location.
   a. If continuity, replace zener diode TB3-CR1 (WP 0076 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) (WP 0076 00, Figure 1 and Figure 2). Reconnect wire to TB1-15 (Anode).
   a. If resistance was between 170 and 270 ohms (normal), proceed to Step 6.
   b. If resistance was not between 170 and 270 ohms, replace resistor TB1-R1 (WP 0076 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 (Figure FO 4 or Figure FO 22 for MEP 83-360E model):

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.

52. FUEL METER READING INACCURATE – Continued

NOTE

If a meter is suspected to be malfunctioning, inoperable or inaccurate, contact the appropriate instrument repair shop.

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.
   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 (Figure FO 4 or Figure FO 22 for MEP 83-360E model):

From	To	Replace Wire No.
J5-14R	1M3(-)	Q6A20
P5-14L	MT1(+)	Q6B20
Ground	MT1(-)	Q7C20N

Fuel level transmitter (or sensor) MT1 (WP 0097 00, Figure 1, Item 4).

   a. If no continuity, replace indicated wire.
   b. If all continuity checks good, replace fuel level transmitter MT1 (WP 0097 00).
   c. Reconnect P5 to J5 and perform MOC.

53. 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 Figure FO 9 for MEP 83-360A and D models and Figure 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.

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

NOTE

Diodes and wiring associated with each indicator light are as follows (Figure 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

2. Locate diode associated with indicator light (Figure FO 9). Test diode as follows:
   a. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
   b. Remove hydraulic module front panel assembly (WP 0002 00, Figure 15).
   c. Remove hydraulic electrical panel (WP 0119 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. Check indicator wiring (Figure FO 9).
   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 0120 00).
   c. Perform MOC.

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

SYMPTOM

MALFUNCTION

HYDRAULIC CONTROL PANEL INDICATOR LIGHT TEST FAILS - NO INDICATOR LIGHT

CORRECTIVE ACTION

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

   Open lenses by turning counter-clockwise.

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 (Figure FO 9 or Figure FO 28 for MEP 83-360E model) for shorts.

3. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. 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 illuminated, proceed to Step 4.

   b. If panel lights did not come on, proceed to Step 5.

4. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Test hydraulic panel PRESS TO TEST LIGHTS switch 4S3 (troubleshooting procedure 97. HYDRAULIC CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS).

   a. Replace switch if defective (WP 0119 00).

   b. If switch tests are good, remove hydraulic module front panel assembly (WP 0002 00, 15, Item 2). Check wiring between switch 4S3 and diodes 4D1 through 4D8 for continuity (Figure FO 9 or Figure FO 28 for MEP 83-360E model). Replace any defective wiring.

   c. Perform MOC.

5. Check MASTER SWITCH 1S2 (troubleshooting procedure 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS).

   a. Replace switch if defective (WP 0066 00) and perform MOC.

   b. If switch is good, proceed to Step 6.

6. Check battery/charger transfer relay 3K3 (troubleshooting procedure 102. BATTERY/CHARGER TRANSFER RELAY 3K3 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 102. BATTERY/CHARGER TRANSFER RELAY 3K3 AND POWER DIODE MALFUNCTIONS, Step 1k.

7. Remove roof (WP 0033 00). Check for continuity between the following points (Figure FO 1 and Figure FO 9 or Figure FO 19 and Figure FO 28 for MEP 83-360E model):

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	C2A20N

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

– Continued

From	To	Replace Wire No.

Refer to WP 0076 00, Figure 1, Item 2 for GND TB location.

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 (Figure FO 9 and Figure FO 28) for continuity.

   a. Replace any defective wires and perform MOC.

   b. If all continuity checks were good, check 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.

55. PANEL LIGHT OPERATION DEFECTIVE

SYMPTOM

MALFUNCTION
PANEL LIGHT OPERATION DEFECTIVE

CORRECTIVE ACTION

1. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only. 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 (Figure FO 2 or Figure FO 20 for MEP 83-360E model).

   a. If neither light is on in BRT or DIM position, perform Steps 2 through 7.

   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 illuminated, proceed to Step 3.

   b. If control panel indicators did not light perform troubleshooting procedure 50. 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 illuminated, proceed to Step 4.

   b. If fuel utility light did not light, set MASTER SWITCH to OFF and disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Lower control panel (WP 0041 00, Lower Control Panel for Maintenance). Check wire L1A20 between 1CB1 (Figure FO 1) and 1S6-2 (Figure FO 2 or Figure FO 20 for MEP 83-360E model). Replace defective wire and perform MOC.

4. Set MASTER SWITCH to OFF and disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Check panel light bulbs.

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

   b. If bulbs are good, proceed to Step 5.

55. PANEL LIGHT OPERATION DEFECTIVE – Continued

5. Test PANEL LIGHTS switch 1S6 (troubleshooting procedure 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS).
   a. Replace switch if defective (WP 0066 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 0076 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Test PANEL LIGHTS switch 1S6 (troubleshooting procedure 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS).
   a. Replace switch if defective (WP 0066 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 0041 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 0078 00, Figure 1, Item 6) and either of two pins (WP 0078 00, Figure 1, Item 10). If resistance is greater than 25 ohms, replace regulator 3VR1 (WP 0078 00) and perform MOC. If resistance is less than 25 ohms (regulator good), check wiring per Step 9b.
   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 (Figure FO 18 for all models):

From	To	Replace Wire No.
1S6-1	J6-N	L2A20
P6-N	P8-S	L2B20
J8-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 (troubleshooting procedure 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS).
    a. Replace switch is defective (WP 0066 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Check panel light bulb.

55. PANEL LIGHT OPERATION DEFECTIVE – Continued

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.

56. UTILITY LIGHT OPERATION DEFECTIVE

SYMPTOM

MALFUNCTION

UTILITY LIGHT OPERATION DEFECTIVE

CORRECTIVE ACTION

1. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only. Set MASTER SWITCH to ON. Set UTILITY LIGHTS switch to BRT and check utility lights (WP 0002 00, Figure 2, Item 41, 47 and 50). Set UTILITY LIGHTS switch to DIM and check utility lights. Set switch to OFF (Figure FO 2 or Figure 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.

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

b. If panel lights did not light perform troubleshooting procedure 55. PANEL LIGHT OPERATION DEFECTIVE.

3. Set MASTER SWITCH to OFF and disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Test UTILITY LIGHTS switch 1S7 (troubleshooting procedure 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS).

a. Replace switch if defective (WP 0066 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 0002 00, Figure 2, Item 47) positive (+) terminal.

Replace defective wiring and perform MOC.

6. Set MASTER SWITCH to OFF and disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Test UTILITY LIGHTS switch 1S7 (troubleshooting procedure 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS).

a. Replace switch if defective (WP 0066 00) and perform MOC.

56. UTILITY LIGHT OPERATION DEFECTIVE – Continued

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 0041 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 0078 00, Figure 1, Item 6) and either of two pins (10). If resistance is greater than 25 ohms, replace regulator 3VR2 (WP 0078 00) and perform MOC. If resistance is less than 25 ohms (regulator good), check wiring per Step 7b.

   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 (Figure FO 1 for all models):

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 (troubleshooting procedure 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS).

   a. Replace switch if defective (WP 0066 00) and perform MOC.

   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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. 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.

57. GTE LOW OIL PRESS INDICATOR NOT ILLUMINATED - MASTER SWITCH ON AND ENGINE NOT RUNNING

SYMPTOM

MALFUNCTION

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

CORRECTIVE ACTION

1. Test low oil pressure switch (troubleshooting procedure 106. LOW OIL PRESSURE SWITCH MALFUNCTION).

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

a. Replace switch if defective (WP 0052 00) and perform MOC.

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

2. Test diode TB3-CR8 (troubleshooting procedure 99. TERMINAL BOARD DIODE MALFUNCTIONS).

a. Replace diode if defective (WP 0076 00) and perform MOC.

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

3. Check that battery is disconnected. Lower control panel (WP 0041 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 (Figure FO 3 (Sheet 2 of 2)or Figure FO 21 for MEP 83-360E model). Check for continuity between the points listed below:

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.

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 0057 00).

c. Reconnect all connectors and perform MOC.

58. GTE LOW FUEL PRESS INDICATOR NOT ILLUMINATED - MASTER SWITCH ON AND ENGINE NOT RUNNING

SYMPTOM

MALFUNCTION

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

CORRECTIVE ACTION

Set MASTER SWITCH to OFF and disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Lower control panel (WP 0041 00, Lower Control Panel for Maintenance) and remove battery charger access cover (WP 0032 00, Figure 1, Item 5). Disconnect main harness connector P5 from control panel connector J5. Check for continuity between the following points (Figure FO 4 or Figure FO 20 for MEP 83-360E model).

From	To	Replace Wire No.
J5-13L	1DS6	Q5A20
P5-13R	S5	Q5B20
S5	GND TB	Q7B20N

58. GTE LOW FUEL PRESS INDICATOR NOT ILLUMINATED - MASTER SWITCH ON AND ENGINE NOT RUNNING – Continued

Refer to WP 0098 00, Figure 2, Item 10 for pressure sensor S5 location and WP 0076 00, Figure 1, Item 2.

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	C2A20N

Refer to WP 0076 00, Figure 1, Item 2 for GND TB location.

a. Refer to WP 0098 00, Figure 2, Item 10 for pressure sensor S5 location and WP 0076 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 0098 00).

d. Reconnect connectors.

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

SYMPTOM

MALFUNCTION

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 1b.
   b. If circuit breaker is opened (popped out), reset (push in). If circuit breaker continues to open, disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Check all GTE circuit breaker loads (Figure FO 1 and Figure FO-3 (Sheet 1 of 2) or Figure 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 perform troubleshooting procedure 21. GTE CONTROL SHORT INDICATOR ILLUMINATED - ENGINE SHUT DOWN through 23. GTE OVER SPEED INDICATOR ILLUMINATED - 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Remove roof (WP 0033 00).
   b. Connect multimeter between positive terminal on starter (WP 0110 00, Figure 1, Item 9) and DC ground stud. Positive terminal is on side of starter (WP 0110 00, Figure 1, Item 19). Set meter to read 24 VDC.

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

c. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only. 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

e. If STARTER CURRENT meter exceeded 800 amps after initial surge perform troubleshooting procedure 61. 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 illuminated, check cables P33A1/0 (Figure FO 1), P41C1/0 (Figure 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Lower control panel (WP 0041 00, Lower Control Panel for Maintenance). Check for continuity between shunt R3 (large right screw) and terminal 5 of MASTER SWITCH 1S2 (Figure FO 1 or Figure FO 19 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. Check wires P35F18 and P35E18 between lower tray and MASTER SWITCH (Figure 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 perform troubleshooting procedure 102. BATTERY/CHARGER TRANSFER RELAY 3K3 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 (Figure FO 1), ENGINE CONTROL switch 1S1 (Figure FO-3 (Sheet 1 of 2) or Figure FO 21 for MEP 83-360E model), PNEUMATIC POWER switch 1S8, AC POWER switch 1S10 and DC POWER switch 1S12 (troubleshooting procedure 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS).

   a. Replace any defective switch (WP 0062 00 and WP 0066 00) and perform MOC.

   b. If all switches test good, proceed to next step.

9. Test hydraulic control panel power switch 4S1 (troubleshooting procedure 97. HYDRAULIC CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS).

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

a. Replace switch if defective (WP 0119 00) and perform MOC.

b. If switch tests good, continue with next step.

10. Test diode TB1-CR1 (troubleshooting procedure 99. TERMINAL BOARD DIODE MALFUNCTIONS).
    a. Replace diode if defective (troubleshooting procedure WP 0076 00) and perform MOC.
    b. If diode is good, proceed to Step 11.
11. Test starter latch relay 3K2 (troubleshooting procedure 101. STARTER LATCH RELAY 3K2 MALFUNCTION).
    a. Replace relay if defective (WP 0056 00) and perform MOC.
    b. If relay tests good, continue with next step.
12. Test starter contactor K4 (troubleshooting procedure 103. GTE STARTER RELAY K4 MALFUNCTION).
    a. Replace contactor if defective (WP 0084 00) and perform MOC.
    b. If contactor tests good, proceed to Step 13.
13. Remove roof (WP 0033 00). Disconnect P14 from hydraulic module connector J1. Check for continuity between J1-F and J1-E (Figure FO-3 (Sheet 1 of 2) or Figure FO 21 for MEP 83-360E model).
    a. If continuity, proceed to Step 14.
    b. If no continuity, proceed to Step 15.
14. Disconnect cables as required and check for continuity between wires listed below (Figure FO 1 and Figure FO-3 (Sheet 1 of 2) and Figure FO 21 for MEP 83-360E model):

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

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

a. If no continuity, replace indicated wire.

b. If all continuity checks good, replace ECU (WP 0057 00).

c. Perform MOC.

15. Remove hydraulic module front panel (WP 0124 00, Figure 1, Item 2) for access to terminal boards 4TB1 through 4TB3. Remove hydraulic electrical panel (WP 0119 00) for access to switch 4S1. Check for continuity between 4TB1-7 and 4S1-5 and between 4TB1-6 and 4S1-4 (Figure FO-3 (Sheet 1 of 2) or Figure 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.

60. 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

CORRECTIVE ACTION

1. Test ENGINE CONTROL switch 1S1 (troubleshooting procedure 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS).

a. Replace switch if defective (WP 0062 00), and perform MOC.

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

2. Test starter latching relay 3K2 (troubleshooting procedure 101. STARTER LATCH RELAY 3K2 MALFUNCTION).

a. Replace relay if defective (WP 0056 00), and perform MOC.

b. If relay tests good, proceed to Step 3.

3. Test EMERG STOP switch (troubleshooting procedure 83. EMERGENCY STOP SWITCH MALFUNCTION).

a. Replace switch if defective (WP 0063 00) and perform MOC.

b. If switch test 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 (Figure FO-3 (Sheet 1 of 2) or Figure FO 21 for MEP 83-360E model).

a. Replace or repair open wire.

b. If wiring is good, replace starter latching relay 3K2 (WP 0056 00).

c. Perform MOC after replacing wire or relay.

61. STARTER CURRENT METER EXCEEDS 800 AMPS

SYMPTOM

MALFUNCTION
STARTER CURRENT METER EXCEEDS 800 AMPS

61. STARTER CURRENT METER EXCEEDS 800 AMPS – Continued

CORRECTIVE ACTION

Check cable P9A1/0 (Figure FO-3 (Sheet 1 of 2) or Figure FO 21 for MEP 83-360E model) for shorted condition.

a. Replace cable if shorted.

b. If cable is not shorted, replace starter (WP 0110 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.

62. GTE % RPM METER INDICATION DEFECTIVE

SYMPTOM

MALFUNCTION
GTE % RPM METER INDICATION DEFECTIVE

CORRECTIVE ACTION

1. Test GTE speed sensor (troubleshooting procedure 105. SPEED SENSOR MALFUNCTION).
   a. Replace speed sensor if defective (WP 0051 00) and perform MOC.
   b. If speed sensor tests OK, proceed to Step 2.
2. Check that battery is disconnected and lower control panel (WP 0041 00, Lower Control Panel for Maintenance). Remove battery charger access cover. Disconnect harness connector P4 from ECU and disconnect P5 from control panel. Check for continuity between the following points (Figure FO 3 (Sheet 2 of 2) or Figure FO 21 for MEP 83-360E model):

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 0057 00) or contact instrument repair shop (troubleshooting procedure NOTE in (WP 0068 00).
   c. Perform MOC after replacement of ECU or meter.

63. GTE EGT METER INDICATION DEFECTIVE

SYMPTOM

MALFUNCTION
GTE EGT METER INDICATION DEFECTIVE

CORRECTIVE ACTION

Test thermocouple (troubleshooting procedure 108. THERMOCOUPLE MALFUNCTION).

64. 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 perform troubleshooting procedure 21. GTE CONTROL SHORT INDICATOR ILLUMINATED - ENGINE SHUT DOWN through 23. GTE OVER SPEED INDICATOR ILLUMINATED - 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 perform troubleshooting procedure 17. ENGINE SHUTS DOWN DURING NORMAL OPERATION.

65. DC POWER ON INDICATOR OFF (ENGINE UP TO SPEED AND DC POWER SWITCH ON)

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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Lower control panel (WP 0041 00, Lower Control Panel for Maintenance) and remove battery charger access cover. Disconnect main harness connector P5 from control panel connector J5 (Figure FO 5 or Figure FO 23 and Figure 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 0084 00).
   c. Reconnect P5 to J5 and perform MOC.
3. Check DC VOLTAGE FAULT indicator.
   a. If indicator is illuminated perform troubleshooting procedure 66. DC VOLTAGE FAULT INDICATOR ILLUMINATED .
   b. If indicator is not illuminated, proceed to Step 4.
4. Test DC contactor K2 (troubleshooting procedure 84. DC CONTRACTOR K2 MALFUNCTION).
   a. Replace contactor if defective (WP 0084 00) and perform MOC.
   b. If contactor tests good, continue with Step 5.
5. Check for continuity between X2 of contactor K2 (Figure FO 5 or Figure FO 23 and Figure 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.

65. DC POWER ON INDICATOR OFF (ENGINE UP TO SPEED AND DC POWER SWITCH ON) – Continued

6. Test DC POWER switch 1S12 (troubleshooting procedure 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS).
   a. Replace switch if defective (WP 0066 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 (Figure FO 5 or Figure FO 23 and Figure FO 24 for MEP 83-360E model):

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.
7. Test 95% enable relay 3K1 (troubleshooting procedure 100. 95% ENABLE RELAY 3K1 MALFUNCTION).
   a. Replace relay if defective (WP 0056 00) and perform MOC.
   b. If relay tests good, proceed to Step 8.
8. Remove 95% enable relay from socket (WP 0056 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Lower control panel. Disconnect main harness connector P8 from lower tray connector J8 and disconnect harness connector P4 from ECU connector J1 (WP 0057 00, Figure 1, Item 5). Check for continuity between the following points (Figure FO 3 (Sheet 2 of 2)):

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 0057 00).
   c. Perform MOC.
10. Measure voltage (26 VAC nominal) between 3K1 relay socket pins A1 and B1, between B1 and C1 (Figure FO 5). Shut engine down, disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only. 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 0082 00, Figure

65. DC POWER ON INDICATOR OFF (ENGINE UP TO SPEED AND DC POWER SWITCH ON) – Continued

1. (Sheet 1 of 2), Item 5). Check for continuity between the following points (Figure FO 5 or Figure FO 23 and Figure FO 24 for MEP 83-360E model):

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.

12. Disconnect main harness connector P8 from lower tray connector and disconnect harness connector P12 from GCU connector J1 (Figure 1, Item 37). Check for continuity between the following points (Figure FO 5 or Figure FO 23 and Figure FO 24 for MEP 83-360E model):

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 0057 00).

c. Perform MOC.

66. DC VOLTAGE FAULT INDICATOR ILLUMINATED

SYMPTOM

MALFUNCTION

DC VOLTAGE FAULT INDICATOR ILLUMINATED

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 (troubleshooting procedure 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS).

   a. Replace switch if defective (WP 0066 00) and perform MOC.

   b. If switch tests good, proceed to Step 3.

3. Shut down engine and disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Remove battery charger access cover. Disconnect main harness connector P7 from control panel connector J7. Lower control panel (WP 0041 00, Lower Control Panel for Maintenance) and disconnect harness connector P12 (WP 0080 00, Figure 1, Item 36) from GCU. Check for continuity between the following points (Figure FO 6 (Sheet 2 of 2) or Figure FO 25 for MEP 83-360E model):

From	To	Replace Wire No.
1S12-2	1S10-2	X20C20

66. DC VOLTAGE FAULT INDICATOR ILLUMINATED – Continued

– Continued

From	To	Replace Wire No.
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 0080 00).

c. Perform MOC.

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 illuminated 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 0084 00).
   a. Replace contactor if defective (WP 0084 00) and perform MOC.
   b. If contactor tests good, continue with Step 6.
6. Check for continuity between X2 of contactor K2 (Figure FO 5 or Figure FO 23 and Figure 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 (troubleshooting procedure 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS).
   a. Replace switch if defective (WP 0066 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 (Figure FO 5 or Figure FO 23 and Figure FO 24 for MEP 83-360E model):

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 (WP 0080 00, Figure 1, Item 37). Open engine access panel and disconnect harness connector P13 from generator connector J1 (WP 0079 00, Figure 1, Item 5). Check for continuity between the following

66. DC VOLTAGE FAULT INDICATOR ILLUMINATED – Continued

points (Figure FO 5 and Figure FO 6 (Sheet 2 of 2) or Figure FO 24 and Figure FO 25 for MEP 83-360E model):

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
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 GCU. The generator is also a possible cause of fault. Replace GCU (WP 0080 00) or notify maintenance supervisor.

9. Shut down unit and disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. 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 0080 00).

   c. Perform MOC.

10. Check CHRG/BAT FAULT indicator.

    a. If indicator is illuminated (with engine running) perform troubleshooting procedure 47. CHRG/BAT FAULT INDICATOR ILLUMINATED (ENGINE RUNNING AT 100% RPM)

    b. If indicator is not illuminated, proceed to Step 11.

11. Shut down engine and disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Open electrical trays access door. Remove one wire from generator DC load resistor R4 (WP 0077 00, Figure 1, Item 11). Check resistance across load resistor terminals (Figure 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 0077 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 GCU. The generator is also a possible cause of fault. Replace GCU (WP 0080 00) or notify maintenance supervisor.

    c. Perform MOC.

66. DC VOLTAGE FAULT INDICATOR ILLUMINATED – Continued

13. Test CURRENT LIMIT SELECTOR switch 1S11 (troubleshooting procedure 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS).
    a. Replace switch if defective (WP 0062 00) and perform MOC.
    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 0041 00) and disconnect harness connector P12 (WP 0080 00, Figure 1, Item 36) from GCU. Check for continuity between the following points (Figure FO 6 (Sheet 2 of 2)):

From	To	Replace Wire No.
1S11B-6	J7-24R	XS1B20
1S11B-7	J7-24L	X50620
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 GCU and connect harness connector P12 to GCU and perform MOC.

67. DC VOLTS METER READS 0 (DC POWER ON INDICATOR ILLUMINATED)

SYMPTOM

MALFUNCTION
DC VOLTS METER READS 0 (DC POWER ON INDICATOR ILLUMINATED)

CORRECTIVE ACTION

1. Check for voltage (+28 VDC) between (+) and (-) pins of DC output cable connector. Shut down engine and disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
    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 (troubleshooting procedure 84. DC CONTRACTOR K2 MALFUNCTION).
    a. Replace contactor if defective (WP 0084 00).
    b. If contactor test good, check cable P3A4/0 between contactor K2 and shunt R1 (Figure FO 5 or Figure FO 23 and Figure FO 24 for MEP 83-360E model) for continuity. Replace cable if defective.
    c. Perform MOC.
3. Lower control panel (WP 0041 00, Lower Control Panel for Maintenance) and remove battery charger access cover. Disconnect main harness connector P5 from control panel connector

67. DC VOLTS METER READS 0 (DC POWER ON INDICATOR ILLUMINATED) – Continued

J5. Check for continuity between the following points (Figure FO 5 or Figure FO 23 and Figure FO 24 for MEP 83-360E model):

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 0068 00).

c. Perform MOC.

68. DC AMPS METER READS 0 (DC POWER ON INDICATOR ILLUMINATED AND DC POWER CABLE CONNECTED TO LOAD)

SYMPTOM

MALFUNCTION
DC AMPS METER READS 0 (DC POWER ON INDICATOR ILLUMINATED AND DC POWER CABLE CONNECTED TO LOAD)

CORRECTIVE ACTION

1. Check load.
   a. If load is drawing current, proceed to Step 1b.
   b. If load is not drawing current, shut down engine and disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only. Check load and AGPU DC output cable.
   c. Check for continuity between the two large screws on shunt R1 (WP 0049 00, Figure 1, Item 23). If no continuity, replace shunt.
2. Shut down engine and disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Lower control panel (WP 0041 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 (Figure FO 5 or Figure FO 23 and Figure FO 24 for MEP 83-360E model):

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 0068 00).
   c. Perform MOC.

69. 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only. Check diode 1CR10 (troubleshooting procedure 113. CONTROL PANEL WIRING HARNESS DIODE MALFUNCTION).
   a. Replace diode if defective (WP 0070 00 and WP 0072 00) 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 (Figure FO 5 or Figure FO 23 and Figure FO 24 for MEP 83-360E model):

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 0080 00) or DC AMPS meter (WP 0068 00) or notify maintenance supervisor.
   c. Perform MOC.

70. 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Check diode 1CR11 (troubleshooting procedure 113. CONTROL PANEL WIRING HARNESS DIODE MALFUNCTION).
   a. Replace diode if defective (WP 0072 00) and perform MOC.
   b. If diode is good, proceed to Step 3.
3. Check for continuity between P5-19R and P12-E (Figure FO 5).
   a. If no continuity, replace wire P15A20.

70. DC VOLTAGE FAULT INDICATOR DOES NOT LIGHT FOLLOWING A DC OVER CURRENT FAULT – Continued

b. If continuity, replace GCU (WP 0080 00).

c. Perform MOC.

4. Test DC contactor K2 (troubleshooting procedure 84. DC CONTRACTOR K2 MALFUNCTION).

a. Replace contactor if defective (WP 0084 00).

b. If contactor tests good, replace GCU (WP 0080 00).

c. Perform MOC.

71. 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 70. 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 (troubleshooting procedure 84. DC CONTRACTOR K2 MALFUNCTION).

a. Replace contactor if defective (WP 0084 00) and perform MOC.

b. If contactor tests good, continue with Step 3.

71. DC VOLTAGE FAULT INDICATOR DOES NOT LIGHT WHEN DC AMPS METER READING EXCEEDS MAXIMUM ALLOWABLE FOR THE CURRENT SELECTOR SWITCH SETTING – Continued

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 (troubleshooting procedure 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS).
   a. Replace switch if defective (WP 0062 00) and perform MOC.
   b. If switch tests good, proceed to Step 4.
4. Remove battery charger access cover. Lower control panel (WP 0041 00, Lower Control Panel for Maintenance). Disconnect main harness connector P7 from control panel connector J7 and disconnect harness connector P12 (WP 0080 00, Figure 1, Item 36) from generator control unit (GCU). Check for continuity between the following points (Figure FO 6 (Sheet 2 of 2) or Figure FO 25 for MEP 83-360E model):

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 0080 00).
   c. Perform MOC.

72. 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 70. DC VOLTAGE FAULT INDICATOR DOES NOT LIGHT FOLLOWING A DC OVER CURRENT FAULT.

73. 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Lower control panel (WP 0041 00, Lower Control Panel for Maintenance) and remove battery charger access cover. Disconnect main harness connector P7 from control panel connector J7, disconnect harness connector P12 (WP 0080 00, Figure 1, Item 36) from GCU and disconnect harness connector P11 (WP 0080 00, Figure 1, Item 32) from AC contactor K1. Check for continuity between the following points (Figure FO 6 (Sheet 2 of 2) or Figure FO 25 for MEP 83-360E model):

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 0084 00).
   c. Perform MOC.
3. Check control panel AC warning (red) indicators.
   a. If any red indicator is illuminated perform troubleshooting procedure 74. AC OVER VOLTAGE OR AC UNDER FREQUENCY INDICATOR ILLUMINATED or 75. AC UNDER VOLTAGE INDICATOR ILLUMINATED .
   b. If all red indicators are off, proceed to Step 4.
4. Test AC POWER switch 1S10 and CURRENT LIMIT SELECTOR switch 1S11 (troubleshooting procedure 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS).
   a. Replace AC POWER or CURRENT LIMIT SELECTOR switch if defective (WP 0062 00) and perform MOC.
   b. If both switches test good, proceed to Step 5.
5. Test AC contactor K1 (troubleshooting procedure 85. AC CONTACTOR K1 MALFUNCTION).
   a. Replace contactor if defective (WP 0084 00) and perform MOC.
   b. If contactor test good, proceed to Step 6.

73. AC POWER ON INDICATOR OFF (ENGINE UP TO SPEED AND AC POWER SWITCH ON) – Continued

6. Check that battery is disconnected. Lower control panel (WP 0041 00, Lower Control Panel for Maintenance). Remove battery charger access cover. Disconnect main harness connector P7 from control panel connector J7, disconnect harness connector P12 (WP 0080 00, Figure 1, Item 36) from GCU connector J1 and disconnect harness connector P11 (WP 0080 00, Figure 1, Item 32) from AC contactor K1 connector J1. Check for continuity between the following points (Figure FO 6 (Sheet 2 of 2) or Figure FO 25 for MEP 83-360E model):

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

   b. If DC mode operation is not normal, proceed to troubleshooting procedure 65. DC POWER ON INDICATOR OFF (ENGINE UP TO SPEED AND DC POWER SWITCH ON), Step 7.

74. AC OVER VOLTAGE OR AC UNDER FREQUENCY INDICATOR ILLUMINATED

SYMPTOM

MALFUNCTION

AC OVER VOLTAGE or AC UNDER FREQUENCY INDICATOR ILLUMINATED

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 0080 00) or notify maintenance supervisor. Perform MOC.

2. Test AC POWER switch 1S10 (96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS).

74. AC OVER VOLTAGE OR AC UNDER FREQUENCY INDICATOR ILLUMINATED – Continued

a. Replace switch if defective (WP 0066 00) and perform MOC.

b. If switch tests good, proceed to Step 3.

3. Shut down engine and disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Lower control panel (WP 0041 00, Lower Control Panel for Maintenance) and remove battery charger access cover. Disconnect main harness connector P7 from control panel connector J7 and disconnect harness connector P12 (WP 0080 00, Figure 1, Item 36) from GCU. Check for continuity between P7-13L and P12-S and between J7-13R and 1S10-2 (Figure FO 6 (Sheet 2 of 2) or Figure 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 0080 00).

c. Perform MOC.

75. AC UNDER VOLTAGE INDICATOR ILLUMINATED

SYMPTOM

MALFUNCTION
AC UNDER VOLTAGE INDICATOR ILLUMINATED

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 74. AC OVER VOLTAGE OR AC UNDER FREQUENCY INDICATOR ILLUMINATED.

b. If UNDER VOLTAGE indicator turns off and remains off, continue operation if no other abnormal indications are observed.

c. If OVER CURRENT indicator illuminated before UNDER VOLTAGE indication, proceed 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, proceed to Step 3.

3. If UNDER VOLTAGE fault recurs, 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 perform troubleshooting procedure 29. GTE COMPT/GEN HI TEMP INDICATOR ILLUMINATED (AC POWER SWITCH OFF).

a. Replace GCU (WP 0080 00) or notify maintenance supervisor of problem.

b. Perform MOC.

76. AC VOLTS METER READS 0 (AC POWER ON INDICATOR ILLUMINATED)

SYMPTOM

MALFUNCTION
AC VOLTS METER READS 0 (AC POWER ON INDICATOR ILLUMINATED)

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.

76. AC VOLTS METER READS 0 (AC POWER ON INDICATOR ILLUMINATED) – Continued

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 0084 00) and perform MOC.

   b. If voltage is present at AC convenience receptacles, proceed to Step 3.

3. Test AC PHASE SELECT switch 1S9 (troubleshooting procedure 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS).

   a. Replace switch if defective (WP 0062 00) and perform MOC.

   b. If switch tests good, proceed to Step 4.

4. Check that battery is disconnected. Remove battery charger access cover. Disconnect main harness connector P7 from control panel connector J7. Check for continuity between the following points (Figure FO 6 (Sheet 2 of 2) or Figure FO 25 for MEP 83-360E model):

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 (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Lower control panel (WP 0041 00, Lower Control Panel for Maintenance). Check for continuity between S9-B1-C and 1M8 (+) (Figure FO 6 (Sheet 2 of 2) or Figure 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 (troubleshooting procedure 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS).

   a. Replace switch if defective (WP 0062 00) and perform MOC.

   b. If switch tests good, proceed to Step 7.

7. Test AC contactor K1 (troubleshooting procedure 85. AC CONTACTOR K1 MALFUNCTION).

   a. Replace contactor if defective (WP 0084 00).

   b. If contactor tests good, replace AC VOLTS meter 1M80.

   c. Perform MOC.

77. AC HERTZ METER READS 0 (AC VOLTS METER READS NORMAL)

SYMPTOM

MALFUNCTION
AC HERTZ METER READS 0 (AC VOLTS METER READS NORMAL)

77. AC HERTZ METER READS 0 (AC VOLTS METER READS NORMAL) – Continued

CORRECTIVE ACTION

Shut down engine. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. 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 (WP 0048 00 for MEP 83-360E model only). Check for continuity between the following points (Figure FO 6 (Sheet 2 of 2) or Figure FO 25 for MEP 83-360E model):

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 0085 00, Figure 1) 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 0086 00) and AC HERTZ meter 1M10 (WP 0068 00).

c. Perform MOC.

78. AC % LOAD METER READS 0 (AC POWER ON INDICATOR ILLUMINATED AND AC POWER CABLE CONNECTED TO LOAD)

SYMPTOM

MALFUNCTION

AC % LOAD METER READS 0 (AC POWER ON INDICATOR ILLUMINATED 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only. 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

78. AC % LOAD METER READS 0 (AC POWER ON INDICATOR ILLUMINATED AND AC POWER CABLE CONNECTED TO LOAD) – Continued

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.

3. Test AC PHASE SELECT switch 1S9 (troubleshooting procedure (96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS).

a. Replace switch if defective (WP 0065 00) and perform MOC.

b. If switch tests good, proceed to Step 4.

4. Remove battery charger access cover. Lower control panel (WP 0041 00, Lower Control Panel for Maintenance). Disconnect main harness connector P7 from control panel connector J7 and disconnect harness connector P11 (WP 0080 00, Figure 1, Item 32) from AC contactor K1. Check for continuity between the following points (Figure FO 6 (Sheet 2 of 2) or Figure FO 25 for MEP 83-360E model):

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 (troubleshooting procedure 85. AC CONTACTOR K1 MALFUNCTION).

a. Replace contactor if defective (WP 0084 00).

b. If contactor tests good, replace AC % LOAD meter 1M9 (WP 0068 00).

c. Perform MOC.

6. Test AC PHASE SELECT switch 1S9 (troubleshooting procedure 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS).

a. Replace switch if defective (WP 0065 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 (Figure FO 6 (Sheet 2 of 2) or Figure FO 25 for MEP 83-360E model). If resistance is more than 1 ohm, replace current transformer T4 (WP 0082 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.

78. AC % LOAD METER READS 0 (AC POWER ON INDICATOR ILLUMINATED AND AC POWER CABLE CONNECTED TO LOAD) – Continued

8. Check for continuity between the following points (Figure FO 25 for MEP 83-360E model):

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.

79. 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Check diode 1CR2 (troubleshooting procedure 113. CONTROL PANEL WIRING HARNESS DIODE MALFUNCTION).
   a. Replace diode if defective (WP 0070 00) and perform MOC.
   b. If diode is good, proceed to Step 3.
3. Check for continuity between P7-11R and P12-d (Figure FO 6 (Sheet 2 of 2) or Figure FO 25 for MEP 83-360E model).
   a. If no continuity, replace wire X23A20.
   b. If continuity, replace GCU (WP 0080 00).
   c. Perform MOC.
4. Test AC contactor K1 (troubleshooting procedure 85. AC CONTACTOR K1 MALFUNCTION).
   a. Replace contactor if defective (WP 0084 00).
   b. If contactor tests good, replace GCU (WP 0080 00).
   c. Perform MOC.

80. AC UNDER VOLTAGE INDICATOR DOES NOT LIGHT WHEN % LOAD METER EXCEEDS MAXIMUM ALLOWABLE FOR THE CURRENT SELECTOR SWITCH SETTING

SYMPTOM

MALFUNCTION
AC UNDER VOLTAGE INDICATOR DOES NOT LIGHT WHEN % LOAD METER EXCEEDS MAXIMUM ALLOWABLE FOR THE CURRENT SELECTOR SWITCH SETTING

80. AC UNDER VOLTAGE INDICATOR DOES NOT LIGHT WHEN % LOAD METER EXCEEDS MAXIMUM ALLOWABLE FOR THE CURRENT SELECTOR SWITCH SETTING – Continued

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) perform troubleshooting procedure 79. AC UNDER VOLTAGE INDICATOR DOES NOT LIGHT FOLLOWING AN AC OVER CURRENT FAULT, Step 2. If not, continue with Step 2 below.

2. Test AC contactor K1 (troubleshooting procedure 85. AC CONTACTOR K1 MALFUNCTION).
   a. Replace contactor if defective (WP 0084 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 (96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS).
   a. Replace switch if defective (WP 0065 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 0080 00, Figure 1, Item 36) from GCU. Check for continuity between the following points (Figure FO 6 (Sheet 2 of 2) or Figure FO 25 for MEP 83-360E model):

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:
   a. Tag and disconnect wires from terminals T1 (45), T2 (46) and T3 (47) (WP 0080 00, Figure 1).
   b. Check resistance between terminal N (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 (WP 0081 00 and WP 0082 00).

80. AC UNDER VOLTAGE INDICATOR DOES NOT LIGHT WHEN % LOAD METER EXCEEDS MAXIMUM ALLOWABLE FOR THE CURRENT SELECTOR SWITCH SETTING – Continued

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 5b and Step 5c were good, proceed to Step 6.

6. Disconnect main harness connector P12 from GCU. Check for continuity between the following points (Figure FO-6 (Sheet 1 of 2) or Figure FO 25 for MEP 83-360E model):

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 0080 00).

c. Perform MOC.

81. 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Check diode 1CR1 (troubleshooting procedure 113. CONTROL PANEL WIRING HARNESS DIODE MALFUNCTION).

   a. Replace diode if defective (WP 0072 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 0041 00, Lower Control Panel for Maintenance). Disconnect P7 from J7 and disconnect P12 (WP 0080 00, Figure 1, Item 36) from GCU. Check for continuity between P7-12R and P12-c (Figure FO 6 (Sheet 2 of 2) or Figure FO 25 for MEP 83-360E model).

   a. If no continuity, replace wire X24A20.

   b. If continuity, replace GCU (WP 0080 00).

   c. Perform MOC.

4. Test AC contactor K1 (troubleshooting procedure 85. AC CONTACTOR K1 MALFUNCTION).

   a. Replace contactor if defective (WP 0084 00).

   b. If contactor tests good, replace GCU (WP 0080 00).

81. AC OVER VOLTAGE INDICATOR DOES NOT LIGHT WHEN AC VOLTS METER READS MORE THAN 118 VOLTS – Continued

c. Perform MOC.

82. 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Check diode 1CR4 (troubleshooting procedure 113. CONTROL PANEL WIRING HARNESS DIODE MALFUNCTION).

   a. Replace diode if defective (WP 0072 00) and perform MOC.

   b. If diode is good, proceed to Step 3.

3. Remove battery charger access cover and lower control panel (WP 0041 00, Lower Control Panel for Maintenance). Disconnect P7 from J7 and disconnect P12 (WP 0080 00, Figure 1, Item 36) from GCU. Check for continuity between P7-9R and P12-B (Figure FO 6 (Sheet 2 of 2) or Figure FO 25 for MEP 83-360E model).

   a. If no continuity, replace wire X21A20.

   b. If continuity, replace GCU (WP 0080 00).

   c. Perform MOC.

4. Test AC contactor K1 (troubleshooting procedure 85. AC CONTACTOR K1 MALFUNCTION).

   a. Replace contactor if defective (WP 0084 00).

   b. If contactor is good, replace GCU (WP 0080 00).

   c. Perform MOC.

83. 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:

a. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Lower control panel (WP 0041 00, Lower Control Panel for Maintenance) and remove battery charger access cover.

83. EMERGENCY STOP SWITCH MALFUNCTION – Continued

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 (Figure FO-3 (Sheet 1 of 2) and Figure FO 7 or Figure FO 21 and Figure FO 26 for MEP 83-360E model):

Measure		With EMERG	
From	**To**	**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 0063 00) and check for continuity between switch terminals as follows:

Measure		With EMERG	
From	**To**	**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 0063 00). If all measurements are normal, switch is good, proceed to next step.

d. Check for continuity between the points listed below (Figure FO-3 (Sheet 1 of 2) and Figure FO 7 or Figure FO 21 and Figure FO 26 for MEP 83-360E model). If no continuity, replace indicated wire.

From	To	Replace Wire No.
P5-1L	S2-2	E2C18
P8-L	S2-1	E25D18
P5-11R	S2-6	E29B20
P4-T	S2-5	E6A20

84. 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Lower control panel (WP 0041 00, Lower Control Panel for Maintenance).

b. Remove terminal shield (WP 0084 00, Figure 1, Item 21) from AC output contactor K1 (35). Tag and disconnect cables from terminals A2 (25), B2 (26) and C2 (27). This is necessary to gain access to DC contactor K2 (18).

c. Tag and disconnect all cables and wires from terminals A2 (15), B2 (6) and X1 (4) of DC output contactor K2 (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 0084 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 (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.

h. Check for continuity between K2 contactor terminals A1 and A2 and between terminals B1 and B2.

i. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. 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.

85. AC CONTACTOR K1 MALFUNCTION

SYMPTOM

MALFUNCTION
AC CONTACTOR K1 MALFUNCTION

CORRECTIVE ACTION

Perform the following test if an AC contactor malfunction is suspected.

85. AC CONTACTOR K1 MALFUNCTION – Continued

a. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Lower control panel (WP 0041 00, Lower Control Panel for Maintenance).

b. Remove terminal shields (WP 0084 00, Figure 1, Item 21) from AC output contactor K1 (35). Tag and disconnect cables from terminals A2 (25), B2 (26), C2 (27), A1 (28), B1 (29) and C1 (30). Disconnect P11 (32) from contactor connector J1 (33) (Figure FO 6 (Sheet 2 of 2)).

c. Perform tests indicated in (Table 1, AC Output Contactor K1 Test), for contactor in deactivated state (Figure FO 6 for MEP 83-360A and D models and Figure FO 25 for MEP 83-360E model).

Table 1. AC Output Contactor K1 Test.

	Measure		
Contactor State	**From**	**To**	**Normal Indication**
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 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 (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.

f. Perform tests indicated in Table 1, AC Output Contactor K1 Test for contactor in activated state.

g. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

h. Disconnect test leads.

85. AC CONTACTOR K1 MALFUNCTION – Continued

i. If all indications in Table 1, AC Output Contactor K1 Test are normal, reconnect wires, connector to contactor and install terminal shields. If any condition is not normal, install new relay.

86. HYDRAULIC MODULE REPLACE FILTER INDICATOR ILLUMINATED

SYMPTOM

MALFUNCTION
HYDRAULIC MODULE REPLACE FILTER INDICATOR ILLUMINATED

CORRECTIVE ACTION

Replace elements in both low and high pressure filter bowls (WP 0122 00).

87. 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 (Figure FO 9 for MEP 83-360A and Figure FO 28 for MEP 83-360E model).

88. 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.

89. 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 (WP 0014 00).
   a. If DRIVE power on indicator lights during primary propulsion mode operation (WP 0070 00, Figure 1, Item 2) but not during alternate mode (WP 0014 00), proceed to Step 6.
   b. If DRIVE indicator lights during alternate mode but not during primary mode, proceed to Step 4.

89. DRIVE POWER ON INDICATOR DOES NOT LIGHT WHEN PROPULSION MODE OPERATION ATTEMPTED – Continued

c. If DRIVE indicator does not light during primary or alternate mode, continue with Step 2.

2. Test DRIVE switch (troubleshooting procedure 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS).
   a. Replace switch if defective (WP 0066 00) and perform MOC.
   b. If switch tests good, proceed to Step 3.
3. Check that battery is disconnected. Remove battery charger access cover. Disconnect main harness connector P6 from control panel connector J6. Check for continuity between the following points (Figure FO 5 and Figure FO 8 for MEP 83-360A and D models or Figure FO 23 and Figure FO 24 and Figure FO 27 for MEP 83-360E model):

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 (WP 0009 00, DC OPERATION (All Models)).
   a. If DC VOLTS meter 1M11 reads in green band, proceed to Step 5.
   b. If DC VOLTS meter reads 0 perform troubleshooting procedure 65. 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 (troubleshooting procedure 99. TERMINAL BOARD DIODE MALFUNCTIONS).
   a. Replace diode if defective (WP 0076 00 and WP 0072 00).
   b. If diode tests good, replace wire G25A20 between diode (TB3-11 CATHODE) and K2-X2 (WP 0084 00, Figure 1, Item 18 and WP 0072 00) (Figure FO 8 or Figure FO 27 for MEP 83-360E model).
   c. Perform MOC.
6. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only. 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.
   b. If DC VOLTS meter reads 0, test battery output contactor K3 and wiring perform troubleshooting procedure 104. BATTERY OUTPUT/TRACTION MOTOR CONTACTOR K3 MALFUNCTION.
7. Set DC POWER and MASTER switch off and disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Test diode TB3-CR4 (troubleshooting procedure 99. TERMINAL BOARD DIODE MALFUNCTIONS).

89. DRIVE POWER ON INDICATOR DOES NOT LIGHT WHEN PROPULSION MODE OPERATION ATTEMPTED – Continued

a. Replace diode if defective (WP 0076 00 and WP 0072 00).

b. If diode tests good, replace wire G26A20 between diode (TB3-12 CATHODE) and K3-X2 (WP 0084 00, Figure 2, Item 6 and WP 0072 00) (Figure FO 8 or Figure FO 27 for MEP 83-360E model).

c. Perform MOC.

90. 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 (WP 0139 00, REMOVAL, Step 5).

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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. On speed/direction control assembly (WP 0134 00, Figure 1, Item 5), check for continuity between terminals 6 and 10 and between terminals 5 and 9 (Figure FO 8 or Figure 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. 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 (Figure FO 8 or Figure FO 27 for MEP 83-360E model) and shunt R3 (Figure FO 1).
   a. Replace any defective wiring and perform MOC.
   b. If all wiring is good, clutch switch is defective. Notify maintenance supervisor.

91. DO NOT TOW INDICATOR ILLUMINATED WHEN CLUTCH LEVER IS RELEASED

SYMPTOM

MALFUNCTION
DO NOT TOW INDICATOR ILLUMINATED WHEN CLUTCH LEVER IS RELEASED

CORRECTIVE ACTION

WP 0139 00, REMOVAL, Step 5.

92. DC POWER NOT AVAILABLE AT SLAVE RECEPTACLE

SYMPTOM

MALFUNCTION
DC POWER NOT AVAILABLE AT SLAVE RECEPTACLE

CORRECTIVE ACTION

1. Set MASTER SWITCH to ON and check BATTERY VOLTAGE meter.
   a. If BATTERY VOLTAGE meter does not read in green band perform troubleshooting procedure 45. 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 in OFF positions. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Check cable between (+) battery terminal adapter (WP 0045 00, Figure 1, Item 1) and (+) slave receptacle terminal screw (WP 0045 00, Figure 1, Item 18) for continuity. Check cable between (-) battery terminal adapter (WP 0045 00, Figure 1, Item 4) and (-) slave receptacle (WP 0045 00, Figure 1, Item 23) for continuity (Figure FO 1).
   a. Replace cables if defective (WP 0045 00).
   b. If cables are good, replace slave receptacle (WP 0046 00).
   c. Perform MOC.

93. 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.
   a. If battery voltage meter reads 0 perform troubleshooting procedure 45. 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 perform troubleshooting procedure 104. BATTERY OUTPUT/TRACTION MOTOR CONTACTOR K3 MALFUNCTION.

94. 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.

94. AC POWER NOT AVAILABLE AT CONVENIENCE RECEPTACLES (ENGINE RUNNING AND AC POWER SWITCH ON) – Continued

2. Check AC POWER ON indicator.
   a. If indicator is not illuminated perform troubleshooting procedure 73. AC POWER ON INDICATOR OFF (ENGINE UP TO SPEED AND AC POWER SWITCH ON).
   b. If indicator is illuminated, 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 0084 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Check wiring between the AC convenience receptacle and AC contactor K1 (Figure FO-6 (Sheet 1 of 2) or Figure FO 25 for MEP 83-360E model).

   Replace defective wiring and perform MOC.

95. 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 perform troubleshooting procedure 65. 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Remove inverter output fuse (WP 0089 00). Check fuse.
   a. If fuse is blown, install new fuse and perform MOC.
   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 0084 00, Figure 2, Item 23) and between inverter negative terminal and DC ground stud (Figure FO 5 or Figure FO 23 and Figure 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 0089 00) and remove internal fuse (WP 0089 00). Check fuse.
   a. If fuse is blown, install new fuse.
   b. If fuse is good, install new inverter (WP 0089 00).
   c. Perform MOC.

96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

b. Lower control panel (WP 0041 00).

c. Remove battery charger access cover if necessary.

d. Locate switch or circuit breaker to be tested in Table 2.

Table 2. Control Panel Switch and Circuit Breaker Continuity Checks.

(A)	(B)		(D) Check Continuity (Refer to Note 3)		(E)	(F)
Switch	Disconnect	Switch Position	From	To	Normal Indication	Fig Ref.
ENGINE CONTROL (1S1)	P5 from control panel 1J5	STOP	1S1-1	1S1-6	Open	Figure 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	
MASTER SWITCH (1S2)	Wires from switch terminals 1S2-2, -5, -8 and -11	OFF	1S2-2	1S2-3	Open	Figure FO 1
			1S2-5	1S2-6	Open	Figure FO 1
			1S2-8	1S2-9	Open	Figure FO 5
			1S2-11	1S2-12	Open	Figure FO 1
		ON	1S2-2	1S2-3	Continuity	Figure FO 1
			1S2-5	1S2-6	Continuity	Figure FO 1
			1S2-8	1S2-9	Continuity	Figure FO 5
			1S2-11	1S2-12	Continuity	Figure FO 1

96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) 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.
DRIVE (1S3)	Wires from switch terminals 1S3-2 and 1S3-5	OFF	1S3-2	1S3-3	Open	Figure 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	Figure 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	Figure FO 1
		ON	1S5-2	1S5-3	Continuity	
PANEL (1S6)	Wires from switch terminal 1S6-2	OFF	1S6-2	1S6-1	Open	Figure 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	
UTILITY (1S7)	Wire from switch terminal 1S7-2	OFF	1S7-2	1S7-1	Open	Figure FO 2
			1S7-2	1S7-3	Open	
		DIM	1S7-2	1S7-3	Open	
			1S7-2	1S7-1	Continuity	
		BRT	1S7-2	1S7-3	Continuity	

96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS – Continued

Table 2. Control Panel Switch and Circuit Breaker Continuity Checks. – Continued

(A) Switch	(B) Disconnect	Switch Position	(D) Check Continuity (Refer to Note 3) From	To	(E) Normal Indication	(F) Fig Ref.
			1S7-2	1S7-1	Open	
PNEUMATIC POWER (1S8)	Wires from switch terminals 1S8-3, -5 -8 and -12	OFF	1S8-2	1S8-3	Open	Figure FO 7
			1S8-4	1S8-5	Continuity	Figure FO 3
			1S8-8	1S8-9	Open	Figure FO 7
			1S8-11	1S8-12	Open	Figure FO 7
		ON	1S8-2	1S8-3	Continuity	
			1S8-4	1S8-5	Open	
			1S8-8	1S8-9	Continuity	
			1S8-11	1S8-12	Continuity	
AC PHASE SELECT (1S9) (Refer to Note 1)	P7 from control panel 1J7	A	1S9A1-C (wire X37B20)	1S9A-1 (wire X26B20)	Continuity	Figure FO 6 (Sheet 2 of 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	

96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) 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)			
			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	
			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	Figure FO 6 (Sheet 2 of 2)
			1S10-5	1S10-6	Open	Figure FO 6 (Sheet 2 of 2)
			1S10-8	1S10-7	Continuity	Figure FO-3 (Sheet 1 of 2)
		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	
CURRENT SELECTOR (1S11) (Refer to Note 2)	P7 from control panel 1J7	10KW	1S11A-C (wire X47B20)	1S11A-1 (wire X48E20)	Continuity	Figure FO 6 (Sheet 2 of 2)
			1S11B-C (wire X53B20)	1S11B-1 (wire X58B20)	Continuity	

96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) 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)			
			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	

96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) 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	Figure FO 6 (Sheet 2 of 2)
			1S12-5	1S12-4	Continuity	Figure FO 5
			1S12-5	1S12-6	Open	Figure FO 5
			1S12-8	1S12-7	Continuity	Figure FO-3 (Sheet 1 of 2)
		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	Figure FO 1
		Closed (in)	1CB1-LINE	1CB1-load	Continuity	
GTE 10 (1CB2)	Wire P37A18 from 1CB2	Open (out)	1CB2-LINE	1CB2-load	Open	Figure 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.

96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS – Continued

e. Disconnect connectors or wires as indicated in column (B).

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 0062 00 or WP 0071 00).

h. If all continuity checks are normal, switch or circuit breaker is good. Reconnect any wires or connectors that were disconnected for test.

97. 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. Perform WP 0119 00, Hydraulic Module Switches and Circuit Breaker, Steps 1 through 6.

c. Locate switch or circuit breaker to be tested in Table 3, column (A). Remove hydraulic electrical panel (WP 0119 00).

Table 3. Hydraulic Control Panel Switch and Circuit Breaker Continuity Checks.

(A)	(B)		(D) Check Continuity		(E)	(F)
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	
			4S1-2	4S1-3	Open	Figure FO 9/Figure FO 28
			4S1-5	4S1-4	Continuity	Figure FO-3 (Sheet 1 of 2)
			4S1-8	4S1-7	Continuity	Figure FO 9/Figure FO 28
			4S1-8	4S1-9	Open	Figure FO 9/Figure 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	
			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	Figure FO 9/Figure FO 28
			4S1-2	4S1-3	Open	

97. 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.
		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	Figure FO 9/Figure FO 28
		Pressed	4S3-1	4S3-2	Continuity	
OUTPUT SWITCH (4S4)	Wire from switch terminal 4S4-C	OFF	4S4-1	4S4-2	Open	Figure FO 9/Figure FO 28
		ON	4S4-1	4S4-2	Continuity	
PRESSURE SWITCH (4S5) (Refer Note)	Wire from switch terminals 4S5-2 and -5	OFF	4S5-2	4S5-1	Open	Figure FO 9/Figure FO 28
			4S5-2	4S5-3	Open	
			4S5-5	4S5-4	Open	
			4S5-5	4S5-6	Open	
		IN-CREASE	4S5-2	4S5-1	Open	
			4S5-2	4S5-3	Continuity	
			4S5-5	4S5-4	Open	
			4S5-5	4S5-6	Continuity	
		DE-CREASE	4S5-2	4S5-1	Continuity	
			4S5-2	4S5-3	Open	
			4S5-5	4S5-4	Continuity	
			4S5-5	4S5-6	Open	
CIRCUIT BREAKER (4CB1)	Wire from circuit breaker terminal 4CB1-LINE	Open (out)	4CB1-LINE	4CB1-load	Open	Figure FO 9/Figure FO 28
		Closed (in)	4CB1-LINE	4CB1-load	Continuity	
NOTES:	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).

97. HYDRAULIC CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS – Continued

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 0119 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.

98. 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 (Figure FO 1 or Figure FO 19 for MEP 83-360E model):

   a. Start engine (WP 0008 00). 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 illuminated, continue with Step 1b. If DC POWER ON indicator did not light perform troubleshooting procedure 65. DC POWER ON INDICATOR OFF (ENGINE UP TO SPEED AND DC POWER SWITCH ON).

   b. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Lower control panel (WP 0041 00, Lower Control Panel for Maintenance). 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 0047 00, Figure 2, Item 20) from 50 amp output terminal J3+ (21). Tape the terminal lug on the wire to prevent shorting.

   e. Disconnect harness connector P2 (6) from battery charger 20 amp output connector J2 (7).

NOTE

A test wire made from 18 gage 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 gage 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 (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only. Start engine (WP 0008 00).

   h. Note if CHRG/BAT FAULT light is illuminated. (Light should be illuminated to indicate no charger load.) Continue with Step 1i.

98. CHARGER CIRCUIT MALFUNCTION – Continued

i. Set charger output control 3S1 (on lower electrical tray) to each position and measure the voltage between the terminals (WP 0047 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 0047 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

l. Disconnect test wire from charger connector J2.

m. Compare the indications observed or measured in Steps 1h through 1j 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 1h)	**Charger 50 Amp Output (Step 1i)**	**Charger 20 Amp Output (Step 1j)**	
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 0047 00)
N/A	Voltage present but out of limits for one or more settings of charger output control	Voltage present	Step 7

98. CHARGER CIRCUIT MALFUNCTION – Continued

2. If the CHRG/BAT FAULT lamp was on (Step 1h) and all voltage measurements (Step 1i and Step 1j) 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 1h) and all 50 amp output voltages (Step 1i) were in limits.
   a. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only. Set MASTER SWITCH to ON. If CHRG/BAT FAULT light does not light perform troubleshooting procedure 46. CHRG/BAT FAULT INDICATOR NOT ILLUMINATED (MASTER SWITCH ON, ENGINE NOT RUNNING). If light comes on, proceed to Step 3b.
   b. Set MASTER SWITCH to OFF and disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Check diode TB3-CR4 (troubleshooting procedure 99. TERMINAL BOARD DIODE MALFUNCTIONS). Replace diode if defective. If diode tests good, proceed to Step 3c.
   c. Disconnect harness connector P1 from battery charger. Check for continuity between P1-G and TB3-8 ANODE (Figure FO 1). If no continuity, replace wire P29A20. If continuity, replace battery charger (WP 0047 00).
4. This step is applicable if one or more of the 50 amp output voltages (Step 1i) and the 20 amp output voltage (Step 1j) were out of limits.
   a. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
   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 0047 00).
5. This step is applicable if all 50 amp output voltages (Step 1i) were 0 and the 20 amp output voltage (Step 1j) was present.
   a. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
   b. Check circuit breaker 2CB1 on upper electrical tray. If breaker is open, proceed to Step 5c If breaker is closed, proceed to Step 5d.
   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 0047 00).
   d. Check for continuity between the following points (Figure FO 1 and Figure FO 5 or Figure FO 23 for MEP 83-360E model):

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 0047 00).
6. This step is applicable if the 20 amp output voltage (Step 1j) was 0 and the 50 amp output voltages are present.
   a. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

98. CHARGER CIRCUIT MALFUNCTION – Continued

b. Check circuit breaker 2CB2 on upper electrical tray. If breaker is open, perform Step 6c If breaker is closed, proceed to Step 6d.

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 0047 00).

d. Check for continuity between the following points (Figure FO 1 and Figure FO 5 or Figure FO 23 for MEP 83-360E model):

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 cable or component. If all continuity checks good, replace battery charger (WP 0047 00).

7. This step is applicable if the 50 amp output voltages (Step 1i) are present but out of limits and the 20 amp output voltage (Step 1j) is present.

a. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

b. Lower control panel (WP 0041 00, Lower Control Panel for Maintenance).

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.

Table 4. Battery Charger Output Control Switch 3S1 Continuity Checks.

Switch Position	Check Resistance		Normal Indication
	From	To	
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 0060 00).

98. CHARGER CIRCUIT MALFUNCTION – Continued

f. If all switch continuity checks good, disconnect main harness connector P1 from battery charger. Check for continuity between the following points:

From	To	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 cable or component. If all continuity checks good, replace battery charger (WP 0047 00).

99. 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:

No.	Location	Type1	Fig Ref.
CR1	TBI-1	MR756	WP 0076 00, Figure 2
CR2	TB2-15	1N5061	WP 0076 00, Figure 3
CR3	TB3-1	1N5061	WP 0076 00, Figure 4
CR4	TB3-2	1N5061	WP 0076 00, Figure 4
CR5	TB3-3	1N5061	WP 0076 00, Figure 4
CR6	TB3-4	1N5061	WP 0076 00, Figure 4
CR7	TB3-5	1N5061	WP 0076 00, Figure 4
CR8	TB3-6	1N5061	WP 0076 00, Figure 4
CR1	TB2-1	MR756	WP 0076 00, Figure 3
CR2	TB2-2	MR756	WP 0076 00, Figure 3
CR3	TB3-11	1N5061	WP 0076 00, Figure 4
CR4	TB3-12	1N5061	WP 0076 00, Figure 4
CR3	TB2-14	1N5061	WP 0076 00, Figure 3
CR4	TB2-4	1N5061	WP 0076 00, Figure 3
CR5	TB2-5	1N5061	WP 0076 00, Figure 3
CR6	TB2-6	1N5061	WP 0076 00, Figure 3

99. TERMINAL BOARD DIODE MALFUNCTIONS – Continued

– Continued

No.	Location	Type1	Fig Ref.
CR7	TB2-7	1N5061	WP 0076 00, Figure 3
CR8	TB2-8	1N5061	WP 0076 00, Figure 3
CR9	TB2-9	1N5061	WP 0076 00, Figure 3
CR10	TB2-10	1N5061	WP 0076 00, Figure 3
CR11	TB2-11	1N5061	WP 0076 00, Figure 3
CR12	TB2-12	1N5061	WP 0076 00, Figure 3
CR13	TB2-13	1N5061	WP 0076 00, Figure 3
CR14	TB2-3	1N5061	WP 0076 00, Figure 3
CR18	TB1-11	1N5061	WP 0076 00, Figure 2
CR19	TB1-10	1N5061	WP 0076 00, Figure 2
CR20	TB1-9	1N5061	WP 0076 00, Figure 2
CR21	TB1-8	1N5061	WP 0076 00, Figure 2
CR22	TB1-7	1N5061	WP 0076 00, Figure 2
CR24	TB1-4	1N5061	WP 0076 00, Figure 2
CR25	TB1-3	1N5061	WP 0076 00, Figure 2
CR26	TB1-2	1N5061	WP 0076 00, Figure 2
CR27	TB1-6	1N5061	WP 0076 00, Figure 2
CR4	TB3-8	1N5061	WP 0076 00, Figure 4
CR5	TB3-9	1N5061	WP 0076 00, Figure 4

a. Disconnect bbattery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

b. If diode to be tested is on TB1 (WP 0076 00, Figure 1, Item 8 and 9), lower control panel (WP 0041 00, Lower Control Panel for Maintenance). Disconnect control panel support cable and lower control panel onto access door.

c. If diode to be tested is on TB2 (WP 0076 00, Figure 1, Item 10 and 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 0076 00, Figure 2, Item 3) is illustrated.

d. Remove terminal screw (WP 0076 00, Figure 2, Item 1) and one lead of diode (WP 0076 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 0076 00, Figure 2, Item 9) (meter positive lead) to diode cathode lead (WP 0076 00, Figure 2, Item 11). If resistance is greater than 25 ohms, replace diode.

99. TERMINAL BOARD DIODE MALFUNCTIONS – Continued

f. Set meter to X10,000 scale and measure resistance from diode cathode lead (WP 0076 00, Figure 2, Item 11) (meter positive lead) to diode anode lead (WP 0076 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.

100. 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Lower control panel (WP 0041 00, Lower Control Panel for Maintenance).

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 (Figure FO 3 (Sheet 2 of 2), Figure FO 5 and Figure FO 9 or Figure FO 21, Figure FO 23, Figure FO 24 and Figure FO 28 for MEP 83-360E model).

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 gage 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.

100. 95% ENABLE RELAY 3K1 MALFUNCTION – Continued

f. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.

g. Do tests indicated in Table 5, 95% Enable Relay 3K1 Test for relay in activated state.

h. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

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 0056 00). Check for continuity between the following points (Figure FO 3 (Sheet 2 of 2), Figure FO 5 and Figure FO 9 or Figure FO 21, Figure FO 23, Figure FO 24 and Figure FO 28 for MEP 83-360E model):

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
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 0056 00).

101. 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Lower control panel (WP 0041 00, Lower Control Panel for Maintenance).

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 (Figure FO-3 (Sheet 1 of 2) or Figure FO 21 for MEP 83-360E model).

101. STARTER LATCH RELAY 3K2 MALFUNCTION – Continued

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

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 (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only. Perform tests indicated in Table 6, Starter Latching Relay 3K2 Test for relay in activated state.

g. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

h. Disconnect test wires.

i. If all indications in Table 6 were normal, relay is good. Reconnect harness connectors P8 and P18 to tray connectors J8 and J18.

j. If any indication in Table 6 was not normal, remove relay from socket (WP 0056 00). Check for continuity between the following points (Figure FO-3 (Sheet 1 of 2) or Figure FO 21 for MEP 83-360E model):

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 0056 00).

102. BATTERY/CHARGER TRANSFER RELAY 3K3 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Lower control panel (WP 0041 00, Lower Control Panel for Maintenance).
   b. Open electrical tray access door.
   c. Disconnect main harness connectors P9 and P18 from electrical tray connectors J9 and J18.
   d. Perform tests indicated in Table 7, for relay in deactivated state. Check for continuity between the following points (Figure FO-3 (Sheet 1 of 2) or Figure 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 1e. 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.

102. BATTERY/CHARGER TRANSFER RELAY 3K3 AND POWER DIODE MALFUNCTIONS – Continued

g. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only. Perform tests indicated in Table 7, Battery/Charger Transfer Relay 3K3 Test for relay in activated state.

h. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

i. Disconnect test wires.

j. If all indications in Table 7 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 was not normal, continue with Step 1k below.

l. Remove relay 3K3 from socket (WP 0056 00). Check for continuity between the points listed below (Figure FO 1 or Figure FO 20 and Figure FO 21 for MEP 83-360E model). If no continuity, replace indicated wire. If all continuity checks good, replace relay 3K3 with new relay.

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 1a through 1c and Step 1k.

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.

102. BATTERY/CHARGER TRANSFER RELAY 3K3 AND POWER DIODE MALFUNCTIONS – Continued

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 2b through 2d above were good, power diodes are good. Install relay and reconnect harness connectors.

103. GTE STARTER RELAY K4 MALFUNCTION

SYMPTOM

MALFUNCTION
GTE STARTER RELAY K4 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 GTE starter relay is suspected of malfunction, test the relay as follows:

a. Set all control panel switches to OFF.

b. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Lower control panel (WP 0041 00, Lower Control Panel for Maintenance).

c. Remove terminal shield (WP 0084 00, Figure 2, Item 2) from contactor K4 (WP 0084 00, Figure 2, Item 17).

d. Tag and disconnect cables from terminals A1 (15) and X1 (13). Tape lugs on end of cables to prevent shorting.

e. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.

f. Measure for 0 VDC from terminal A1 of contactor to ground (Figure FO 3 (Sheet 2 of 2) or Figure FO 21 for MEP 83-360E model). If +24 VDC is present, replace contactor (WP 0084 00).

g. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

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 (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.

j. Measure for +24 VDC between terminal A1 of contactor and ground. If voltage is not present, replace contactor (WP 0084 00).

k. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

l. Remove jumper wires.

103. GTE STARTER RELAY K4 MALFUNCTION – Continued

m. If measurements in Step f and Step j were good, contactor is good. Reconnect cables and replace terminal shield.

104. 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:

a. Set all control panel switches to OFF.

b. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Lower control panel (WP 0041 00, Lower Control Panel for Maintenance).

c. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.

d. Refer to WP 0084 00, Figure 2 and Figure FO 1 or Figure FO 19 for MEP 83-360E model. Measure for +24 VDC between terminals A2 of contactor K3 (WP 0084 00, Figure 2) and ground. If voltage is present, proceed to Step eIf not, disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Test BATTERY OUTPUT switch 1S5 (troubleshooting procedure 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS and Figure FO 2 or Figure FO 20 for MEP 83-360E model). If switch checks good, replace contactor K3 (WP 0084 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. If not, continue with Step j.

104. BATTERY OUTPUT/TRACTION MOTOR CONTACTOR K3 MALFUNCTION – Continued

j. Measure 0 VDC between terminal X2 of contactor K3 and ground. If 0 VDC is present, disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Replace contactor (WP 0084 00). If +24 VDC is present, proceed to Step k.

k. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Check control panel switches 1S5 (BATTERY OUTPUT), 1S12 (DC POWER) and 1S2 (MASTER SWITCH) (troubleshooting procedure 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS). Replace any defective switch. If all switches test good, proceed to Step l.

l. Test diode 1CR6 (troubleshooting procedure 113. CONTROL PANEL WIRING HARNESS DIODE MALFUNCTION). 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 (Figure FO 1 and Figure FO 5, Figure FO 23 and Figure FO 24 for MEP 83-360E model):

105. SPEED SENSOR MALFUNCTION

SYMPTOM

MALFUNCTION
SPEED SENSOR MALFUNCTION

CORRECTIVE ACTION

If the speed sensor is suspected of malfunctioning, test the sensor and engine harness as follows:

a. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

b. Remove engine access cover (WP 0041 00).

c. Cut and remove lockwire from speed sensor electrical connector (WP 0051 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 0051 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 (Figure FO 3 (Sheet 2 of 2) or Figure FO 20 and Figure 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.

106. LOW OIL PRESSURE SWITCH MALFUNCTION

SYMPTOM

MALFUNCTION
LOW OIL PRESSURE SWITCH MALFUNCTION

CORRECTIVE ACTION

If the low oil pressure is suspected of malfunctioning, test the switch as follows:

106. LOW OIL PRESSURE SWITCH MALFUNCTION – Continued

a. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

b. Remove engine and hydraulic access covers (WP 0032 00).

c. Cut and remove lockwire from low oil pressure switch electrical connector (WP 0052 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 0052 00).

NOTE

The low oil pressure switch should remain closed until engine oil pressure exceeds **31 psig**. Above **31 psig**, the switch should open.

107. HIGH OIL TEMPERATURE SWITCH MALFUNCTION

SYMPTOM

MALFUNCTION
HIGH OIL TEMPERATURE SWITCH MALFUNCTION

CORRECTIVE ACTION

If a high oil temperature (HOT) switch malfunction is suspected, test the switch and engine harness as follows (Figure FO 3 (Sheet 2 of 2) or Figure FO 21 for MEP 83-360E model):

a. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Lower control panel (WP 0041 00, Lower Control Panel for Maintenance).

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 (WP 0002 00, Figure 1, Item 12). Cut and remove lockwire from high oil temperature switch connector P10 (WP 0053 00, Figure 1, Item 9). Disconnect electrical connector from high oil temperature switch (10). Check engine harness wires A14A20 (P2-J to P10-B) and A14A20N (P2-Y to P10-A) for continuity (Figure FO 3 (Sheet 2 of 2) or Figure 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 0053 00).

108. THERMOCOUPLE MALFUNCTION

SYMPTOM

MALFUNCTION
THERMOCOUPLE MALFUNCTION

CORRECTIVE ACTION

If a thermocouple malfunction is suspected, test the thermocouple as follows:

a. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

108. THERMOCOUPLE MALFUNCTION – Continued

b. Tag and disconnect wires from posts of thermocouple (WP 0054 00, Figure 1, Item 14).

c. Measure resistance across thermocouple posts. Resistance should be less 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 0054 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 (Figure FO 3 (Sheet 2 of 2) or Figure 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.

109. INLET FILTER BLOCKED SWITCH MALFUNCTION

SYMPTOM

MALFUNCTION
INLET FILTER BLOCKED SWITCH MALFUNCTION

CORRECTIVE ACTION

If an inlet filter blocked switch malfunction is suspected, test the switch and wiring as follows:

a. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Remove roof (WP 0033 00).

b. Open bypass door (WP 0064 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 0064 00, Figure 1, Item 1), slide switch (WP 0064 00, Figure 1, Item 6) up or down on bracket (WP 0064 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 (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only. 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 illuminated, perform Step f.

f. Set MASTER SWITCH off and disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Disconnect one wire from switch (WP 0064 00, Figure 1, Item 6) and check for open circuit between switch outer terminals. If continuity exists between switch outer terminals, replace switch (WP 0064 00) and perform MOC.

g. Open bypass door (WP 0064 00, Figure 1, Item 9) to actuate switch and have assistant check that INLET FILTER BLOCKED indicator light is illuminated. If light is illuminated, switch and wiring is good (turn MASTER SWITCH to off and disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. If light is not illuminated, continue with next step.

h. Actuate PRESS TO TEST switch on control panel (MASTER SWITCH on). If INLET FILTER BLOCKED indicator does not light (troubleshooting procedures 50. CONTROL PANEL INDICATOR LIGHT TEST FAILS - ONE INDICATOR DOES NOT LIGHT or 51.

109. INLET FILTER BLOCKED SWITCH MALFUNCTION – Continued

CONTROL PANEL INDICATOR LIGHT TEST FAILS - NO INDICATORS LIGHT). If light does light during lamp test, proceed to Step i.

i. Set MASTER SWITCH off and disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Disconnect one wire from switch (WP 0064 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) (Figure FO 3 (Sheet 2 of 2) or Figure FO 21 for MEP 83-360E model) for open condition. If no continuity between switch terminals, replace switch (WP 0064 00). After replacing switch or wires and perform MOC.

110. IGNITION UNIT MALFUNCTION

SYMPTOM

MALFUNCTION
IGNITION UNIT MALFUNCTION

CORRECTIVE ACTION

If the ignition unit is suspected of malfunction, test the unit as follows (Figure FO 3 (Sheet 2 of 2) or Figure FO 21 for MEP 83-360E model):

a. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. 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 (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only. 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

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) (Figure FO 3 (Sheet 2 of 2) or Figure FO 21 for MEP 83-360E model). Replace wires if open. If wiring is good, replace ECU (WP 0057 00).

f. If reading obtained in Step c is correct, remove ignition unit, igniter plug lead and igniter plug and bench test as follows:

110. IGNITION UNIT MALFUNCTION – Continued

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.

111. 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Disconnect electrical connector (WP 0092 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 0092 00).

c. Check resistance between pins 1 and 3 on FCU torque motor receptacle (Figure FO 3 (Sheet 2 of 2) or Figure FO 21for MEP 83-360E model). Resistance should be 30 to 37.5 ohms. If not, replace FCU (WP 0092 00).

d. Disconnect fuel line (Figure 1, Item 9) from fuel shutdown solenoid (8). Install tee part number 969176-1 in shutdown solenoid and connect fuel line (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 0107 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 0093 00, Figure 1, Item 4).

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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

h. Replace FCU (WP 0092 00) if requirements of Step g were not met.

i. Reconnect electrical connector of FCU.

111. FUEL CONTROL UNIT MALFUNCTION – Continued

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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

k. Reading obtained in Step j at 20% rpm should be at least 1**0 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.

112. 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Disconnect electrical connector from fuel solenoid (Figure FO 3 (Sheet 2 of 2)).

b. Check resistance between pins A and B of fuel solenoid. Resistance should be 25 to 35 ohms. If not, replace solenoid (WP 0095 00).

c. If solenoid is good check wire G78A20 from P4-8 to P2-U. If wiring is good, replace ECU (WP 0057 00).

113. 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. 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	Measure To	If reading not as specified, replace	Figure Reference
J5-6R	1DS11(+)	1CR9 or wire E21A20	Figure FO 3 (Sheet 2 of 2)
J5-19L	1DS18(+)	1CR11 or wire P15B20	Figure FO 5

113. CONTROL PANEL WIRING HARNESS DIODE MALFUNCTION – Continued

– Continued

Measure		If reading not as	
From	To	specified, replace	Figure Reference
J5-20R	1DS19(+)	1CR10 or wire P16B20	Figure FO 5
J7-9L	1DS17(+)	1CR4 or wire X21B20	Figure FO 6 (Sheet 2 of 2)
J7-10L	1DS16(+)	1CR3 or wire X22B20	Figure FO 6 (Sheet 2 of 2)
J7-1R	1S5-2	1CR6 or wire P40A20	Figure FO 1
J7-22L	1DS11(+)	1CR5 or wire X46B20	Figure FO 6 (Sheet 2 of 2)
J7-12L	1DS14(+)	1CR1 or wire X24B20	Figure FO 6 (Sheet 2 of 2)
J7-11L	1DS15(+)	1CR2 or wire X23B20	Figure FO 6 (Sheet 2 of 2)

END OF WORK PACKAGE

FIELD MAINTENANCE

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: PNEUMATIC ELECTRICAL

INITIAL SETUP:

References
WP 0010 00
WP 0034 00
WP 0043 00
WP 0044 00
WP 0041 00
WP 0057 00
WP 0063 00
WP 0064 00

References (cont.)
WP 0076 00
WP 0066 00
WP 0068 00
WP 0092 00
WP 0100 00
WP 0101 00
WP 0105 00
WP 0119 00

TROUBLESHOOTING PROCEDURE

114. 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

b. Disconnect one wire from the transducer (WP 0105 00, Figure 1, Item 19).

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 (WP 0105 00).

d. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only. Operate system with pneumatic output (WP 0010 00). Measure resistance between transducer terminals, then shut down system.

e. If resistance was not approximately 10 ohms with pneumatic output, replace transducer (WP 0105 00).

115. PNEUMATIC POWER ON INDICATOR NOT ILLUMINATED (MASTER SWITCH AND PNEUMATIC POWER SWITCH ON)

SYMPTOM

MALFUNCTION
PNEUMATIC POWER ON INDICATOR NOT ILLUMINATED (MASTER SWITCH AND PNEUMATIC POWER SWITCH ON)

CORRECTIVE ACTION

1. Test PNEUMATIC POWER switch 1S8 (troubleshooting procedure 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS and Figure FO 7 or Figure FO 26 for MEP 83-360E model).

Check switch (troubleshooting procedure 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS).

a. Replace switch if defective (WP 0066 00) and perform MOC.

b. If switch tests good, inspect engine air cleaner (WP 0034 00).

From	To	Replace Wire No.
J6-D	1DS13 (-)	H4B20N
P6-D	GND TB	H4A20N
1S8-3	1DS13 (+)	H7A20

116. 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 0100 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 0100 00) and perform MOC.

3. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Lower control panel (WP 0041 00). Disconnect main harness connector P4 from ECU. Check for open circuit from P4-T to P4-Z (Figure FO 7 or Figure 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 0057 00) and perform MOC.

   b. If circuit is not open, continue with next step.

4. Test PNEUMATIC POWER switch 1S8 in OFF position (troubleshooting procedure 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS).

   a. Replace switch if defective (WP 0066 00).

116. PSIG PNEUMATIC METER INDICATES PRESSURE (PNEUMATIC POWER SWITCH OFF) – Continued

b. If switch tests good, check all wires and switches between pins T and Z of harness connector P4 for shorted condition (Figure FO 7 or Figure FO 26 for MEP 83-360E). Replace or repair any shorted wire or switch.

c. If switch and wiring is good, replace PSIG PNEUMATIC meter 1M7 (WP 0068 00).

d. Perform MOC.

5. Test PNEUMATIC POWER switch 1S8 in OFF position (troubleshooting procedure 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS).

a. Replace switch if defective (WP 0066 00).

b. If switch is good, replace PSIG PNEUMATIC meter 1M7 (WP 0068 00).

c. Perform MOC.

117. 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 0100 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.

2. Shut down engine. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Lower control panel (WP 0041 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 (Figure FO 7 or Figure 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 (troubleshooting procedure 83. EMERGENCY STOP SWITCH MALFUNCTION).

a. Replace switch or associated wiring if defective (WP 0063 00) and perform MOC.

b. If switch and wiring are good, proceed to Step 4.

4. Test PNEUMATIC POWER switch 1S8 (troubleshooting procedure 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS).

a. Replace switch if defective (WP 0066 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 (Figure FO 7 or Figure FO 26 for MEP 83-360E model). Replace any defective wire.

From	To	Replace Wire No.
J5-11L	1S8-8	E29A20
J6-T	1S8-9	E30A20
P6-T	P4-Z	E30B20

117. PSIG PNEUMATIC METER READS 0 OR LOW (PNEUMATIC POWER SWITCH ON, ENGINE UP TO SPEED AND EGT LESS THAN 1200 °F) – Continued

c. Perform MOC.

5. Disconnect engine harness connector P5 from load control valve (WP 0100 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 (Figure FO 7 or Figure FO 26 for MEP 83-360E model). Shut down engine and disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
   a. If voltage is present, replace load control valve (WP 0100 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 0057 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.
   b. If no hose leaks were evident, continue with Step 9.
9. Test PNEUMATIC POWER switch 1S8 (troubleshooting procedure 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS).
   a. Replace switch if defective (WP 0066 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 (Figure FO 7 or Figure FO 26 for MEP 83-360E model):

J6-E	1S8-11	H6A20
Check Continuity		If No Continuity,
From	To	Replace Wire No.
P6-E	Pressure relief valve L1 N.O.	H6B20
GND TB	Pressure relief valve L1 GND	H9A20N

Refer to WP 0076 00, Figure 1, Item 2 for GND TB location and WP 0101 00, Figure 1, Item 3 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 0101 00).
   c. Perform MOC.
11. Test pressure transducer MT2 (troubleshooting procedure 114. PRESSURE TRANSDUCER MALFUNCTION).
   a. Replace pressure transducer if defective (WP 0105 00) and perform MOC.
   b. If pressure transducer tests good, continue with Step 12.

117. PSIG PNEUMATIC METER READS 0 OR LOW (PNEUMATIC POWER SWITCH ON, ENGINE UP TO SPEED AND EGT LESS THAN 1200 °F) – Continued

12. Shut down engine and disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only. Lower control panel. Disconnect wire from TB1-13 ANODE (WP 0076 00). 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 0076 00) and perform MOC.
13. Test PNEUMATIC POWER switch 1S8 (troubleshooting procedure 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS).
    a. Replace switch if defective (WP 0066 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 (Figure FO 7 or Figure FO 26 for MEP 83-360E model):

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 0076 00, Figure 1, Item 2) for GND TB location and (WP 0105 00, Figure 1, 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 0068 00).

118. 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.

118. PSIG PNEUMATIC METER READS LOW (PNEUMATIC POWER SWITCH ON, ENGINE UP TO SPEED AND EGT MORE THAN 1200 °F) – Continued

b. If no leakage is found, engine hot section fault is indicated. Notify maintenance supervisor.

119. PSIG PNEUMATIC METER READS HIGH

SYMPTOM

MALFUNCTION
PSIG PNEUMATIC METER READS HIGH

CORRECTIVE ACTION

Test pressure transducer (troubleshooting procedure 114. PRESSURE TRANSDUCER MALFUNCTION).

a. Replace pressure transducer if defective (WP 0105 00).

b. If pressure transducer tests good, replace zener diode TB1-CR1 (WP 0076 00).

c. Perform MOC.

120. 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) perform troubleshooting procedure 10. ENGINE HANGS DURING START - EGT LESS THAN NORMAL, Step 2.
   b. If indicator is extinguished (with engine running), continue with Step 2.
2. Test fuel control unit (troubleshooting procedure 111. FUEL CONTROL UNIT MALFUNCTION).
   a. Replace fuel control unit if defective (WP 0092 00) and perform MOC.
   b. If fuel control unit is okay, an engine hot section fault is indicated. Notify maintenance supervisor.

121. 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.

122. 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 (troubleshooting procedure 97. HYDRAULIC CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS).
   a. Replace any defective switch (WP 0119 00) and perform MOC.
   b. If switches test good, proceed to Step 1b.
2. Check wiring (Figure FO 9 or Figure FO 28 for MEP 83-360E model).
   Repair or replace any defective wiring and perform MOC.

END OF WORK PACKAGE

CHAPTER 4

FIELD LEVEL

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)

FIELD MAINTENANCE

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 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

Materials/Parts
Grease, Molybdenum Disulfide (WP 0154 00, Item 25)

Personnel Required
CMF 15

References
WP 0002 00
WP 0006 00
WP 0011 00

References (cont.)
WP 0028 00
WP 0029 00
WP 0032 00
WP 0043 00
WP 0044 00
WP 0092 00
WP 0094 00
WP 0095 00
WP 0099 00
WP 0106 00
WP 0118 00
WP 0121 00
TM1-1500-204-23-1

PRELIMINARY CHECKS AND ADJUSTMENTS

1. Unpack as required.
2. Inspect AGPU by performing applicable PMC and PMCS procedures (WP 0028 00 and WP 0029 00).
3. Prepare battery for service (WP 0043 00 and WP 0044 00).
4. Check that equipment log book is in the manual storage compartment next to the control panel.
5. Drain lubricating oil from engine/gearcase (WP 0106 00) if no record of sampling within **180 days** of operation, then refill (WP 0028 00 and WP 0029 00) and replace filters.
6. Grease generator or alternator bearing (WP 0028 00, Lubrication).
7. Perform all lubrication checks and services for chassis and running gear (front and rear axle assemblies) (WP 0028 00 and WP 0029 00).

CAUTION

Running engine with an inadequate supply of hydraulic fluid in hydraulic system may damage hydraulic pump.

8. Service hydraulic module (WP 0118 00). If hydraulic reservoir contains fluid that has no record of sampling within 30 days, drain and replenish with new fluid and filters (WP 0028 00 and WP 0029 00).

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 0121 00).
10. Position AGPU so that fuel tank drain valve is at lowest position relative to tank. Use a container and open drain valve (WP 0099 00, Figure 1, Item 15) to drain any water and/or fuel from tank (WP 0099 00, Figure 1, Item 13). Close drain valve (WP 0099 00, Figure 1, Item 15).
11. Open drain valve (WP 0094 00, Figure 1, Item 1) on the fuel water separator located on the external fuel filter housing. Close drain valve (WP 0094 00, Figure 1, Item 1) after water and fuel drains.
12. Add fuel to fuel tank (WP 0004 00).

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.

13. Purge fuel line to engine fuel control unit and shutdown solenoid as follows:
    a. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
    b. Disconnect positive cable from starter and secure cable so accidental contact with frame or engine (ground) cannot occur.
    c. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
    d. Disconnect flexible inlet fuel hose (WP 0092 00, Figure 1, Item 3) from fuel control unit. Direct fuel line into a suitable container.
    e. Set control panel MASTER SWITCH (WP 0006 00, Figure 1, Item 1) to ON.
    f. Momentarily set ENGINE CONTROL switch (WP 0006 00, Figure 1, Item 8) 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 (WP 0006 00, Figure 1, Item 1) to OFF.
    i. Reconnect flexible fuel line to fuel control unit.
    j. Disconnect stainless steel fuel line from input side of shutdown solenoid (WP 0095 00, Figure 1, Item 8). Direct fuel line into a suitable container.
    k. Set MASTER SWITCH to ON. Momentarily set ENGINE CONTROL (WP 0006 00, Figure 1, Item 8) 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 (WP 0006 00, Figure 1, Item 1) to OFF.
    n. Reconnect fuel line to shutdown solenoid.
    o. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
    p. Reconnect positive cable to starter.

PRELIMINARY CHECKS AND ADJUSTMENTS – CONTINUED

q. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.

r. Perform MOC.

INSTALLATION

POSITION FOR USE

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 an approved static ground. Installation,marking and testing of earth ground is covered in TM1-1500-204-23-1.

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

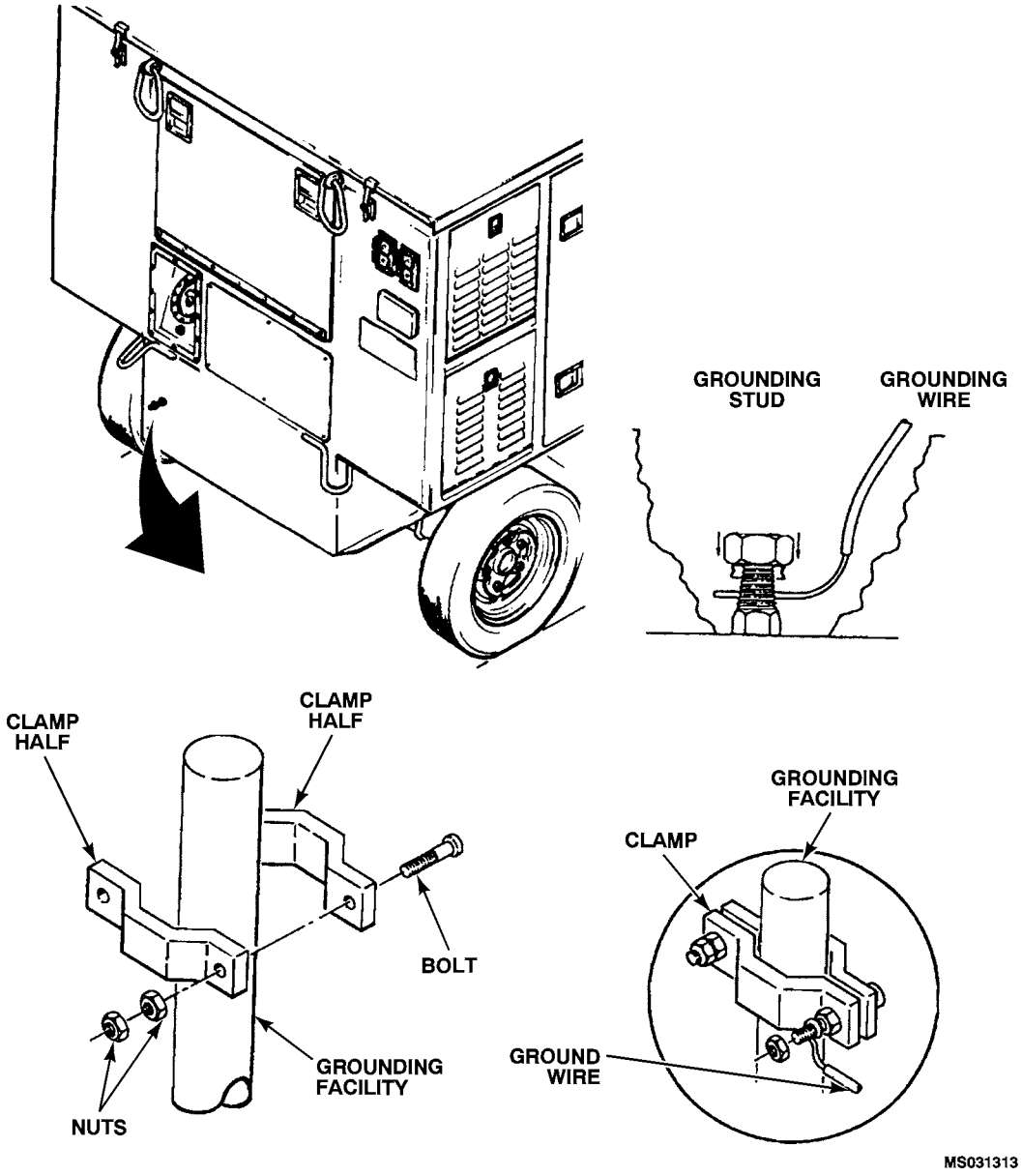


Figure 1. Grounding AGPU.

Grounding

NOTE

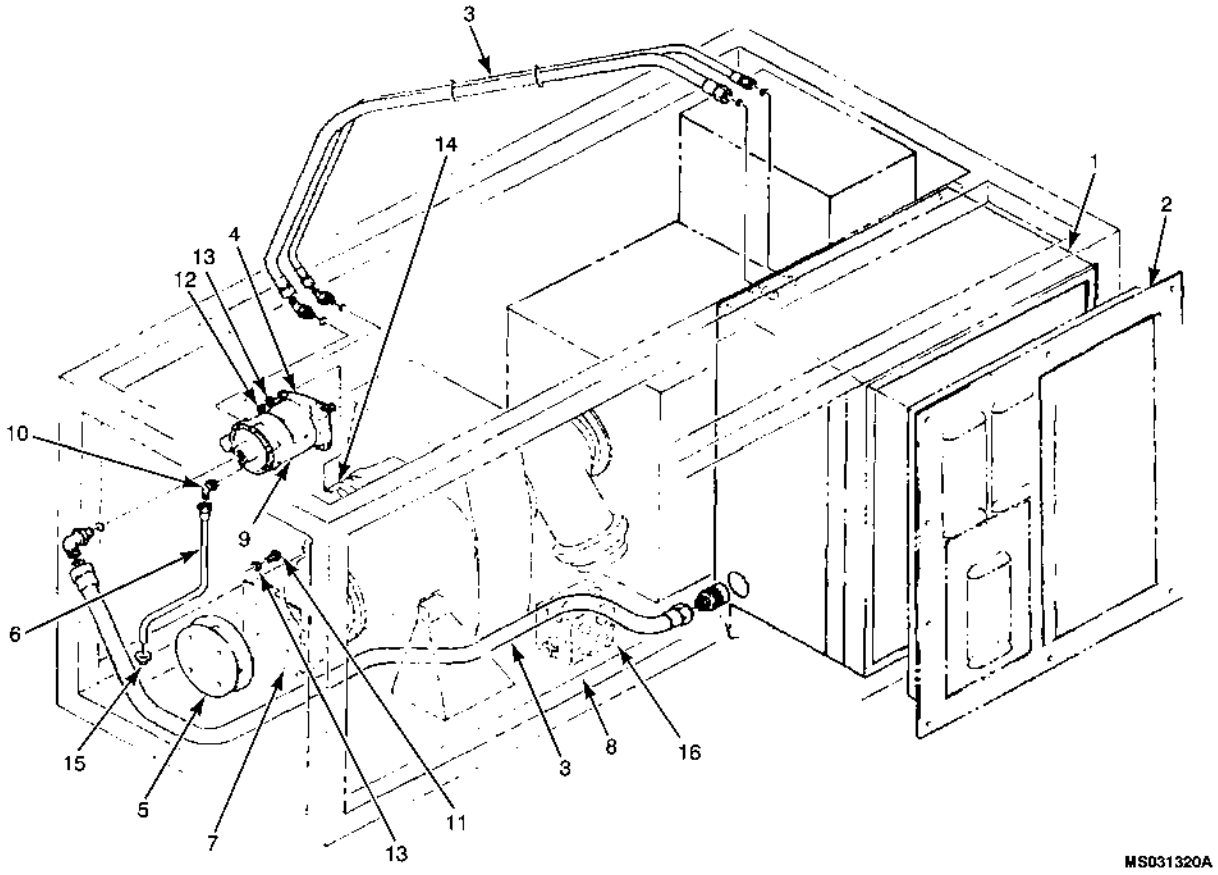
The AGPU must be grounded prior to operation.

Connect ground cable from suitable ground to grounding stud on AGPU (Figure 1). If necessary, fabricate a static grounding cable assembly (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

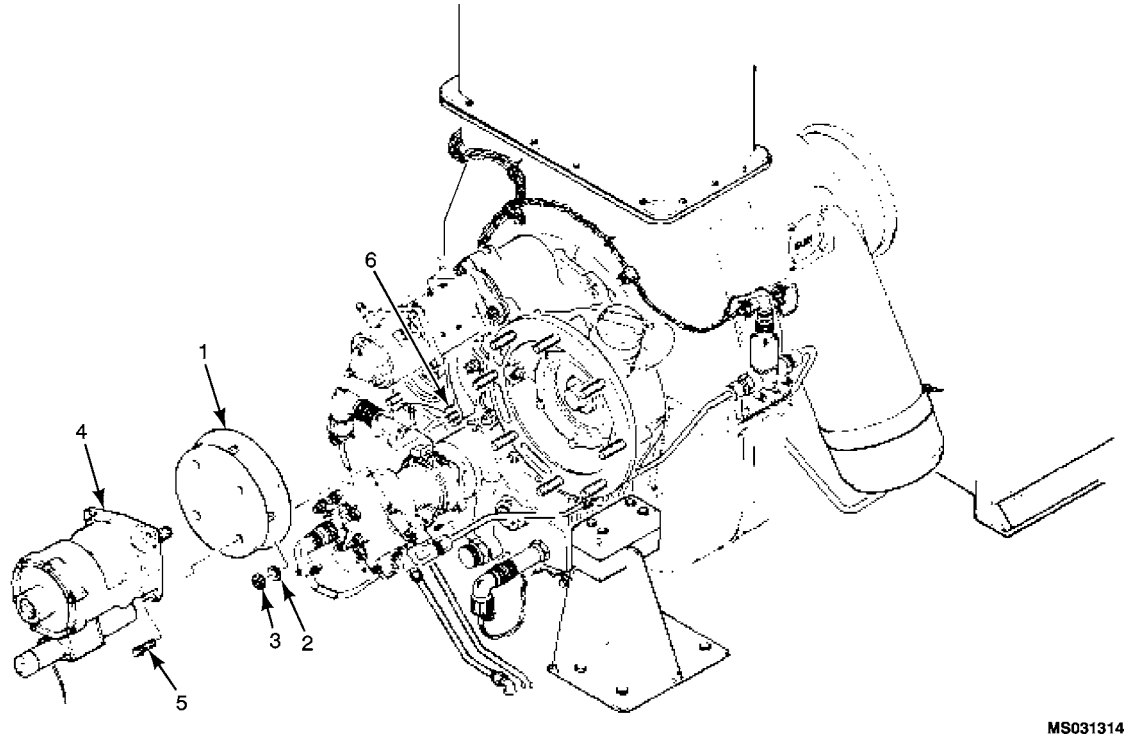


1. Hydraulic Module	5. Spacer	9. Electrical Connector, P16	13. Washer
2. Front Panel Assembly	6. Drain Tube	10. Pump Fitting	14. Gearcase Pad
3. Hose	7. Storage Bracket	11. Bolt	15. Grommet
4. Hydraulic Pump	8. Engine Compartment	12. Nut	16. Dual Service Module

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 connector from battery.
2. Open engine access cover (WP 0032 00, Figure 2, Item 12).
3. Remove DC cable from storage compartment (WP 0002 00, Figure 3, Item 13) and remove hydraulic access cover (WP 0032 00, Figure 2, Item 15).
4. Remove spacer (Figure 3, Item 1) 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. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
14. Verify all lines and connections are secure to the hydraulic pump and perform MOC (WP 0029 00).
15. Check for leaks of hydraulic fluid.
16. Replace hydraulic access cover (WP 0032 00, Figure 2) and store DC cable in storage compartment.

REMOVAL OF HYDRAULIC PUMP SPACER

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open engine access door (WP 0032 00, Figure 2).
3. Remove DC cable from storage compartment (WP 0002 00, Figure 3, Item 13) and remove hydraulic access cover (WP 0032 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.

NOTE

If hydraulic pump does not go all the way in against pad easily, turn spline shaft on hydraulic pump, until it goes against the pad.

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 3, Item 5).
11. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
12. Verify all lines and connections are secure to the hydraulic pump and perform MOC.
13. Check for leaks of hydraulic fluid.
14. Replace hydraulic access cover (WP 0032 00, Figure 2) and store DC cable in storage compartment (WP 0002 00, Figure 3, Item 13).
15. AOAP sampling is required once hydraulic pump (WP 0011 00) is reinstalled.

END OF WORK PACKAGE

FIELD MAINTENANCE

**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 0029 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 0029 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 0029 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 prior to 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 (WP 0029 00, Table 1)

Indicates the time interval upon which the checks and services must be performed. Intervals are divided as follows:

B - Before Operation
D - During Operation
A - After Operation

Interval Column (WP 0029 00, Table 2. Field Preventive Maintenance Checks and Services (PMCS))

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 prior to lubricating. Lubricate points indicated by dotted arrow shaft on both sides of equipment. Clean parts with cleaning compound solvent, MIL-PRF-680. Dry prior to 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.

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 hardtime intervals listed in Table 3.

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 3 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

FIELD MAINTENANCE

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

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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), PREVENTIVE MAINTENANCE CHECK-LIST (PMC) AND LUBRICATION TABLES

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

Materials/Parts

Cleaning Compound, Solvent (WP 0154 00, Item 5)
Cleaning Compound, Solvent (WP 0154 00, Item 6)
Grease, Automotive and Artillery, GAA (WP 0154 00, Item 22)
Grease, Ball and Roller Bearing (WP 0154 00, Item 23)
Hydraulic Fluid, Fire Resistant (WP 0154 00, Item 26)
Hydraulic Fluid, Petroleum Base (WP 0154 00, Item 27)
Lubricating Oil, Aircraft Turbine (WP 0154 00, Item 32)
Lubricating Oil, Aircraft Turbine (WP 0154 00, Item 33)
Lubricating Oil, Engine (WP 0154 00, Item 34)
Lubricating Oil, Gear (WP 0154 00, Item 35)
Lubricating Oil, Molybdenum Disul (WP 0154 00, Item 36)
Turbine Fuel, Aviation (WP 0154 00, Item 58)

Personnel Required

CMF 15

References

TM1-1500-204-23-1
WP 0002 00
WP 0011 00
WP 0028 00
WP 0033 00
WP 0036 00
WP 0037 00
WP 0041 00

References (cont.)

WP 0043 00
WP 0044 00
WP 0050 00
WP 0051 00
WP 0052 00
WP 0053 00
WP 0054 00
WP 0079 00
WP 0082 00
WP 0089 00
WP 0090 00
WP 0091 00
WP 0092 00
WP 0093 00
WP 0094 00
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WP 0102 00
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WP 0104 00
WP 0105 00
WP 0106 00
WP 0107 00
WP 0109 00
WP 0111 00
WP 0113 00
WP 0120 00
WP 0129 00
WP 0132 00
WP 0134 00
WP 0136 00

References (cont.)

WP 0137 00
WP 0138 00
WP 0139 00

References (cont.)

WP 0140 00
WP 0144 00
WP 0145 00

Table 1. Operators Preventive Maintenance Checklist (PMC).

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.	Signs of oil leakage in excess of a Class I leak. **(Fuel leakage of any type is not permitted)**
				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.	
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 0144 00 and WP 0145 00).	Exhaust leaks or missing or broken parts, loose or missing insulation and tape.
				b. Check exhaust flapper for proper operation.	Flapper will not open.
				WARNING If AC operation is required, AGPU must be properly grounded.	
3	B	.1	Grounding	Inspect ground stud for secure mounting. Check that AGPU is properly grounded.	Ground stud missing, or ground wire and clip missing.

Table 1. Operators Preventive Maintenance Checklist (PMC). - Continued

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
4	B	.2	Frame and Housing	a. Inspect frame, covers, and panels for dents, cracks, punctures, corrosion and security.	Any internal panel, or top cover missing, or damaged.
				b. Check that four lifting (upper) and four tie down eyes (lower) are in place and not damaged.	
				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.	

Table 1. Operators Preventive Maintenance Checklist (PMC). - Continued

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
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 0043 00 and WP 0044 00).	
				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) (WP 0006 00, Figure 4, Item 9) 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 Compartment	a. Before opening engine compartment door, check fuel selector valve is set to internal (INTL) position (WP 0006 00, Figure 2).	
				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 0028 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 secure, and lockwired. Check that bolts on generator/al-	Bolts or hardware missing or loose.

Table 1. Operators Preventive Maintenance Checklist (PMC). - Continued

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				ternator support (WP 0002 00, Figure 20, Item 7) are secure and lockwired.	
				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 damage and security of installation.	Hour meter inoperative or missing.
				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.

NOTE

Check that gauge SHUT OFF valve is 1/4 turn open before checking gauge reading.

8	B	.1	Hydraulic Module		
				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.

Table 1. Operators Preventive Maintenance Checklist (PMC). - Continued

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				NOTE Prior to Hydraulic System servicing of all type aircraft perform AGPU Hydraulic System self-filtering and purging operation (WP 0011 00).	
				g. When it is suspected that the AGPU has serviced a contaminated aircraft hydraulic system, flush hydraulic system and replace filters and hydraulic fluid.	White or milky fluid in reservoir sight glass (WP 0011 00, Figure 1, Item 15), or fluid presents a burned smell. Ensure reservoir level is not below 3/4 mark.
				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 (WP 0011 00, Figure 3 and Figure 4) and Purge/Oil Sampling Adaptor (WP 0011 00, Figure 5) (located in the engine compartment WP 0002 00, Figure 9) for missing dust caps and inspect quick disconnects for damage. Inspect storage mounts for security and damage.	Dual Service Manifold Block or Purge/Oil Sampling 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.

Table 1. Operators Preventive Maintenance Checklist (PMC). - Continued

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
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, Figure 2) to ON, and perform the following checks.	
				b. Check that BATTERY VOLTAGE meter indicates in green band.	If meter indicates in red band.
				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.	

Table 1. Operators Preventive Maintenance Checklist (PMC). - Continued

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
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 0002 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.	

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 (WP 0016 00, Figure 1, Item 1, 2 and 4).	Audible alarm is not heard or power indicator light is not illuminated.
				g. Inspect brake handle and brake cable (WP 0002 00, Figure 3) assembly for broken strands, missing or loose fasteners, or improper operation.	Broken brake handle or cable or missing fasteners.
				h. Inspect rear axle assembly (WP 0002 00, Figure 30) for cracked or dented housing, bent, missing, or broken components, loose or missing fasteners, broken or missing lubrication fittings, or drain plugs (WP 0029 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	Wires that are loose or broken from

Table 1. Operators Preventive Maintenance Checklist (PMC). - Continued

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				electrical terminals, loose or missing brush covers, and corrosion or contamination on any electrical component (WP 0016 00).	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.
				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.

Table 1. Operators Preventive Maintenance Checklist (PMC). - Continued

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
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 (WP 0006 00).	
c. Check hydraulic pressure on hydraulic control panel pressure gauge immediately after GTE start. Shut down GTE (WP 0009 00) if pressure reading is less than **450 to 500 psig**.	If less than **450 to 500 psig** stop operation.
d. If EGT is above green band, shut down GTE (WP 0008 00).	If EGT stays above green band for more than 5 seconds or exceeds 1250 °F.
e. If LOW FUEL indicator is illuminated, shutdown 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 illuminates
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 (WP 0008 00).	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 (WP 0009 00) **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 disengaged location with locking	

Table 1. Operators Preventive Maintenance Checklist (PMC). - Continued

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				pin installed. **Perform after operational checks prior to storing of AGPU.** Disconnect batteries.	
				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).	

NOTE

If hydraulic operation has been performed, include the following after operational steps:

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 (WP 0009 00).	
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.	

Table 1. Operators Preventive Maintenance Checklist (PMC). - Continued

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
23	A	.05		Check engine for proper lubricating oil level, add as required (WP 0028 00).	
24	A	.05		Check hydraulic reservoir fluid level (3/4 or more full), add hydraulic fluid as required (WP 0118 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 (PMCS).

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				NOTE Perform all Before (B), During (D) and After (A) steps in the Table 1. Operators Preventive Maintenance Checklist (PMC) in conjunction with the following checks and services.	
1	M	0.2	Control Panel and Electrical Compartment	a. Lower control panel for maintenance (WP 0041 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.

Table 2. Field Preventive Maintenance Checks and Services (PMCS). - Continued

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				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 extending 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	Remove screws securing cover below control panel and remove cover (WP 0002 00). Inspect battery charger for signs of corrosion. Check that cable and wire connections are secure.	Any cable and wire connections are not secure.
3	M	0.3	Battery	Test specific gravity (WP 0043 00 and WP 0044 00). If AGPU has Optima gel type batteries, this requirement is discarded.	
4	M	0.2	Air Cleaner	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.

Table 2. Field Preventive Maintenance Checks and Services (PMCS). - Continued

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				WARNING Ensure AGPU engine is not running.	
				NOTE Item numbers 5, 6, 7, 8, 9, 10, 11, 12 require the roof to be removed (WP 0033 00).	
5		0.1	Generator/Alternator	Open GTE access door and inspect generator/alternator (WP 0079 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	Open GTE access door and inspect exhaust ejector 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 (WP 0144 00 and WP 0145 00).
7	M	0.1	Interior Insulation	Open GTE access door and inspect interior insulation for damage and loose or missing retaining washers.	Damaged or missing insulation, missing retaining washers (WP 0037 00).
8	M	0.1	Main Wiring Harness and Current Transformers	a. Open GTE access door and inspect main wiring harness 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 (WP 0050 00).
				b. Inspect three (3) current transformers for security of installation, loose connections and damage.	Insulation, connections and damage of current transformers (WP 0082 00).

Table 2. Field Preventive Maintenance Checks and Services (PMCS). - 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 gearbox assembly for damage, cracks, fluid leaks (oil and fuel) and security of installation.	Any fluid leaks (oil, fuel) (WP 0111 00).
				b. Inspect engine (GTE) inlet duct screen by opening bypass door. Remove any foreign material from screen.	Any foreign material found or damaged to inlet screen (WP 0111 00).
				c. Inspect Fuel Control Unit (FCU) and shutdown fuel solenoid for security of installation, signs of leakage, loose components or damage.	Fuel leaks of any kind or loose components (WP 0092 00).
				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 0100 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 0109 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 0051 00).	
				2). Low oil pressure switch (WP 0052 00).	
				3). High oil temperature switch (WP 0053 00).	
				4). Thermocouple (WP 0054 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 0113 00).	Any damage to engine wire harness, missing or loose brackets and/or components.

Table 2. Field Preventive Maintenance Checks and Services (PMCS). - 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, Filter and Tank	a. Inspect fuel pump, filter and four way valve for security of installation, dents, cracks and fuel leaks (WP 0090 00).	Damage to components or any sign of fuel leaks.
				b. Drain water from fuel tank (WP 0099 00) and fuel water separator (WP 0094 00) just prior to operation of the AGPU (WP 0091 00).	Milky or abnormal smell of fuel.
11	M	0.1	Fuel Level Sensors	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 0097 00).	Any signs of leaks or loose installation or wiring connections.
12	M	0.1	Pneumatic System, Hoses, Surge/Bleed Air Solenoid Valves, Pressure Transducer 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 0102 00 through WP 0105 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 0101 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 0089 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 (WP 0011 00).	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 (PMCS). - 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.	Fluid leakage greater than Class I.
				d. 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.
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 0134 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 0137 00 through WP 0140 00).	Any components damaged or missing, burned wires or propulsion will not operate.

NOTE

Perform all Before (B), During (D), After (A) steps in the Table 1. Operators Preventive Maintenance Checklist (PMC) and Monthly Preventive Maintenance Checks in conjunction with the following checks and services.

15	S	0.4	Front Axle Assembly	Lubricate (WP 0028 00, Lubrication, WP 0029 00 and WP 0129 00).
16	S	1.0	Wheel Bearings	Inspect wheel bearings (WP 0136 00). Repack (WP 0028 00, Lubrication).
17	S	0.2	Brake Cable Assembly	Inspect/adjust brake cable assembly (WP 0132 00). Lubricate (WP 0028 00, Lubrication).
18	S	0.4	Rear Axle	Check differential lubrication level and add if required (WP 0028 00 and WP 0029 00). Drain and refill (WP 0140 00) as required.

Table 2. Field Preventive Maintenance Checks and Services (PMCS). - 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	Check gear drive assembly lubrication level and add if required (WP 0028 00 and WP 0029 00). Drain and refill (WP 0137 00).	
20	S	0.3	Chain Drive Assembly	Check chain drive assembly adjustment/lubrication level and add fluid if required (WP 0028 00 and WP 0029 00). Drain and refill (WP 0138 00).	

NOTE

Perform all Before (B), During (D) and After (A) steps in the Table 1. Operators Preventive Maintenance Checklist (PMC) and Monthly and Semi-annual Preventive Maintenance Checks and Services (PMCS) in conjunction with the following checks and services.

21	H	0.2	Generator/Alternator	Lubricate (WP 0028 00 and WP 0029 00) every 250 hours.	
22	H	0.3	Engine Fuel Filters	Inspect and replace fuel filter water separator (auxiliary) and FCU fuel filters every 250 operating hours (WP 0094 00 and WP 0093 00).	
23	H	0.2	Igniter Plug	Remove, inspect and reinstall every 100 operating hours (WP 0107 00).	

NOTE

Engine (GTE) oil sampling interval 100 hour or 180 days which ever occurs first.

24	H	0.3	Engine Oil Filter	Remove, inspect and replace every 250 operating hours or semiannually which ever occurs first or 500 hours/annually which ever occurs first (WP 0106 00). Perform AOAP sampling prior to changing filters (WP 0106 00 and WP 0120 00).	
25	H	0.2	Engine (GTE) Oil Change	Drain and refill every 250 operating hours or semiannually which ever occurs first or 500 hours/annually which ever occurs first (WP 0028 00, Lubrication) Perform AOAP sampling prior to changing engine oil (WP 0106 00 and WP 0120 00).	
26	H	0.3	Engine Drain Check Valves	Remove Engine drain check valve, inspect, clean and reinstall every 250 operating hours (WP 0106 00). Check that drain hoses are unobstructed (WP 0036 00).	

Table 2. Field 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 Perform AOAP sampling of the hydraulic system every 30 days or 50 hours of operation (which ever comes first).	
27	H	0.5	Engine Fuel Nozzle	Inspect engine fuel nozzle clean and reinstall every 500 operating hours (WP 0096 00).	
28	H	0.5	Hydraulic Fluid Filter Elements	Remove Hydraulic fluid filters. Replace filter elements and fluid every 300 hours or 6 months and annually at 600 hours which ever comes first.	

Table 3. 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)	Semian-nually/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)
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		

Table 2. Field Preventive Maintenance Checks and Services (PMCS). - Continued

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:

Table 3. 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)		
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. Field Preventive Maintenance Checks and Services (PMCS). - Continued

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:

Table 4. Total Labor-Hours.

INTERVAL	LABOR-HOURS
D	0.6
S	1.5
A	6.0
250	3.0

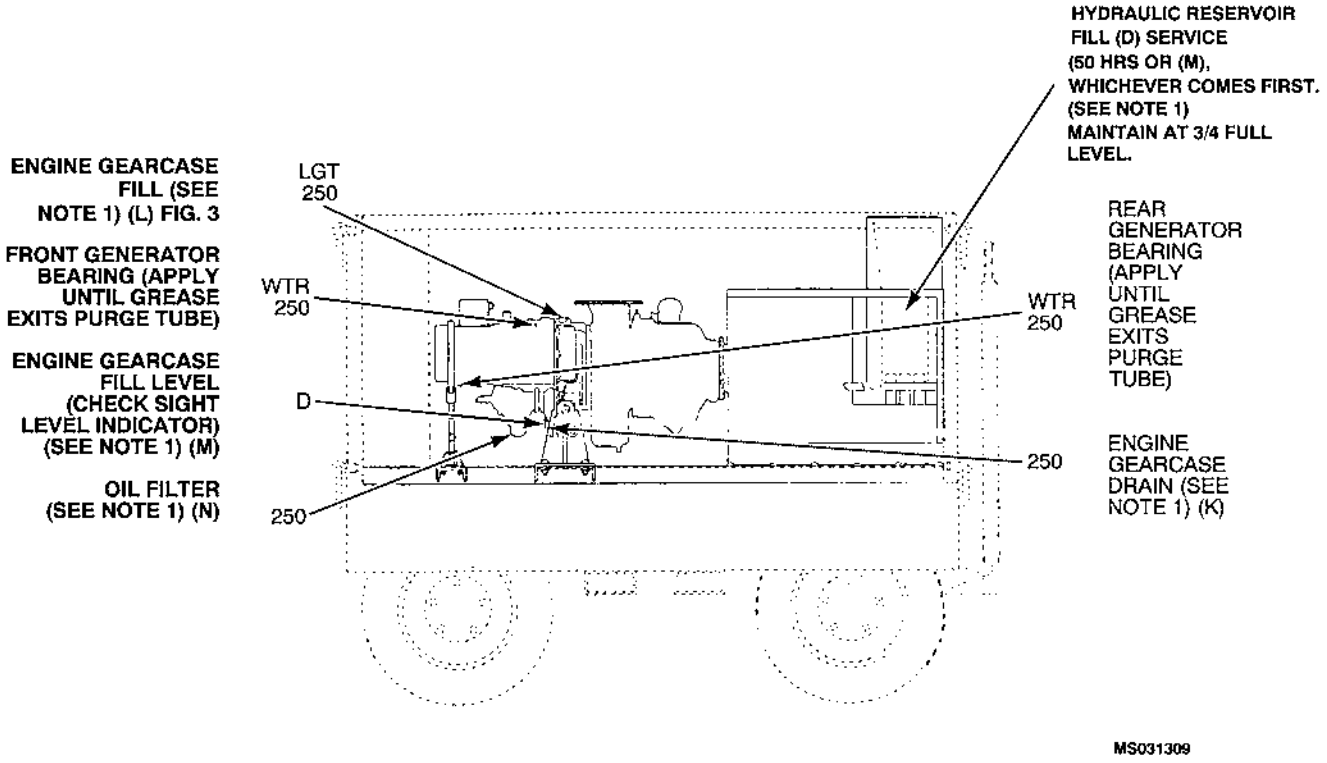

Figure 1. Lubrication (Sheet 1 of 3).

Table 2. Field Preventive Maintenance Checks and Services (PMCS). - Continued

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:

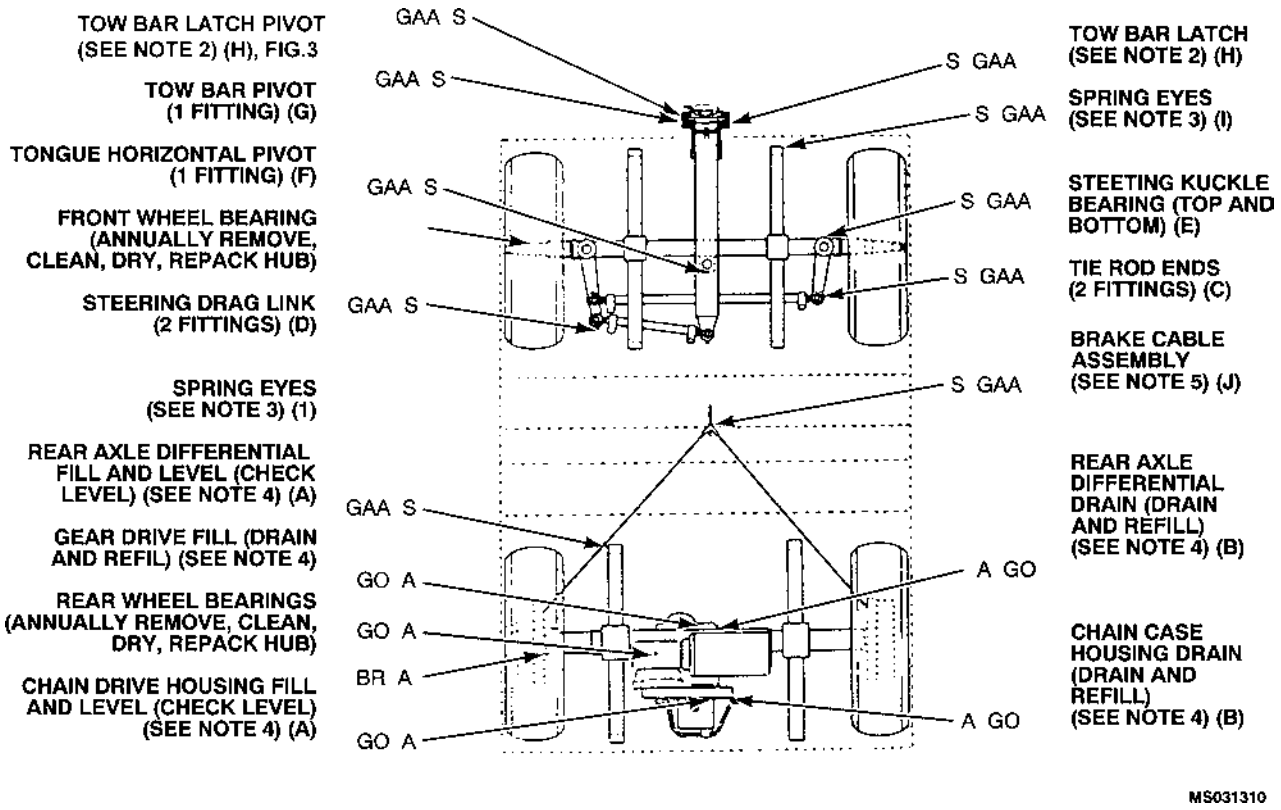

Figure 1. Lubrication (Sheet 2 of 3).

Table 2. Field Preventive Maintenance Checks and Services (PMCS). - Continued

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:

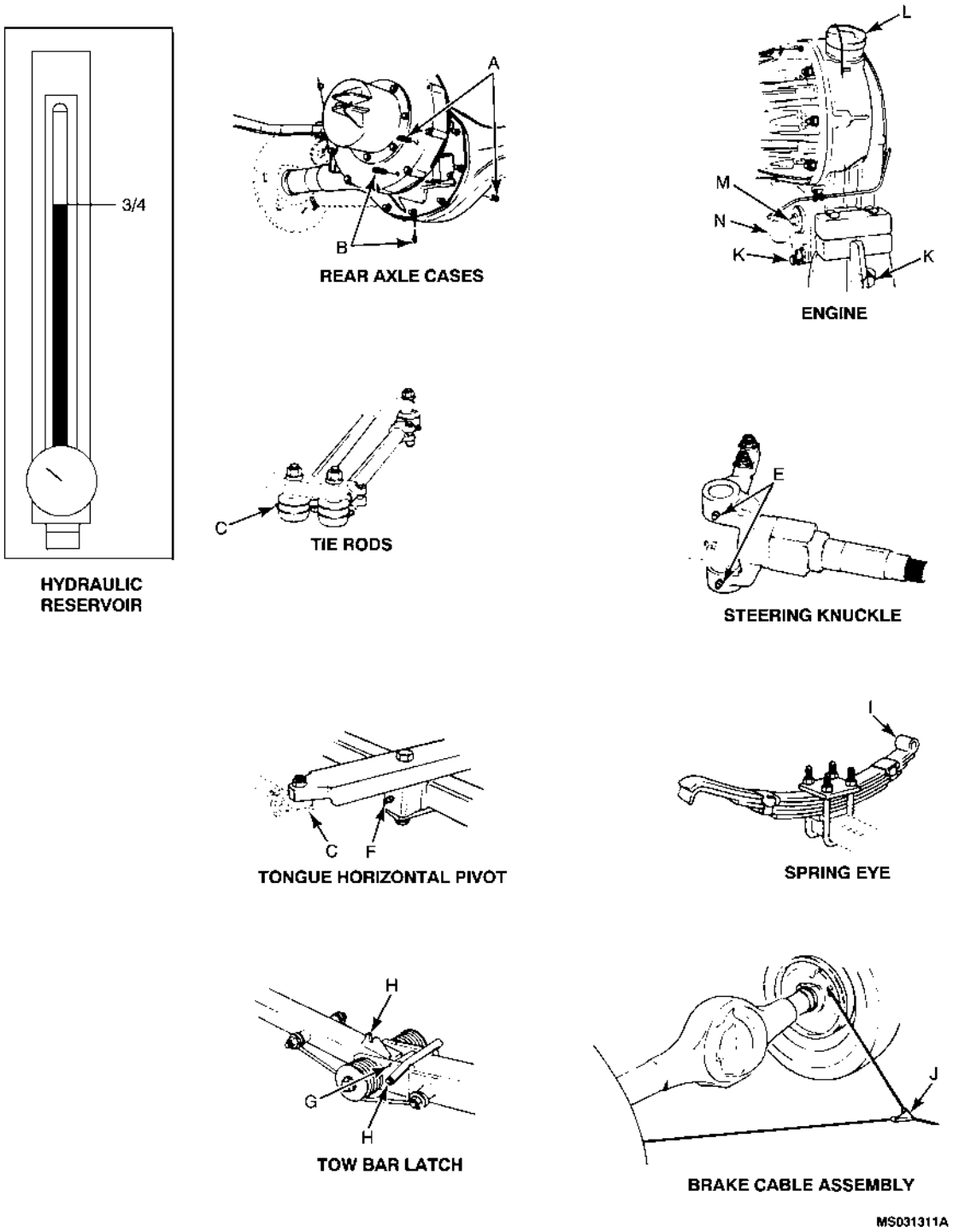

Figure 1. Lubrication (Sheet 3 of 3).

Table 2. Field Preventive Maintenance Checks and Services (PMCS). - Continued

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:

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 0118 00.

MANDATORY REPLACEMENT PARTS

NA

END OF WORK PACKAGE

FIELD MAINTENANCE

**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. Prior to performing the following maintenance procedures, refer to WP 0152 00, Maintenance Allocation Chart (MAC).

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

FIELD MAINTENANCE

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

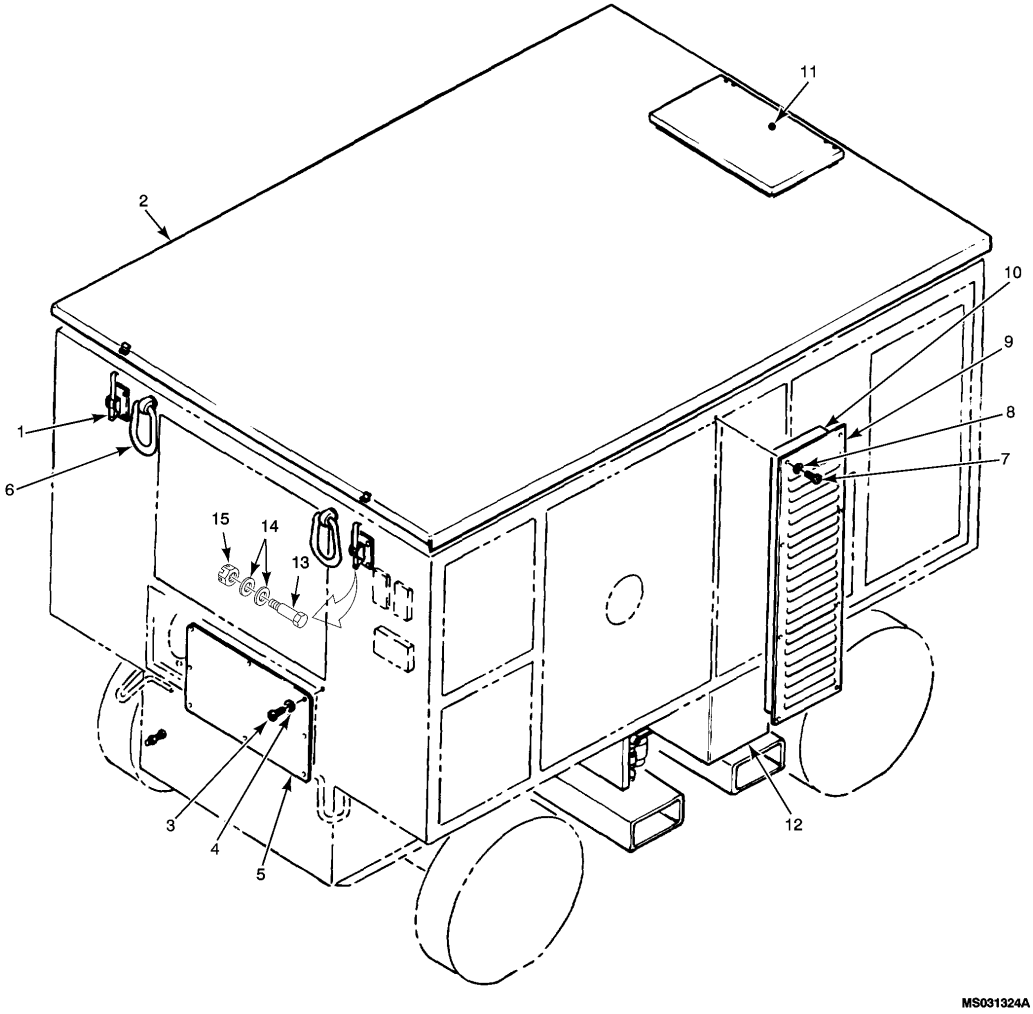
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK
(WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

Materials/Parts

Anti-Seize Compound (WP 0154 00, Item 3)



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. 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 (WP 0154 00, Item 3) 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 tighten.

END OF WORK PACKAGE

FIELD MAINTENANCE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
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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

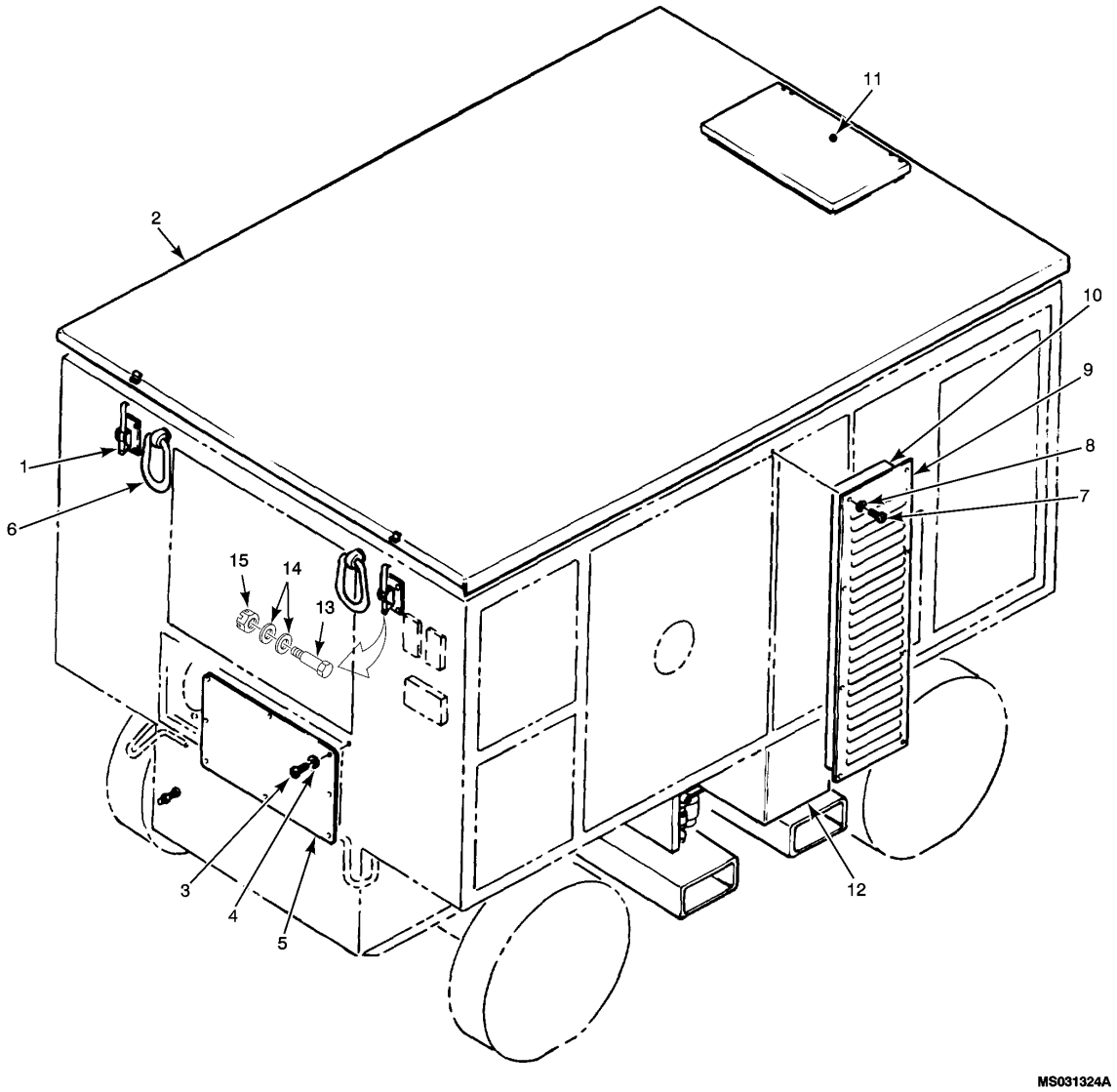
INTERNAL COMPARTMENT COVERS

INITIAL SETUP:

Tools and Special Tools
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)

Tools and Special Tools (cont.)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

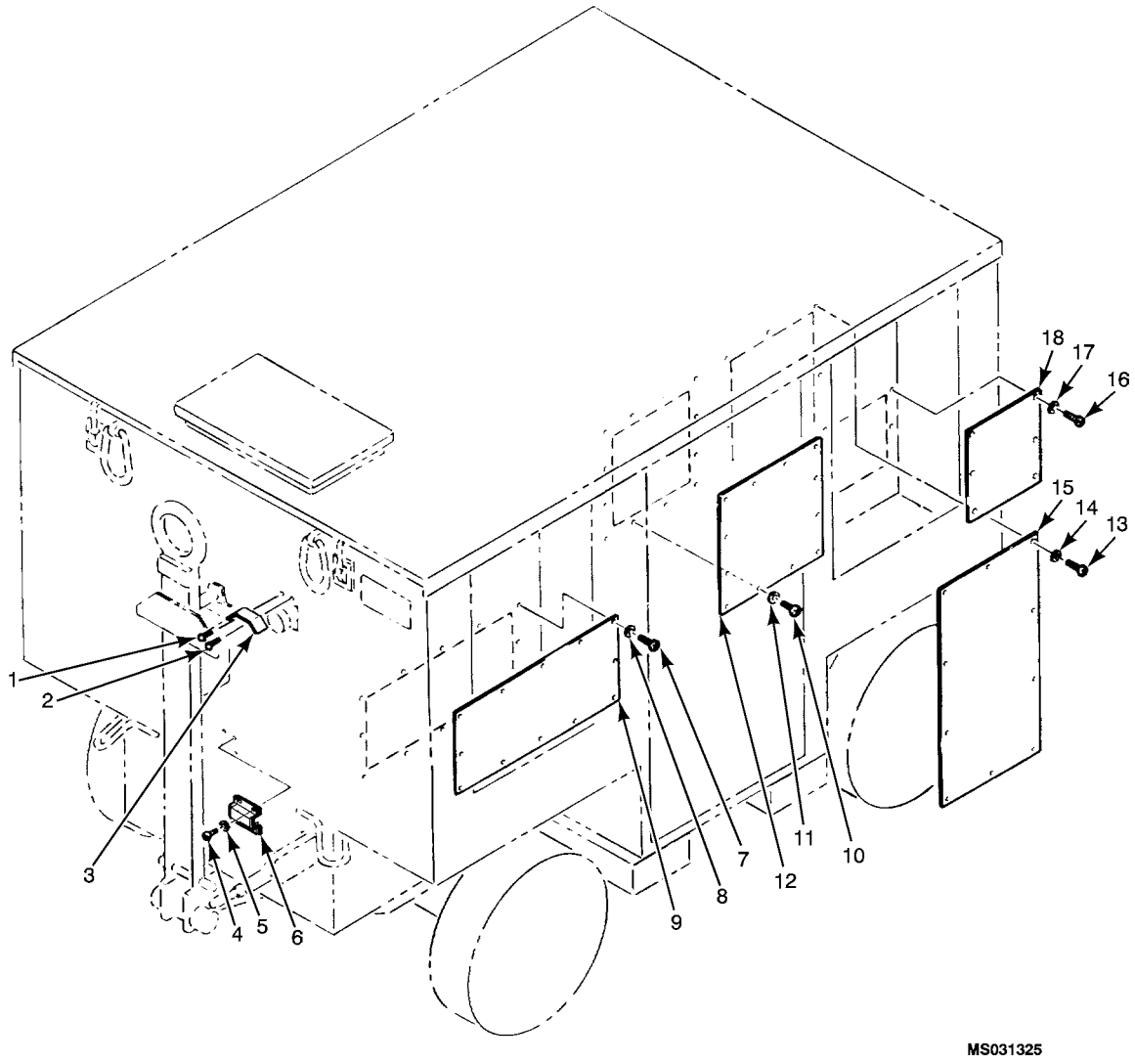
REMOVAL



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. Frame and Housing Covers, Right Rear Three Quarter View.

REMOVAL – CONTINUED



1. Rivet	7. Screw	13. Screw
2. Rivet	8. Washer	14. Washer
3. Shield, Emergency Stop Switch	9. Cover, Exhaust Access	15. Cover, Hydraulic Access
4. Screw	10. Screw	16. Screw
5. Washer	11. Washer	17. Washer
6. Shield, Exhaust Ejector Drain	12. Cover, Engine Access	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).
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).

REMOVAL – CONTINUED

4. Remove hydraulic access cover (Figure 2, Item 15) by first removing DC power cable from storage compartment and then removing ten 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 ten 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

FIELD MAINTENANCE

**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
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PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
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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

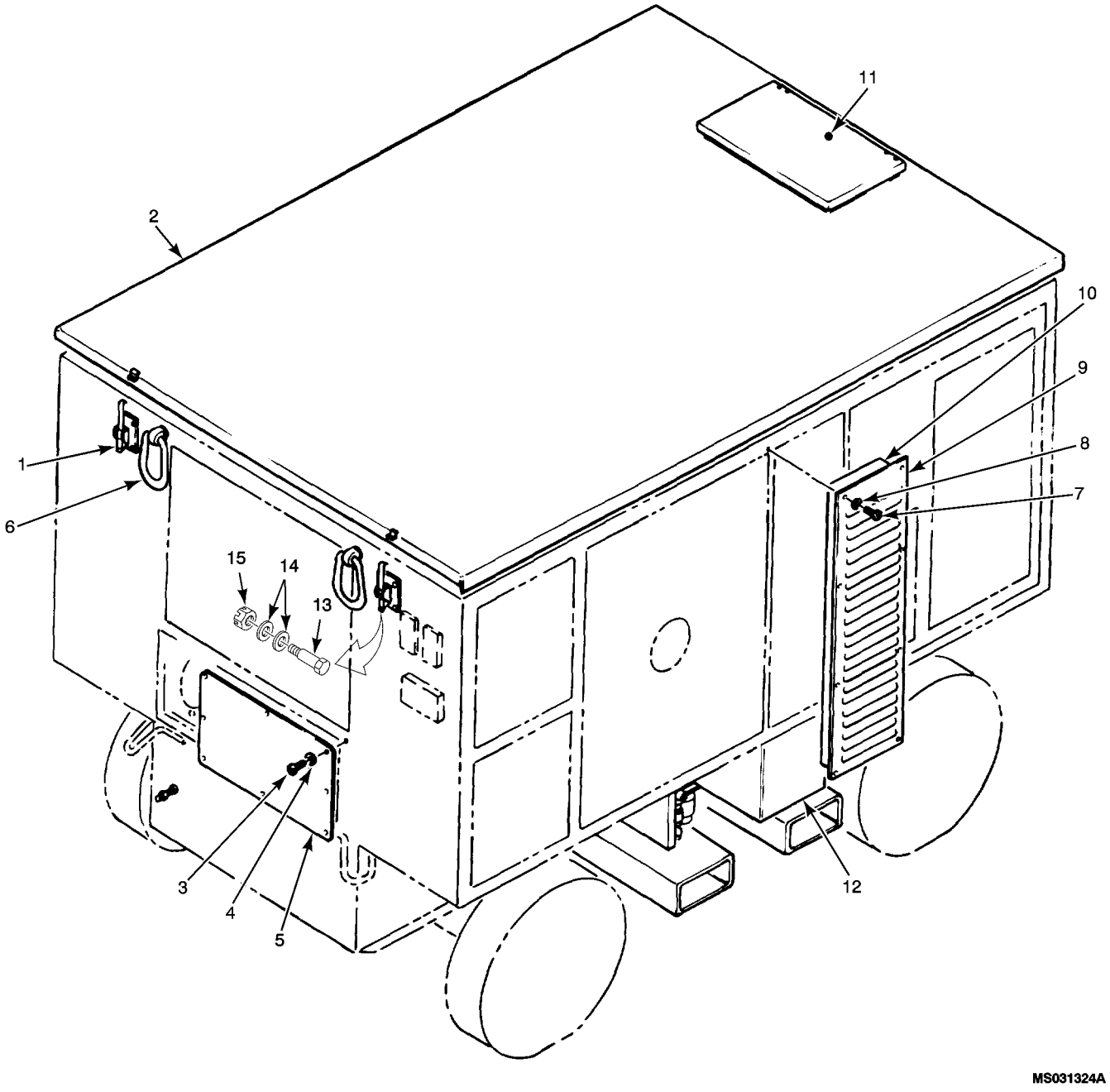
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)

Tools and Special Tools (cont.)

Tool Set, Aviation Unit (WP 0155 00, Item 41)



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

WARNING

Ensure AGPU engine is not running.

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).
2. Release four latches (Figure 1, Item 1) securing roof (Figure 1, Item 2) to AGPU.

CAUTION

Damage could occur to the roof, insulation, exhaust flappers if roof is laid flat on either side. This damage will cause overheating to egine (GTE) and hydraulic system.

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 its side to safeguard insulation and exhaust flappers.

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 bolts (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

FIELD MAINTENANCE

POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
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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 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References

WP 0002 00
WP 0043 00
WP 0044 00

INSPECTION OF INSTALLED ITEMS

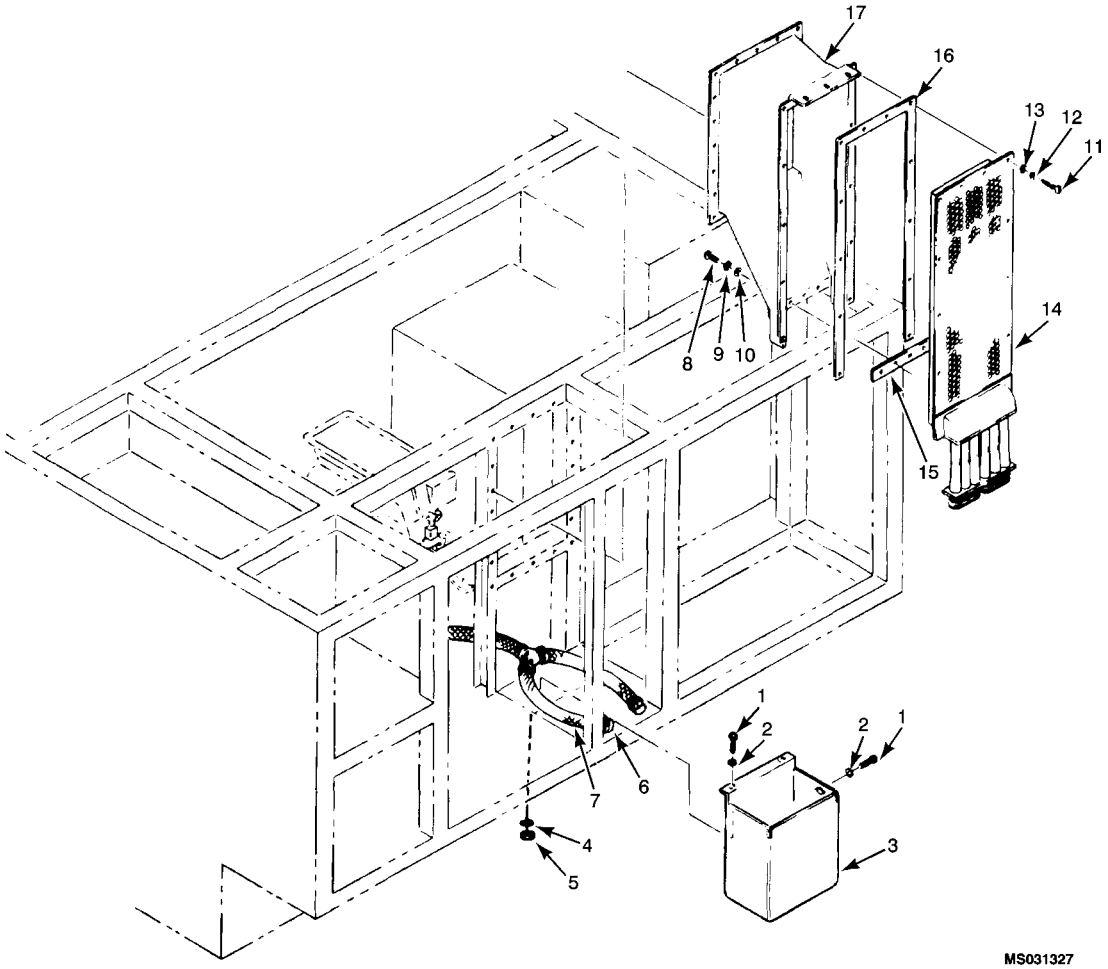
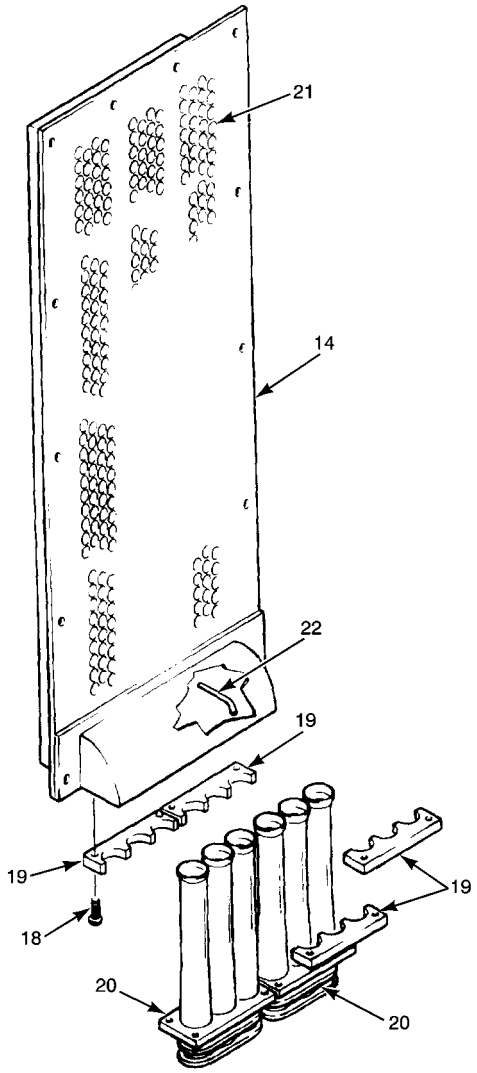


Figure 1. Air Cleaner and Air Intake Duct Assemblies (Sheet 1 of 2).

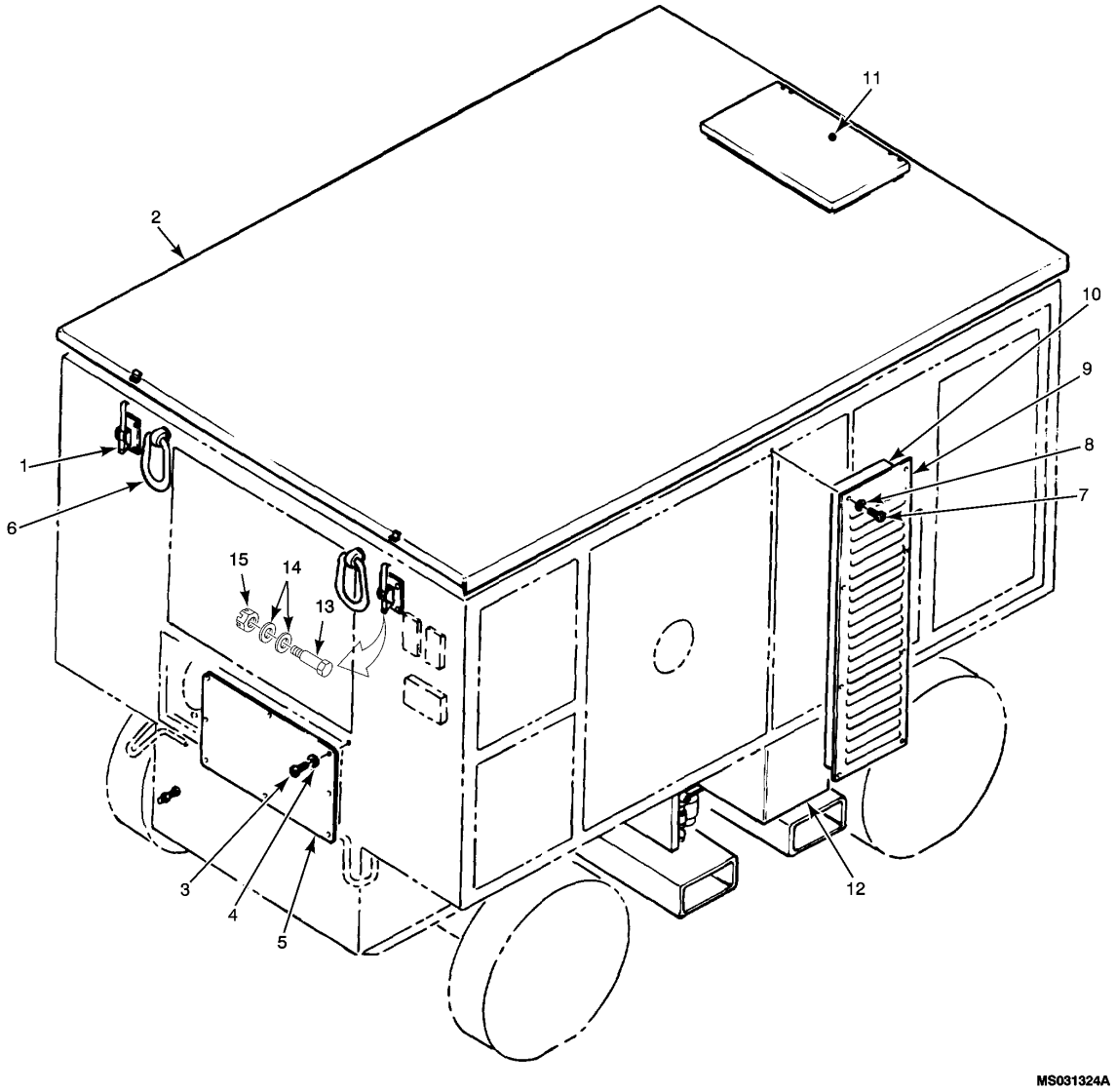
INSPECTION OF INSTALLED ITEMS – CONTINUED



1. Screw	6. Clamp, Hose	11. Screw	17. Duct, Outer
2. Washer, Flat	7. Hose, Bleed Air	12. Washer, Lock	18. Bolt
3. Ejector Tube Cover	8. Screw	13. Washer, Flat	19. Bracket
4. Washer	9. Washer, Lock	14. Air Cleaner	20. Ejector Tube Assembly
5. Nut	10. Washer, Flat	15. Gasket, Small	21. Swirlers
		16. Gasket, Large	22. Nozzle

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	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 2. Frame and Housing Covers, Right Rear Three Quarter View.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Remove air 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).
4. Inspect air cleaner assembly (Figure 1, Item 14) for missing or damaged ejector tube assemblies (Figure 1, Item 20). 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 removing eight screws (Figure 2, Item 7) and washers (Figure 2, Item 8).
2. Open engine access door (WP 0002 00, Figure 2, Item 12).
3. Loosen 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), flat washers (Figure 1, Item 2). Some models may have two 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 swirlers (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 flat 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 washers (Figure 2, Item 8).
8. Perform MOC.

END OF WORK PACKAGE

FIELD MAINTENANCE

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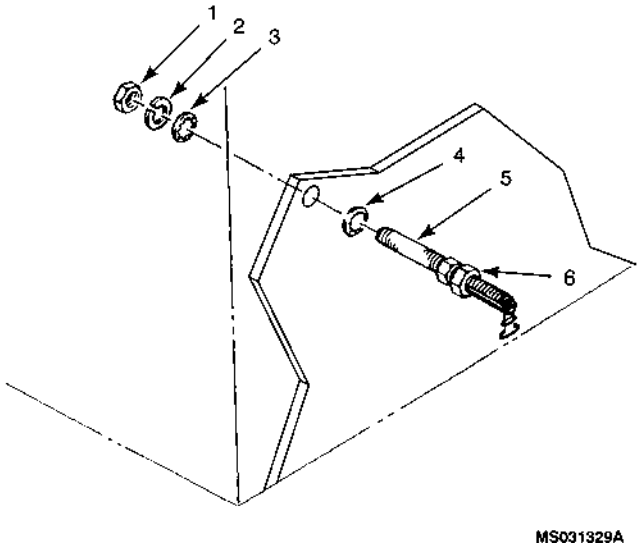
PART NO. 83-360D NSN 1730-01-466-9371 (MEP 83-360D) EIC: UDG
PART NO. 1024250 NSN 1730-01-552-2313 (MEP 83-360E) EIC: UDH

GROUND STUD

INITIAL SETUP:

Tools and Special Tools
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)

Tools and Special Tools (cont.)
Tool Set, Aviation Unit (WP 0155 00, Item 41)



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 prior to beginning procedure.

Remove nut (Figure 1, Item 1), flat washer (Figure 1, Item 2), star washer (Figure 1, Item 3) and ground stud (Figure 1, Item 5) with star washer (Figure 1, Item 4).

INSTALLATION

Ensure that area around hole for ground stud (Figure 1, Item 5) 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

FIELD MAINTENANCE

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

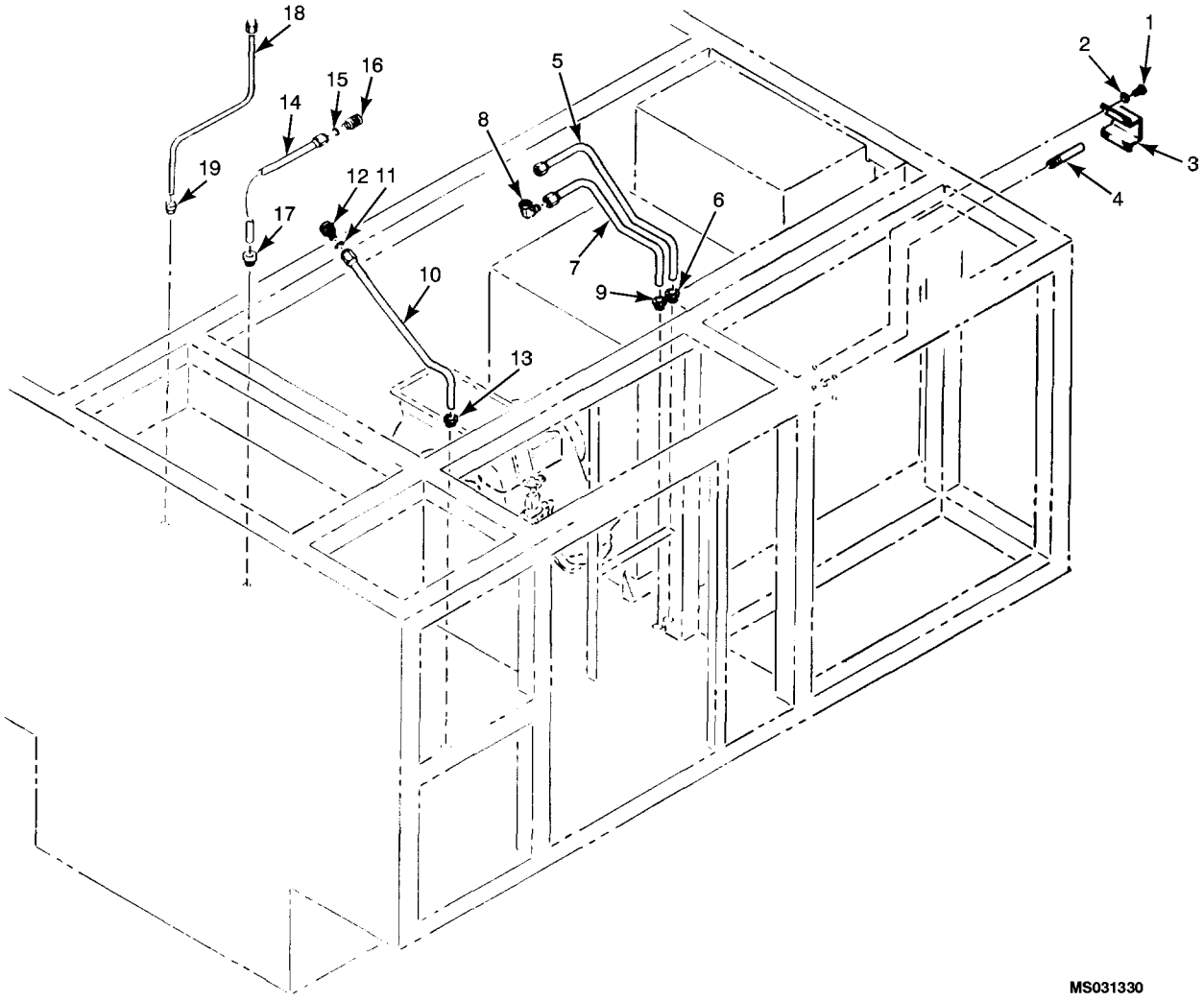
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References

WP 0002 00



1. Screw	5. Tube, Turbine Engine Drain	10. Tube, FCU Drain	15. Packing
2. Washer, Flat	6. Grommet	11. Packing	16. Nut, Coupling
3. Cover	7. Tube, Combustor Drain	12. Nut, Coupling	17. Grommet
4. Tube, Exhaust Ejector Drain	8. Elbow, Swivel	13. Grommet	18. Tube, Hydraulic Pump Drain
	9. Grommet	14. Tube, Gearcase Drain	19. Grommet

Figure 1. Drain Tubes and Fittings.

REMOVAL

NOTE

The drain tube cover may be fastened by rivets instead of screws and washers, if so, do not remove drain tube cover.

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 0002 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).
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 (Figure 1, Item 6 and 9).
3. Install FCU drain tube (Figure 1, Item 10). Route tube through floor grommet (Figure 1, Item 6 and 9).
4. Install gearcase drain tube (Figure 1, Item 14). Route tube through floor grommet (Figure 1, Item 6 and 9).
5. Install hydraulic pump drain tube (Figure 1, Item 18).
6. Close engine access door (WP 0002 00, Figure 2, Item 12).

END OF WORK PACKAGE

FIELD MAINTENANCE

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

INSULATION

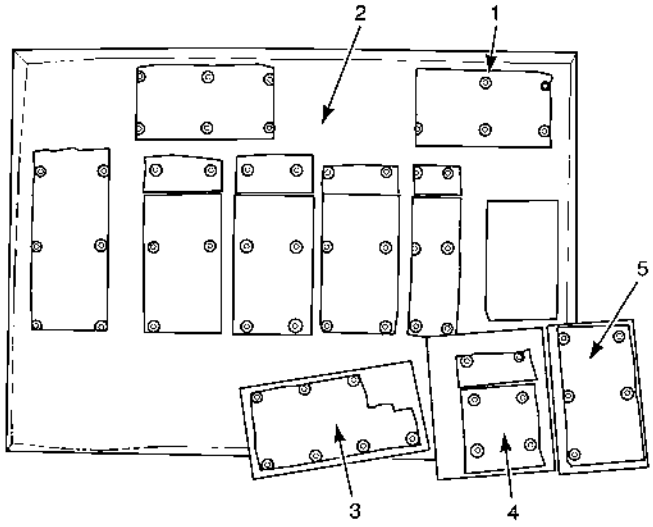
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References

WP 0032 00
WP 0033 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 0032 00) and the roof (WP 0033 00).
2. Perform inspection of all internal insulation for damage and loose or missing retaining washers (Figure 1, Item 1).
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

FIELD MAINTENANCE

**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 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References

MIL-D-1261 C1
WP 0001 00
WP 0029 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

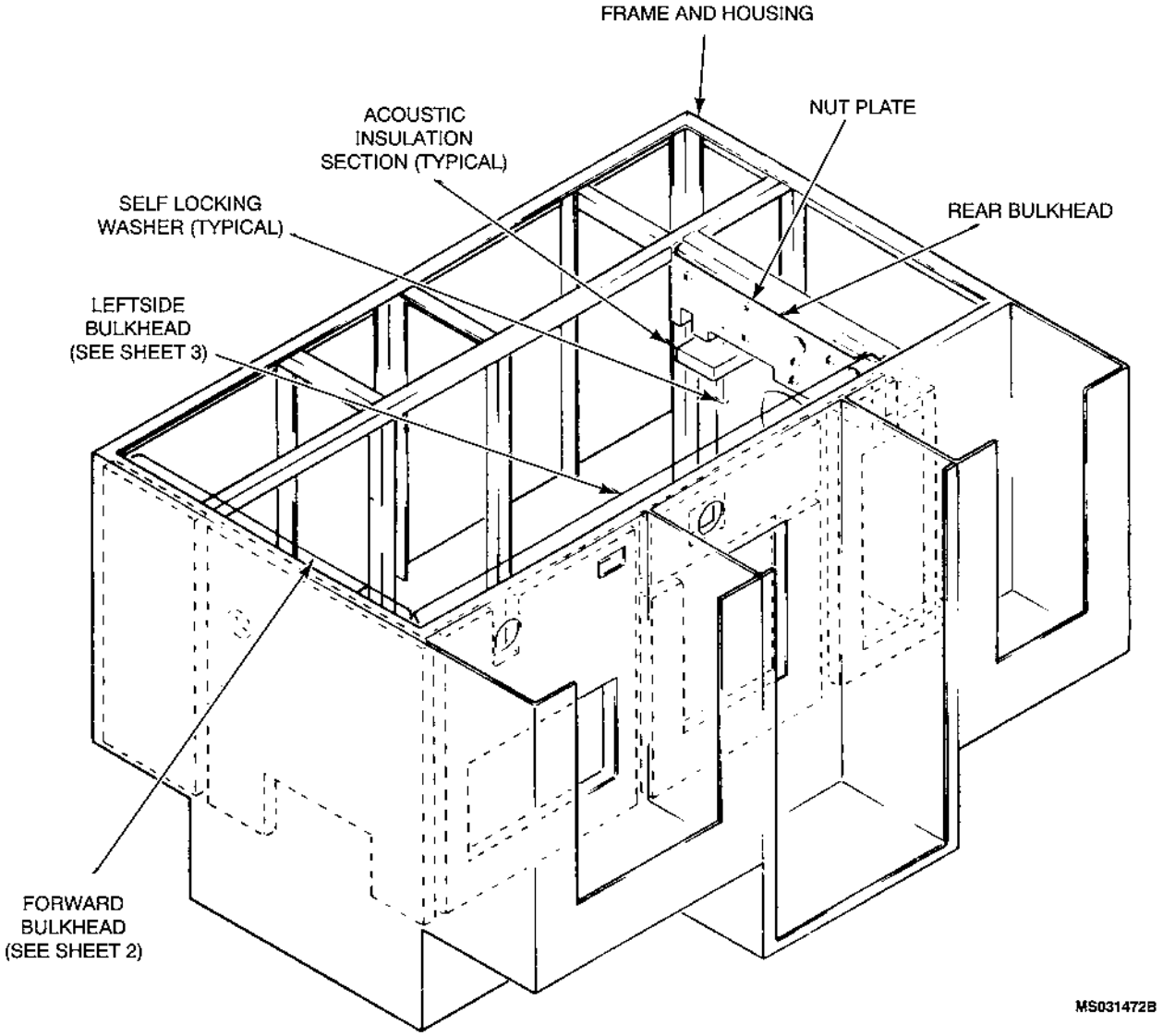


Figure 1. Acoustic Insulation, Frame and Housing (Sheet 1 of 3).

INSPECTION, REPLACEMENT AND REPAIR OF FRAME, PANELS AND INSULATION – Continued

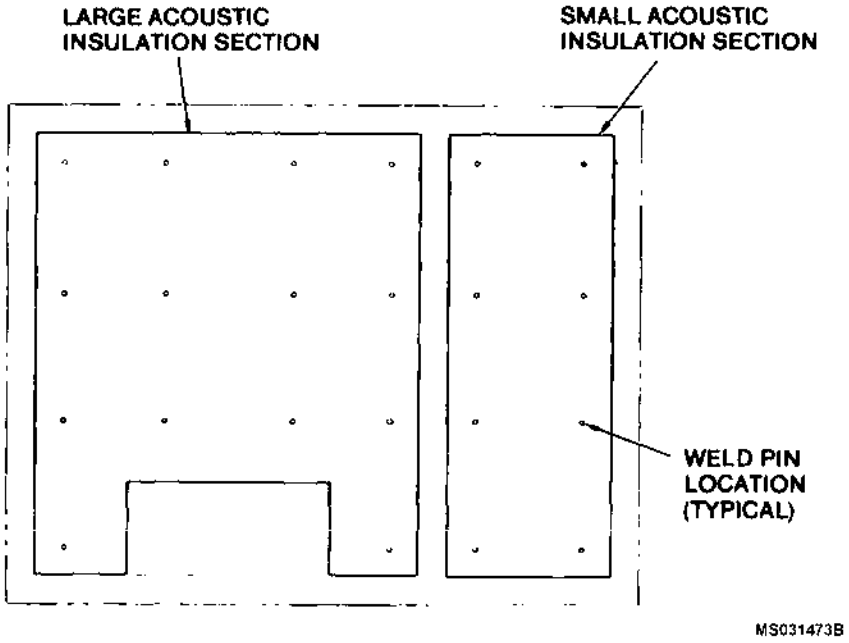


Figure 1. Acoustic Insulation, Frame and Housing (Sheet 2 of 3).

INSPECTION, REPLACEMENT AND REPAIR OF FRAME, PANELS AND INSULATION – Continued

Rear and Left Bulkhead

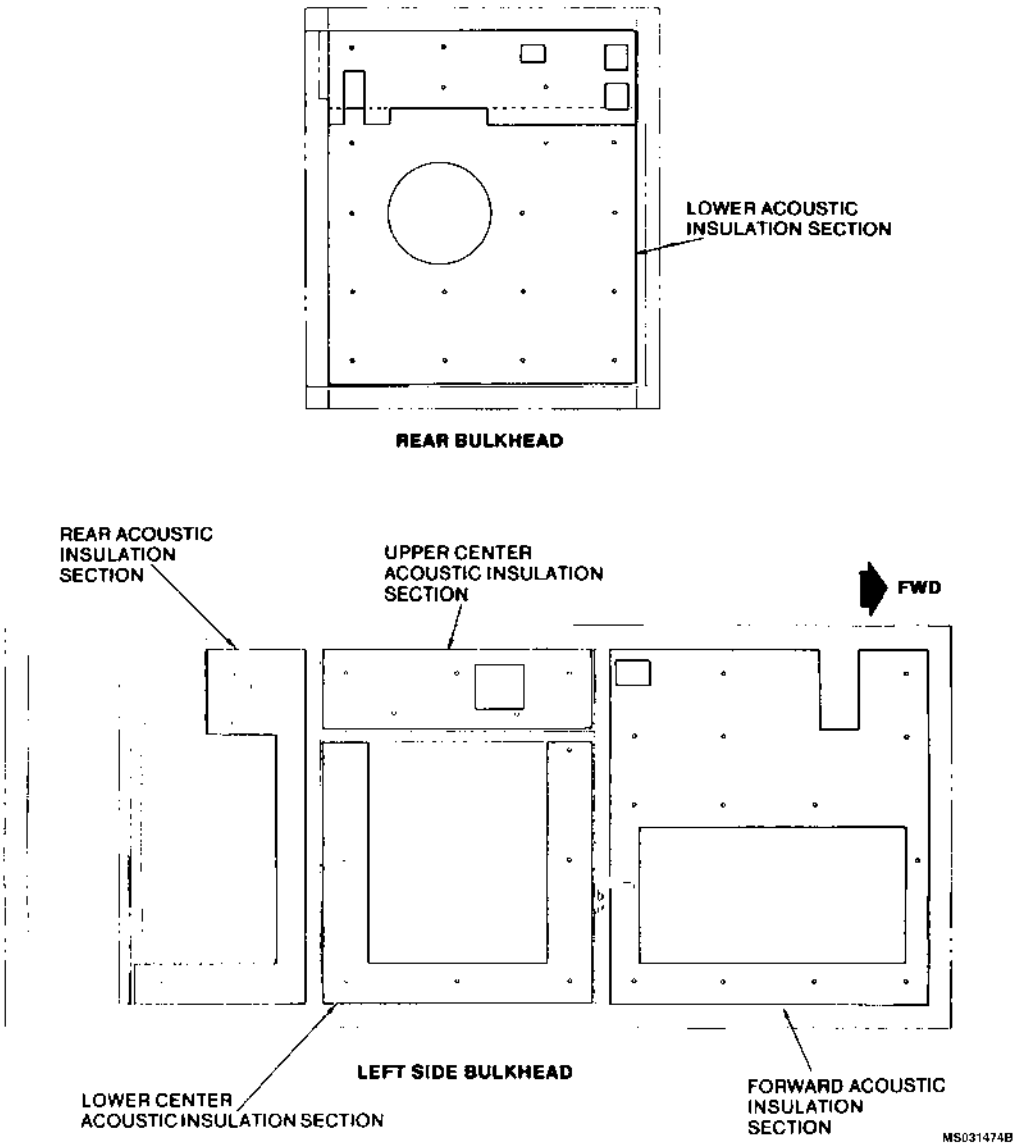
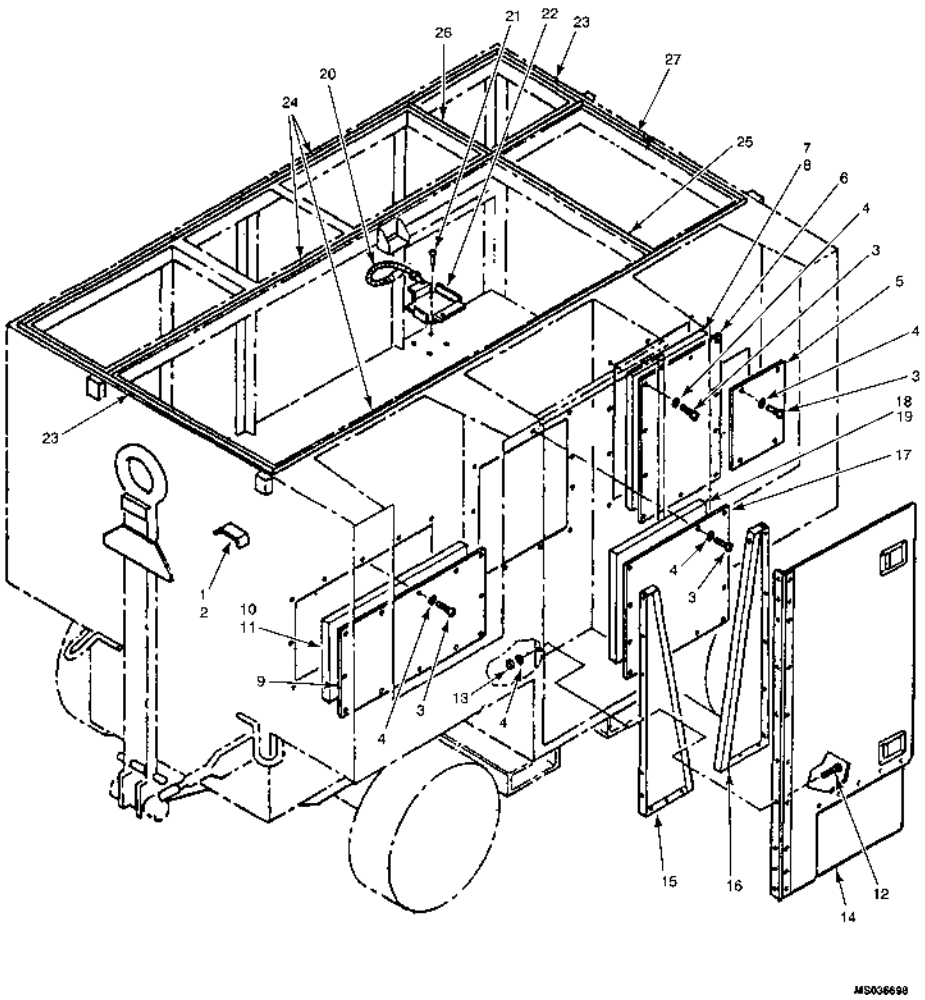


Figure 1. Acoustic Insulation, Frame and Housing (Sheet 3 of 3).

INSPECTION, REPLACEMENT AND REPAIR OF FRAME, PANELS AND INSULATION – Continued



1. Washer, Flat (Not Shown)	10. Insulation, Acoustic	19. Washer, Self Locking, Weld Pin (Not Shown)
2. Shield, Emergency Switch	11. Washer, Self Locking, Weld Pin (Not Shown)	20. Cord, Shock, Elastic
3. Screw, Pan Head	12. Screw, Pan Head	21. Rivet, Dome Head
4. Washer, Lock	13. Nut, Plain	22. Bracket, Hydraulic Manifold
5. Panel, Fuel Access	14. Door Access, Pneumatic with Flap Flexible Rubber	23. Seal, Roof (Front)
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, Side Porch Exhaust	18. Insulation, Acoustic	27. Seal Channel

Figure 2. Frame and Housing, Panels and Doors, Left Hand Side.

TEST AND INSPECTION

Inspect frame and panels for cracks and weld stress (WP 0029 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 (WP 0001 00, CORROSION PREVENTION AND CONTROL (CPC).
4. Repair nut plates (Figure 1. (Sheet 1 of 3)).
    a. Drill out rivets on damaged nut plate (Figure 1. (Sheet 1 of 3)) and remove nut plate (Figure 1. (Sheet 1 of 3)).
    b. Clean and paint area (WP 0001 00, CORROSION PREVENTION AND CONTROL (CPC)) under nut plate (Figure 1. (Sheet 1 of 3)).
    c. Install new 10-32 (MS21076L3 NSN 5310-00-771-7406) or 6-32 (MS21076L6 NSN 5310-00-771-7396) nut plate (Figure 1. (Sheet 1 of 3)) with rivets (3/32 x.125/.250 grip).
5. Replace damaged or missing weld pins (Figure 1. (Sheet 2 of 3)) (to retain acoustic insulation).
    a. Remove self-locking washers (Figure 1. (Sheet 1 of 3) retaining acoustic insulation and remove insulation section.
    b. If applicable, remove damaged weld pin (Figure 1. (Sheet 2 of 3)).
    c. Install new weld pin (83-14851-04) (Figure 1. (Sheet 2 of 3)) using pin welder or equivalent.
    d. Touchup paint repaired area (WP 0001 00, CORROSION PREVENTION AND CONTROL (CPC)).
6. Replace damaged or missing acoustic insulation (Figure 1. (Sheet 1 of 3)).
    a. Remove self-locking washers (Figure 1. (Sheet 1 of 3)) from weld pins.
    b. Remove damaged acoustic insulation (Figure 1. (Sheet 1 of 3)) section.
    c. Replace any missing or damaged weld pins (Figure 1. (Sheet 2 of 3)).
    d. Clean and paint area (WP 0001 00, CORROSION PREVENTION AND CONTROL (CPC)) behind insulation section.
    e. Position replacement insulation section over weld pins (Figure 1. (Sheet 2 of 3)) and press into place.
    f. Install self-locking washers (83-14852) (Figure 1. (Sheet 1 of 3)) on weld pins (Figure 1. (Sheet 2 of 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 (WP 0001 00, CORROSION PREVENTION AND CONTROL (CPC)).
    c. Press new roof seal (Figure 2, Item 23) into seal channel (Figure 2, Item 27).

END OF WORK PACKAGE

FIELD MAINTENANCE

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

EXHAUST FLAPPER COVERS (OLD AND NEW)

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

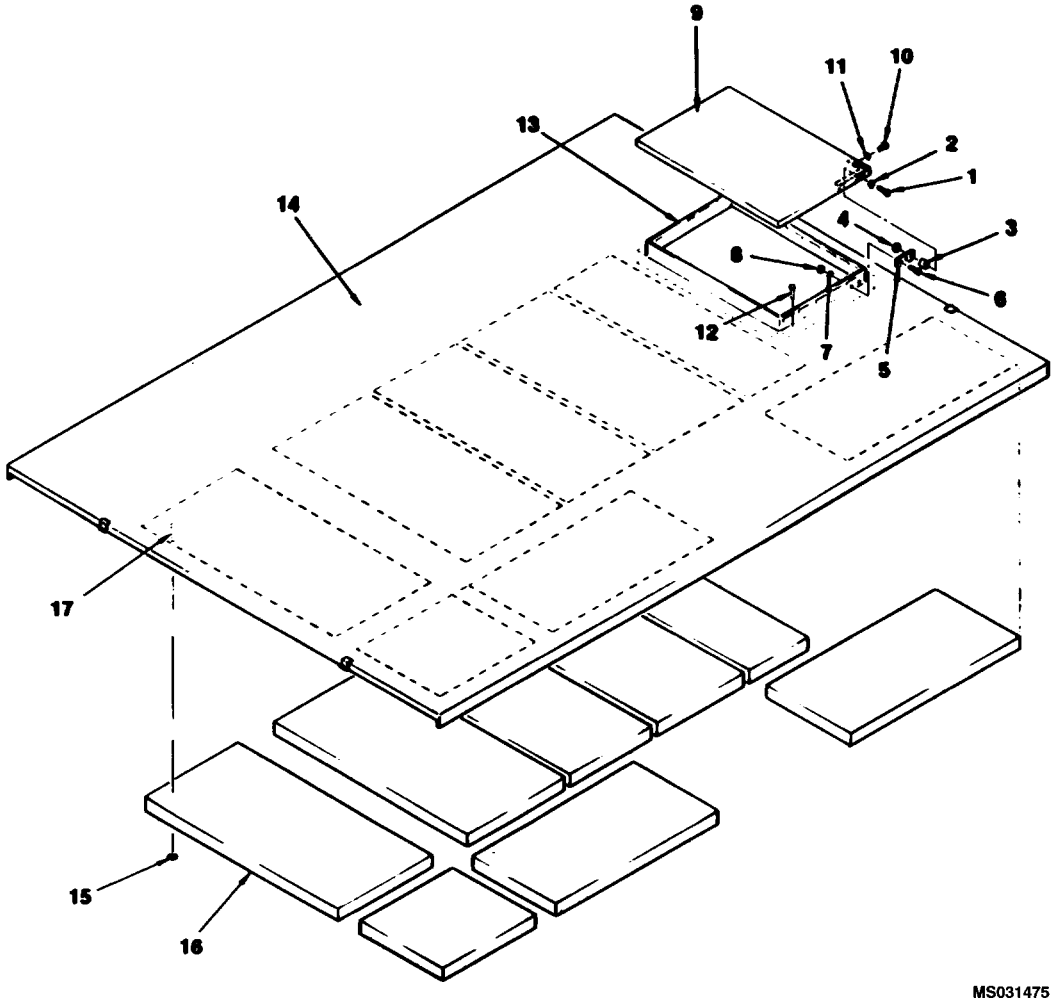
Materials/Parts

Polyurethane Coating (WP 0154 00, Item 40)

References

WP 0001 00
WP 0033 00
WP 0038 00

GENERAL



1. Screw	5. Bracket, Hinge	9. Flapper, Exhaust	13. Stack, Exhaust
2. Washer	6. Screw	10. Screw	14. Roof
3. Spacer	7. Washer	11. Nut	15. Washer, Self-Locking
4. Nut	8. Nut	12. Rivet	16. Insulation, Acoustic
			17. Weld Pin

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 0038 00).
2. Repair roof (Figure 1).
   a. Repair damaged areas by straightening and welding or if severely damaged replace.
   b. Clean and paint repaired areas (WP 0001 00, CORROSION PREVENTION AND CONTROL (CPC)).

REPAIR OR REPLACEMENT – CONTINUED

3. Repair or replace old type exhaust flapper (Figure 1, Item 9).

NOTE

If old style exhaust flapper is being replaced with new style (Figure 2 and Figure 3), proceed to Step 4 after removing old style flapper.

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).

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) (WP 0038 00).

4. Replacing old style flapper (Figure 1, Item 9) with new style exhaust flapper (Figure 2).

NOTE

If new style flapper is already installed proceed to Step 5.

a. Remove roof (WP 0033 00) and place on a suitable work table.

b. Drill attachment holes for new left and right aft exhaust flapper door hinges, as shown in (Figure 2) (side view). When properly positioned, hinges will be against exhaust stack and resting on AGPU roof panel, clamp hinges into place. Using a #10 drill bit, match-drill two 0.193-inch holes for each hinge through existing exhaust stack.

c. Remove sharp edges and clean corrosion area on exhaust stack on exhaust stack around new and existing hinge mounting holes. Prime and paint area as required (WP 0001 00, CORROSION PREVENTION AND CONTROL (CPC)) using Polyurethane.

d. Attach new left and right hinges (Figure 2, Item 6) to aft exhaust flapper door (Figure 2, Item 7) at the pivot points with two screws (Figure 2, Item 1), two bushings (Figure 2, Item 3), four washers (Figure 2, Item 2) and nuts (Figure 2, Item 4). The hinge assembly inside the door pivot points.

e. Attach assembled aft exhaust flapper door (Figure 2, Item 7) to exhaust stack with four screws (Figure 2, Item 5), eight washers (Figure 2, Item 2) and four nuts (Figure 2, Item 4).

f. Attach new left and right forward hinges (Figure 2, Item 6) to forward exhaust flapper door (Figure 2, Item 8) at the pivot points with two screws (Figure 2, Item 1), two bushings (Figure 2, Item 3), four washers (Figure 2, Item 2) and two nuts (Figure 2, Item 4. The hinge assembly inside the door pivot points.

g. Attach assembled forward exhaust flapper door (Figure 2, Item 8) to exhaust stack with four screws (Figure 2, Item 5), eight washers (Figure 2, Item 2) and four nuts (Figure 2, Item 4). New forward hinges will mount to holes previously used for previously installed exhaust flapper door hinges.

h. Install forward and aft exhaust flapper door stop screw as shown in (Figure 3) Install four machine screws (Figure 3, Item 1) and four stop-nuts (Figure 3, Item 2) into threaded holes provided on flanges of flapper doors.

REPAIR OR REPLACEMENT – CONTINUED

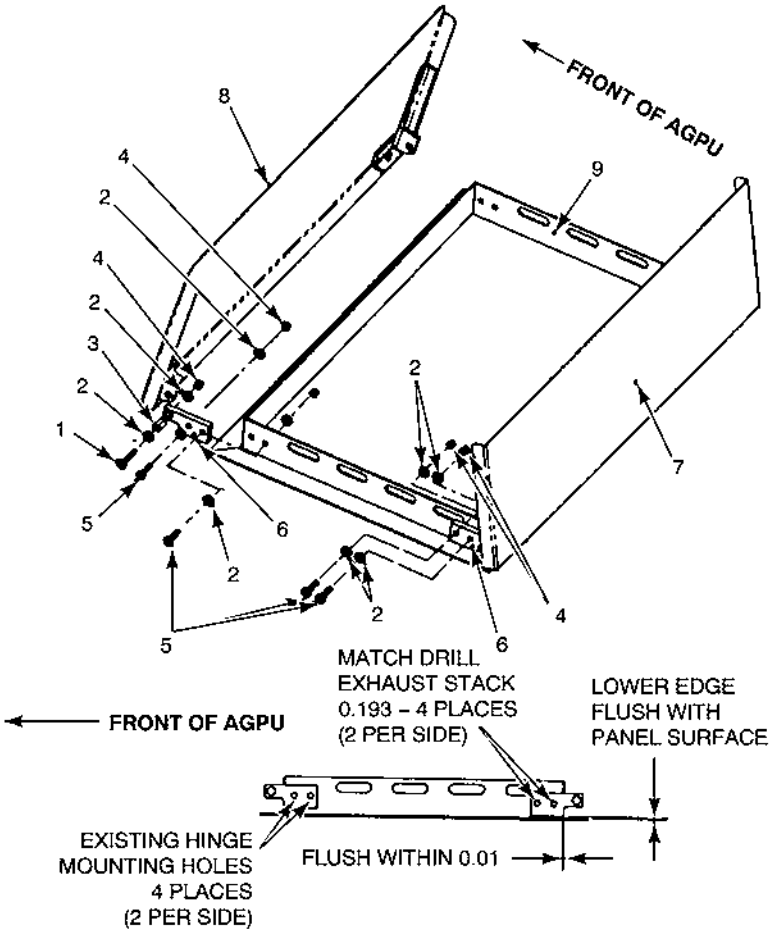
NOTE

Flapper doors must drop freely from open position with no binding.

Forward flapper door (Figure 2, Item 8) should close last in sequence of door closure.

i. Adjust screw (Figure 3, Item 1) engagement to allow doors to open to the maximum vertical angle that will allow doors to close by gravity when released. Lock screws in position with stop-nuts (Figure 3, Item 2).

j. Check exhaust flapper doors for binding or misalignment. Doors will rest level on exhaust stack when closed and open without resistance.



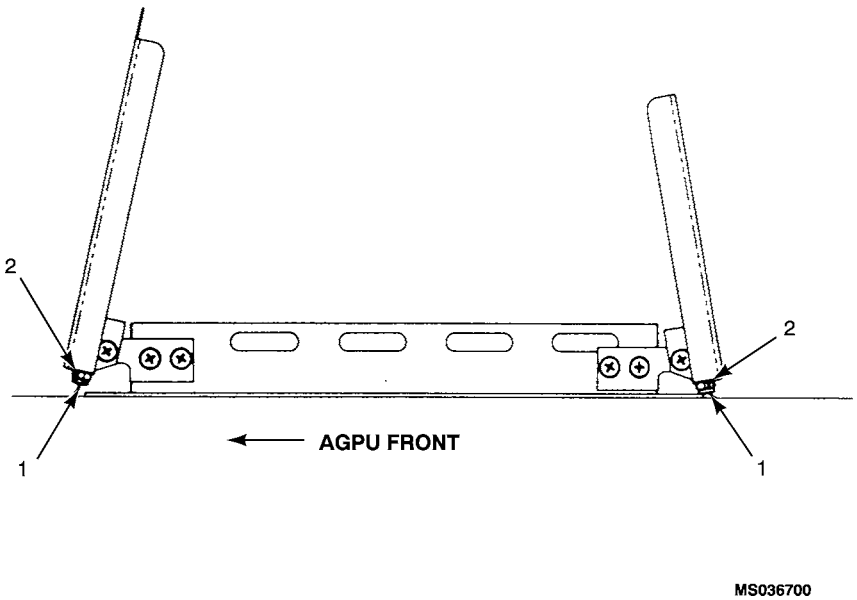
SIDE VIEW

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 Only).

REPAIR OR REPLACEMENT – CONTINUED



1. Screw 2. Stop Nut

Figure 3. Dual Exhaust Flapper Door Installation Rigging (MEP 83-360E Only).

5. Repair or replace new style exhaust flapper (Figure 2).

   a. Replace forward and aft exhaust flappers (Figure 2, Item 8 and 9) by removing eight screws (Figure 2, Item 5), sixteen washers (Figure 2, Item 2) and eight nuts (Figure 2, Item 4).

NOTE

Flapper doors must drop freely from open position with no binding.

Forward flapper door (Figure 2, Item 8) should close last in sequence of door closure.

   b. Adjust screw (Figure 3, Item 1) to allow forward and aft flapper doors to open to maximum vertical angle that will allow doors to close by gravity when released. Lock screws in positions with stop-nuts (Figure 3, Item 2).

   c. Check exhaust flapper doors for binding or misalignment. Doors will rest level on exhaust stack when closed and open without resistance

END OF WORK PACKAGE

FIELD MAINTENANCE

**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**

ACCESS DOORS

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

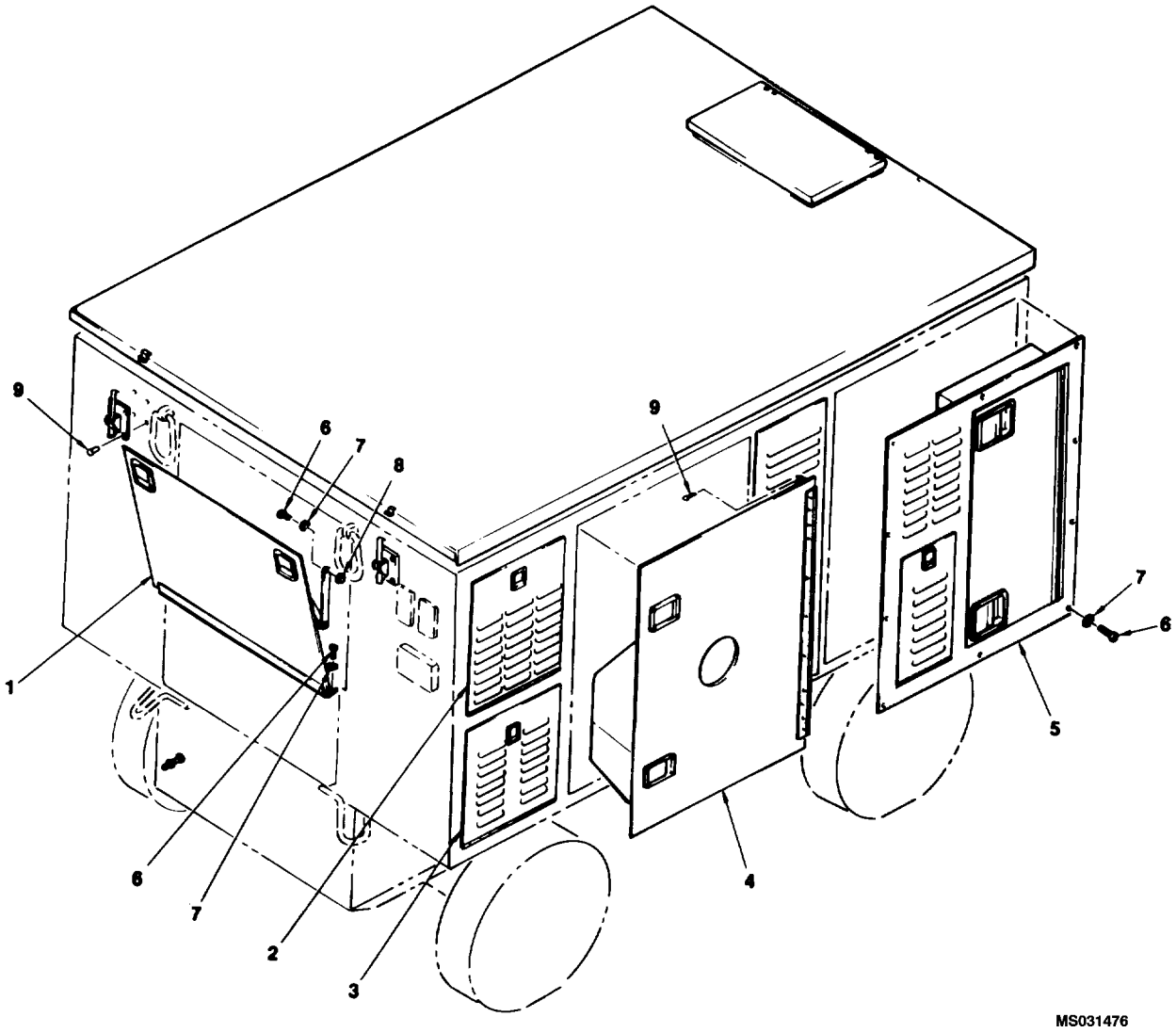
References

WP 0001 00
WP 0002 00
WP 0038 00

GENERAL

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.

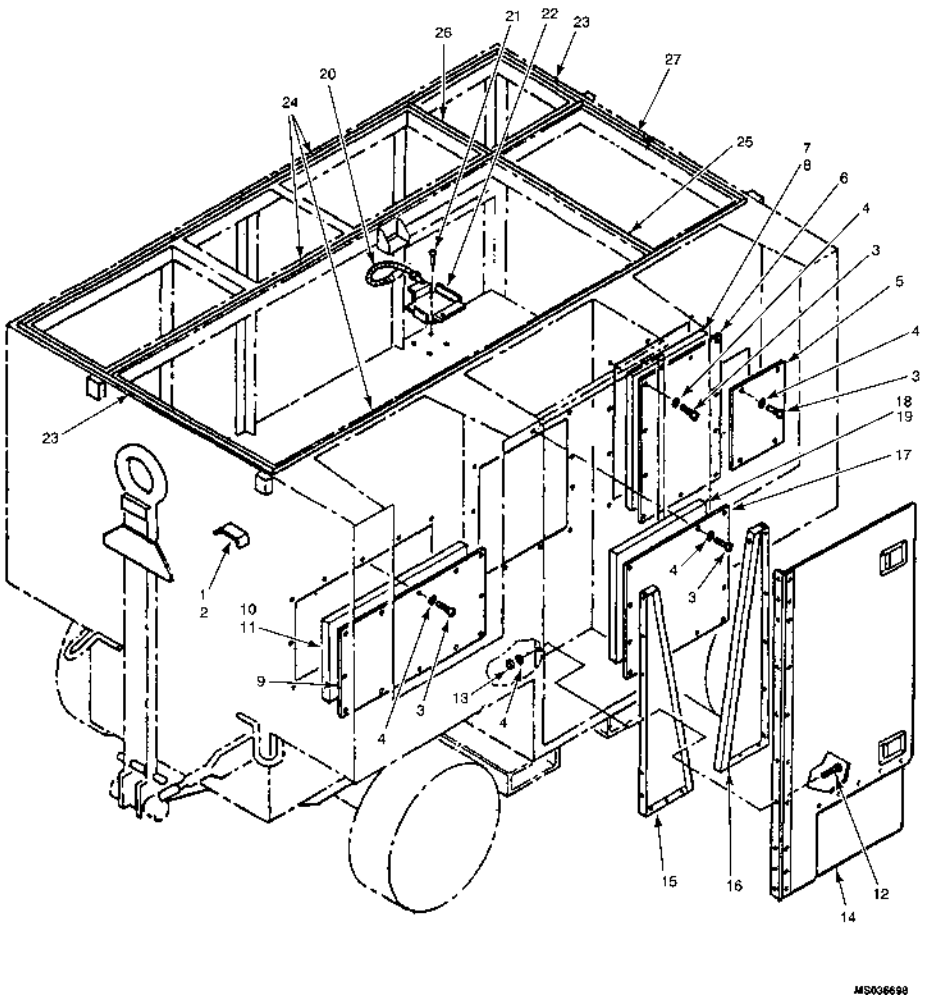
GENERAL – Continued



1. Access Door, Control Panel	4. Access Door, Engine	7. Washer
2. Access Door, Electrical Trays	5. Front Panel, Hydraulic Module	8. Nut
3. Access Door, Battery	6. Screw	9. Rivet

Figure 1. Location of Access Doors, Rear and Right Side.

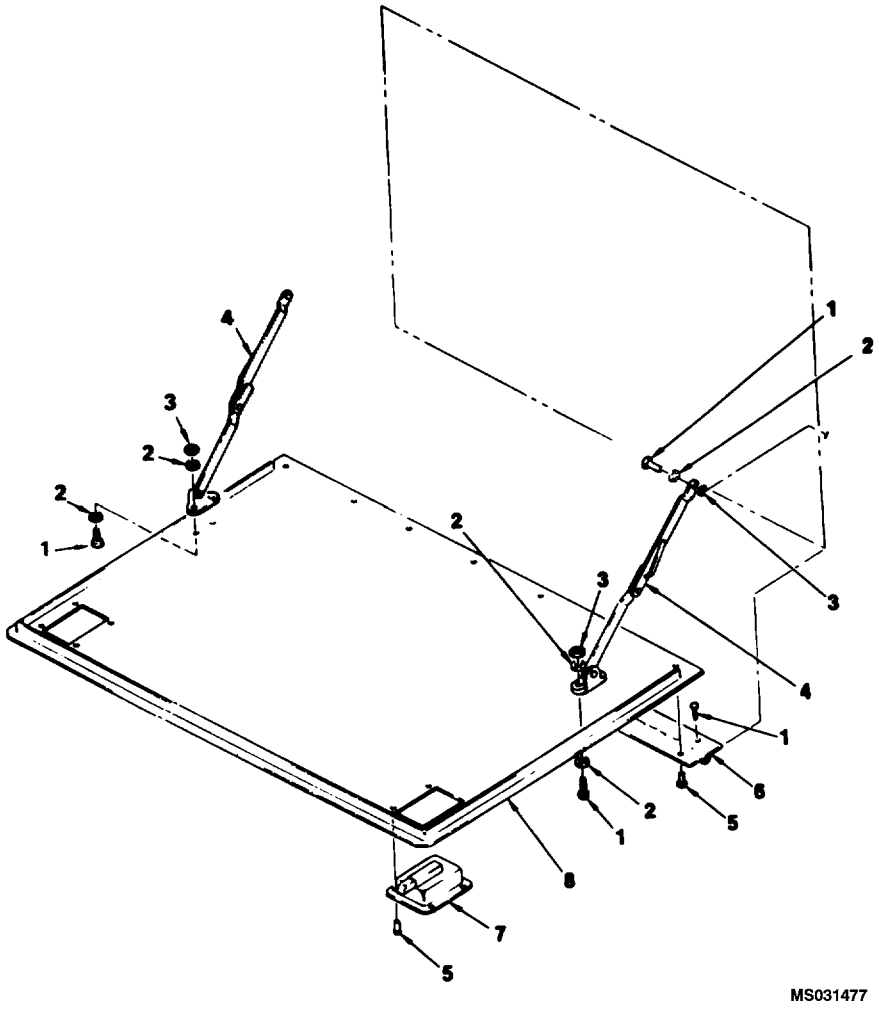
GENERAL – Continued



1. Washer, Flat (Not Shown)	10. Insulation, Acoustic	19. Washer, Self Locking, Weld Pin (Not Shown)
2. Shield, Emergency Switch	11. Washer, Self Locking, Weld Pin (Not Shown)	20. Cord, Shock, Elastic
3. Screw, Pan Head	12. Screw, Pan Head	21. Rivet, Dome Head
4. Washer, Lock	13. Nut, Plain	22. Bracket, Hydraulic Manifold
5. Panel, Fuel Access	14. Door Access, Pneumatic with Flap Flexible Rubber	23. Front Seal, Roof
6. Panel Assembly, Access, Side Porch, Hydraulic Pump	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/Rivets	3. Nut, Jam	5. Rivet	7. Latch
2. Washer	4. Support	6. Hinge	8. Door

Figure 3. Control Panel Access Door Assembly.

REMOVAL

NOTE

Control access door assembly could be attached with screws or rivets (Figure 3, Item 1).

Access Doors

1. Remove screws or rivets (Figure 3, Item 1) securing hinge (Figure 3, Item 6) to AGPU.
2. If screws are used, loosen two jam nuts (Figure 3, Item 3) and remove screws or rivets (Figure 3, Item 1), washers (Figure 3, Item 2) and jam 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 (WP 0001 00, CORROSION PREVENTION AND CONTROL (CPC)).

REPAIR OR REPLACEMENT – CONTINUED

2. Replace latches (Figure 3, Item 7) by drilling out rivets (Figure 3, Item 5) and installing new latch. Rivet new latch.

NOTE

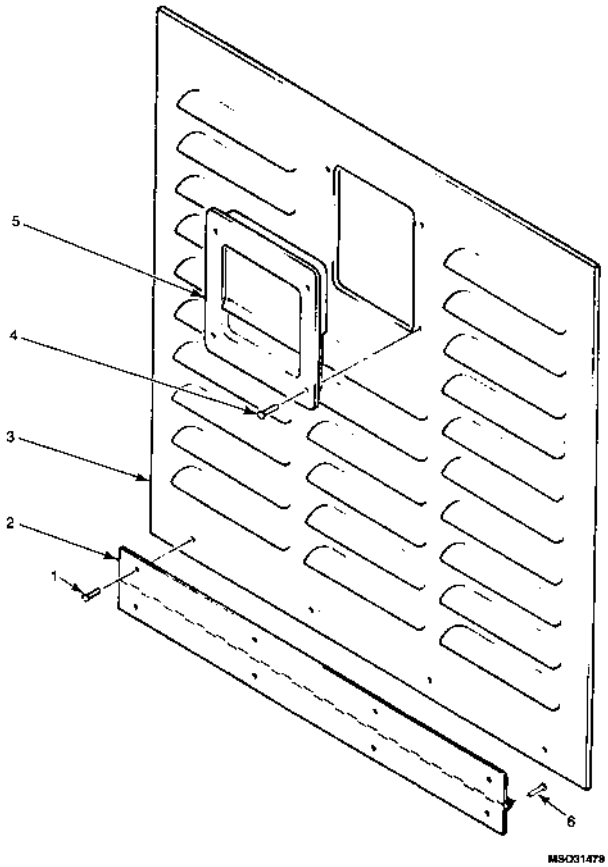
If replacement hinge is not available, one can be fabricated from (MS35825-3E NSN 5340-01-118-8098) hinge stock. Cut to length and match drill rivet holes.

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 jam nuts (Figure 3, Item 3).

REMOVAL



1. Rivet
2. Hinge
3. Door
4. Rivet
5. Latch
6. Rivet

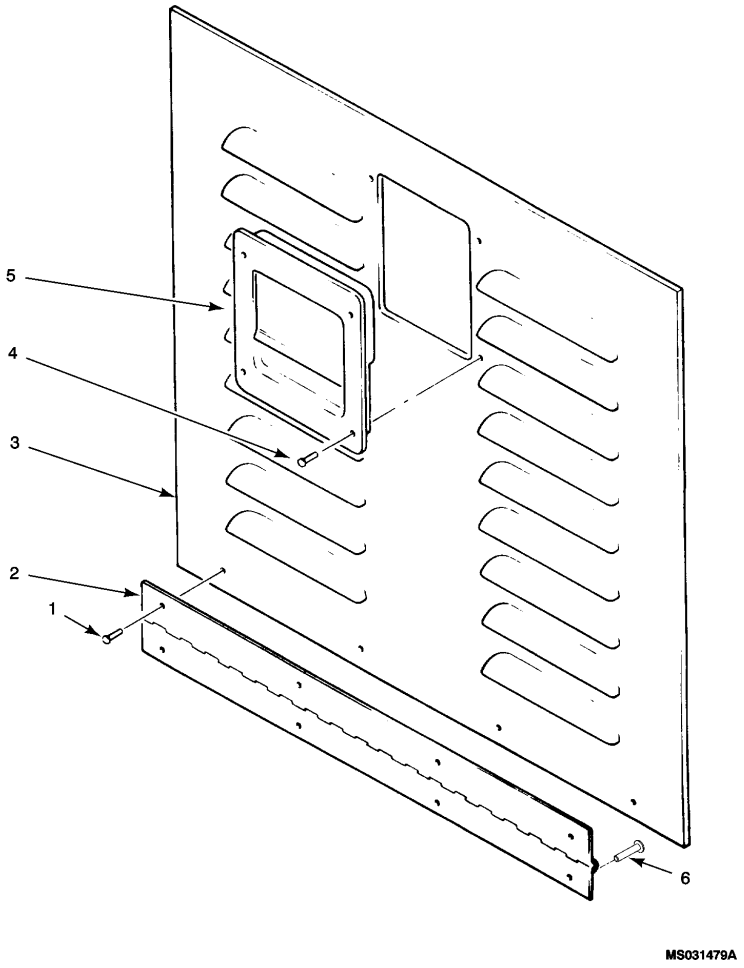
Figure 4. Electrical Trays Access Door Assembly.

Electrical Trays and Battery Compartment Access Doors

For description of frame and housing components, refer to WP 0002 00.

Drill out four rivets (Figure 4, Item 6) on each door and remove door assemblies.

REPAIR OR REPLACEMENT



1. Rivet 3. Door 5. Latch
2. Hinge 4. Rivet 6. Rivet

Figure 5. Battery Compartment Access Door Assembly.

1. Repair doors (Figure 5, Item 3) by straightening and painting.
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

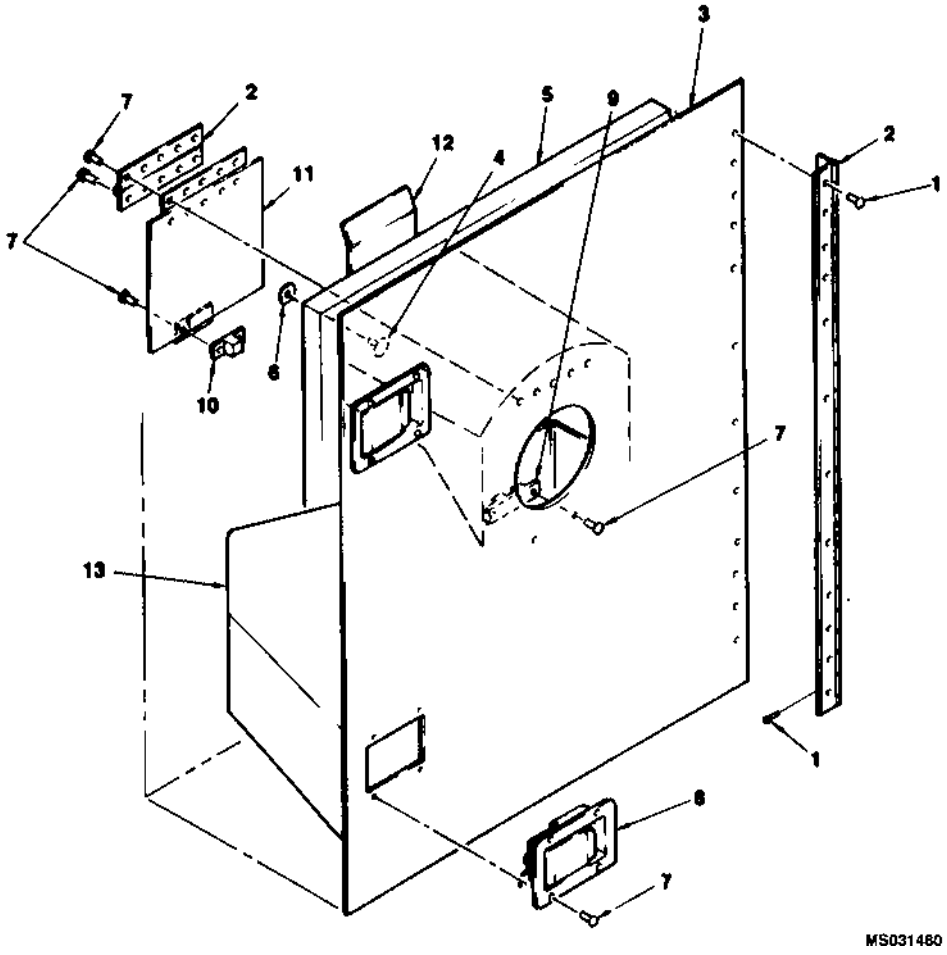
Position door assembly (Figure 4), secure with rivets (Figure 4, Item 5 and 6) and Figure 5, Item 6) to AGPU frame.

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.



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. Tray

Figure 6. Engine Access Door 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.
2. Replace latches (Figure 6, Item 8) by drilling out four rivets (Figure 6, Item 7) and installing new latch. Rivet new latch.

REPAIR OR REPLACEMENT – CONTINUED

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 ten 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) (WP 0038 00, REPAIR OR REPLACEMENT, Step 6).

INSTALLATION

Position panel assembly and install with ten rivets (Figure 6, Item 1).

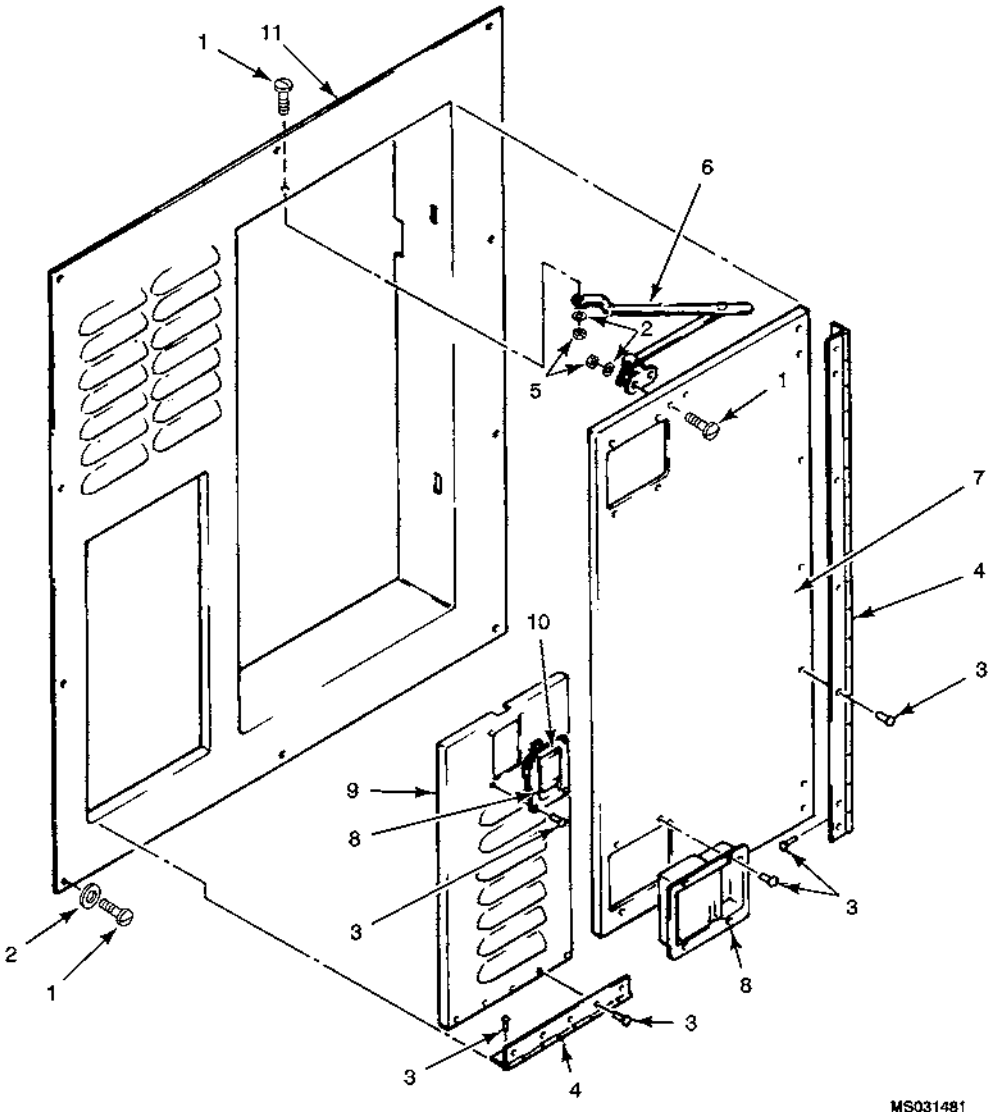
REMOVAL

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.

REMOVAL – CONTINUED



1. Screw	4. Hinge	7. Access Door, Large	10. Latch Detent
2. Washer	5. Nut	8. Latch	11. Panel
3. Rivet	6. Latch Stop	9. Access Door, Small	

Figure 7. Hydraulic Module Front Panel Assembly.

REPAIR OR REPLACEMENT

1. Repair front panel (Figure 7, Item 11) and doors (Figure 7, Item 7 and 9) by straightening and painting (WP 0001 00, CORROSION PREVENTION AND CONTROL (CPC)).
2. Replace latches (Figure 7, Item 8) by drilling out four rivets (Figure 7, Item 3) and installing new latch. Rivet new latch.

REPAIR OR REPLACEMENT – CONTINUED

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).

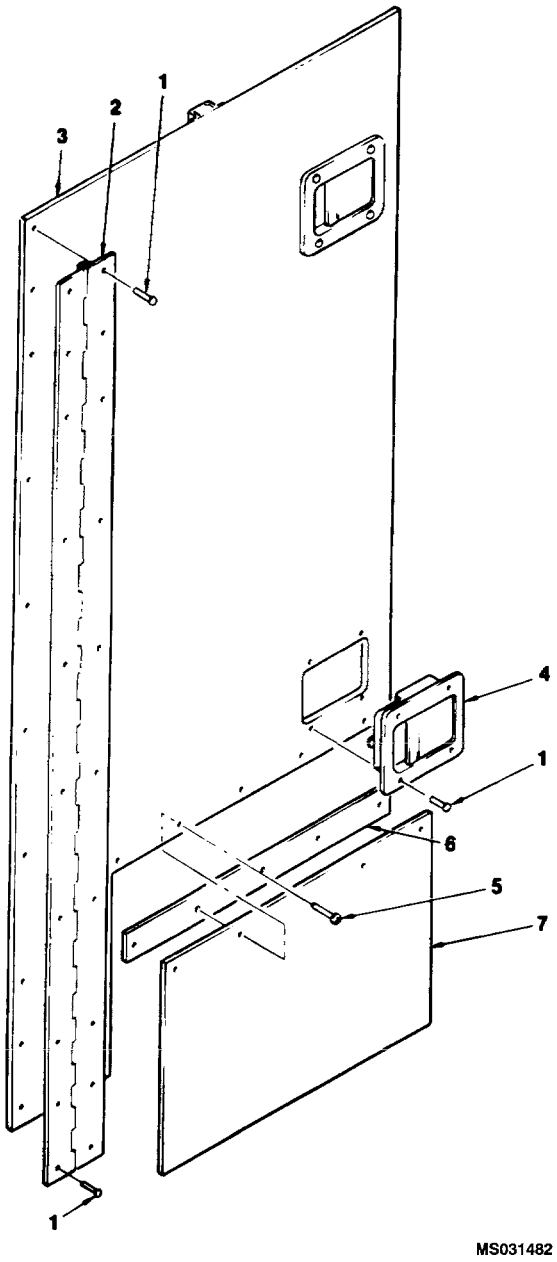
REMOVAL

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 (WP 0001 00, CORROSION PREVENTION AND CONTROL (CPC)).
2. Replace latches (Figure 8, Item 4) by drilling out four rivets (Figure 8, Item 1) and installing new latch. Rivet new latch.

REPAIR OR REPLACEMENT – CONTINUED

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.

INSTALLATION

Position panel assembly and install with ten rivets (Figure 8, Item 1).

END OF WORK PACKAGE

FIELD MAINTENANCE

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

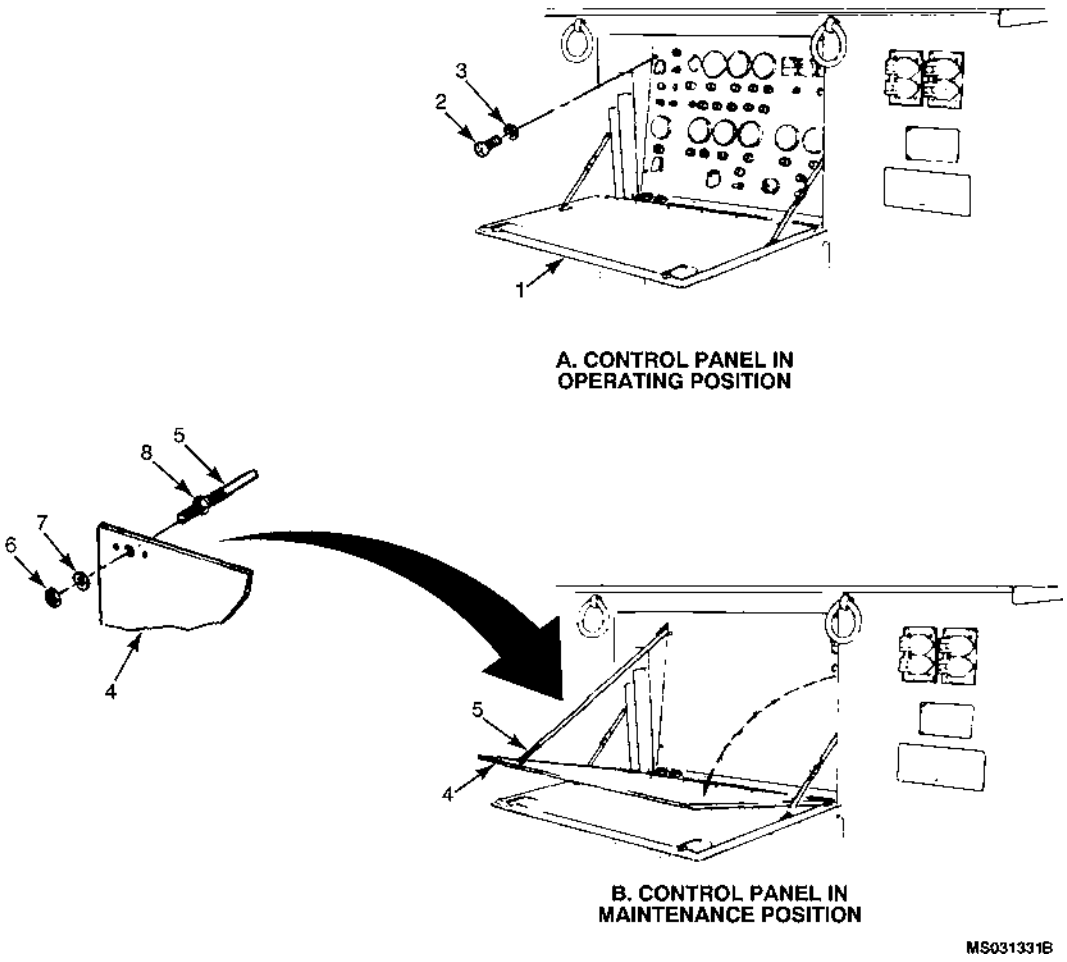
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References

WP 0008 00
WP 0043 00
WP 0044 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 (WP 0008 00) and disconnect battery (WP 0043 00 MEP 83-360A/D only and WP 0044 00MEP 83-360E only). On MEP 83-360E only disconnect J-1 and P-1 connector. Prior to opening control panel or extending lower electrical tray or contacting any electrical terminal with body or tools.
2. Temporarily install control panel prior to 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. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Shut down engine (WP 0008 00) and disconnect battery (WP 0043 00 MEP 83-360A/D only and WP 0044 00MEP 83-360E only). On MEP 83-360E only disconnect J-1 and P-1 connector.
3. Open control panel access door (Figure 1, Item 1).
4. While holding control panel (Figure 1, Item 4) in place remove four screws (Figure 1, Item 2) and washers (Figure 1, Item 3).

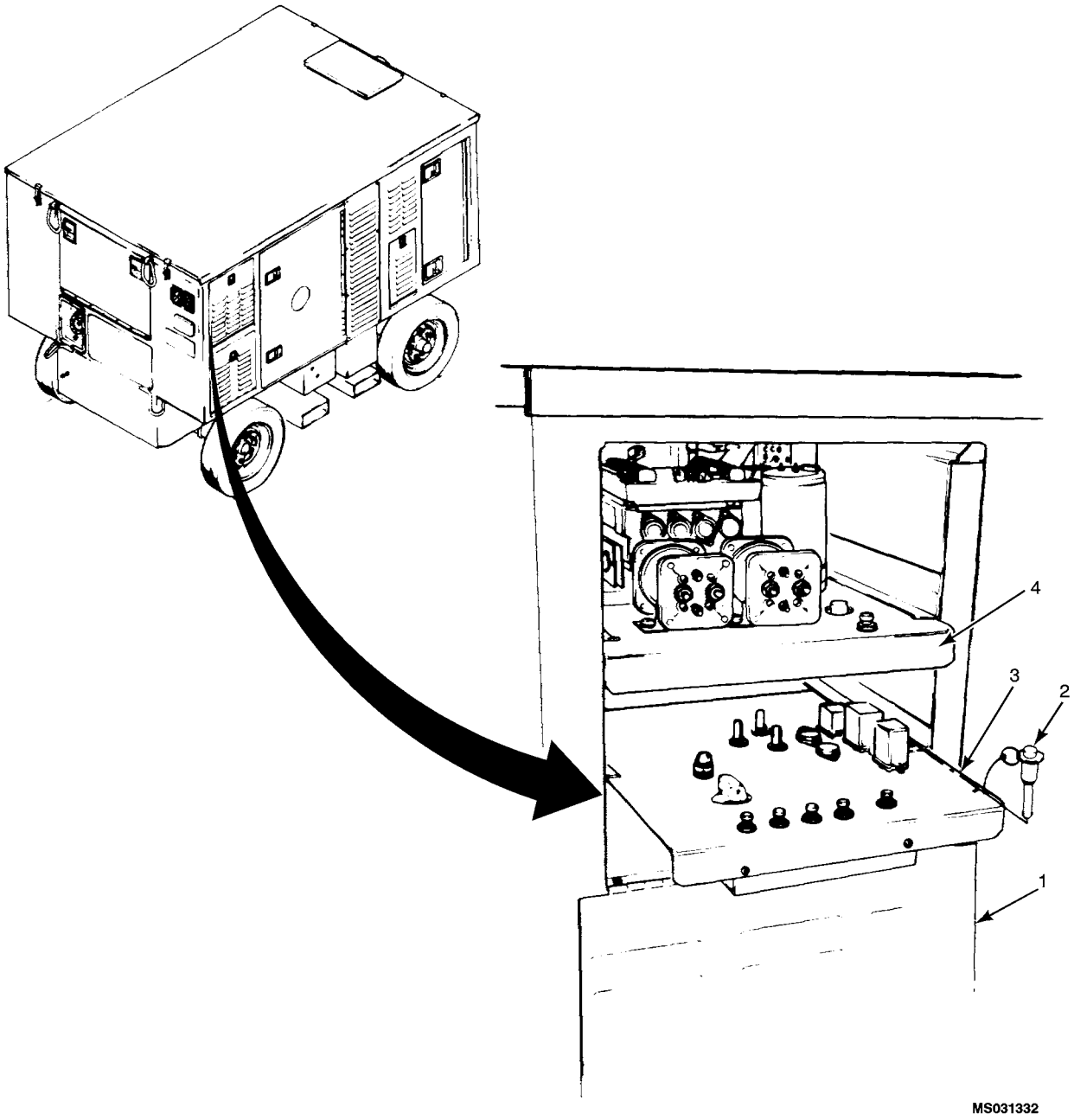
NOTE

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. Grasp control panel at top by toggle switches and carefully pull top of control panel back. Lower control panel so that panel is supported by support 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) and lower control panel onto access cover.
7. 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).

ASSEMBLY AND PREPARATION FOR USE – CONTINUED

EXTENDING LOWER ELECTRICAL TRAY FOR MAINTENANCE

When required by specific maintenance procedure, extend lower tray as follows:

1. Shut down engine (WP 0008 00) and disconnect battery (WP 0043 00 MEP 83-360A/D only and WP 0044 00MEP 83-360E only). On MEP 83-360E only disconnect J-1 and P-1 connector.
2. Open electrical trays access door (Figure 2, Item 1).
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

FIELD MAINTENANCE

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

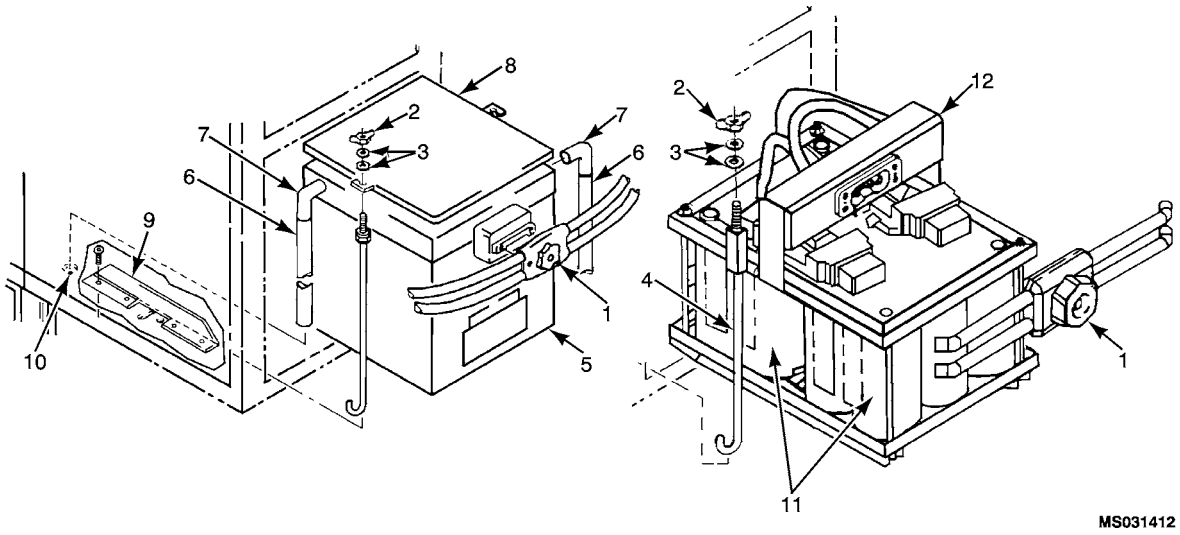
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References

WP 0043 00
WP 0044 00



1. Battery Connector	5. 24V Battery (MEP 83-360 A&D Only)	9. Battery Guide (2) (MEP 83-360 A&D Only)
2. Nut, Wing	6. Drain Tube (MEP 83-360 A&D Only)	10. Drain Tube Hole (2)
3. Washers	7. Drain Fitting (MEP 83-360 A&D Only)	11. 12V Batteries (2) (MEP 83-360E Only)
4. Hold Down Rod	8. Battery Cover (MEP 83-360 A&D Only)	12. Battery Box Assembly (MEP 83-360E Only)

Figure 1. Battery Hold Down.

REMOVAL

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. 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 (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E). Connect J-1 and P-1 connector on MEP 83-360E only.

END OF WORK PACKAGE

FIELD MAINTENANCE

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 INSPECTION AND SERVICING (MEP 83-360E ONLY)

INITIAL SETUP:

Tools and Special Tools

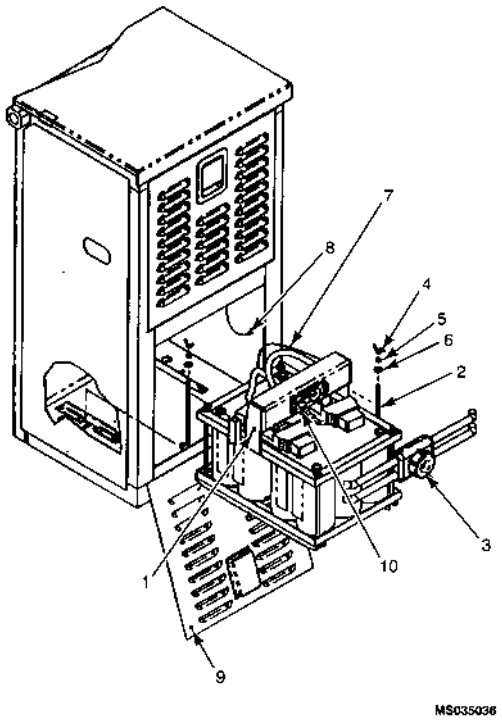
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

Materials/Parts

Baking Soda (WP 0154 00, Item 4)
Distilled Water, Reagent (WP 0154 00, Item 18)

References

MWO 1-1730-229-50-4



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 1. Battery Inspection and Servicing (83-360E ONLY).

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.

NOTE

The standard batteries incorporated by MWO 1-1730-229-50-4, are two 12-volt, sealed, lead-acid type batteries, 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. MWO 1-1730-229-50-4 is applied to all AGPU models that have been through the SLEP/Reset at Letterkenny Army Depot.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery terminal adapter (Figure 1, Item 3) from battery receptacle connector (Figure 1, Item 10) by turning battery terminal adapter (Figure 1, Item 3) counterclockwise.
3. Disconnect Do Not Tow indicator cable J1 (Battery) (Figure 1, Item 7) and Do Not Tow indicator cable P1 (AGPU) (Figure 1, Item 8).

CAUTION

When removing battery assembly take care in safe guarding wiring that may get caught on battery assembly in removal process.

4. Remove wing nuts (Figure 1, Item 4), lock washers (Figure 1, Item 5) and washers (Figure 1, Item 6) from battery hold-down rods (Figure 1, Item 2) and remove battery assembly (Figure 1, Item 1).
5. Place battery assembly on a suitable work surface prior to test and inspection.

TEST AND INSPECTION

1. Check voltage for each battery or batteries. A fully charged battery should be at 13.8 volts with a multi-meter. A combined voltage of 26 volts is appropriate for both combined batteries.
2. Check cables within battery assembly, connectors and terminals for damage or corrosion.
3. Repair any battery assembly, connectors and terminals as needed.

INSTALLATION

1. Set battery assembly (Figure 1, Item 1), ensure that the battery receptacle connector (Figure 1, Item 10) facing outward.
2. Secure battery assembly (Figure 1, Item 11) with battery Hold-Down Rods (Figure 1, Item 2), lock washers (Figure 1, Item 5), washers (Figure 1, Item 6) and wing nuts (Figure 1, Item 4).
3. Reconnect Do Not Tow indicator cable J1 (Battery) (Figure 1, Item 7) and Do Not Tow indicator cable P1 (AGPU) (Figure 1, Item 8).
4. Connect battery terminal adapter (Figure 1, Item 3) to battery receptacle connector (Figure 1, Item 10) and secure by turning knob clockwise. Make sure connector is secure to battery receptacle connector.
5. Check resistance between positive and negative terminals of battery assembly (Figure 1, Item 1). If resistance is less than 40K ohms (with MASTER switch off), check cables for shorts. Preferred reading is 48K Ohms.
6. Perform MOC.

END OF WORK PACKAGE

FIELD MAINTENANCE

**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 TYPE 24V BATTERIES AND CABLES (MEP 83-360A AND MEP 83-360D ONLY)

INITIAL SETUP:

Tools and Special Tools

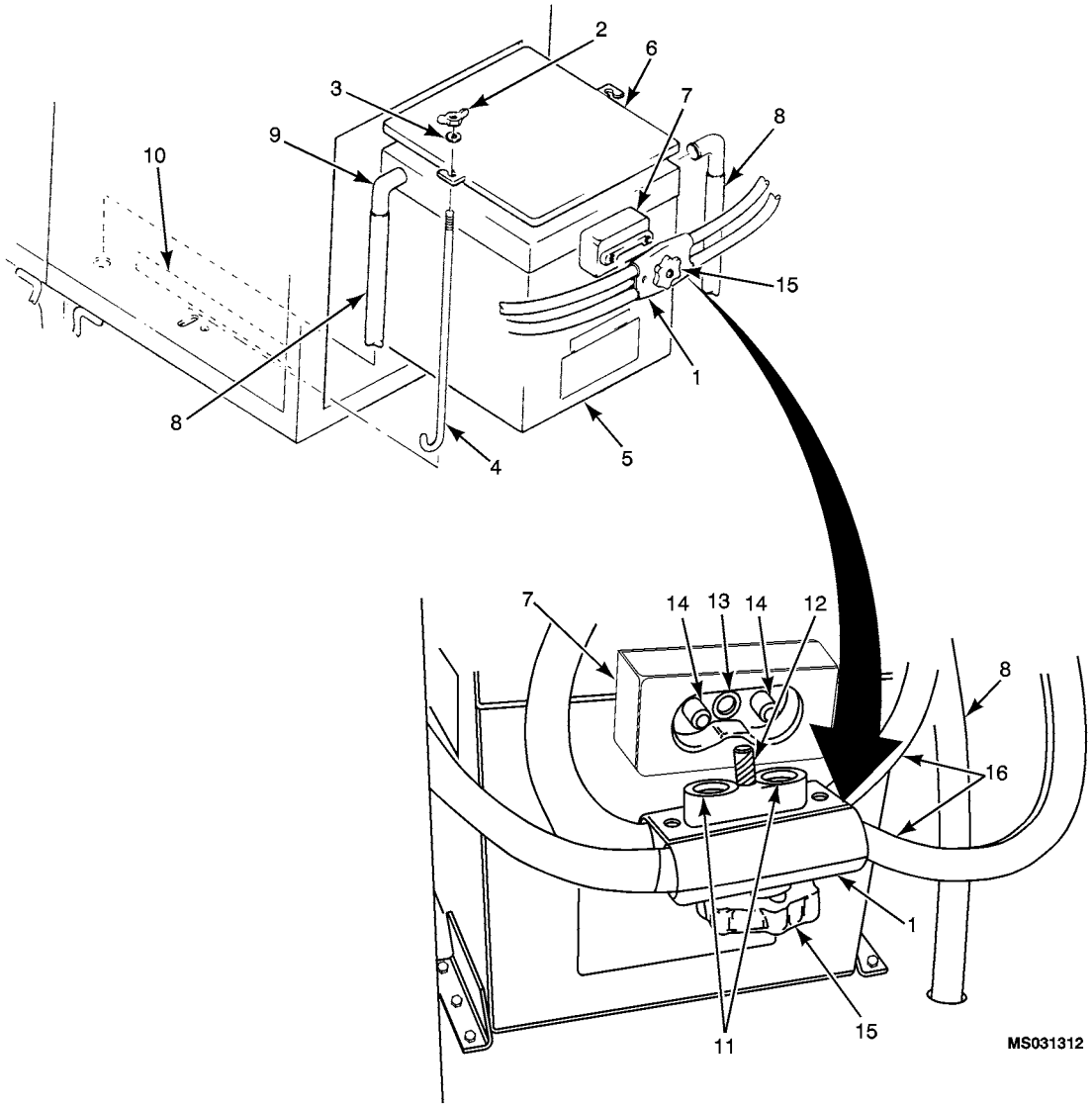
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

Materials/Parts

Baking Soda (WP 0154 00, Item 4)
Distilled Water, Reagent (WP 0154 00, Item 18)

References

TB 1-1730-229-30-1



1. Battery Terminal Adapter	5. Battery	9. Vent Adapter	13. Mounting Screw Receptacle
2. Wing Nut	6. Battery Cover	10. Battery Guide	14. Terminal Post
3. Washer	7. Battery Terminal Block	11. Terminal Post Receptacles	15. Knob
4. Tie-Down Rod	8. Vent Tube	12. Mounting Screw	16. Electrical Cable

Figure 1. Battery Inspection and Servicing (MEP 83-360A and MEP 83-360D ONLY).

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 NiCad battery. Never add water or electrolyte.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery terminal adapter (Figure 1, Item 1) from battery terminal block (Figure 1, Item 7) by turning knob (Figure 1, Item 15) counterclockwise.
3. Remove wing nuts (Figure 1, Item 2) and washers (Figure 1, Item 3) from tie-down rods (Figure 1, Item 4) and remove battery assembly.

TEST AND INSPECTION

NOTE

Refer to TB 1-1730-229-30-1 if terminal post receptacle (Figure 1, Item 11) has been removed.

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 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 as required.

INSTALLATION

1. Set battery into battery compartment between battery guides (Figure 1, Item 10) with battery terminal block (Figure 1, Item 7) facing outward. 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). prior to 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.
6. 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.
7. Perform MOC.

END OF WORK PACKAGE

FIELD MAINTENANCE

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 (ALL MODELS)

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References

WP 0002 00

References (cont.)

WP 0025 00
WP 0033 00
WP 0041 00
WP 0043 00
WP 0044 00

REMOVAL

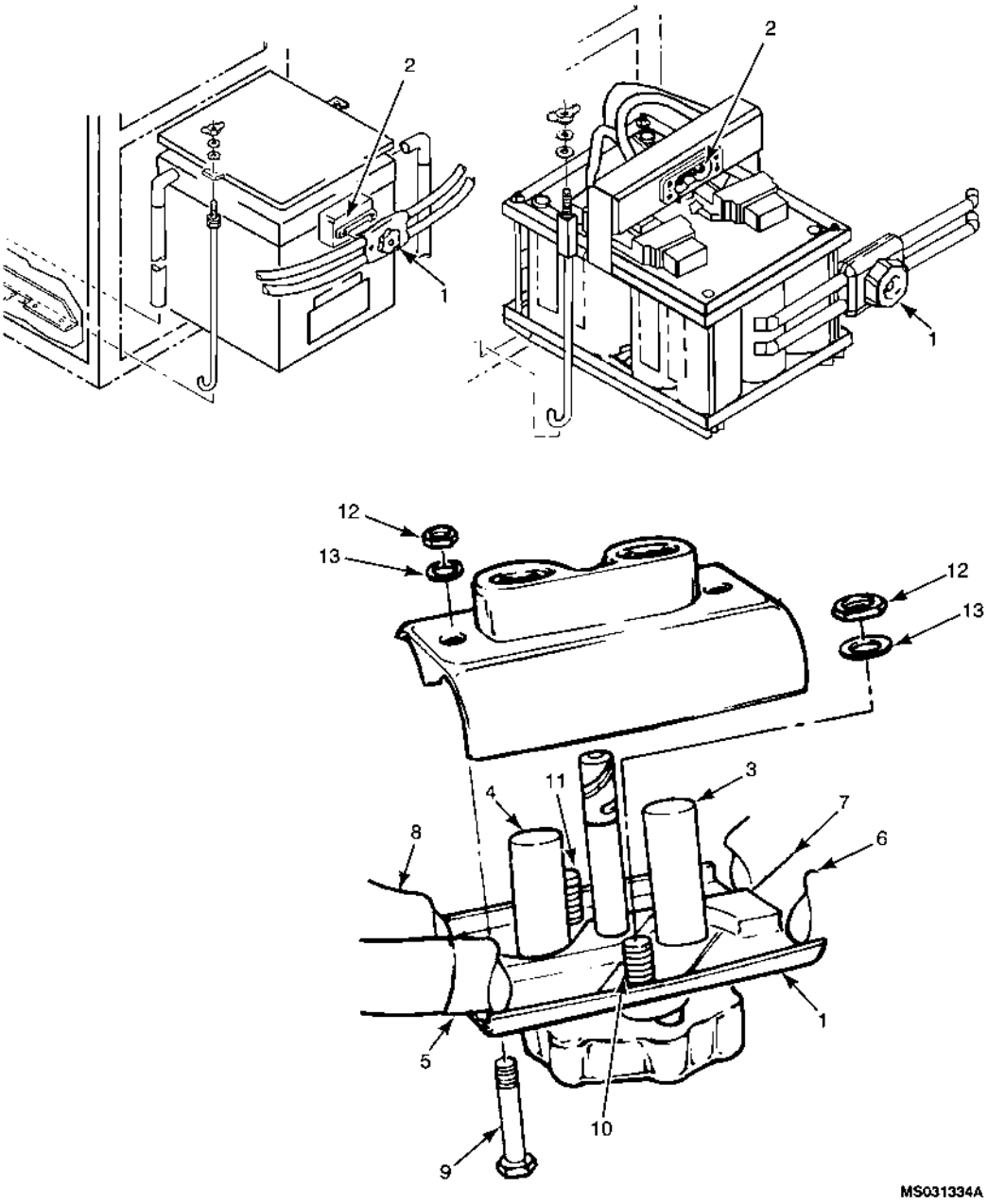
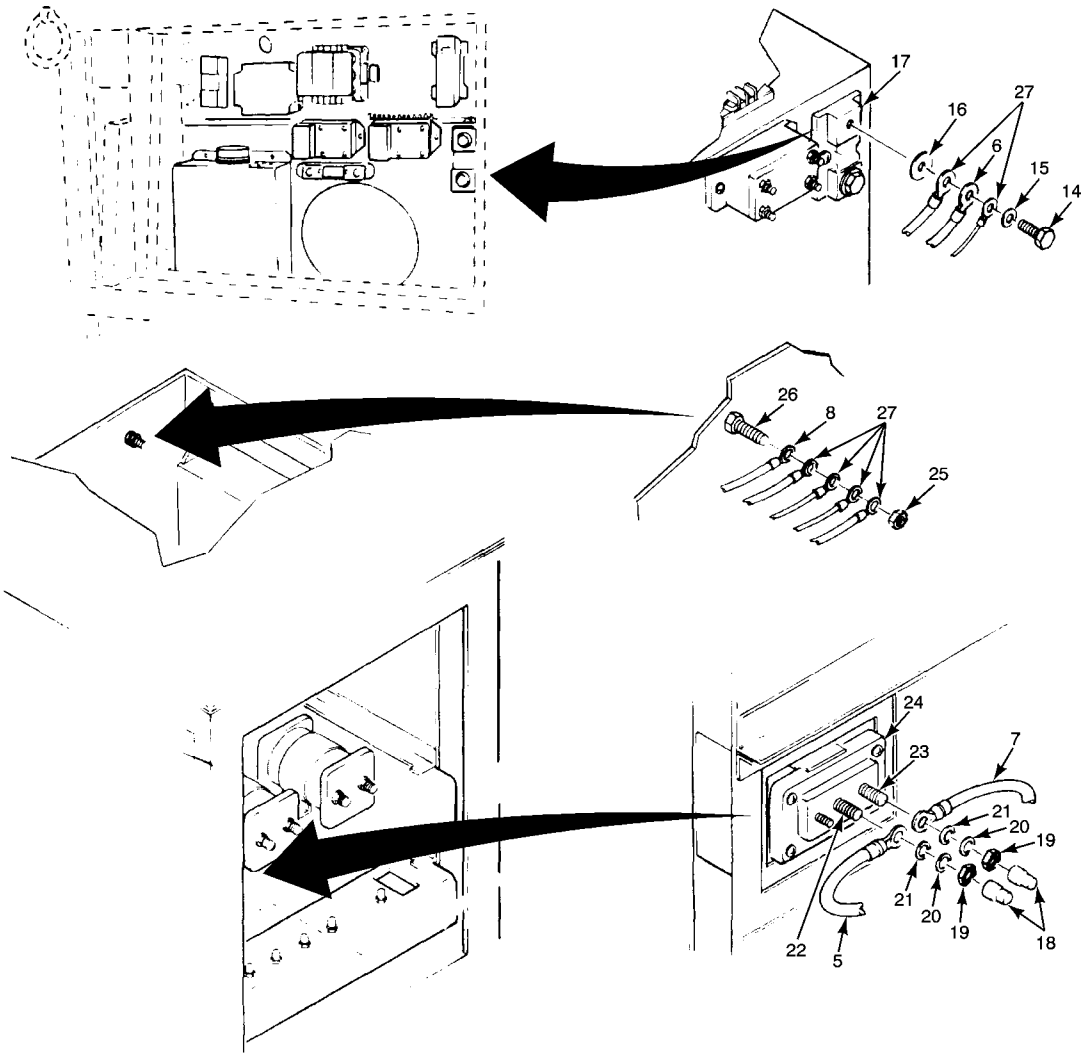


Figure 1. Battery Cables and Terminal Adapter (Sheet 1 of 2).

REMOVAL – CONTINUED



1. Battery Terminal Adapter	10. Positive Terminal Screw	19. Nut
2. Battery Receptacle Connector	11. Negative Terminal Screw	20. Lock Washer
3. Positive Terminal Post Receptacle	12. Nut	21. Washer
4. Negative Terminal Post Receptacle	13. Washer	22. Terminal (+) (Positive)
5. Slave Positive Cable	14. Terminal Screw	23. Terminal (-) (Negative)
6. System Positive Cable	15. Lock Washer	24. Slave Receptacle
7. Slave Negative Cable	16. Washer	25. Nut
8. System Negative Cable	17. Shunt R2	26. Ground Stud
9. Bolt	18. Terminal Cover	27. Cables

Figure 1. Battery Cables and Terminal Adapter (Sheet 2 of 2).

REMOVAL – CONTINUED

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

For test refer to troubleshooting procedure WP 0025 00, 45. BATTERY VOLTAGE METER READS LOW (MASTER SWITCH ON, ENGINE NOT RUNNING), Steps 5 through 6.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Remove two bolts (Figure 1, Item 9), two washers (Figure 1, Item 13) two nuts (Figure 1, Item 12), and separate halves of battery terminal 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 7).
6. If removing system positive cable (Figure 1, Item 6):
   a. Lower control panel (WP 0041 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 0033 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) and secure with washers (Figure 1, Item 13), two washers (Figure 1, Item 13) and two nuts (Figure 1, Item 12).
7. Assemble halves of battery terminal adapter (Figure 1, Item 1) and secure with two bolts (Figure 1, Item 9), two washers (Figure 1, Item 13) and two nuts (Figure 1, Item 12).
8. Replace any cable ties or clamps previously removed.
9. Replace control panel (WP 0041 00), roof (WP 0033 00) and close electrical tray access door (WP 0002 00, Figure 1) as required.
10. 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.
11. Perform MOC.

END OF WORK PACKAGE

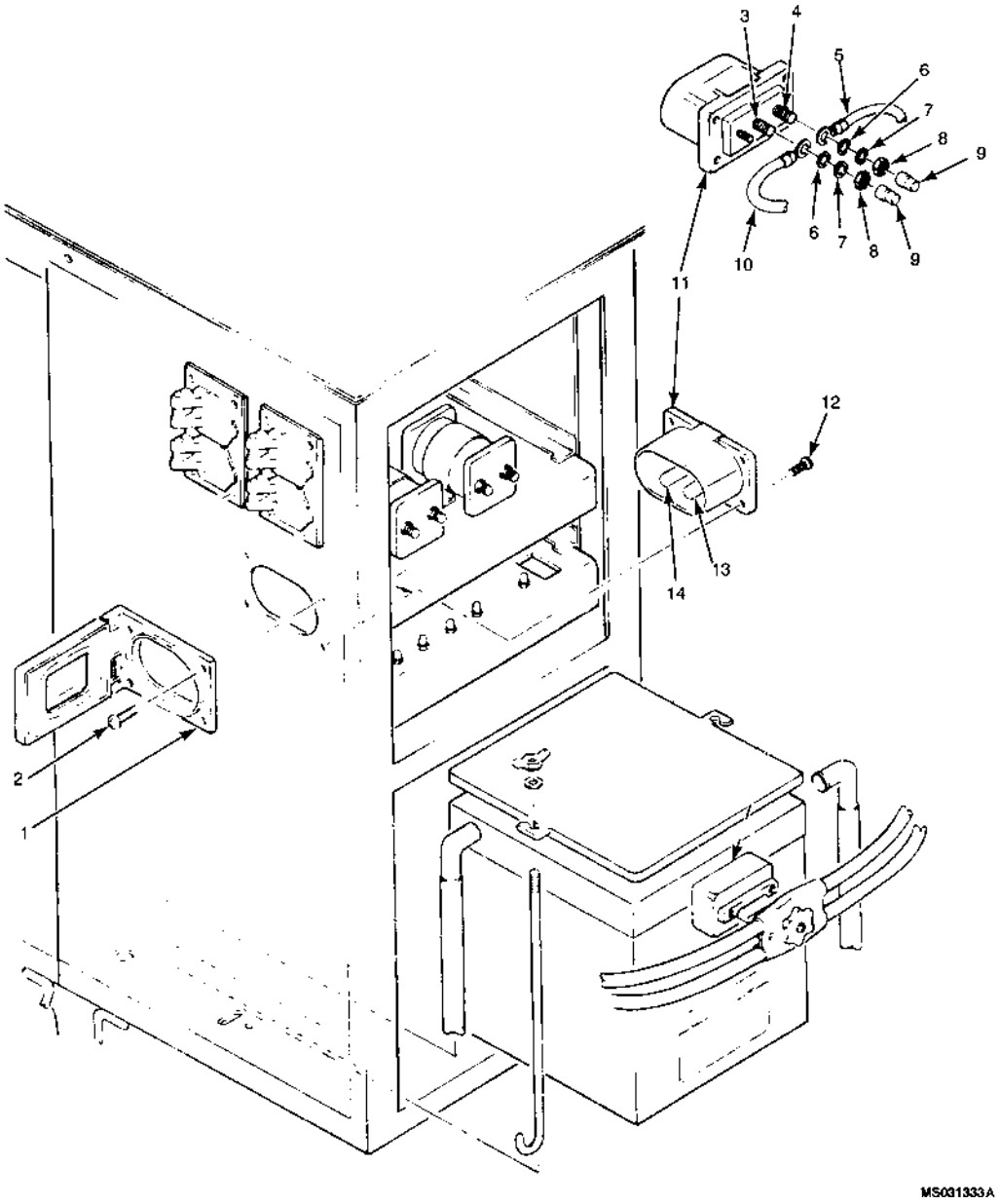
FIELD MAINTENANCE

**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	References
Aviation Foot Locker, AFL (WP 0155 00, Item 3)	WP 0002 00
General Mechanics Tool Kit, GMTK	WP 0025 00
(WP 0155 00, Item 16)	WP 0043 00
Tool Set, Aviation Unit (WP 0155 00, Item 41)	WP 0044 00



1. Cover Plate
2. Screw
3. Positive Terminal Stud
4. Negative Terminal Stud
5. Negative Slave Cable
6. Washer
7. Lock Washer
8. Nut
9. Terminal Screw Cover
10. Positive Slave Cable
11. Slave Receptacle
12. Screw
13. Positive Terminal Post
14. Negative Terminal Post

Figure 1. Slave Receptacle.

REMOVAL

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

For test refer to troubleshooting procedure WP 0025 00, 92. DC POWER NOT AVAILABLE AT SLAVE RECEPTACLE.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Open electrical tray access door (WP 0002 00, Figure 1, Item 9).
4. Pull terminal screw covers (Figure 1, Item 9) from terminal studs (Figure 1, Item 3 and 4).
5. Remove nuts (Figure 1, Item 8), lock washers (Figure 1, Item 7) and washers (Figure 1, Item 6). Tag and disconnect positive and negative slave cables (Figure 1, Item 5 and 10) from positive and negative terminal studs (Figure 1, Item 3 and 4).
6. Remove four screws (Figure 1, Item 12) and slave receptacle (Figure 1, Item 11).

INSTALLATION

1. Install slave receptacles (Figure 1, Item 11) and secure with four screws (Figure 1, Item 12).
2. Install positive and negative slave cables (Figure 1, Item 5 and 10) to positive and negative terminal studs (Figure 1, Item 3 and 4). Secure cables with two washers (Figure 1, Item 6), lock washers (Figure 1, Item 7) and nuts (Figure 1, Item 8).
3. Install two terminal screw covers (Figure 1, Item 9) on positive and negative terminal studs (Figure 1, Item 3 and 4).
4. Close electrical tray access door (WP 0002 00, Figure 1, Item 9).
5. 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.
6. Perform MOC.

END OF WORK PACKAGE

FIELD MAINTENANCE

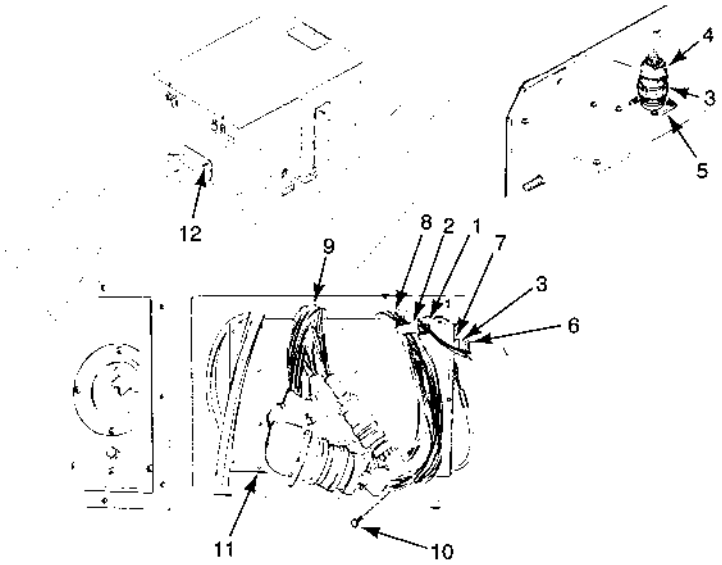
**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A) 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	References
Aviation Foot Locker, AFL (WP 0155 00, Item 3)	WP 0025 00
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)	WP 0034 00
	WP 0041 00
Tool Set, Aviation Unit (WP 0155 00, Item 41)	WP 0043 00
	WP 0044 00

TEST AND INSPECTION



1. Cover Screw	5. Connector J1	9. Control Panel Cables
2. Cable Clamp	6. Connector P2	10. Screw
3. Locking Collar	7. Connector J2	11. Battery Charger
4. Connector P1	8. Main Harness Cables	12. Battery Charger Access Panel

Figure 1. Battery Charger (MEP 83-360A/D only).

TEST AND INSPECTION – CONTINUED

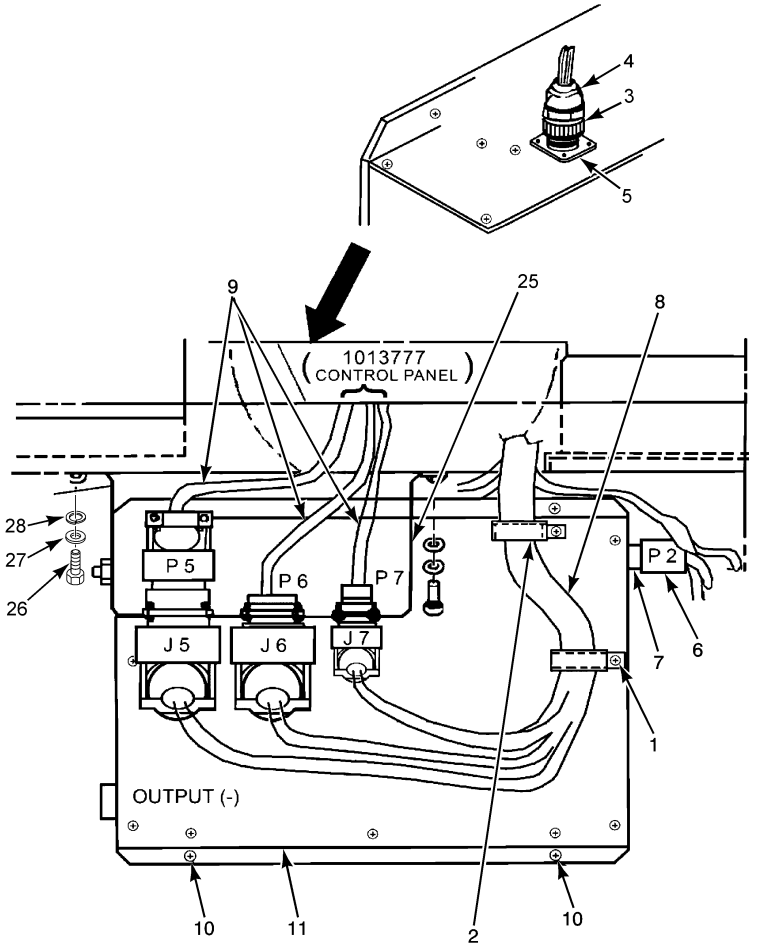
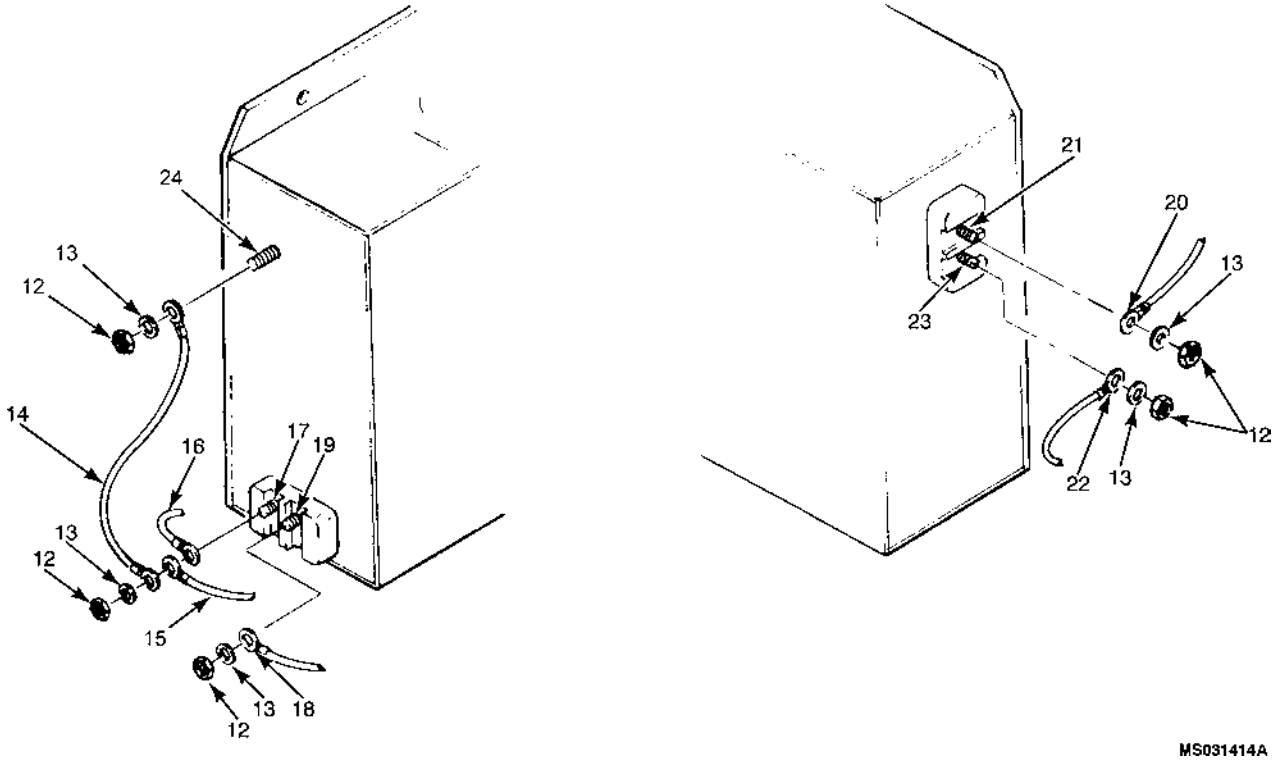


Figure 2. Battery Charger (MEP 83-360E only) (Sheet 1 of 2).

TEST AND INSPECTION – CONTINUED



NOTE

Figure 2, Item 12 through 24, are applicable to all models of the AGPU.

1. Cover Screw	8. Main Harness Cables	15. Cable P21A6N	22. Cable P21A6N
2. Cable Clamp	9. Control Panel Cables	16. Cable P21B2N	23. 50 AMP output J3 (–) Terminal
3. Locking Collar	10. Screw	17. 50 AMP Input J4 (-) Terminal	24. Case Ground Terminal
4. Connector P1 – input 20 amp	11. Battery Charger	18. Cable P22A2	25. Mounting Bracket
5. Connector J1 – output 20 amp	12. Nut	19. 50 AMP Input J4 (+) Terminal	26. Screw, Bracket
6. Connector P2	13. Washer	20. Cable P32A6	27. Washer
7. Connector J2	14. Wire P21C20N	21. 50 AMP Output J3 (+) Terminal	28. Lock Washer

Figure 2. Battery Charger (MEP 83-360E only) (Sheet 2 of 2).

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Remove battery charger access cover (WP 0034 00, Figure 2, Item 5).
4. Inspect battery charger (Figure 1, Item 11 or Figure 2. (Sheet 1 of 2), Item 11) for signs of overheating or corrosion.

TEST AND INSPECTION – CONTINUED

5. Check that connectors P1 (Figure 1, Item 4 or Figure 2. (Sheet 1 of 2), Item 4) and connector P2 (Figure 1, Item 6 or Figure 2. (Sheet 1 of 2), Item 6) are securely attached to battery charger. Tighten locking collars.
6. Check that cable connections to J4 terminals (Figure 2. (Sheet 2 of 2), Item 17 and 19) and J3 terminals (Figure 2. (Sheet 2 of 2), Item 21 and 23) are tight. Tighten nuts (Figure 2. (Sheet 2 of 2), Item 12) if required.

REMOVAL

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Remove battery charger access cover (WP 0034 00, Figure 2, Item 5).
3. Lower the control panel (WP 0041 00).
4. Remove two battery charger cover screws (Figure 1, Item 1 or Figure 2. (Sheet 1 of 2), Item 1) and cable clamps (Figure 1, Item 2 or Figure 2. (Sheet 1 of 2), Item 2). Replace cover screws.
5. Turn locking collar (Figure 1, Item 3 or Figure 2. (Sheet 1 of 2), Item 3) counterclockwise and remove harness connector P1 (Figure 1, Item 4 or Figure 2. (Sheet 1 of 2), Item 4) from battery charger connector J1 (Figure 1, Item 5 or Figure 2. (Sheet 1 of 2), Item 5).
6. Remove harness connector P2 (Figure 1, Item 6 or Figure 2. (Sheet 1 of 2), Item 6) from battery charger connector J2 (Figure 1, Item 7 or Figure 2. (Sheet 1 of 2), Item 7).
7. Disconnect main harness cables (Figure 2. (Sheet 2 of 2), Item 8) at connectors J5, J6 and J7 from control panel cables (Figure 2. (Sheet 1 of 2), Item 9) connectors P5, P6 and P7.

NOTE

An 8 or 10 inch No. 2 magnetic screw driver or screw starter is required for battery charger mounting screws.

8. Remove four bracket screws (Figure 2. (Sheet 1 of 2), Item 26), lock washers (Figure 2. (Sheet 1 of 2), Item 28) and washers (Figure 2. (Sheet 1 of 2), Item 27) securing control panel connector mounting bracket (Figure 2. (Sheet 1 of 2), Item 25) to frame.
9. Hold battery charger (Figure 2. (Sheet 1 of 2), Item 11) in place and remove four screws (Figure 2. (Sheet 1 of 2), Item 10).
10. Move main harness cables (Figure 2. (Sheet 1 of 2), Item 8), control panel cables (Figure 2. (Sheet 1 of 2), Item 9) and mounting bracket (Figure 2. (Sheet 1 of 2), Item 25) out of way. Pull bottom of battery charger back toward edge of compartment floor and tilt top of charger forward against panel.
11. Tag and remove cables from 50 amp input J4 (-) terminal (Figure 2. (Sheet 2 of 2), Item 17) and 50 amp input J4 (+) terminal (Figure 2. (Sheet 2 of 2), Item 19) terminals of J4.
12. Tag and remove cables from 50 amp input J3 (-) terminal (Figure 2. (Sheet 2 of 2), Item 23) and 50 amp input J3 (+) terminal (Figure 2. (Sheet 2 of 2), Item 21) terminals of J3.
13. Remove ground wire from case ground terminal (Figure 2. (Sheet 2 of 2), Item 24).
14. Remove battery charger (Figure 2. (Sheet 1 of 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. (Sheet 1 of 2), Item 11) on compartment door with connector J1 (Figure 2. (Sheet 1 of 2), Item 5) up. Move mounting bracket (MEP 360E only) Figure 2. (Sheet 1 of 2), Item 25) , main harness cables (Figure 1, Item 8) or Figure 2. (Sheet 1 of 2), Item 8) and control panel cables (Figure 1, Item 9) or Figure 2. (Sheet 1 of 2), Item 9) cables from behind battery charger (Figure 1, Item 11 or Figure 2. (Sheet 1 of 2), Item 11). Tilt top of charger forward against back bulkhead panel.
3. Install ground wire P21C20N (Figure 2. (Sheet 2 of 2), Item 14), washer (Figure 2. (Sheet 2 of 2), Item 13) and nut (Figure 2. (Sheet 2 of 2), Item 12) on battery charger case ground terminal (Figure 2. (Sheet 2 of 2), Item 24) on all models.
4. Install cable P32A6 (Figure 2. (Sheet 2 of 2), Item 20), washer (Figure 2. (Sheet 2 of 2), Item 13) and nut (Figure 2. (Sheet 2 of 2), Item 12) on 50 amp input J3 (+) terminal (Figure 2. (Sheet 2 of 2), Item 21) on all models.
5. Install cable P21A6N (Figure 2. (Sheet 2 of 2), Item 22), washer (Figure 2. (Sheet 2 of 2), Item 13) and nut (Figure 2. (Sheet 2 of 2), Item 12) on 50 amp input J3 (-) terminal (Figure 2. (Sheet 2 of 2), Item 23) on all models.
6. Install cable P21B2N (Figure 2. (Sheet 2 of 2), Item 16), cable P21A6N (Figure 2. (Sheet 2 of 2), Item 15) and wire P21C20N (Figure 2, Item 14) on 50 amp input J4 (-) terminal (Figure 2. (Sheet 2 of 2), Item 17) on all models.
7. Install cable P22A2 (Figure 2. (Sheet 2 of 2), Item 18), washer (Figure 2. (Sheet 2 of 2), Item 13) and nut (Figure 2. (Sheet 2 of 2), Item 12) on 50 amp input J4 (+) terminal (Figure 2. (Sheet 2 of 2), Item 19) on all models.
8. Position battery charger (Figure 1, Item 11 or Figure 2. (Sheet 1 of 2), Item 11) in place against bulkhead panel and fasten with four screws (Figure 2. (Sheet 2 of 2), Item 10) on all models.
9. Install harness connector P2 (Figure 1, Item 6 or Figure 2. (Sheet 1 of 2), Item 6) on battery charger connector J2 (Figure 1, Item 7 or Figure 2. (Sheet 1 of 2), Item 7). Turn locking collar (Figure 1, Item 3 or Figure 2. (Sheet 1 of 2), Item 3) clockwise.
10. Install harness connector P1 (Figure 1, Item 4 or Figure 2. (Sheet 1 of 2), Item 4) to battery charger connector J1 (Figure 1, Item 5 or Figure 2. (Sheet 1 of 2), Item 5). Turn locking collar (Figure 2. (Sheet 1 of 2), Item 3) clockwise.
11. Install control panel connector mounting bracket (Figure 2. (Sheet 1 of 2), Item 25) on MEP 360E only, to frame using four washers (Figure 2. (Sheet 1 of 2), Item 27), lock washers (Figure 2. (Sheet 1 of 2), Item 28) and screws (Figure 2. (Sheet 1 of 2), Item 26).
12. Connect main harness cables (Figure 1, Item 8 or Figure 2. (Sheet 1 of 2), Item 8) at connectors J5, J6 and J7 to control panel harness cables (Figure 2. (Sheet 1 of 2), Item 9) at connectors P5, P6 and P7 and P1, J1, P2 AND J2 connectors (Figure 2. (Sheet 1 of 2), Item 4, 5, 6 and 7).
13. Install cable clamp (Figure 1, Item 2 or Figure 2. (Sheet 1 of 2), Item 2) around main harness cables (Figure 1, Item 8 or Figure 2. (Sheet 1 of 2), Item 8). Attach clamp to charger with charger cover screw (Figure 1, Item 1 or Figure 2. (Sheet 1 of 2), Item 1).
14. Replace battery charger access cover (WP 0034 00, Figure 2, Item 5).
15. Replace control panel and close control panel access door.
16. Perform MOC.

END OF WORK PACKAGE

FIELD MAINTENANCE

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 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

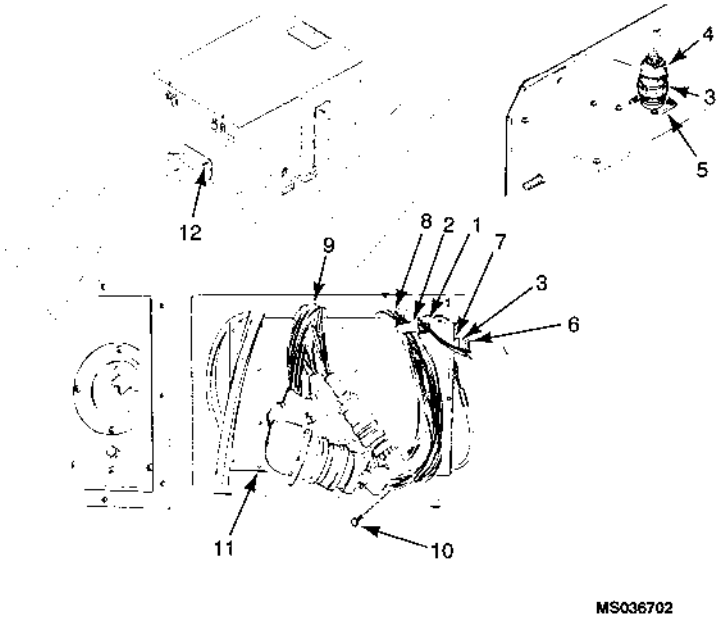
Materials/Parts

Tape, Electrical Wire-Flexible Insulated (WP 0154 00, Item 55)

References

WP 0032 00
WP 0041 00
WP 0043 00
WP 0044 00

REMOVAL



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).

REMOVAL – CONTINUED

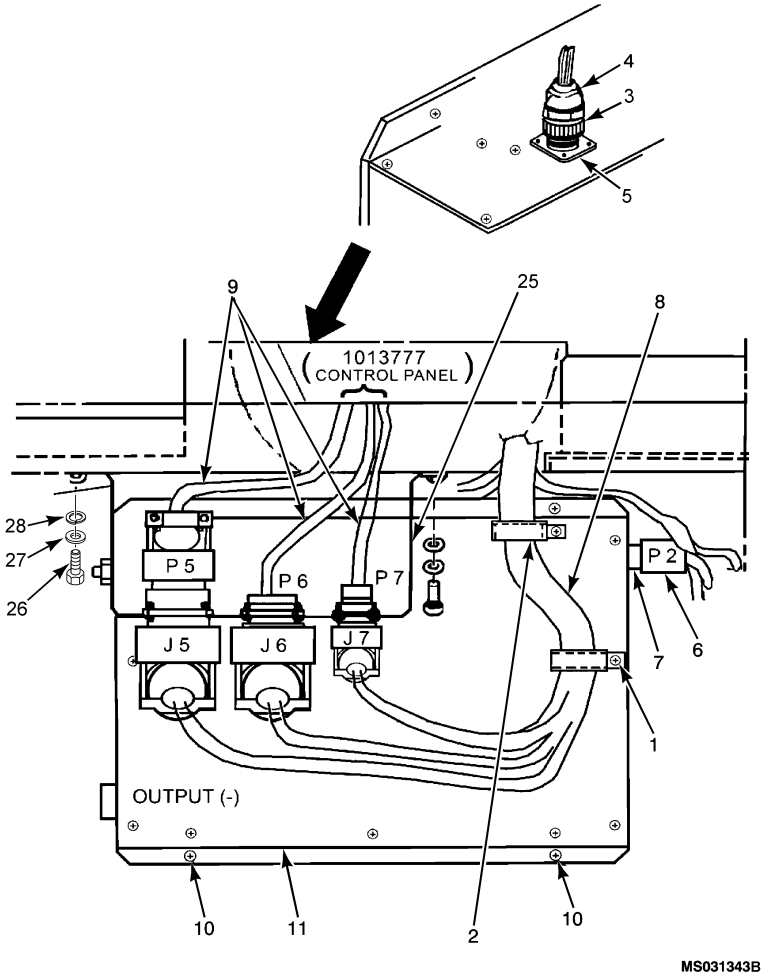
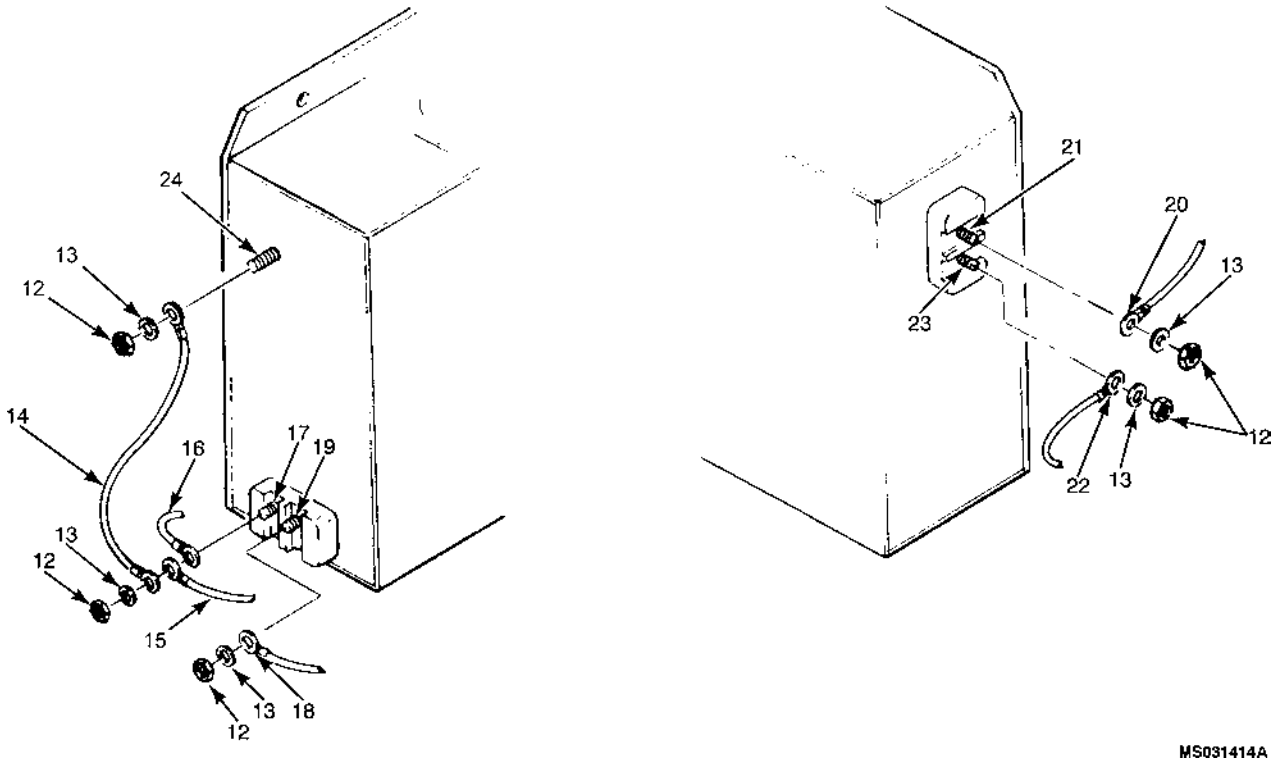


Figure 2. Battery Charger (MEP 83-360E only) (Sheet 1 of 2).

REMOVAL – CONTINUED



NOTE

Figure 2, Item 12 through 24, are applicable to all battery chargers in all models of AGPU.

1. Cover Screw	8. Main Harness Cables	15. Cable P21A6N	22. Cable P21A6N
2. Cable Clamp	9. Control Panel Cables	16. Cable P21B2N	23. 50 AMP Output J3 (-) Terminal
3. Locking Collar	10. Screw	17. 50 AMP Input J4 (-) Terminal	24. Case Ground Terminal
4. Connector P1 – Input 20 AMP	11. Battery Charger	18. Cable P22A2	25. Mounting Bracket
5. Connector J1	12. Nut	19. 50 AMP Input J4 (+) Terminal	26. Screw, Bracket
6. Connector P2 – Output 20 AMP	13. Washer	20. Cable P32A6	27. Lock Washer
7. Connector J2	14. Wire P21C20N	21. 50 AMP Output J3 (+) Terminal	28. Lock Washer

Figure 2. Battery Charger (MEP 83-360E only) (Sheet 2 of 2).

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 battery charger access cover, should be removed from their mating connectors and inspected for possible shield-wire shorts as follows:

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.

REMOVAL – CONTINUED

ELECTRICAL CONNECTORS P-1 AND P-6 BATTERY CHARGER – CONTINUED

2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Remove mounting screws on the Main Control Panel and place in maintenance position (WP 0041 00, Figure 1) to provide access to the electrical area.
4. Remove the battery charger access cover (WP 0032 00, Figure 1).
5. Disconnect connector P-1 (Figure 2. (Sheet 1 of 2), Item 4) from the top of battery charger.
6. 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.
7. 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.
8. Remove excess solder from lead, re-insulate with heat shrink material and remount shield to P-1 connector (Figure 2. (Sheet 1 of 2), Item 4).

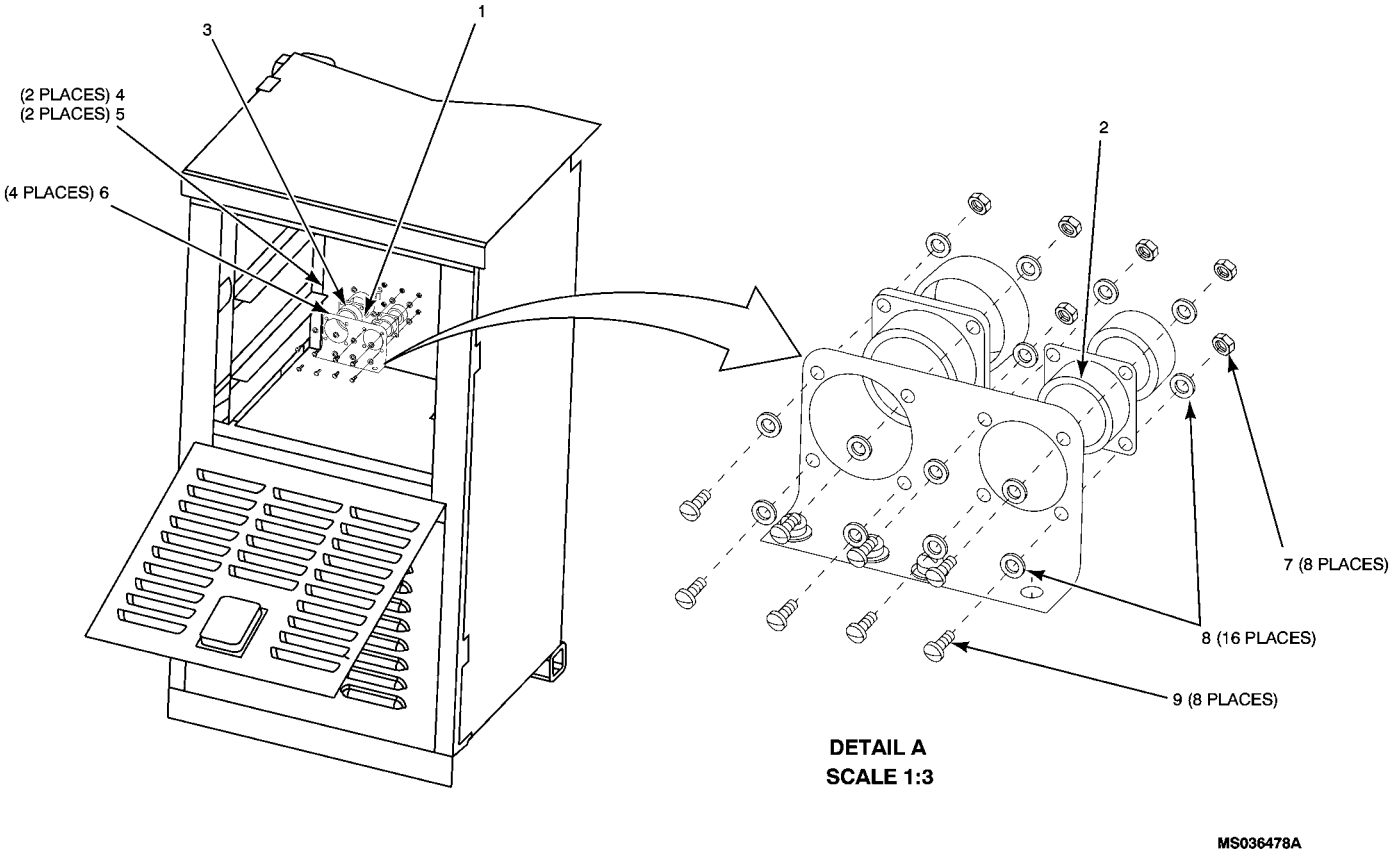
TEST AND INSPECTION

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 0041 00, Figure 1).
4. Install the battery charger access cover (WP 0032 00, Figure 1).
5. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
6. Perform MOC.

INSTALLATION – CONTINUED



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).

REMOVAL

LOWER TRAY CONNECTOR P-8 AND P-9

NOTE

P-8 and P-9 connnectors (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 (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Remove the quick release pin (WP 0041 00, Figure 2, Item 2) from lower electrical tray (WP 0041 00, Figure 2, Item 3).
3. Carefully extend lower electrical tray (WP 0041 00, Figure 2, Item 3) as required for maintenance by pulling tray outward. If there is any abnormal resistance to tray movement, lower main control panel (WP 0041 00, Figure 1, Item 2) and check for restrictions. It may be necessary to remove some cable ties to extend the tray.

REMOVAL – CONTINUED

LOWER TRAY CONNECTOR P-8 AND P-9 – CONTINUED

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 and inspect in-line connectors P-8 and P-9 (Figure 3, Item 2 and 3) from lower tray connectors J-8 and J-9 (Figure 3, Item 2 and 3).

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.

5. 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. Carefully install lower electrical tray (WP 0041 00, Figure 2, Item 3) by pushing tray inward. If there is any abnormal resistance to tray movement, lower main control panel (WP 0041 00, Figure 1, Item 2) and check for restrictions. Re-install main control panel (WP 0041 00, Figure 1, Item 2) after tray is secure.
4. Install the quick release pin (WP 0041 00, Figure 2, Item 2) on lower electrical tray (WP 0041 00, Figure 2, Item 3).
5. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
6. Close the lower electrical tray access door (WP 0041 00, Figure 2, Item 1).
7. Perform MOC.

END OF WORK PACKAGE

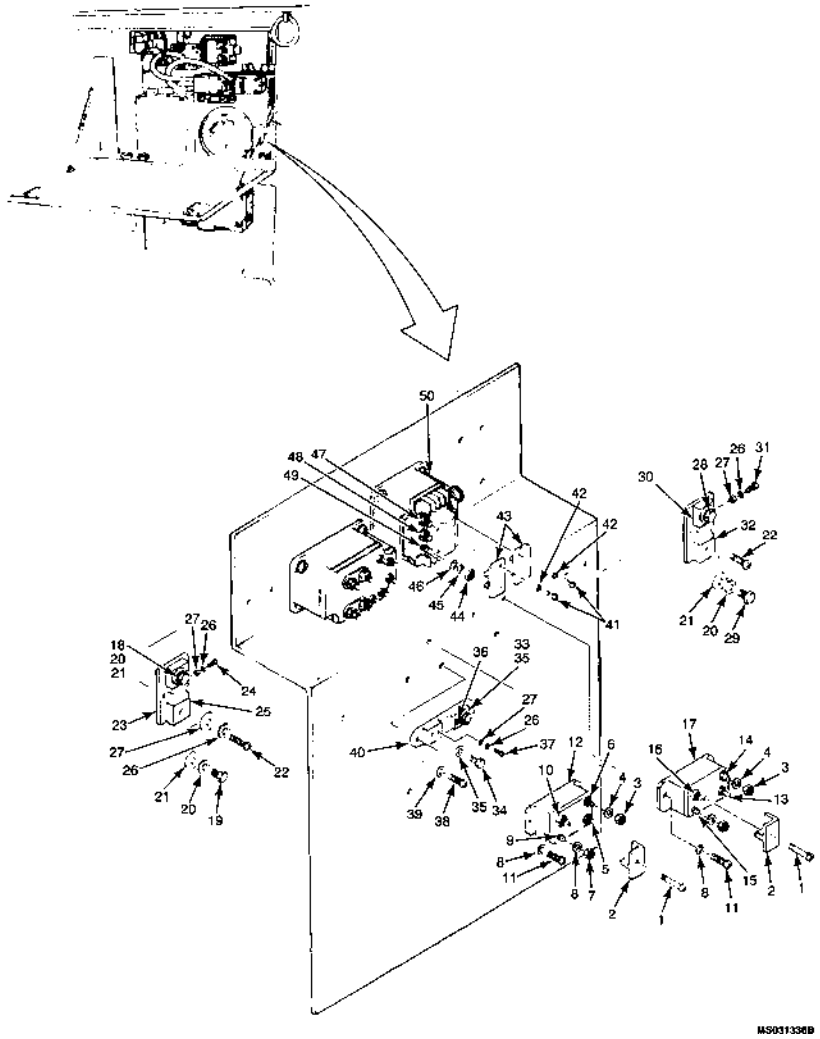
FIELD MAINTENANCE

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	References
Aviation Foot Locker, AFL (WP 0155 00, Item 3)	WP 0041 00
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)	WP 0043 00
Tool Set, Aviation Unit (WP 0155 00, Item 41)	WP 0044 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. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Lower the control panel (WP 0041 00).
4. Inspect shunts R1 (Figure 1, Item 23), R2 (Figure 1, Item 30) and R3 (Figure 1, Item 40) for signs of overheating or corrosion.
5. Check that all shunt cable and wire connections are tight.

REMOVAL

REMOVAL OF SHUNT R1

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Lower the control panel (WP 0041 00).

NOTE

Removing of the AC contactor K1 wires is necessary for access to shunt R1.

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).
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), washer (Figure 1, Item 21) cable or cables (with smaller cable first) and washer (Figure 1, Item 30). Thread screws into shunt (Figure 1, Item 30).
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), lock washers (Figure 1, Item 42) and screws (Figure 1, Item 41).
7. Replace control panel.

REMOVAL

REMOVAL OF SHUNT R2

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Lower the control panel (WP 0041 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).
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 (Figure 1, Item 30).
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), washer (Figure 1, Item 21) cable or cables (with smaller cable first) and washer (Figure 1, Item 21). Thread screws into shunt (Figure 1, Item 30).
5. Replace control panel.

REMOVAL

REMOVAL OF SHUNT 3

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Lower the control panel (WP 0041 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 28 and 29). Using ID tags, install (in order) on each screw, lock washer (Figure 1, Item 20), washer (Figure 1, Item 21) cable or cables (with smaller cable first). Thread screws into shunt (Figure 1, Item 40 (Figure 1, Item 33).
5. Replace control panel.

END OF WORK PACKAGE

FIELD MAINTENANCE

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	References
Aviation Foot Locker, AFL (WP 0155 00, Item 3)	WP 0029 00
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)	WP 0043 00
	WP 0044 00
Tool Set, Aviation Unit (WP 0155 00, Item 41)	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 0029 00. Inspect wire harnesses as follows:

1. Set MASTER SWITCH to OFF and disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Inspect wiring harness for damaged insulation and broken wires. Refer to Figure FO 15 through Figure 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.

REPAIR OR REPLACEMENT – CONTINUED

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.
P25A20	20	RED	36”	P1-A	P9-F	4 COND. SHIELD WIRE	Figure FO 15 (Sheet 2 of 5)
P26A20	20	BLACK	36”	P1-B	P9-C	4 COND. SHIELD WIRE	Figure FO 15 (Sheet 2 of 5)
P27A20	20	GREEN	36”	P1-C	P9-D	4 COND. SHIELD WIRE	Figure FO 15 (Sheet 2 of 5)
P28A20	20	WHITE	36”	P1-D	P9-E	4 COND. SHIELD WIRE	Figure FO 15 (Sheet 2 of 5)
SHIELD GND		NONE	A/R	WIRE SHIELDS	P1-E	4 COND. SHIELD WIRE	Figure FO 15 (Sheet 2 of 5)
P29A20	20	WHT	42”	P1-G	TB3-8	ANODE	Figure FO 15 (Sheet 2 of 5)
P24A16	16	WHT	67”	P1-H	2CB2-L	#8 LUG	Figure FO 15 (Sheet 2 of 5)
P23A16	16	WHT	66”	P1-I	2CB2-L	#8 LUG	Figure FO 15 (Sheet 2 of 5)
P30A18	18	WHT	37.5”	P2-A	P9-S		Figure FO 15 (Sheet 2 of 5)
P31A18N	18	WHT	36.5”	P2-B	GND TB	#6 LUG	Figure FO 15 (Sheet 2 of 5)
E2C18	18	WHT	146”	P5-1L	S2E-2	EMER. SWITCH #6 LUG	Figure FO 15 (Sheet 2 of 5)
E3C20	20	WHT	29”	P5-1R	TB1-1	ANODE, #6 LUG	Figure FO 15 (Sheet 2 of 5)
E4H18	18	WHT	44”	P5-2R	P18-B		Figure FO 15 (Sheet 2 of 5)
E18A20	20	WHT	30”	P5-3L	TB2-15	CATHODE, #6 LUG	Figure FO 15 (Sheet 2 of 5)
E37B20N	20	WHT	40.5”	P5-3R	GND TB	#6 LUG	Figure FO 15 (Sheet 2 of 5)
E7A20	20	WHT	43.5”	P5-4L	P4 - a		Figure FO 15 (Sheet 2 of 5)
E8A20	20	WHT	43.5”	P5-4R	P4 - b		Figure FO 15 (Sheet 2 of 5)
E9A20	20	WHT	43.5”	P5-5L	P4-M		Figure FO 15 (Sheet 2 of 5)
E10A20	20	WHT	43.5”	P5-5R	P4 -c		Figure 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.
E21A20	20	WHT	36.5”	P5-6L	S1E, THERM SWITCH	BARE WIRE	Figure FO 15 (Sheet 2 of 5)
E11C20	20	WHT	41”	P5-6R	TB3-1	ANODE, #6 LUG	Figure FO 15 (Sheet 2 of 5)
E12C20	20	WHT	40”	P5-7R	TB3-2	#6 LUG	Figure FO 15 (Sheet 2 of 5)
E13C20	20	WHT	41.5”	P5-8L	TB3-3	ANODE, #6 LUG	Figure FO 15 (Sheet 2 of 5)
E22A20	20	WHT	104.5”	P5-8R	S3E-NC, S3E	INLET FILTER SW.	Figure FO 15 (Sheet 2 of 5)
						AIR STARVATION SW.	Figure FO 15 (Sheet 2 of 5)
E14C20	20	WHT	41”	P5-9L	TB3-4	ANODE, #6 LUG	Figure FO 15 (Sheet 2 of 5)
E15C20	20	WHT	41.5”	P5-9R	TB3-5	ANODE, #6 LUG	Figure FO 15 (Sheet 2 of 5)
E1K20	20	WHT	36.5”	P5-10L	SIF-NO	BARE WIRE	Figure FO 15 (Sheet 2 of 5)
E39B20N	20	WHT	39.5”	P5-10R	GND TB	#6 LUG	Figure FO 15 (Sheet 2 of 5)
E28A20	20	WHT	118.5”	P5-11L	P14-F		Figure FO 15 (Sheet 2 of 5)
E29B20	20	WHT	147”	P5-11R	S2E-6	EMER. SW., #6 LUG	Figure FO 15 (Sheet 2 of 5)
Q1D20	20	WHT	31”	P5-12L	TB1-15	ANODE, R1Q RESISTOR,	Figure FO 15 (Sheet 2 of 5)
						#6 LUG	Figure FO 15 (Sheet 2 of 5)
Q2A20	20	WHT	39”	P5-12R	TB1-14	DIODE, ZENER, #6 LUG	Figure FO 15 (Sheet 2 of 5)
						CATHODE	Figure FO 15 (Sheet 2 of 5)
Q4B20	20	WHT	76”	P5-13L	S1Q	BARE WIRE, FUEL LEV. SW.	Figure FO 15 (Sheet 2 of 5)
Q5B20	20	WHT	87”	P5-13R	S2Q	FUEL PRES SW., #8 LUG	Figure 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.
Q6B20	20	WHT	71”	P5-14L	MT1Q(+)	FUEL LEV SEND, FLOAT	Figure FO 15 (Sheet 2 of 5)
						SW., #12 LUG	Figure FO 15 (Sheet 2 of 5)
L26A20	20	WHT	29”	P5-14R	TB2-13	CATHODE, #6 LUG	Figure FO 15 (Sheet 2 of 5)
L24A20	20	WHT	31”	P5-15L	TB1-2	ANODE, #6 LUG	Figure FO 15 (Sheet 2 of 5)
L23A20	20	WHT	30”	P5-15R	TB1-3	ANODE, #6 LUG	Figure FO 15 (Sheet 2 of 5)
L22A20	20	WHT	30”	P5-16L	TB1-4	ANODE, #6 LUG	Figure FO 15 (Sheet 2 of 5)
L21A20	20	WHT	29”	P5-16R	TB1-6	ANODE, #6 LUG	Figure FO 15 (Sheet 2 of 5)
L19A20	20	WHT	30”	P5-17L	TB1-7	ANODE, #6 LUG	Figure FO 15 (Sheet 2 of 5)
L18A20	20	WHT	29”	P5-17R	TB1-8	ANODE, #6 LUG	Figure FO 15 (Sheet 2 of 5)
L17A20	20	WHT	29”	P5-18L	TB1-9	ANODE, #6 LUG	Figure FO 15 (Sheet 2 of 5)
L20A20	20	WHT	28”	P5-18R	TB2-11	CATHODE, #6 LUG	Figure FO 15 (Sheet 2 of 5)
L16A20	20	WHT	29”	P5-19L	TB1-10	ANODE, #6 LUG	Figure FO 15 (Sheet 2 of 5)
P15A20	20	WHT	54”	P5-19R	P12-e		Figure FO 15 (Sheet 2 of 5)
P16A20	20	WHT	54”	P5-20L	P12-r		Figure FO 15 (Sheet 2 of 5)
P46A20	20	WHT	52”	P5-21L	K2-B2	DC CONTAC-TOR, #12 LUG	Figure FO 15 (Sheet 2 of 5)
P34C20	20	WHT	42.5”	P5-21Rv	P9-P		Figure FO 15 (Sheet 2 of 5)
P35F18	18	WHT	42.5”	P5-22L	P9-N		Figure FO 15 (Sheet 2 of 5)
P53H20N	20	WHT	39.5”	P5-23L	GND TB	#6 LUG	Figure FO 15 (Sheet 2 of 5)
P47A20	20	WHT	35.5”	P5-23R	R3 (-)	SHUNT METER (-), #8 LUG	Figure 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.
P48A20	20	WHT	38”	P5-24L	R3 (+)	SHUNT METER (+), #8 LUG	Figure FO 15 (Sheet 2 of 5)
P42A20	20	WHT	33.5”	P5-24R	R2 (-)	#8 LUG (TWISTED PAIR)	Figure FO 15 (Sheet 2 of 5)
P43A20	20	WHT	36”	P5-Av	R2 (+)	#8 LUG (TWISTED PAIR)	Figure FO 15 (Sheet 2 of 5)
P17B20	20	WHT	60”	P5-C	R1(-)	#8 LUG	Figure FO 15 (Sheet 2 of 5)
P18B20	20	WHT	62”	P5-(+)	R1(+)	#8 LUG	Figure FO 15 (Sheet 2 of 5)
P3C20	20	WHT	64”	P5-(-)	R1(+)	#8 LUG	Figure FO 15 (Sheet 2 of 5)
E44A20N	20	WHT	35.5”	P4-G	GND TB	#8 LUG	Figure FO 15 (Sheet 2 of 5)
E16A20	20	WHT	32”	P4-J	K4-X1	#8 LUG	Figure FO 15 (Sheet 2 of 5)
E45A20N	20	WHT	37”	P4-N	GND TB	#6 LUG	Figure FO 15 (Sheet 2 of 5)
E17A20	20	WHT	41”	P4-S	P8-A		Figure FO 15 (Sheet 2 of 5)
E6A20	20	WHT	147.5”	P4-T	S2E-5	EMER. SHUTofF SW.	Figure FO 15 (Sheet 2 of 5)
						#6 LUG	Figure FO 15 (Sheet 2 of 5)
E42A18N	18	WHT	42”	P4-X	GND TB	#6 LUG	Figure FO 15 (Sheet 2 of 5)
E30B20	20	WHT	43”	P4-Z	P6-T		Figure FO 15 (Sheet 2 of 5)
E43A20N	20	WHT	42”	P4-j	GND TB	#6 LUG	Figure FO 15 (Sheet 2 of 5)
H1C20	20	WHT	32”	P6-A	TB1-13	R1H RESISTOR (+), ANODE,	Figure FO 15 (Sheet 2 of 5)
						#6 LUG	Figure 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.
H2B20	20	WHT	38”	P6-B	TB1-13	R1H RESISTOR (-), CATHODE,	Figure FO 15 (Sheet 2 of 5)
						#6 LUG	Figure FO 15 (Sheet 2 of 5)
H3B20	20	WHT	96”	P6-C	MT1H - (+)	BARE WIRE, PRESSURE	Figure FO 15 (Sheet 2 of 5)
						TRANS-DUCER ENGINE	Figure FO 15 (Sheet 2 of 5)
H4C20N	20	WHT	44”	P6-D	GND TB	#6 LUG	Figure FO 15 (Sheet 2 of 5)
H6B20	20	WHT	119”	P6-E	L1H-1–N0	BARE WIRE, PNEU. VALVE	Figure FO 15 (Sheet 2 of 5)
						LCV	Figure FO 15 (Sheet 2 of 5)
L9A20	20	WHT	32”	P6-F	TB2-4	CATHODE #6 LUG	Figure FO 15 (Sheet 2 of 5)
L29A20	20	WHT	28.5”	P6-G	TB1-5	ANODE, #6 LUG	Figure FO 15 (Sheet 2 of 5)
G2C20	20	WHT	45.5”	P6-H	TB4-10	#6 LUG	Figure FO 15 (Sheet 2 of 5)
G4B20N	20	WHT	44.5’	P6-J	TB3-11	ANODE, #6 LUG	Figure FO 15 (Sheet 2 of 5)
L28B20	20	WHT	43.5”	P6-K	TB2-3	ANODE, #6 LUG	Figure FO 15 (Sheet 2 of 5)
L30B20N	20	WHT	41”	P6-L	GND TB	#6 LUG	Figure FO 15 (Sheet 2 of 5)
L27B20	20	WHT	39’	P6-M	TB1-2	CATHODE #6 LUG	Figure FO 15 (Sheet 2 of 5)
L2B20	20	WHT	42”	P6-N	P8-S		Figure FO 15 (Sheet 2 of 5)
L3B20	20	WHT	42”	P6-P	P8-T		Figure FO 15 (Sheet 3 of 5)
L4B20	20	WHT	42.5”	P6-R	P9-A		Figure FO 15 (Sheet 3 of 5)
L5B20	20	WHT	42.5”	P6-S	P9-B		Figure 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.
E35C20N	20	WHT	32.5”	P8-B	GND TB	#6 LUG	Figure FO 15 (Sheet 3 of 5)
P6A20	20	WHT	60.5”	P8-C	P13-J		Figure FO 15 (Sheet 3 of 5)
P11A20	20	WHT	45.5”	P8-D	P12-Z		Figure FO 15 (Sheet 3 of 5)
P5A20	20	WHT	60.5”	P8-E	P13-H		Figure FO 15 (Sheet 3 of 5)
P12A20	20	WHT	45.5”	P8-F	P12-X		Figure FO 15 (Sheet 3 of 5)
P4A20	20	WHT	60.5”	P8-G	P13-E		Figure FO 15 (Sheet 3 of 5)
P13A20	20	WHT	45.5”	P8-H	P12-W		Figure FO 15 (Sheet 3 of 5)
E33C20	20	WHT	110”	P8-J	P14-B		Figure FO 15 (Sheet 3 of 5)
E34C20	20	WHT	110”	P8-K	P14-C		Figure FO 15 (Sheet 3 of 5)
E25D18	18	WHT	141”	P8-L	S2E-1	EMER. SW., #6 LUG	Figure FO 15 (Sheet 3 of 5)
E31C20	20	WHT	42”	P8-N	TB4-13	FUEL BOOST PUMP, #6	Figure FO 15 (Sheet 3 of 5)
G5F20	20	WHT	29.5”	TB2-2	P10-S	CR2G CATHODE, #6 LUG	Figure FO 15 (Sheet 3 of 5)
G6F20	20	WHT	30.5”	TB2-1	P10-A	CR1G CATHODE, #6 LUG	Figure FO 15 (Sheet 3 of 5)
X59B20	20	WHT	41.5”	P9-G	P7-15R		Figure FO 15 (Sheet 3 of 5)
X9J20N	20	WHT	41.5”	P9-H	P7-14L		Figure FO 15 (Sheet 3 of 5)
X41C20	20	WHT	42”	P9-J	P7-7R		Figure FO 15 (Sheet 3 of 5)
X9N20N	20	WHT	43.5”	P18-A	P7-16R		Figure FO 15 (Sheet 3 of 5)
P49C20N	20	WHT	65.75”	P9-L	GND TB	#6 LUG	Figure FO 15 (Sheet 3 of 5)
C1C20	20	WHT	118.5”	P7-5R	P14-J		Figure 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.
P33D16	16	WHT	26.5”	P9-R	R3 (-)	3/8” LUG	Figure FO 15 (Sheet 3 of 5)
P41D20	20	WHT	32.5”	P7-1R	R2 (-)	#8 LUG	Figure FO 15 (Sheet 3 of 5)
P40B20	20	WHT	39”	P7-1L	K3-X2	#8 LUG	Figure FO 15 (Sheet 3 of 5)
L10A20	20	WHT	27”	P7-2L	TB2-5	CATHODE, #6 LUG	Figure FO 15 (Sheet 3 of 5)
L11A20	20	WHT	30”	P7-3R	TB2-6	CATHODE, #6 LUG	Figure FO 15 (Sheet 3 of 5)
L25A20	20	WHT	28”	P7-3L	TB2-12	CATHODE, #6 LUG	Figure FO 15 (Sheet 3 of 5)
L8A20	20	WHT	29”	P7-4R	TB2-14	CATHODE, #6 LUG	Figure FO 15 (Sheet 3 of 5)
L7A20	20	WHT	30”	P7-7L	TB1-11	ANODE, #6 LUG	Figure FO 15 (Sheet 3 of 5)
X38A20	20	WHT	63.5”	P7-8R	P11-C		Figure FO 15 (Sheet 3 of 5)
L12A20	20	WHT	31”	P7-8L	TB2-7	CATHODE, #6 LUG	Figure FO 15 (Sheet 3 of 5)
X21A20	20	WHT	54”	P7-9R	P12-b		Figure FO 15 (Sheet 3 of 5)
L13A20	20	WHT	29”	P7-9L	TB2-8	CATHODE, #6 LUG	Figure FO 15 (Sheet 3 of 5)
X22A20	20	WHT	54”	P7-10R	P12–a		Figure FO 15 (Sheet 3 of 5)
L14A20	20	WHT	30”	P7-10L	TB2-9	CATHODE, #6 LUG	Figure FO 15 (Sheet 3 of 5)
X23A20	20	WHT	54”	P7-11R	P12-d		Figure FO 15 (Sheet 3 of 5)
L15A20	20	WHT	29”	P7-11L	TB2-10	CATHODE, #6 LUG	Figure FO 15 (Sheet 3 of 5)
X24A20	20	WHT	54”	P7-12R	P12-c		Figure FO 15 (Sheet 3 of 5)
X19A20	20	WHT	54”	P7-12L	P12-R		Figure FO 15 (Sheet 3 of 5)
X36A20	20	WHT	63.5”‘	P7-13R	P11-B		Figure FO 15 (Sheet 3 of 5)
X20A20	20	WHT	54”	P7-13L	P12-S		Figure 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.
X34A20	20	WHT	63.5”	P7-15L	P11-F		Figure FO 15 (Sheet 3 of 5)
X9S20N	20	WHT	54”	P7-16L	P12-N		Figure FO 15 (Sheet 3 of 5)
X37A20	20	WHT	63.5”	P7-17R	P11-E		Figure FO 15 (Sheet 3 of 5)
X30A20	20	BLK	61”	P7-17L	T4 (-)	BARE WIRE	Figure FO 15 (Sheet 3 of 5)
X28A20	20	BLK	58”	P17-18R	T3 (-)	BARE WIRE	Figure FO 15 (Sheet 3 of 5)
X26A20	20	BLK	54”	P7-18L	T2 (-)	BARE WIRE	Figure FO 15 (Sheet 3 of 5)
X29A20	20	WHT	61”	P7-19R	TR (+)	BARE WIRE	Figure FO 15 (Sheet 3 of 5)
X27A20	20	WHT	58”	P7-19L	T3 (+)	BARE WIRE	Figure FO 15 (Sheet 3 of 5)
X25A20	20	WHT	54”	P7-20R	T2 (+)	BARE WIRE	Figure FO 15 (Sheet 3 of 5)
X33B20C	20	WHT	53”	P7-20L	K1-C2	3/8” LUG	Figure FO 15 (Sheet 3 of 5)
X32B20B	20	WHT	54.5”	P7-21R	K1-B2	3/8” LUG	Figure FO 15 (Sheet 3 of 5)
X31B20A	20	WHT	55.5”	P7-21L	K1-A2	3/8” LUG	Figure FO 15 (Sheet 3 of 5)
X46A20	20	WHT	54”	P7-22A	P12-z		Figure FO 15 (Sheet 3 of 5)
Z47A20	20	WHT	54”	P7-22L	P12-P		Figure FO 15 (Sheet 3 of 5)
X48A20	20	WHT	54”	P7-23R	P12-E		Figure FO 15 (Sheet 3 of 5)
X49A20	20	WHT	54”	P7-23L	P12-v		Figure FO 15 (Sheet 3 of 5)
X50A20	20	WHT	54”	P7-24R	P12-u		Figure FO 15 (Sheet 3 of 5)
X51A20	20	WHT	54”	P7-24L	P12-t		Figure FO 15 (Sheet 3 of 5)
X53A20	20	WHT	54”	P7-A	P12-w		Figure FO 15 (Sheet 3 of 5)
X56A20	20	WHT	54”	P7-C	P12-c		Figure 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.
X57A20	20	WHT	54”	P7- (+)	P12-r		Figure FO 15 (Sheet 3 of 5)
X58A20	20	WHT	54”	P7- (-)	P12-s		Figure FO 15 (Sheet 3 of 5)
G3F20	20	WHT	42.5”	P10-B	P7-6L		Figure FO 15 (Sheet 3 of 5)
G7B20	20	WHT	40”	P10-C	TB4-3	#6 LUG	Figure FO 15 (Sheet 3 of 5)
G8B20	20	WHT	41”	P10-D	TB4-4	#6 LUG	Figure FO 15 (Sheet 3 of 5)
G9B20	20	WHT	41”	P10-E	TB4-5	#6 LUG	Figure FO 15 (Sheet 3 of 5)
G6C20	20	WHT	41”	P10-F	TB4-6	#6 LUG	Figure FO 15 (Sheet 3 of 5)
G5C20	20	WHT	42”	P10-G	TB4-7	PROPULSION CONTROLLER	Figure FO 15 (Sheet 3 of 5)
						#6 LUG	Figure FO 15 (Sheet 3 of 5)
G18C20N	20	WHT	34.5	P10-H	GND TB	#6 LUG	Figure FO 15 (Sheet 3 of 5)
G16C20	20	WHT	64”	TB4-1	S4G-1–NC	#6 LUG, CLUTCH SW.	Figure FO 15 (Sheet 3 of 5)
X18A20	20	WHT	28”	P11-A	P12-Q		Figure FO 15 (Sheet 3 of 5)
X35A20N	20	WHT	39”	P11-D	GND TB	#6 LUG	Figure FO 15 (Sheet 3 of 5)
X1B20A	20	WHT	21.5	P12-A	K1-A1	3/8” LUG	Figure FO 15 (Sheet 3 of 5)
X2B20B	20	WHT	20.5”	P12-B	K1-B1	3/8” LUG	Figure FO 15 (Sheet 3 of 5)
X3B20C	20	WHT	19”	P12-C	K1-C1	3/8” LUG	Figure FO 15 (Sheet 3 of 5)
X5A20	20	WHT	59”	P12-D	P13-D		Figure FO 15 (Sheet 3 of 5)
X6A20	20	WHT	59”	P12-F	P13-P		Figure FO 15 (Sheet 3 of 5)
X13A20	20	WHT	36”	P12-G	T1-N	#4 LUG	Figure 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.
P14A20	20	WHT	18”	P12-H	K2-X1	#8 LUG	Figure FO 15 (Sheet 3 of 5)
X10A20	20	WHT	36”	P12-J	T1-T1	#4 LUG	Figure FO 15 (Sheet 3 of 5)
X11A20	20	WHT	36”	P12-K	T1-T2	#4 LUG	Figure FO 15 (Sheet 3 of 5)
X12A20	20	WHT	36”	P12-L	T1-T3	#4 LUG	Figure FO 15 (Sheet 4 of 5)
P2E20	20	WHT	18”	P12-M	K2-B1	#8 LUG	Figure FO 15 (Sheet 4 of 5)
P7A20	20	WHT	59”	P12-T	P13-A		Figure FO 15 (Sheet 4 of 5)
P8A20	20	WHT	59”	P12-V	P13-B		Figure FO 15 (Sheet 4 of 5)
P9A20	20	WHT	59”	P12-Y	P13-C		Figure FO 15 (Sheet 4 of 5)
X7A20	20	WHT	59”	P12-g	P13-K		Figure FO 15 (Sheet 4 of 5)
X8A20	20	WHT	59”	P12-h	P13-L		Figure FO 15 (Sheet 4 of 5)
P18A20	20	WHT	15”	P12-j	R1 (+)	#8 LUG	Figure FO 15 (Sheet 4 of 5)
P17A20	20	WHT	13”	P12-y	R1 (-)	#8 LUG	Figure FO 15 (Sheet 4 of 5)
P50A12N	12	WHT	24”	GND TB	DC GND STUD	1/2” LUG	Figure FO 15 (Sheet 4 of 5)
H8A20N	20	WHT	26”	TB1-12	GND TB	ANODE, #6 LUG	Figure FO 15 (Sheet 4 of 5)
H9A20	20	WHT	91.5”	L1H-1-GND	GND TB	PNEU. VALVE, #6 LUG	Figure FO 15 (Sheet 4 of 5)
H10A20N	20	WHT	67”	MT1H-(-)	GND TB	PRES. XDUCER, #6 LUG	Figure FO 15 (Sheet 4 of 5)
Q3A20N	20	WHT	24”	TB1-14	GND TB	CR1Q, ANODE, #6 LUG	Figure FO 15 (Sheet 4 of 5)
G19A20N	20	WHT	33”	TB2-2	GND TB	CR2G, ANODE, #6 LUG	Figure 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.
L6B20N	20	WHT	77.5”	DS101-(-)	GND TB	#6 LUG	Figure FO 15 (Sheet 4 of 5)
L6A20N	20	WHT	36”	DS101-(-)	DS102-(-)	BARE WIRE	Figure FO 15 (Sheet 4 of 5)
L3D20	20	WHT	36”	DS101-(+)	DS102-(+)	BARE WIRE	Figure FO 15 (Sheet 4 of 5)
L5D20	20	WHT	83”	DS103-(+)	DS104-(+)	BARE WIRE	Figure FO 15 (Sheet 4 of 5)
L5E20	20	WHT	132”	DS104-(+)	P14-A		Figure FO 15 (Sheet 4 of 5)
L31A20N	20	WHT	83”	DS104-(-)	DS103-(-)	BARE WIRE	Figure FO 15 (Sheet 4 of 5)
L31B20N	20	WHT	47.5”	DS103-(-)	GND TB	#6 LUG	Figure FO 15 (Sheet 4 of 5)
G17A20N	20	WHT	41”	TB4-9	GND TB	#6 LUG	Figure FO 15 (Sheet 4 of 5)
E26A20	20	WHT	109”	P14-E	K4-X2	#8 LUG	Figure FO 15 (Sheet 4 of 5)
C4A20	20	WHT	137.5”	P14-G	P16-B		Figure FO 15 (Sheet 4 of 5)
C3A20	20	WHT	137.5”	P14-H	P16-A		Figure FO 15 (Sheet 4 of 5)
C2A20N	20	WHT	98”	P14-I	GND TB	#6 LUG	Figure FO 15 (Sheet 4 of 5)
C5A20N	20	WHT	78”	P16-E	GND TB	#6 LUG	Figure FO 15 (Sheet 4 of 5)
Q7A20N	20	WHT	70”	S1Q-(N0)	GND TB	FUEL LEV. SW., #6 LUG	Figure FO 15 (Sheet 4 of 5)
Q7B20N	20	WHT	81”	S2Q-(N0)	GND TB	FUEL PRES. SW., GND	Figure FO 15 (Sheet 4 of 5)
						TB #6 LUG	Figure FO 15 (Sheet 4 of 5)
Q7C20N	20	WHT	65”	MT1O-(-)	GND TB	FUEL LEVEL SENDER,	Figure FO 15 (Sheet 4 of 5)
						#6 LUG	Figure FO 15 (Sheet 4 of 5)
P41A20	20	WHT	6”	K3-A2	K3-X1	3/8” LUG, #8 LUG	Figure FO 15 (Sheet 4 of 5)
E40A20N	20	WHT	83”	S3E-C	GND TB	S3E INLET SW., AIR	Figure 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.
						STARV. SW., #6 LUG	Figure FO 15 (Sheet 4 of 5)
E41A20N	20	WHT	52”	TB4-14	GND TB	#6 LUG, #6 LUG	Figure FO 15 (Sheet 4 of 5)
G11C2	2	WHT	44”	R1-(-)	2K1-N0	1/2”, 3/8”, R1(-) DC CBL SIDE	Figure FO 15 (Sheet 4 of 5)
G11B2	2	WHT	2”	2K1-N0	2K2-N0	3/8”, 3/8”	Figure FO 15 (Sheet 4 of 5)
G11A2	2	WHT	19”	2K2-N0	2A1-B+POS	3/8”, 3/8”	Figure FO 15 (Sheet 4 of 5)
G13A2	2	WHT	7”	2K1-N0	2K1-NC	3/8”, 3/8”	Figure FO 15 (Sheet 4 of 5)
G13B2	2	WHT	80”	2K1-NC	B1G-A1	3/8”, 3/8”, PROP MOTOR	Figure FO 15 (Sheet 4 of 5)
G10B2	2	WHT	7”	2K1-NC	2K2-NC	3/8”, 3/8”	Figure FO 15 (Sheet 4 of 5)
G10A2	2	WHT	10”	2K2-NC	2A1-(S2)	3/8”, 3/8”, ARM/FLD	Figure FO 15 (Sheet 4 of 5)
G12A2	2	WHT	7”	2K2-N0	2K2-NC	3/8”, 3/8”	Figure FO 15 (Sheet 4 of 5)
G12B2	2	WHT	80”	2K2-NC	B1G-A2	3/8”, 3/8”, PROP MOTOR	Figure FO 15 (Sheet 4 of 5)
G14A2	2	WHT	80”	B1G-S1	2A1-S1	3/8”, 3/8”	Figure FO 15 (Sheet 4 of 5)
G15A2	2	WHT	80”	B1G-S2	2A1-S2	3/8”, 3/8”	Figure FO 15 (Sheet 4 of 5)
G21A2N	2	WHT	14”	DC GND STUD	2A1-B-NEG	1/2”, 3/8”	Figure FO 15 (Sheet 4 of 5)
P33C6	6	WHT	13”	R2(+)	R3(+)	1/2”, 1/2”	Figure FO 15 (Sheet 4 of 5)
P32A6	6	WHT	20	R3(-)	J3(+) BAT CHGR	1/2”, 1/4”, BAT CHGR	Figure FO 15 (Sheet 4 of 5)
?P32A6	6			R3(-)	J3-(+) BAT CHGR	1/4”, 1/4”, BAT CHGR	Figure FO 15 (Sheet 5 of 5)
P21A6N	6	WHT	24”	J4(-) BAT CHGR	J3(-) BAT CHGR	1/4”, 1/4”, BAT CHGR	Figure 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.
?P21A6N	6			J4-(-) BAT CHGR	J3-(-) BAT CHGR	1/4",1/4", BAT CHGR	Figure FO 15 (Sheet 5 of 5)
P21B2N	2	WHT	36"	J4(-) BAT CHGR	DC GND STUD	1/4", 1/2", BAT CHGR	Figure FO 15 (Sheet 4 of 5)
P21B2N	2			J4-(-) BAT CHGR	DC GND STUD	1/4", 1/2, BAT CHGR	Figure FO 15 (Sheet 5 of 5)
X31D14A	14	WHT	72"	K1-A2	3CB6-B	3/8" LUG, #10 LUG	Figure FO 15 (Sheet 4 of 5)
X32D14B	14	WHT	72"	K1-B2	3CB5-B	3/8" LUG, #10 LUG	Figure FO 15 (Sheet 4 of 5)
X33D14C	14	WHT	72"	K1-C2	3CB4-B	3/8" LUG, #10 LUG	Figure FO 15 (Sheet 4 of 5)
X33E14C	14	WHT	6"	3CB3-B	3CB4-B	#10 LUG, #10 LUG	Figure FO 15 (Sheet 4 of 5)
X42A14	14	WHT	48"	3CB6-L	J4(+) AC OUTLET	BARE WIRE, #10 LUG	Figure FO 15 (Sheet 4 of 5)
X43A14	14	WHT	48"	3CB5-L	J3(+) AC OUTLET	BARE WIRE, #10 LUG	Figure FO 15 (Sheet 4 of 5)
X44A14	14	WHT	48"	3CB4-L	J2(+) AC OUTLET	BARE WIRE, #10 LUG	Figure FO 15 (Sheet 4 of 5)
X44A14	14			3CB4-L	J2-(+) AC OUTLET	BARE WIRE, #10 LUG	Figure FO 15 (Sheet 5 of 5)
X45A14	14	WHT	48"	3CB3-L	J1(+) AC OUTLET	BARE WIRE, #10 LUG	Figure FO 15 (Sheet 4 of 5)
X45A14	14			3CB3-L	J1-(+) AC OUTLET	BARE WIRE, #10 LUG	Figure FO 15 (Sheet 5 of 5)
X9B14N	14	WHT	6"	J3(-) AC OUTLET	J2(-) AC OUTLET	BARE WIRE, #10 LUG	Figure FO 15 (Sheet 4 of 5)
X9D8N	8	WHT	66"	J4(-) AC OUTLET	G1X-N	#10 LUG, 1/4 LUG	Figure FO 15 (Sheet 4 of 5)
X9D8N	R.C.E.			J4-(-) AC OUTLET	G1X-N	BARE WIRE, 1/4 & #10 LUG	Figure FO 15 (Sheet 5 of 5)
X9E20N	20	WHT	59.5"	J1(-) AC OUTLET	P7-l4R	BARE WIRE	Figure FO 15 (Sheet 4 of 5)
X9E20N	20			J1-(-) AC OUTLET	P7-14R	BARE WIRE	Figure FO 15 (Sheet 5 of 5)
E3D20	20	WHT	40"	TB1-1 CATHODE	P8-P	#6 LUG	Figure FO 15 (Sheet 4 of 5)
E11A20	20	WHT	43"	TB3-1 CATHODE	P4-g	CATHODE, #6 LUG	Figure 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.
E11A20	20		16”	TB3-1 CATHODE	P4-g	CATHODE, #6 LUG	Figure FO 15 (Sheet 5 of 5)
E12A20	20	WHT	43”	TB3-2 CATHODE	P4-d	CATHODE, #6 LUG	Figure FO 15 (Sheet 4 of 5)
E12A20	20		161/2	TB3-2 CATHODE	P4-d	CATHODE, #6 LUG	Figure FO 15 (Sheet 5 of 5)
E12E20	20	WHT	6”	TB3-2 ANODE	TB3-6 ANODE	#6 LUG, #6 LUG	Figure FO 15 (Sheet 4 of 5)
E12E20	20			TB3-2 ANODE	TB3-6 ANODE	ANODE, CATHODE, #6 LUG; #6 LUG	Figure FO 15 (Sheet 5 of 5)
E12D20	20	WHT	45”	TB3-6 CATHODE	P4-L	CATHODE, #6 LUG	Figure FO 15 (Sheet 4 of 5)
E13A20	20	WHT	43”	TB3-3 CATHODE	P4-h	CATHODE, #6 LUG	Figure FO 15 (Sheet 4 of 5)
E14A20	20	WHT	43.5”	TB3-4 CATHODE	P4-r	CATHODE, #6 LUG	Figure FO 15 (Sheet 4 of 5)
E14A20	20		171/4	TB3-4 CATHODE	P4-f	CATHODE, #6 LUG	Figure FO 15 (Sheet 5 of 5)
E15A20	20	WHT	44”	TB3-5 CATHODE	P4-e	CATHODE, #6 LUG	Figure FO 15 (Sheet 4 of 5)
C1D18	18	WHT	42”	P7-4L	P9-M		Figure FO 15 (Sheet 4 of 5)
P22A2	2	WHT	68”	J4(+) BAT CHGR	3CB1-L	1/4”, 1/4”	Figure FO 15 (Sheet 4 of 5)
?P22A2	not done at RCE			J4-(+) BAT CHGR	3CB1-L	1/4” & 1/4”	Figure FO 15 (Sheet 5 of 5)
P2B2	2	WHT	34”	3CB1-B	K2-A1	1/4”, 3/8”	Figure FO 15 (Sheet 4 of 5)
?P2B2	2			3CB1-B	K2-A1	1/4” & 1/4”	Figure FO 15 (Sheet 5 of 5)
P38B20	20	WHT	51”	P7-5L	K2-X2	#8 LUG	Figure FO 15 (Sheet 4 of 5)
P2C8	8	WHT	36”	3CB2-B	K2-A1	3/8” LUG, #8 LUG	Figure FO 15 (Sheet 4 of 5)
E18C20	20	WHT	36”	K4-A1	TB2-15 ANODE	ANODE, 3/8” LUG, #6 LUG	Figure FO 15 (Sheet 4 of 5)
							Figure 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.
P2D20	20	WHT	6”	K2-A1	K2-B1	3/8”, 3/8”	Figure FO 15 (Sheet 4 of 5)
L5C20	20	WHT	62”	DS103(+)	P9-B	BARE WIRE	Figure FO 15 (Sheet 4 of 5)
L5C20	20			ØDS3-(+)	P9-B	BARE WIRE	Figure FO 15 (Sheet 5 of 5)
G24A20	20	WHT	54”	TB4-2	BIG TEMP SW	PROP MOTOR, BARE WIRE	Figure FO 15 (Sheet 4 of 5)
G22A20	20	WHT	26”	R3(-)	P8-R	3/8” LUG, SHUNT	Figure FO 15 (Sheet 4 of 5)
G21B20	20	WHT	65”	S4G-1-COM	P9-K	BARE WIRE, CLUTCH SW.	Figure FO 15 (Sheet 4 of 5)
G21B20	20			S4G – COM	P9-K	BARE WIRE, CLUTCH SW.	Figure FO 15 (Sheet 5 of 5)
G25A20	20	WHT	65”	TB3-11 CATHODE	K2-X2	CATHODE	Figure FO 15 (Sheet 4 of 5)
G11D20	20	WHT	24”	C1G(+)	2A1G-B(+) POS	BARE WIRE #10	Figure FO 15 (Sheet 4 of 5)
G11E20	20	WHT	24”	C1G(-)	2A1G-B(-) NEG	BARE WIRE #10	Figure FO 15 (Sheet 4 of 5)
L3C20	20	WHT	52.5”	P8-T	DS101(+) PANEL LT	BARE WIRE	Figure FO 15 (Sheet 4 of 5)
X9B8N	not done at			J3-(-) AC OUTLET	J2-(-) AC OUTLET	BARE WIRE #10 LUG	Figure FO 15 (Sheet 5 of 5)
G3OA20	20	WHT	30”	28 VDC INPUT	TB2-16 ANODE	20 AWG RE-CEPTACLE #6 LUG	Figure FO 15 (Sheet 5 of 5)
G30B20	20	WHT	48”	TB2-16 CATHODE	ELECTRIC BRAKE	#6 LUG IN LINE SPLICE	Figure FO 15 (Sheet 5 of 5)
G31A20N	20	WHT	24”	ELECTRIC BRAKE	TB4-9	IN LINE SPLICE #6 LUG	Figure 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	Figure FO-16 (Sheet 1 of 3)
E3B20	20	WHT	50”	S1-B6- START	J5-1L	BARE WIRE	Figure FO-16 (Sheet 1 of 3)
E4G18	18	WHT	48”	CB2-L	J5-2L	#8 LUG	Figure FO-16 (Sheet 1 of 3)
E18B20	20	WHT	49”	DS2(+)	J5-3R	#4 LUG	Figure FO-16 (Sheet 1 of 3)
E37A20N	20	WHT	49”	DS2(-)	J5-3L	#4 LUG	Figure FO-16 (Sheet 1 of 3)
E7B20	20	WHT	54”	M1(+)	J5-4R	TWISTED PAIR 1/4” LUG	Figure FO-16 (Sheet 1 of 3)
E8B20	20	WHT	54”	M1(-)	J5-4L	TWISTED PAIR 1/4” LUG	Figure FO-16 (Sheet 1 of 3)
E9B20	20	WHT	57”	M2(+)	J5-5R	TWISTED PAIR 1/4” LUG	Figure FO-16 (Sheet 1 of 3)
E10B20	20	WHT	57”	M2(-)	J5-5L	TWISTED PAIR 1/4” LUG	Figure FO-16 (Sheet 1 of 3)
E21B20	20	WHT	41”	CR9E- ANODE	J5-6R	#4 LUG	Figure FO-16 (Sheet 1 of 3)
E11B20	20	WHT	39”	DS12(-)	J5-6L	#4 LUG	Figure FO-16 (Sheet 1 of 3)
E12B20	20	WHT	53”	DS10(-)	J5-7L	#4 LUG	Figure FO-16 (Sheet 1 of 3)
E13B20	20	WHT	51”	DS9(-)	J5-8R	#4 LUG	Figure FO-16 (Sheet 1 of 3)
E22B20	20	WHT	49”	DS8(-)	J5-8L	#4 LUG	Figure FO-16 (Sheet 1 of 3)
E14B20	20	WHT	54”	DS4(-)	J5-9R	#4 LUG	Figure FO-16 (Sheet 1 of 3)
E15B20	20	WHT	52”	DS3(-)	J5-9L	#4 LUG	Figure FO-16 (Sheet 1 of 3)
E1J20	20	WHT	52”	DS3(+)	J5-10	#4 LUG	Figure FO-16 (Sheet 1 of 3)
E39A20N	20	WHT	34”	S12-(8)	J5-10L	#6 LUG	Figure FO-16 (Sheet 1 of 3)
E28B20	20	WHT	39”	S8-(4)	J5-11R	#6 LUG	Figure 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.
E29A20	20	WHT	39”	S8-(8)	J5-11L	#6 LUG	Figure FO-16 (Sheet 1 of 3)
Q1C20	20	WHT	42”	DS5(+)	J5-12R	#4 LUG	Figure FO-16 (Sheet 1 of 3)
Q2B20	20	WHT	42”	M3(+)	J5-12L	#1/4 LUG	Figure FO-16 (Sheet 1 of 3)
Q4A20	20	WHT	42”	DS5(-)	J5-13R	#4 LUG	Figure FO-16 (Sheet 1 of 3)
Q5A20	20	WHT	40”	DS6(-)	J5-13L	#4 LUG	Figure FO-16 (Sheet 1 of 3)
Q6A20	20	WHT	42”	M3(-)	J5-14R	#1/4 LUG	Figure FO-16 (Sheet 1 of 3)
L26B20	20	WHT	49”	DS2(+)	J5-14L	#4 LUG	Figure FO-16 (Sheet 1 of 3)
L24B20	20	WHT	52”	DS3(-)	J5-15R	#4 LUG	Figure FO-16 (Sheet 1 of 3)
L23B20	20	WHT	54”	DS4(-)	J5-15L	#4 LUG	Figure FO-16 (Sheet 1 of 3)
L22B20	20	WHT	42”	DS5(-)	J5-16R	#4 LUG	Figure FO-16 (Sheet 1 of 3)
L21B20	20	WHT	40”	DS6(-)	J5-16L	#4 LUG	Figure FO-16 (Sheet 1 of 3)
L19B20	20	WHT	49”	DS8(-)	J5-17R	#4 LUG	Figure FO-16 (Sheet 1 of 3)
L18B20	20	WHT	51”	DS9(-)	J5-17L	#4 LUG	Figure FO-16 (Sheet 1 of 3)
L17B20	20	WHT	53”	DS10(-)	J5-18R	#4 LUG	Figure FO-16 (Sheet 1 of 3)
L20B20	20	WHT	41”	DS11(+)	J5-18L	#4 LUG	Figure FO-16 (Sheet 1 of 3)
L16B20	20	WHT	39”	DS12(-)	J5-19R	#4 LUG	Figure FO-16 (Sheet 1 of 3)
P15B20	20	WHT	33”	CR11P-ANODE	J5-19L	#4 LUG	Figure FO-16 (Sheet 1 of 3)
P16B20	20	WHT	36”	CR10P-ANODE	J5-20R	#4 LUG	Figure FO-16 (Sheet 1 of 3)
P29B20	20	WHT	44”	DS7(+)	J5-20L	#4 LUG	Figure 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.
P46B20	20	WHT	34”	DS21(+)	J5-21R	#4 LUG	Figure FO-16 (Sheet 1 of 3)
P34D20	20	WHT	54”	S2-2	J5-21L	#6 LUG	Figure FO-16 (Sheet 1 of 3)
P35D18	18	WHT	54”	S2-5	J5-22R	#6 LUG	Figure FO-16 (Sheet 1 of 3)
P53G20N	20	WHT	34”	M11(-)	J5-23R	#1/4 LUG	Figure FO-16 (Sheet 1 of 3)
P47B20	20	WHT	45”	M6(+)	J5-23L	#6 LUG	Figure FO-16 (Sheet 1 of 3)
P48B20	20	WHT	45”	M6(-)	J5-24R	#6 LUG	Figure FO-16 (Sheet 1 of 3)
P48B20	20	WHT	45”	M5(-)	J5-24L	TWISTED PR 1/4” LUG	Figure FO-16 (Sheet 1 of 3)
P43B20	20	WHT	45”	M5(+)	J5-A	TWISTED PR 1/4” LUG	Figure FO-16 (Sheet 1 of 3)
P17C20	20	WHT	37”	M12(-)	J5-C	#1/4 LUG	Figure FO-16 (Sheet 1 of 3)
P18C20	20	WHT	37”	M12(+)	J5(+)	#1/4 LUG	Figure FO-16 (Sheet 1 of 3)
P3D20	20	WHT	34”	M11(+)	J5(-)	#1/4 LUG	Figure FO-16 (Sheet 1 of 3)
P41E20	20	WHT	39”	M4(+)	J7-1L	#4 LUG	Figure FO-16 (Sheet 1 of 3)
P40A20	20	WHT	40”	CR6P- ANODE	J7-1R	#4 LUG	Figure FO-16 (Sheet 1 of 3)
L10B20	20	WHT	36”	DS19(+)	J7-2R	#4 LUG	Figure FO-16 (Sheet 1 of 3)
L11B20	20	WHT	34”	DS18(+)	J7-3L	#4 LUG	Figure FO-16 (Sheet 1 of 3)
L25B20	20	WHT	44”	DS7(+)	J7-3R	#4 LUG	Figure FO-16 (Sheet 1 of 3)
L18B20	20	WHT	33”	DS21(+)	J7-4L	#4 LUG	Figure FO-16 (Sheet 1 of 3)
E37C20N	20	WHT	40”	DS11(-)	DS2(-)	BARE WIRE, BARE WIRE	Figure FO 16 (Sheet 2 of 3)
P38A20	20	WHT	21”	S12-6	J7-5R	#6 LUG	Figure 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.
L29D20	20	WHT	65”	DS1(+)	J7-6L	#4 LUG	Figure FO 16 (Sheet 2 of 3)
X41B20	20	WHT	42”	M8(+)	J7-7L	#1/4 LUG	Figure FO 16 (Sheet 2 of 3)
L7B20	20	WHT	33”	DS20(-)	J7-7R	#4 LUG	Figure FO 16 (Sheet 2 of 3)
X38B20	20	WHT	33”	DS20(-)	J7-8L	#4 LUG	Figure FO 16 (Sheet 2 of 3)
L12B20	20	WHT	32”	DS17(+)	J7-8R	#4 LUG	Figure FO 16 (Sheet 2 of 3)
X21B20	20	WHT	31”	CR4X- ANODE	J7-9L	#4 LUG	Figure FO 16 (Sheet 2 of 3)
L13B20	20	WHT	46”	DS16(+)	J7-9R	#4 LUG	Figure FO 16 (Sheet 2 of 3)
X22B20	20	WHT	45”	CR3X- ANODE	J7-10L	#4 LUG	Figure FO 16 (Sheet 2 of 3)
L14B20	20	WHT	44”	DS15(+)	J7-10R	#4 LUG	Figure FO 16 (Sheet 2 of 3)
X23B20	20	WHT	43”	CR2X- ANODE	J7-11L	#4 LUG	Figure FO 16 (Sheet 2 of 3)
L15B20	20	WHT	42”	DS14(+)	J7-11R	#4 LUG	Figure FO 16 (Sheet 2 of 3)
X24B20	20	WHT	41”	CR1X- ANODE	J7-12L	#4 LUG	Figure FO 16 (Sheet 2 of 3)
X19B20	20	WHT	28”	S10 (6)	J7-12R	#6 LUG	Figure FO 16 (Sheet 2 of 3)
X36B20	20	WHT	28”	S10 (5)	J7-13L	#6 LUG	Figure FO 16 (Sheet 2 of 3)
X20B20	20	WHT	28”	S10 (2)	J7-13R	#6 LUG	Figure FO 16 (Sheet 2 of 3)
X9G20N	20	WHT	42”	M8(-)	J7-14L	#1/4 LUG	Figure FO 16 (Sheet 2 of 3)
X9H20N	20	WHT	35”	M10(-)	J7-14R	#1/4 LUG	Figure FO 16 (Sheet 2 of 3)
X59C20	20	WHT	35”	M10(+)	J7-15L	#1/4 LUG	Figure FO 16 (Sheet 2 of 3)
X34B20	20	WHT	45”	M9(-)	J7-15R	#1/4 LUG	Figure 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.
X9P20N	20	WHT	42”	M8(-)	J7-16L	#1/4 LUG	Figure FO 16 (Sheet 2 of 3)
X9R20N	20	WHT	42”	M8(-)	J7-16R	#1/4 LUG	Figure FO 16 (Sheet 2 of 3)
X37B20	20	WHT	32”	S9-A-COM	J7-17L	BARE WIRE	Figure FO 16 (Sheet 2 of 3)
X30B20	20	WHT	32”	S9-A-3	J7-17R	BARE WIRE	Figure FO 16 (Sheet 2 of 3)
X28B20	20	WHT	32”	S9-A-2	J7-18L	BARE WIRE	Figure FO 16 (Sheet 2 of 3)
X26B20	20	WHT	32”	S9-A-1	J17-18R	BARE WIRE	Figure FO 16 (Sheet 2 of 3)
X29B20	20	WHT	32”	S9-B-6	J7-19L	BARE WIRE	Figure FO 16 (Sheet 2 of 3)
X27B20	20	WHT	32”	S9-B-5	J7-19R	BARE WIRE	Figure FO 16 (Sheet 2 of 3)
X25B20	20	WHT	32”	S9-B-4	J7-20L	BARE WIRE	Figure FO 16 (Sheet 2 of 3)
X33C20C	20	WHT	32”	S9-C-3	J7-20R	BARE WIRE	Figure FO 16 (Sheet 2 of 3)
X32C20C	20	WHT	32’	S9-C-2	J7-21L	BARE WIRE	Figure FO 16 (Sheet 2 of 3)
X31C20A	20	WHT	32”	S9-C-1	J7-21R	BARE WIRE	Figure FO 16 (Sheet 2 of 3)
X46B20	20	WHT	39”	CR5X- ANODE	J7-22L	#4 LUG	Figure FO 16 (Sheet 2 of 3)
X47B20	20	WHT	25”	S11-A- COM	J7-22R	BARE WIRE	Figure FO 16 (Sheet 2 of 3)
X48B20	20	WHT	25”	S11-4	J7-23L	BARE WIRE	Figure FO 16 (Sheet 2 of 3)
X49B20	20	WHT	25”	S11-B-8	J7-23R	BARE WIRE	Figure FO 16 (Sheet 2 of 3)
X50B20	20	WHT	25”	S11-B-7	J7-24L	BARE WIRE	Figure FO 16 (Sheet 2 of 3)
X51B20	20	WHT	25”	S11-B-6	J7-24R	BARE WIRE	Figure FO 16 (Sheet 2 of 3)
X53B20	20	WHT	25”	S11-B-COM	J7-A	BARE WIRE	Figure 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.
X56B20	20	WHT	25”	S11-B-3	J7-C	BARE WIRE	Figure FO 16 (Sheet 2 of 3)
X57B20	20	WHT	25”	S11-B-2	J7-(+)	BARE WIRE	Figure FO 16 (Sheet 2 of 3)
X58B20	20	WHT	25”	S11-B-1	J7-(-)	BARE WIRE	Figure FO 16 (Sheet 2 of 3)
H1A20	20	WHT	38”	S8-12	J6-A	#6 LUG	Figure FO 16 (Sheet 2 of 3)
H2A20	20	WHT	44”	M7(+)	J6-B	#1/4 LUG	Figure FO 16 (Sheet 2 of 3)
H3A20	20	WHT	44”	M7(-)	J6-C	#1/4 LUG	Figure FO 16 (Sheet 2 of 3)
H4B20N	20	WHT	40”	DS13(-)	J6-D	#4 LUG	Figure FO 16 (Sheet 2 of 3)
H6A20	20	WHT	38”	S8-12	J6-E	#6 LUG	Figure FO 16 (Sheet 2 of 3)
L9B20	20	WHT	40”	DS13(+)	J6-F	#4 LUG	Figure FO 16 (Sheet 2 of 3)
L29B20	20	WHT	50”	DS1(-)	J6-G	#4 LUG	Figure FO 16 (Sheet 2 of 3)
G2B20	20	WHT	49”	S3-3	J6-H	#6 LUG	Figure FO 16 (Sheet 2 of 3)
G4A20N	20	WHT	50”	DS1(-)	J6-J	#4 LUG	Figure FO 16 (Sheet 2 of 3)
L28A20	20	WHT	50”	S4-N01	J6-K	BARE WIRE	Figure FO 16 (Sheet 2 of 3)
L30A20N	20	WHT	50”	S4-COM2	J6-L	BARE WIRE	Figure FO 16 (Sheet 2 of 3)
L27A20	20	WHT	50”	S4-N02	J6-M	BARE WIRE	Figure FO 16 (Sheet 2 of 3)
L2A20	20	WHT	47”	S6-1	J6-N	#6 LUG	Figure FO 16 (Sheet 2 of 3)
L3A20	20	WHT	47”	S6-3	J6-P	#6 LUG	Figure FO 16 (Sheet 2 of 3)
L4A20	20	WHT	45”	S7-1	J6-R	#6 LUG	Figure FO 16 (Sheet 2 of 3)
L5A20	20	WHT	45”	S7-3	J6-S	#6 LUG	Figure 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.
E30A20	20	WHT	38”	S8-9	J6-T	#6 LUG	Figure FO 16 (Sheet 2 of 3)
F2A18	18	WHT	7.5”	CB2-L	S1-A1-COM	#8 LUG, BARE WIRE	Figure FO 16 (Sheet 2 of 3)
E2D18	18	WHT	6”	S1-A1-COM	S1-B7-COM	BARE WIRE, BARE WIRE	Figure FO 16 (Sheet 2 of 3)
E2E18	18	WHT	6”	S1-A11-RUN	S1-A12-START	BARE WIRE, BARE WIRE	Figure FO 16 (Sheet 2 of 3)
E1A20	20	WHT	7”	CB1-L	DS8(+)	#8 LUG, #4 LUG	Figure FO 16 (Sheet 2 of 3)
E1B20	20	WHT	5.5”	DS8(+)	DS9(+)	#4 LUG, #4 LUG	Figure FO 16 (Sheet 2 of 3)
E1C20	20	WHT	5.5”	DS9(+)	DS10(+)	#4 LUG, #4 LUG	Figure FO 16 (Sheet 2 of 3)
E1D20	20	WHT	40’	DS10(+)	DS12(+)	#4 LUG, #4 LUG	Figure FO 16 (Sheet 2 of 3)
E1E20	20	WHT	7”	DS12(+)	DS6(+)	#4 LUG, #4 LUG	Figure FO 16 (Sheet 2 of 3)
E1F20	20	WHT	5”	DS6(+)	DS5(+)	#4 LUG, #4 LUG	Figure FO 16 (Sheet 2 of 3)
E1G20	20	WHT	46.5”	DS5(+)	DS4(+)	#4 LUG, #4 LUG	Figure FO 16 (Sheet 2 of 3)
E1H20	20	WHT	5.5”	DS4(+)	DS3(+)	#4 LUG, #4 LUG	Figure FO 16 (Sheet 2 of 3)
E27A20	20	WHT	15”	S8-(5)	S10-(8)	#6 LUG, #6 LUG	Figure FO 16 (Sheet 2 of 3)
E32A20	20	WHT	13.5	S10-(7)	S12-(7)	#6 LUG, #6 LUG	Figure FO 16 (Sheet 2 of 3)
X48C20	20	WHT	6.5”	S11-A-4	S11-A-3	BARE WIRE, BARE WIRE	Figure FO 16 (Sheet 2 of 3)
X48D20	20	WHT	6.5”	S11-A-3	S11-A-2	BARE WIRE, BARE WIRE	Figure FO 16 (Sheet 2 of 3)
X48E20	20	WHT	6.5”	S11-A-2	S11-A-1	BARE WIRE, BARE WIRE	Figure FO 16 (Sheet 2 of 3)
X47C20	20	WHT	15”	DS12(+)	DS20(+)	#4 LUG, #4 LUG	Figure FO 16 (Sheet 3 of 3)
X20C20	20	WHT	15”	S10-2	S12-2	#6 LUG, #6 LUG	Figure 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.
X19C20	20	WHT	5.5”	S10-6	S10-1	#6 LUG, #6 LUG	Figure FO 16 (Sheet 3 of 3)
X19D20	20	WHT	15.5”	S10-1	S12-1	#6 LUG, #6 LUG	Figure FO 16 (Sheet 3 of 3)
X19E20	20	WHT	11.5”	S12-1	DS17(-)	#6 LUG, #4 LUG	Figure FO 16 (Sheet 3 of 3)
X19F20	20	WHT	31”	DS17(-)	DS16(-)	#4 LUG, #4 LUG	Figure FO 16 (Sheet 3 of 3)
X19G20	20	WHT	5.25”	DS16(-)	DS15(-)	#4 LUG, #4 LUG	Figure FO 16 (Sheet 3 of 3)
X19H20	20	WHT	5.25	DS15(-)	DS14(-)	#4 LUG, #4 LUG	Figure FO 16 (Sheet 3 of 3)
X40A20	20	WHT	19”	S9-B-COM	M9(+)	BARE WIRE, #1/4 LUG	Figure FO 16 (Sheet 3 of 3)
X41A20	20	WHT	16.5”	S9-C-COM	M8(+)	BARE WIRE, 1/4 LUG	Figure FO 16 (Sheet 3 of 3)
P53A20N	20	WHT	37”	S2-8	DS21(-)	#6 LUG, #4 LUG	Figure FO 16 (Sheet 3 of 3)
P53B20N	20	WHT	13.5”	DS21(-)	DS19(-)	#4 LUG, #4 LUG	Figure FO 16 (Sheet 3 of 3)
P53C20N	20	WHT	6”	DS19(-)	DS18(-)	#4 LUG, #4 LUG	Figure FO 16 (Sheet 3 of 3)
P53D20N	20	WHT	4”	DS18(-)	M11(-)	#4 LUG, #1/4 LUG	Figure FO 16 (Sheet 3 of 3)
P53E20N	20	WHT	8.25”	M4(-)	DS7(-)	#4 LUG, #4 LUG	Figure FO 16 (Sheet 3 of 3)
P36A20N	20	WHT	6”	S2-3	CB1-B	#6 LUG, #8 LUG	Figure FO 16 (Sheet 3 of 3)
P37A18	18	WHT	10”	S2-6	CB2-B	#6 LUG, #8 LUG	Figure FO 16 (Sheet 3 of 3)
P45A20	20	WHT	39”	S2-9	S12-5	#6 LUG, #6 LUG	Figure FO 16 (Sheet 3 of 3)
P39A20	20	WHT	21”	S12-4	S5-3	#6 LUG, #6 LUG	Figure FO 16 (Sheet 3 of 3)
H1B20	20	WHT	13”	CB1-L	S8-2	#8 LUG, #6 LUG	Figure FO 16 (Sheet 3 of 3)
H7A20	20	WHT	7.5”	S8-3	DS13(+)	#6 LUG, #4 LUG	Figure 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.
G2A20	20	WHT	5.25”	S3-2	DS1(+)	#6 LUG, #4 LUG	Figure FO 16 (Sheet 3 of 3)
L1A20	20	WHT	8”	CB1-L	S6-2	#8 LUG, #6 LUG	Figure FO 16 (Sheet 3 of 3)
L1B20	20	WHT	6.25”	S6-2	S7-2	#6 LUG, #6 LUG	Figure FO 16 (Sheet 3 of 3)
L1C20	20	WHT	5”	CB1-L	S4-COM-1	#8 LUG, BARE WIRE	Figure FO 16 (Sheet 3 of 3)
P45B20	20	WHT	42.5”	S2-9	M4(-)	#6 LUG, #4 LUG	Figure FO 16 (Sheet 3 of 3)
C1E18	18	WHT	51”	J7-4R	S2-11	—, #6 LUG	Figure FO 16 (Sheet 3 of 3)
C1F18	18	WHT	51”	J7-5L	S2-12	—, #6 LUG	Figure FO 16 (Sheet 3 of 3)
H1D20	20	WHT	5.5”	S8-2	S8-11	#6 LUG, #6 LUG	Figure FO 16 (Sheet 3 of 3)
G3D20	20	WHT	48”	J7-2L	S3-6	—, #6 LUG	Figure FO 16 (Sheet 3 of 3)
G3E20	20	WHT	48”	J7-6R	S3-5	—, #6 LUG	Figure FO 16 (Sheet 3 of 3)
H4D20	20	WHT	24”	S8-10	S11-C-COM	BARE WIRE, BARE WIRE	Figure FO 16 (Sheet 3 of 3)
H5A20	20	WHT	2”	S11-C-5	S11-C-4	BARE WIRE, BARE WIRE	Figure FO 16 (Sheet 3 of 3)
H5B20	20	WHT	36”	S11-C-4	J5-7R	BARE WIRE, BARE WIRE	Figure 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	Figure FO 17
G3G20	20	WHT	24.5”	J-10-B	28VDC INPUT	ON MOTOR CONTROLLER	Figure FO 17
G7A20	20	WHT	36”	J-10-C	2P1-3		Figure FO 17
G8A20	20	WHT	36”	J-10-D	2P1-2		Figure FO 17
G9A20	20	WHT	36”	J-10-E	2P1-1		Figure FO 17
G6D20	20	WHT	36”	J-10-F	2K1(+)	#10 LUG	Figure FO 17
G5D20	20	WHT	36”	J-10-G	2K2(+)	#10 LUG	Figure FO 17

REPAIR OR REPLACEMENT – CONTINUED

Table 3. Upper Tray Wiring Harness Wire List. – Continued

Wire No.	Size	Color	Length	From	To	Remarks	Fold Out and Sheet No.
G18B20N	20	WHT	36”	J-10-H	2K2(-)	#10 LUG	Figure FO 17
G5E20	20	WHT	36”	J-10-S	2K2(+)	#10 LUG	Figure FO 17
G18A20N	20	WHT	8”	2K1(-)	2K2(-)	#10 LUG, #10 LUG	Figure 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	Figure FO-18 (Sheet 1 of 2)
E35B20N	20	WHT	31”	J8-B	3XK1-X2	SEE E36B20N	Figure FO-18 (Sheet 1 of 2)
P6B20	20	WHT	31”	J8-C	3XK1-A1	BARE WIRE	Figure FO-18 (Sheet 1 of 2)
P11B20	20	WHT	31”	J8-D	3XK1-A2	BARE WIRE	Figure FO-18 (Sheet 1 of 2)
P5B20	20	WHT	31”	J8-E	3XK1-B1	BARE WIRE	Figure FO-18 (Sheet 1 of 2)
P12B20	20	WHT	31”	J8-F	3XK1-B2	BARE WIRE	Figure FO-18 (Sheet 1 of 2)
P4B20	20	WHT	31”	J8-G	3XK1-C1	BARE WIRE	Figure FO-18 (Sheet 1 of 2)
P13B20	20	WHT	31”	J8-H	3XK1-C2	BARE WIRE	Figure FO-18 (Sheet 1 of 2)
E33B20	20	WHT	31”	J8-J	3XK1-D1	BARE WIRE	Figure FO-18 (Sheet 1 of 2)
E34B20	20	WHT	31”	J8-K	3XK1-D2	BARE WIRE	Figure FO-18 (Sheet 1 of 2)
E25C18	18	WHT	31”	J8-L	3XK2-A1	BARE WIRE	Figure FO-18 (Sheet 1 of 2)
E4B18	18	WHT	31”	J8-M	SPLICE	SEE PG. 5 FIG. 5	Figure FO-18 (Sheet 1 of 2)
E31B20	20	WHT	31”	J8-N	SPLICE	SEE PG. 5 FIG. 5	Figure FO-18 (Sheet 1 of 2)
E3E20	20	WHT	31”	J8-P	SPLICE	SEE PG. 5 FIG. 4	Figure FO-18 (Sheet 1 of 2)
G22B20	20	WHT	35.5”	J8-R	3F1(+)		Figure FO-18 (Sheet 1 of 2)
G5G20	20	WHT	26”	J8-S	3VR1+	BARE WIRE	Figure FO-18 (Sheet 1 of 2)
G19A20	20	WHT	26”	J8-T	3VR1-	#6 LUG	Figure FO-18 (Sheet 1 of 2)
G6G20	20	WHT	26”	J9-A	3VR2(+)	BARE WIRE	Figure FO-18 (Sheet 1 of 2)
G20A20	20	WHT	26”	J9-B	3VR2(-)	#6 LUG	Figure 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.
P26B20	20	WHT	32”	J9-C	3S1-1	BARE WIRE	Figure FO-18 (Sheet 1 of 2)
P27B20	20	WHT	32”	J9-D	3S1-2	BARE WIRE	Figure FO-18 (Sheet 1 of 2)
P28B20	20	WHT	32”	J9-E	3S1-3	BARE WIRE	Figure FO-18 (Sheet 1 of 2)
P25B20	20	WHT	32”	J9-F	3S1-COMM	BARE WIRE	Figure FO-18 (Sheet 1 of 2)
X59A20	20	WHT	31”	J9-G	FTMTR(+)	#1/4 LUG	Figure FO-18 (Sheet 1 of 2)
X9K20N	20	WHT	31”	J9-H	FTMTR(-)	#1/4 LUG	Figure FO-18 (Sheet 1 of 2)
E3F20	20	WHT	8”	E3E20, SPLICE	3XK2-X1	SEE PG. 5 FIG. 4	Figure FO-18 (Sheet 1 of 2)
E3G20	20	WHT	8”	E3E20, SPLICE	3XK2-A2	SEE PG. 5 FIG. 4	Figure FO-18 (Sheet 1 of 2)
E4A18	18	WHT	8”	E4B18, SPLICE	3XK2-B2	SEE PG. 5 FIG. 5	Figure FO-18 (Sheet 1 of 2)
E36B20N	20	WHT	8”	3XK1-X2	3XK2-X2		Figure FO-18 (Sheet 1 of 2)
X41D20	20	WHT	30”	J9-J	FT115VAC(+)	#1/4 LUG	Figure FO 18 (Sheet 2 of 2)
G21A20	20	WHT	31”	J9-K	3F1(-)	BARE WIRE	Figure FO 18 (Sheet 2 of 2)
P49B20N	20	WHT	27”	J9-L	3XK3-X2		Figure FO 18 (Sheet 2 of 2)
C1B20	20	WHT	27”	J9-M	3XK3-C2		Figure FO 18 (Sheet 2 of 2)
P35B18	18	WHT	13”	J9-N	SPLICE	SEE PG. 1 FIG. 3	Figure FO 18 (Sheet 2 of 2)
P34B20	20	WHT	27”	J9-P	3XK3-A2		Figure FO 18 (Sheet 2 of 2)
P33E18	18	WHT	12”	J9-R	SPLICE	SEE PG. 1 FIG.1	Figure FO 18 (Sheet 2 of 2)
P30B18	18	WHT	12”	J9-S	SPLICE	SEE PG. 1 FIG. 2	Figure FO 18 (Sheet 2 of 2)
P33F20	20	WHT	8”	P33E18, SPLICE	3XK3-3	SEE PG. 1 FIG. 1	Figure 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.
P33G20	20	WHT	8”	P33E18, SPLICE	3XK3-A3	SEE PG. 1 FIG. 1	Figure FO 18 (Sheet 2 of 2)
P30C20	20	WHT	8”	P30B18, SPLICE	3XK3-C1	SEE PG. 1 FIG. 2	Figure FO 18 (Sheet 2 of 2)
P30D20	20	WHT	8”	P30B18, SPLICE	3XK2-A1	SEE PG. 1 FIG. 2	Figure FO 18 (Sheet 2 of 2)
P30E20	20	WHT	8”	P30B18, SPLICE	3XK3-X1	SEE PG. 1 FIG. 2	Figure FO 18 (Sheet 2 of 2)
X9T20N	20	WHT	31”	J18-A	FT115VAC(-)	#1/4 LUG 5	Figure FO 18 (Sheet 2 of 2)
E4J18	18	WHT	33”	J18-B	3XK2-B1	BARE WIRE	Figure FO 18 (Sheet 2 of 2)
P33H20	20	WHT	8”	P33E18, SPLICE	3XK3-D3	SEE PG. 1 FIG. 1	Figure FO 18 (Sheet 2 of 2)
P33J20	20	WHT	27”	3XK3-D2	J18-E	BARE WIRE	Figure FO 18 (Sheet 2 of 2)
P33L18	18	WHT	8”	P33E18, SPLICE	CR8P-CATHODE	SEE PG. 1 FIG. 1	Figure FO 18 (Sheet 2 of 2)
P33M18	18	WHT	10”	3CR8P-ANODE	3CR9P-ANODE	JUMPER, 3CR9P: 20A DIODE	Figure FO 18 (Sheet 2 of 2)
P33N18	18	WHT	10”	3CR9P-CATHODE	3XK3-B2	JUMPER, 3CR9P:20A DIODE	Figure FO 18 (Sheet 2 of 2)
P30N18	18	WHT	8”	P35B18, SPLICE	CR9P-CATHODE	SEE PG. 1 FIG. 3	Figure FO 18 (Sheet 2 of 2)
P30F20	20	WHT	8”	P30B18, SPLICE	CR7P-ANODE	SEE PG. 1 FIG. 2	Figure FO 18 (Sheet 2 of 2)
P33P20	20	WHT	8”	P33E18, SPLICE	3XK3-B3	SEE PG. 1 FIG. 1	Figure FO 18 (Sheet 2 of 2)
P35H18	18	WHT	8”	P35B18, SPLICE	3XK3-B2	SEE PG. 1 FIG. 3	Figure FO 18 (Sheet 2 of 2)

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		

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
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		
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	

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
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		
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

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
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
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	

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
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
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	

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
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	
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

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
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		
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	

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
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
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

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
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
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	

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
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
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	

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
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	
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

REPAIR OR REPLACEMENT – CONTINUED

NOTE

Refer to electrical schematic foldouts Figure FO-19 (Sheet 1 of 2) through Figure FO 33 in rear of manual for MEP 360D/E (only).

END OF WORK PACKAGE

FIELD MAINTENANCE

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 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

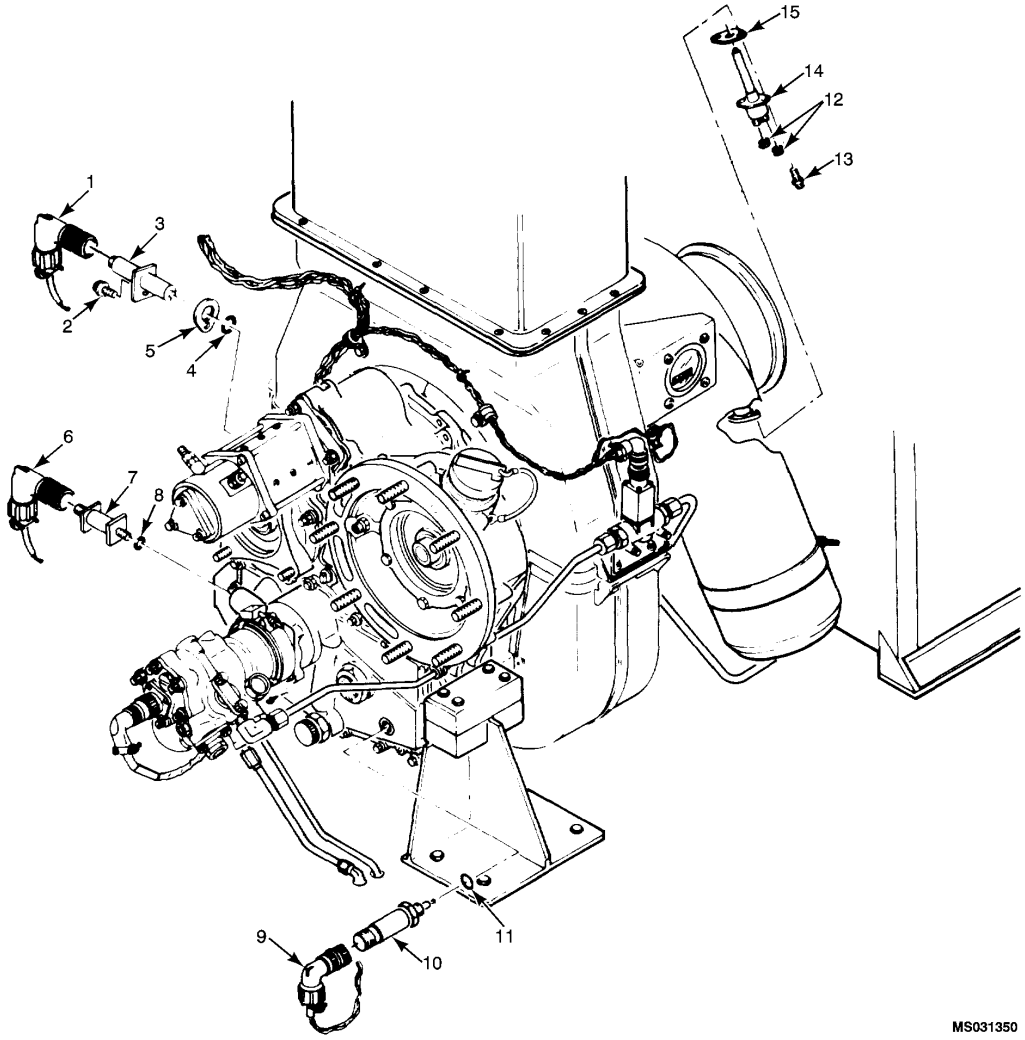
References

WP 0025 00
WP 0032 00
WP 0043 00
WP 0044 00

Materials/Parts

Wire, Nonelectrical (WP 0154 00, Item 60)

REMOVAL



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 – CONTINUED

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

For test refer to troubleshooting procedure WP 0025 00, 105. SPEED SENSOR MALFUNCTION.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Remove Hydraulic Access Panel and Engine Access Panel (WP 0032 00).
4. Cut and remove lock wire from speed sensor electrical connector (Figure 1, Item 1).
5. Disconnect electrical connector from speed sensor (Figure 1, Item 3).

CAUTION

Use care when removing speed sensor since shim is reusable if not damaged.

6. 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 INSTALLATION, Step 1.
5. Measure the thickness of the shim at a minimum of 0.628 and a maximum of 0.638 inches. If shim is within tolerance, proceed to INSTALLATION, Step 2.

INSTALLATION

1. If a new shim set is required, contact direct support. If shim set passes TEST AND INSPECTION, Step 5, proceed to INSTALLATION, 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 REMOVAL, 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 hydraulic access panel and engine access panel (WP 0032 00).

INSTALLATION – CONTINUED

6. Perform MOC.

END OF WORK PACKAGE

FIELD MAINTENANCE

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

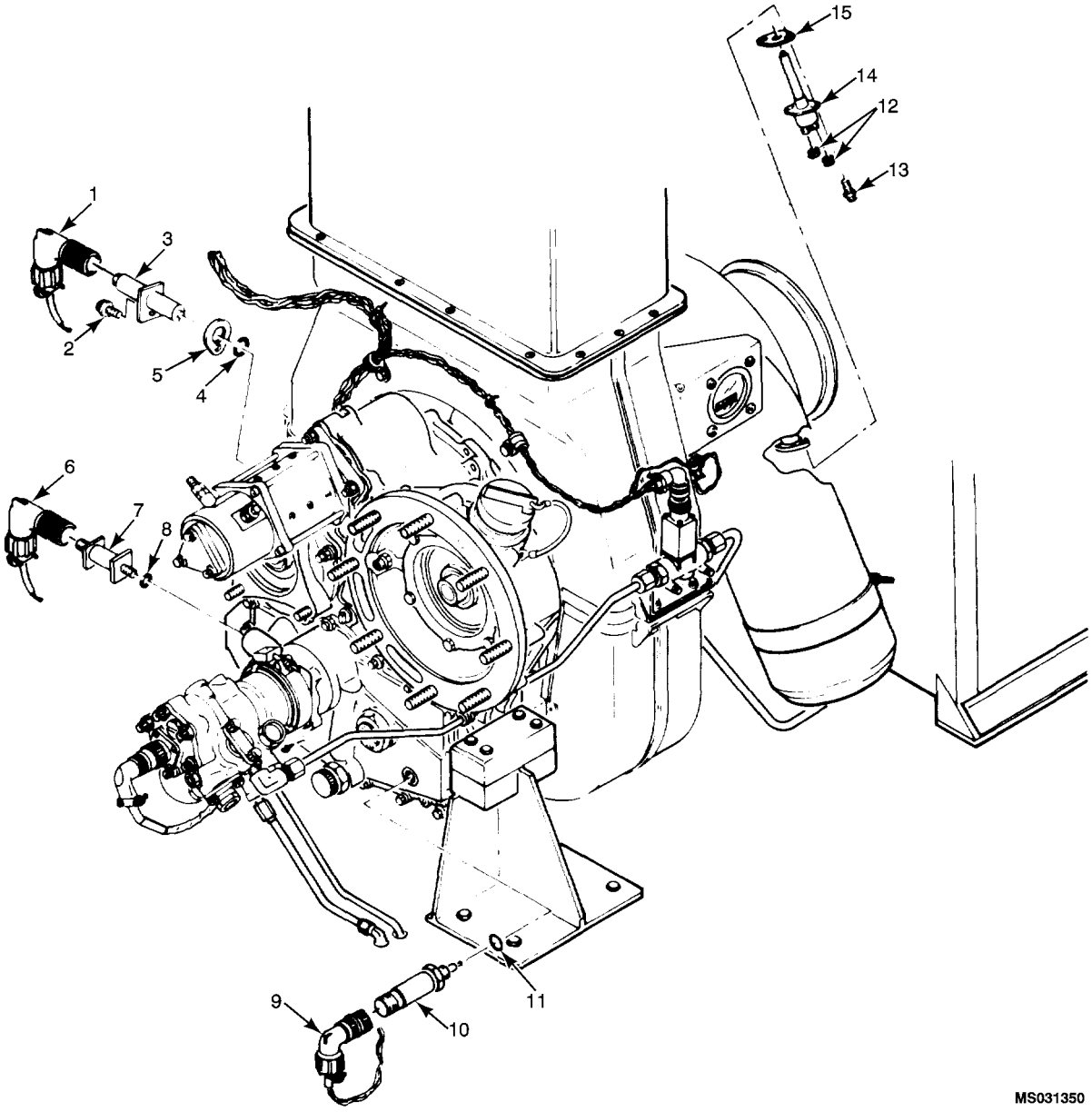
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References

WP 0025 00
WP 0032 00
WP 0043 00
WP 0044 00

Materials/Parts

Wire, Nonelectrical (WP 0154 00, Item 60)



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

For test refer to troubleshooting procedure WP 0025 00, 106. LOW OIL PRESSURE SWITCH MALFUNCTION.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Remove engine and hydraulic access covers (WP 0032 00).
4. Inspect low oil pressure switch (Figure 1, Item 7) for dents and cracks. No dents and cracks allowed.
5. Check low oil pressure switch is securely mounted to engine.
6. Check 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. Cut and remove lock wire from low oil pressure switch.
4. Remove low oil pressure switch (Figure 1, Item 7) with packing (Figure 1, Item 8) by turning switch counter-clockwise. 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 low oil pressure switch (Figure 1, Item 7). Lock wire electrical connector (Figure 1, Item 6).
3. Install engine and hydraulic access covers (WP 0032 00).
4. Perform MOC.

END OF WORK PACKAGE

FIELD MAINTENANCE

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 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

Materials/Parts

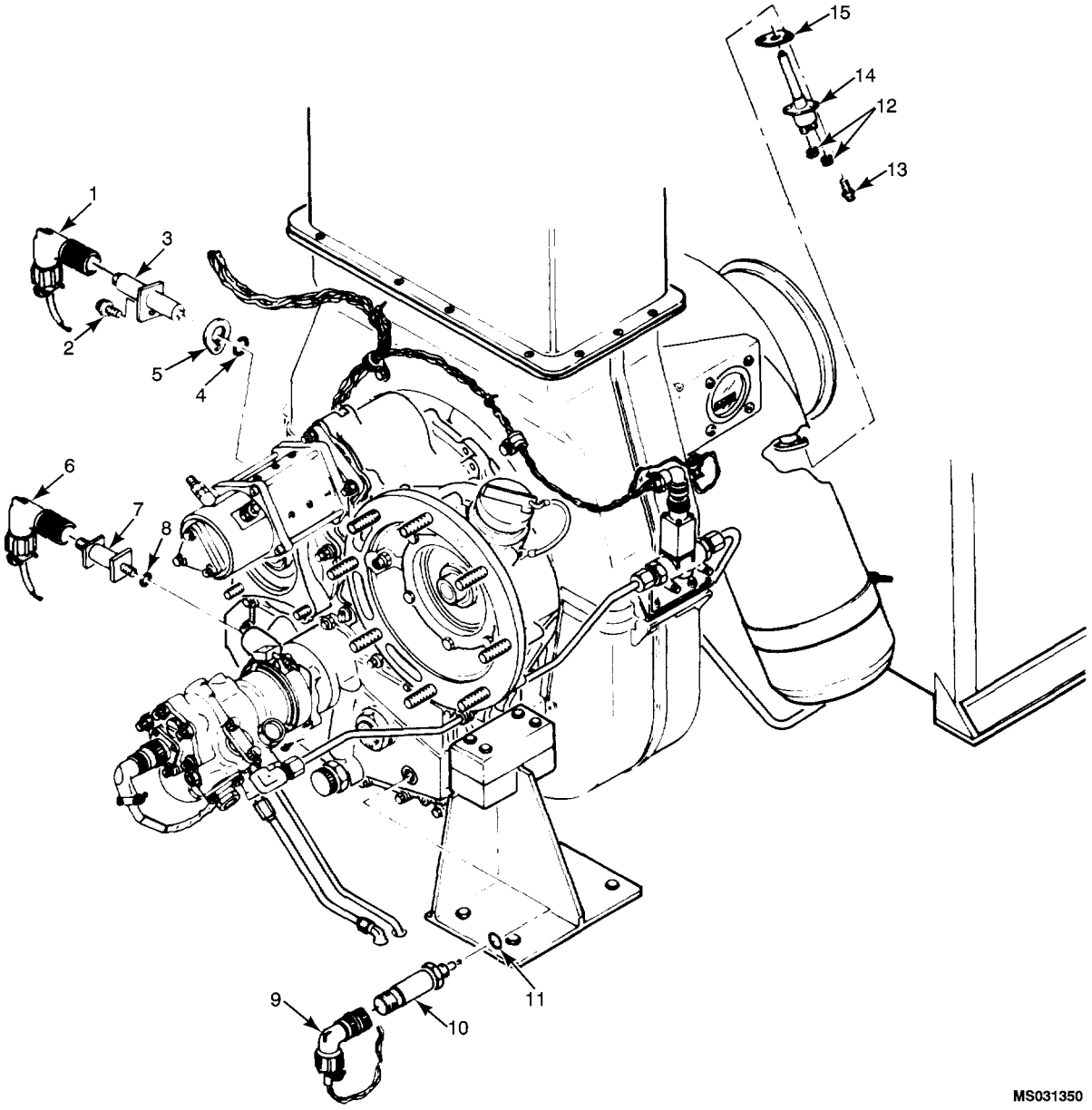
Lubricating Oil, Aircraft Turbine (WP 0154 00, Item 32)
Lubricating Oil, Aircraft Turbine (WP 0154 00, Item 33)

Materials/Parts (cont.)

Wire, Nonelectrical (WP 0154 00, Item 60)

References

WP 0025 00
WP 0028 00
WP 0029 00
WP 0043 00
WP 0044 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

For test refer to troubleshooting procedure WP 0025 00, 107. HIGH OIL TEMPERATURE SWITCH MALFUNCTION .

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Inspect high oil temperature switch (Figure 1, Item 10) for dents and cracks. No dents and cracks are allowed.
4. Check that switch is securely mounted to engine.
5. 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 0028 00, Lubrication).
2. Cut and remove lockwire from high oil temperature switch electrical connector.
3. Disconnect electrical connector (Figure 1, Item 9) from high oil temperature 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. Lockwire 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 0028 00, Lubrication and WP 0029 00).
6. Perform MOC.

END OF WORK PACKAGE

FIELD MAINTENANCE

**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

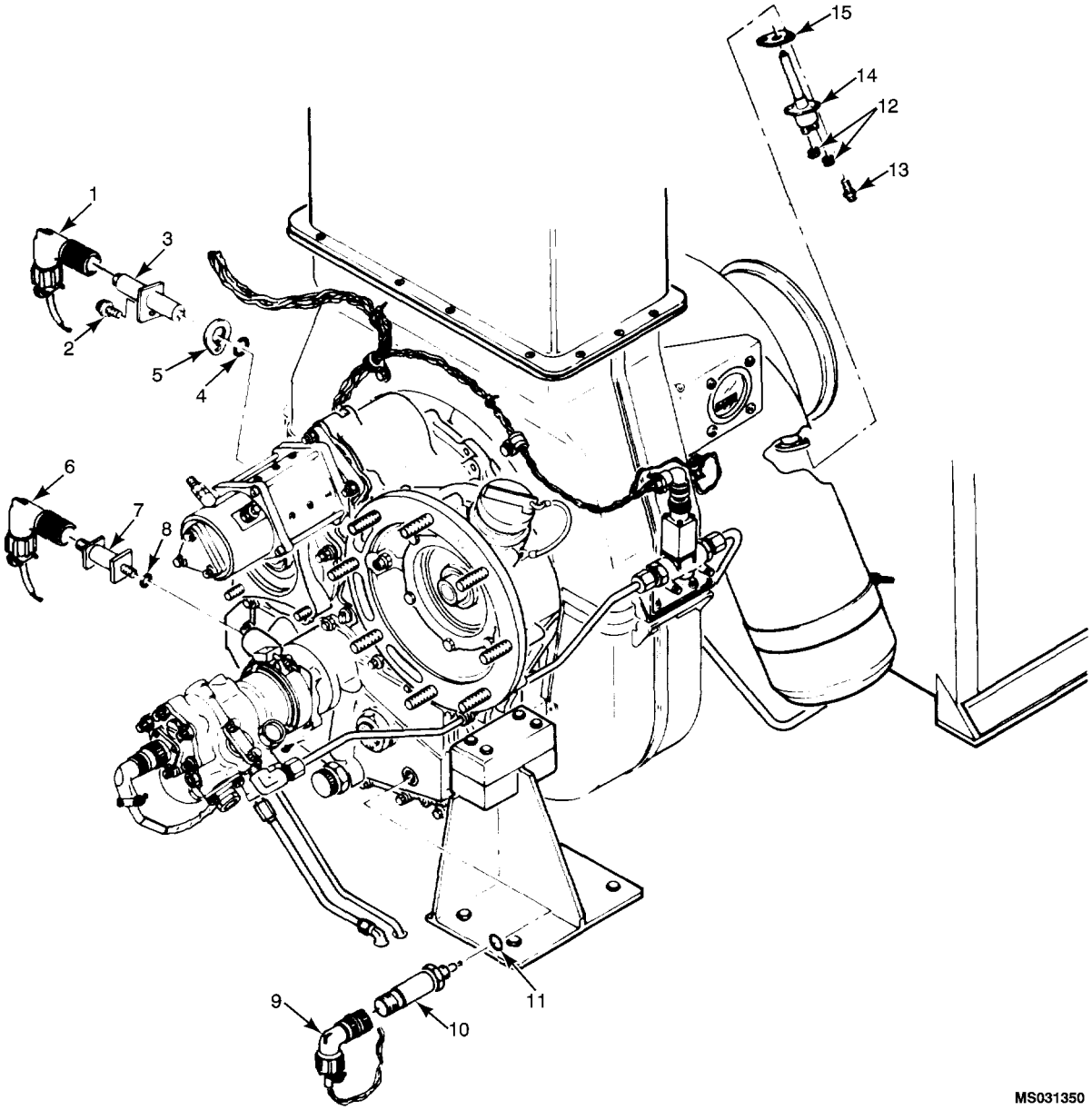
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

Materials/Parts

Anti-Seize Compound (WP 0154 00, Item 3)

References

WP 0025 00
WP 0043 00
WP 0044 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

For test refer to troubleshooting procedure WP 0025 00, 108. THERMOCOUPLE MALFUNCTION.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Remove lock nuts (Figure 1, Item 12) and tag and disconnect electrical leads from thermocouple (Figure 1, Item 14).
4. 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).
4. 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 RELAYS (K1-K2), MOTOR CONTROLLER AND CAPACITOR (C1G)

INITIAL SETUP:

Tools and Special Tools

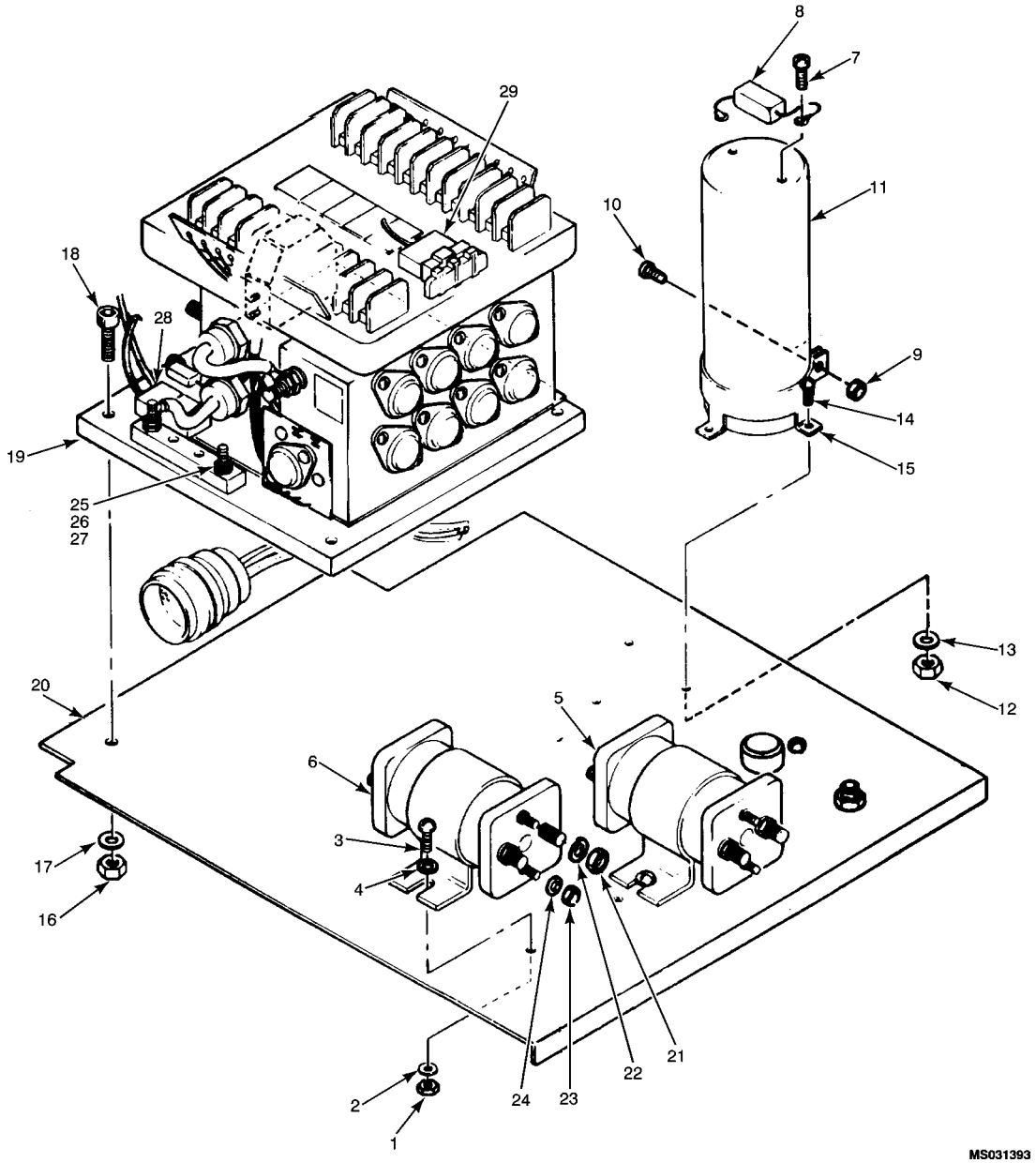
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References

WP 0002 00
WP 0006 00

References (cont.)

WP 0014 00
WP 0029 00
WP 0033 00
WP 0041 00
WP 0043 00
WP 0044 00



1. Nut	9. Nut	17. Washer	25. Nut
2. Lock Washer	10. Screw	18. Bolt	26. Lock Washer
3. Screw	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	
7. Screw	15. Mounting Clamp	23. Nut	
8. Resistor	16. Nut	24. Lock Washer	

Figure 1. Upper Electrical Tray Components.

– Continued

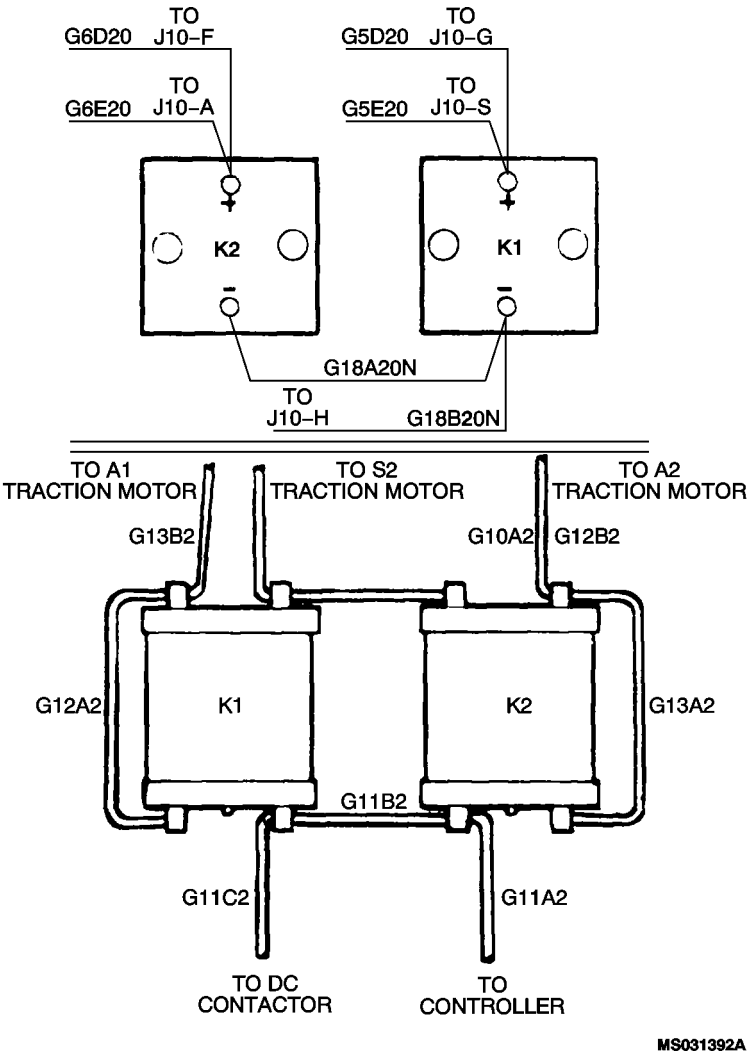


Figure 2. Control Relays K1 and K2 Connections.

REMOVAL

K1 AND K2 CONTROL RELAYS

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

J-1 and P-1 is connector **ONLY** on MEP 83-360E.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.

REMOVAL – CONTINUED

K1 AND K2 CONTROL RELAYS – CONTINUED

2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

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.

3. Remove roof (WP 0033 00).
4. Open electrical trays access door (WP 0041 00, Figure 2, Item 1).
5. K1 and K2 control relays (Figure 1, Item 5 and 6) are located on front of electrical upper tray assembly (Figure 1, Item 20).
6. Remove four nuts (Figure 1, Item 21), four lock washers (Figure 1, Item 22), four nuts (Figure 1, Item 23) and four lock washers (Figure 1, Item 24) from front of K1 and K2 control relays (Figure 1, Item 5 and 6). Tag and remove wires.
7. Remove corresponding nuts and lock washers from rear of K1 and K2 control relays.
8. 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 6) from electrical upper tray assembly (Figure 1, Item 20).

INSTALLATION

K1 AND K2 CONTROL RELAYS

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 assembly (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 four lock washers (Figure 1, Item 24), four nuts (Figure 1, Item 23), four lock washers (Figure 1, Item 22) and four nuts (Figure 1, Item 21) on front of K1 and K2 control relays (Figure 1, Item 5 and 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 (Figure 1, Item 22) and nuts (Figure 1, Item 21) to rear of K1 and K2 control relays.
7. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.

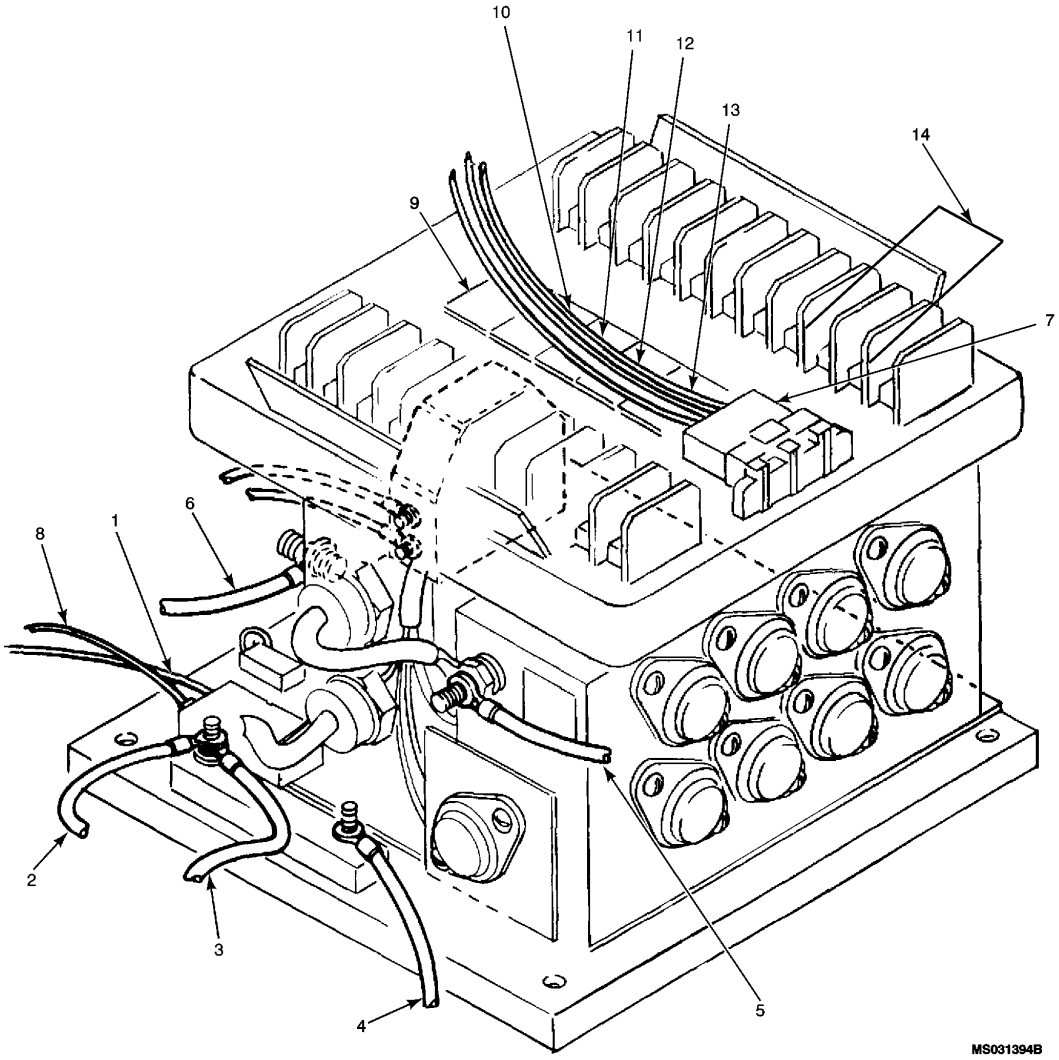
CAUTION

During installation of the roof, one person should be stationed at each corner of the roof to prevent warping or damage to the roof.

8. Reinstall roof (WP 0033 00).
9. Close electrical trays access door (WP 0041 00, Figure 2, Item 1).
10. Perform MOC.

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
9. Low Speed Max
10. Accelerator
11. Brake
12. Current Unit Limiter
13. Volts Adjust
14. Max Brake

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. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

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.

3. Remove roof (WP 0033 00).
4. Open electrical trays access door (WP 0041 00, Figure 2, Item 1).
5. Remove nuts (Figure 1, Item 25), lock washers (Figure 1, Item 26) and flat washers (Figure 1, Item 27) from terminals on motor controller (.Figure 1, Item 19).
6. Tag and remove wires from terminals S-1, S-2, POS and NEG positions (Figure 3, Item 2, 3, 4, 5 and 6) from motor controller (Figure 1, Item 19).
7. Tag and remove slide in wires from 28V key switch input terminal (Figure 3, Item 1 and 8) motor controller (Figure 1, Item 19).
8. Tag and remove electrical connector (Figure 3, Item 7) from top of motor controller (Figure 1, Item 19).

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.

9. Remove nuts (Figure 1, Item 16), lock washers (Figure 1, Item 17), bolts (Figure 1, Item 18). Remove motor controller (Figure 1, Item 19) from electrical upper tray assembly (Figure 1, Item 20).

INSTALLATION

MOTOR CONTROLLER

1. Place motor controller (Figure 1, Item 19) in proper position on electrical upper tray assembly (Figure 1, Item 20). Insert bolts (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 bolts. 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 wires (Figure 3, Item 1and 8) to 28 V key switch terminal.
4. Connect wires to terminals S-1, S-2, POS and NEG (Figure 3, Item 2, 3, 4, 5 and 6) from the motor controller (Figure 1, Item 19).
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 (Figure 3, Item 2, 3, 4, 5 and 6) from the motor controller (Figure 1, Item 19).
6. Ensure all wires have been connected to the motor controller (Figure 1, Item 19) and the forward and reverse relays (Figure 1, Item 5 and 6).

INSTALLATION – CONTINUED

MOTOR CONTROLLER – CONTINUED

7. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
8. Adjust motor controller as follows:
   a. Ensure the AGPU switches and traction motor are set to the alternate (battery) propulsion mode (WP 0014 00).

CAUTION

During this operation and test, the AGPU will be moving.

NOTE

Removal of the roof (WP 0033 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 that 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 pod (Figure 3, Item 9 through 13) adjustments in the order shown. Adjustments are made to the trim pods located on the top of the motor controller. Adjustments on all trim pods should be done in a delicate manner. Adjusting (increase or decrease) the trim pod with a small flat tip screwdriver past its limits, either clockwise or counterclockwise will render the pods non-operational.

   h. Volts adjustment (Figure 3, Item 13): With the speed/direction hand grip assembly set per Step 8e increase the volts trim pod in the direction of the arrow until you hear the propulsion motor start to whine. The motor should whine and the AGPU should attempt to crawl forward (do not adjust further).

NOTE

The speed/direction hand grip assembly must be released to perform the remaining adjustments.

   i. Current limiter (Figure 3, Item 12): Increase the current limiter trim pod to its full direction of the arrow.

INSTALLATION – CONTINUED

MOTOR CONTROLLER – CONTINUED

j. Accelerator (Figure 3, Item 10): Increase the accelerator trim pod in the full direction of the arrow and then approximately 1/2 turn in the reverse direction.

k. Max brake (Figure 3, Item 14): Increase the accelerator trim pod in the full direction of the arrow and then approximately 1/2 turn in the reverse direction.

NOTE

The trim pods are very sensitive, so make your adjustments accordingly.

l. Brake (Figure 3, Item 11):

(1) Turn the brake trim pod approximately 1/2 to 1/4 turn in the direction of the arrow.

(2) The operator at the speed/direction hand grip assembly should attempt to engage the propulsion motor at this time.

(3) The AGPU should propel (forward or reverse) in a slow, smooth manner.

(4) The operator should verify the AGPU will brake properly by (releasing) the speed/direction hand grip assembly.

(5) Move the hand grip momentarily in the reverse direction.

(6) If adjusted properly, the AGPU will slow, stop and reverse without violent movement. If the AGPU fails to slow, stop and reverse smoothly, adjust the brake trim pod in the direction of the arrow until the unit operates properly.

(7) If the movement is violent (e.g., the motor squeals while trying to reverse), turn the brake trim pod in the opposite direction (increase or decrease) of the arrow.

9. Perform a full MOC (WP 0029 00) and ensure proper operation.

10. 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 OUTPUT switch (WP 0006 00, Figure 1, Item 26) and DRIVE switch (WP 0006 00, Figure 1, Item 3) to the OFF position.

d. Set MASTER switch (WP 0006 00, Figure 1, Item 1) to the 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. Install roof (WP 0033 00).

g. Perform PMC After (A) steps (WP 0029 00).

REMOVAL

CAPACITOR (C1G) AND RESISTOR (R1G)

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

2. Open electrical tray access door (WP 0002 00, Figure 1, Item 9).

REMOVAL – CONTINUED

CAPACITOR (C1G) AND RESISTOR (R1G) – CONTINUED

WARNING

Prior to removal of capacitor (C1G) it must be discharged to prevent arcing or electrical shock.

3. Connect one end of an alligator test lead to the positive terminal of the capacitor (C1G) (Figure 1, Item 11). Connect the other end of the alligator test lead to AGPU chassis ground. This will discharge any residual voltage or energy preserved in the capacitor and will allow safe removal.
4. Loosen screw (Figure 1, Item 10) and nut (Figure 1, Item 9) and safeguard for reuse.
5. Loosen two screws (Figure 1, Item 7) on top of capacitor (C1G) (Figure 1, Item 11) positive and negative terminals.
6. Tag and remove wires from positive and negative terminals on capacitor (C1G) (Figure 1, Item 11).
7. Remove the capacitor (C1G) (Figure 1, Item 11) from electrical upper tray assembly (Figure 1, Item 20). Remove and clean any oil residue from the capacitor (C1G) (Figure 1, Item 11) resting surface on the electrical upper tray assembly (Figure 1, Item 20).
8. Remove the resistor (R1G) (Figure 1, Item 8) and safeguard for reuse with new capacitor (C1G) (Figure 1, Item 11). If resistor (R1G) (Figure 1, Item 8) is to be replaced with capacitor (C1G) (Figure 1, Item 11) this will be done during the following installation of the capacitor (C1G) (Figure 1, Item 11) process.

INSTALLATION

CAPACITOR (C1G) AND RESISTOR (R1G)

1. Position resistor (R1G) (Figure 1, Item 8) on capacitor (C1G) (Figure 1, Item 11) and place tagged wires to positive and negative terminals with two screws (Figure 1, Item 7). Do not over tighten screws to prevent damage to the capacitor (C1G) (Figure 1, Item 11).
2. Mount the capacitor (C1G) (Figure 1, Item 11) on the electrical upper tray assembly (Figure 1, Item 20).
3. Tighten screw (Figure 1, Item 10) and nut (Figure 1, Item 9). Do not over tighten.
4. Verify all wire connections are tight and not grounded to each other or AGPU chassis.
5. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
6. Put propulsion system into the (alternate) operation mode (WP 0014 00).
7. Perform MOC.
8. Close electrical tray access door (WP 0041 00, Figure 2, Item 9).
9. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

END OF WORK PACKAGE

FIELD MAINTENANCE

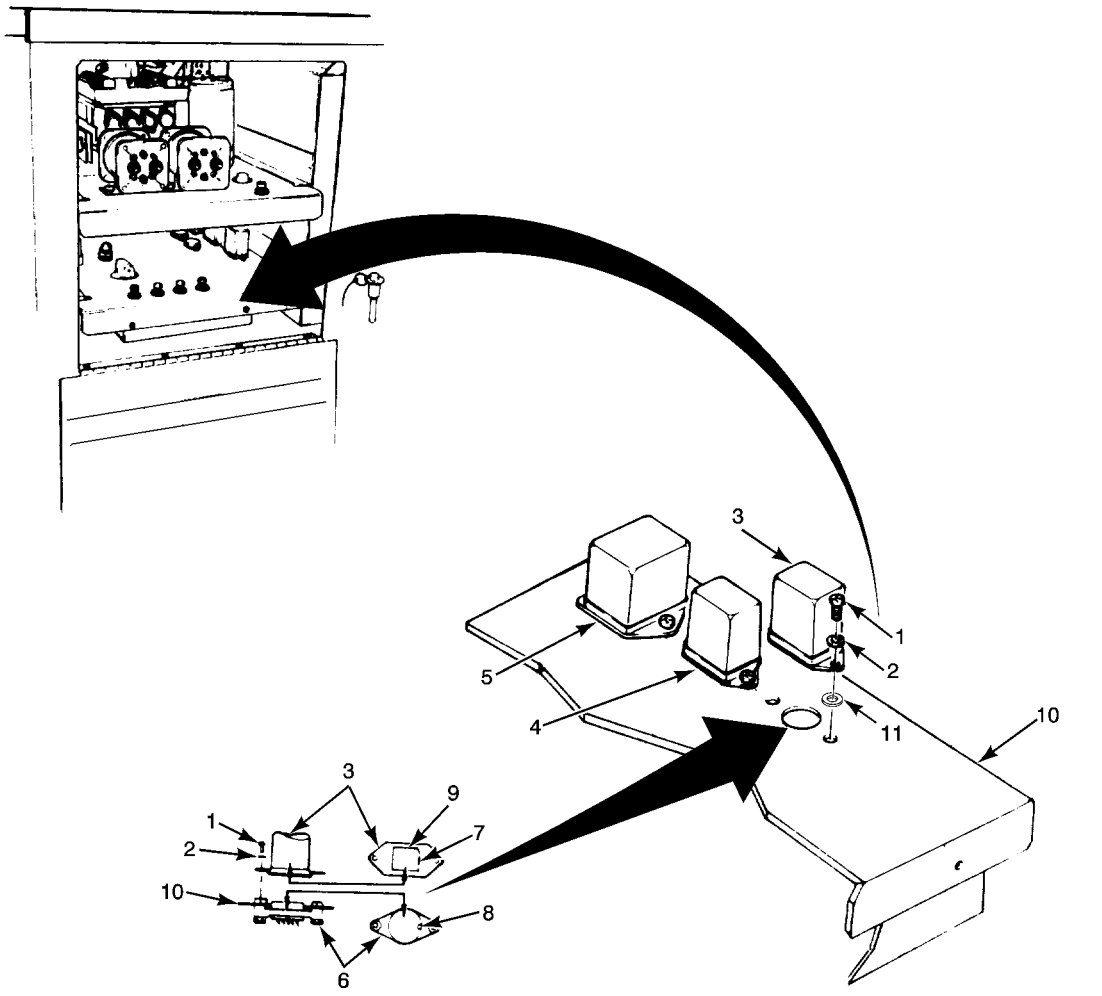
**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A) 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	References
Aviation Foot Locker, AFL (WP 0155 00, Item 3)	WP 0002 00
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)	WP 0025 00
	WP 0041 00
Tool Set, Aviation Unit (WP 0155 00, Item 41)	WP 0043 00
	WP 0044 00

TEST AND INSPECTION



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
11. Insulating Washer (for 3 only)

Figure 1. Control Relay.

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.

TEST AND INSPECTION – CONTINUED

2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

NOTE

For tests refer to the following troubleshooting procedures:

- WP 0025 00, 100. 95% ENABLE RELAY 3K1 MALFUNCTION.
- WP 0025 00, 102. BATTERY/CHARGER TRANSFER RELAY 3K3 AND POWER DIODE MALFUNCTIONS.

3. Open the electrical tray access door (WP 0002 00, Figure 7, Item 1).
4. Extend lower electrical tray (WP 0041 00, Figure 2, Item 3).
5. Inspect relays (Figure 1, Items 3, 4 and 5) for dents, punctures and signs of corrosion. Replace damaged relays and clean matting relay sockets.
6. Check that relays are securely mounted. Tighten mounting screws (Figure 1, Item 1) as required (do not over tighten).
7. Check that solder connections to relay sockets (Figure 1, Item 6) are secure. Make sure that no bare wires are touching to ground.

NOTE

Removal and installation procedures are the same for control relays 3K1 through 3K3. 3K1 is illustrated.

REMOVAL

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
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

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) (do not over tighten).
4. Install lower electrical tray (WP 0041 00, Figure 2, Item 3) in and secure with quick release pins.
5. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
6. Close the electrical tray access door (WP 0002 00, Figure 7, Item 11).
7. Perform MOC.

END OF WORK PACKAGE

FIELD MAINTENANCE

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

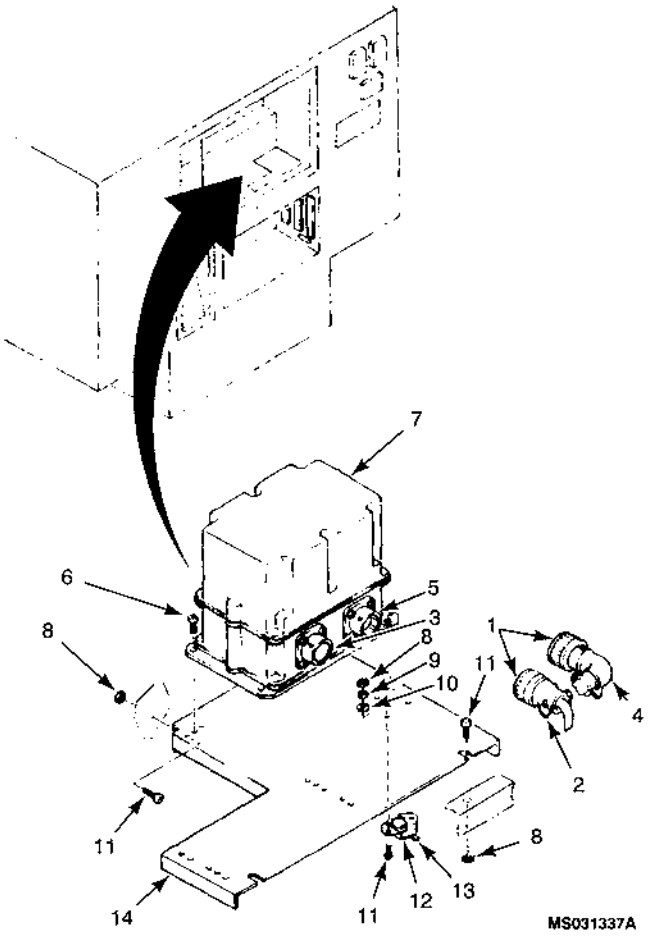
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References

WP 0022 00

References (cont.)

WP 0025 00
WP 0026 00
WP 0041 00
WP 0043 00
WP 0044 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 prior to performing this WP.

NOTE

For tests refer to the following troubleshooting procedures:

- WP 0022 00, 9. ENGINE MOTORS ABOVE 10% RPM BUT NO LIGHT OFF (START).
- WP 0022 00, 15. ENGINE ACCELERATES TO 100% RPM BUT RPM AND EGT FLUCTUATE (PNEUMATIC POWER OFF).
- WP 0022 00, 17. ENGINE SHUTS DOWN DURING NORMAL OPERATION.
- WP 0022 00, 18. ENGINE DOES NOT SHUT DOWN WHEN EMERG STOP SWITCH IS PRESSED.
- WP 0022 00, 20. GTE HIGH EGT INDICATOR ILLUMINATED - ENGINE SHUT DOWN.
- WP 0022 00, 21. GTE CONTROL SHORT INDICATOR ILLUMINATED - ENGINE SHUT DOWN.
- WP 0022 00, 23. GTE OVER SPEED INDICATOR ILLUMINATED - ENGINE SHUT DOWN.
- WP 0022 00, 25. GTE WARNING INDICATOR (CONTROL SHORT, HIGH EGT, OVER SPEED, HI OIL TEMP OR LOW OIL PRESS) - ENGINE CONTINUES TO RUN.
- WP 0022 00, 26. GTE EGT METER READS IN RED BAND AND ENGINE CONTINUES TO RUN ABOVE 95% RPM.
- WP 0022 00, 27. GTE % RPM METER READS IN RED BAND.
- WP 0025 00, 57. GTE LOW OIL PRESS INDICATOR NOT ILLUMINATED - MASTER SWITCH ON AND ENGINE NOT RUNNING.

WP 0025 00, 59. ENGINE DOES NOT MOTOR WITH ENGINE CONTROL SWITCH HELD IN START POSITION (MASTER SWITCH ON AND ALL OTHER SWITCHES OFF).

- WP 0025 00, 62. GTE % RPM METER INDICATION DEFECTIVE.
- WP 0025 00, 65. DC POWER ON INDICATOR OFF (ENGINE UP TO SPEED AND DC POWER SWITCH ON).
- WP 0026 00, 117. PSIG PNEUMATIC METER READS 0 OR LOW (PNEUMATIC POWER SWITCH ON, ENGINE UP TO SPEED AND EGT LESS THAN 1200 °F).

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Lower the control panel (WP 0041 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Lower the control panel (WP 0041 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.
5. Close the control panel (WP 0041 00).
6. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
7. Perform MOC.

END OF WORK PACKAGE

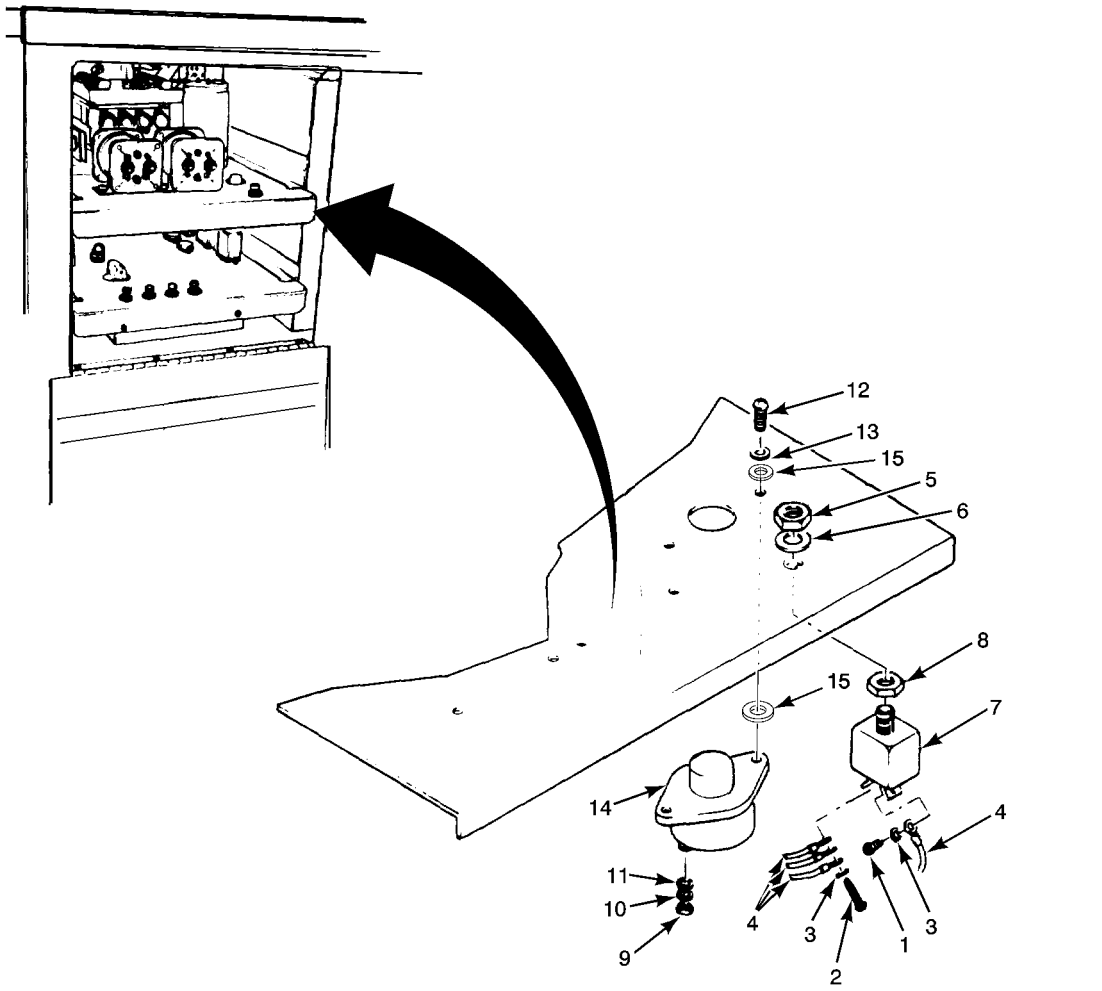
FIELD MAINTENANCE

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 0155 00, Item 3)	WP 0002 00
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)	WP 0025 00
	WP 0041 00
Tool Set, Aviation Unit (WP 0155 00, Item 41)	WP 0043 00
	WP 0044 00



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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
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

For test refer to troubleshooting procedure WP 0025 00, 98. CHARGER CIRCUIT MALFUNCTION, Step 6.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open electrical tray access door (WP 0002 00, Figure 1, Item 9).
3. Extend lower electrical tray (WP 0041 00). Carefully pull tray all the way out of slides and let tray hang down out of way, supported by cables.
4. Remove terminal screws (Figure 1, Item 1 and 2) and lock washers (Figure 1, Item 3).
5. Tag and remove all wires from circuit breaker (Figure 1, Item 7). Keep Terminal screw (long) (Figure 1, Item 2) for reinstallation.
6. Remove nut (Figure 1, Item 5), lock washer (Figure 1, Item 6) and circuit breaker (Figure 1, Item 7).
7. 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 height 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.
6. Close electrical tray access door (WP 0002 00, Figure 1, Item 9).
7. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
8. Perform MOC.

REMOVAL

Removal of 70 AMP Circuit Breaker (2CB1)

NOTE

For test refer to troubleshooting procedure WP 0025 00, 98. CHARGER CIRCUIT MALFUNCTION, Step 5.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open electrical tray access door (WP 0002 00, Figure 1, Item 9).
3. Extend lower electrical tray (WP 0041 00). Carefully pull tray all the way out of slides and let tray hang down out of way, supported by cables.
4. 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).
5. 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.
6. Close electrical tray access door (WP 0002 00, Figure 1, Item 9).
7. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
8. Perform MOC.

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

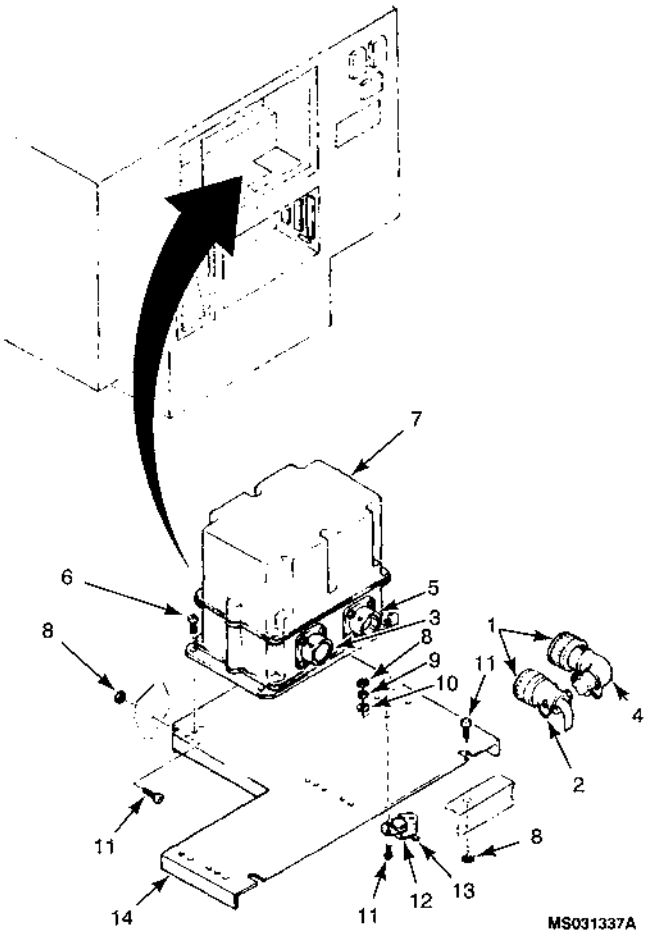
FIELD MAINTENANCE

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 0155 00, Item 3)	WP 0002 00
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)	WP 0022 00
	WP 0041 00
Tool Set, Aviation Unit (WP 0155 00, Item 41)	WP 0043 00
	WP 0044 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

For test refer to troubleshooting procedure WP 0022 00, 29. GTE COMPT/GEN HI TEMP INDICATOR ILLUMINATED (AC POWER SWITCH OFF).

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

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 (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open the control panel (WP 0041 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 (WP 0002 00, Figure 1, Item 6).
4. Close control panel (WP 0041 00, Figure 1, Item 1).
5. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
6. Perform MOC.

END OF WORK PACKAGE

FIELD MAINTENANCE

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

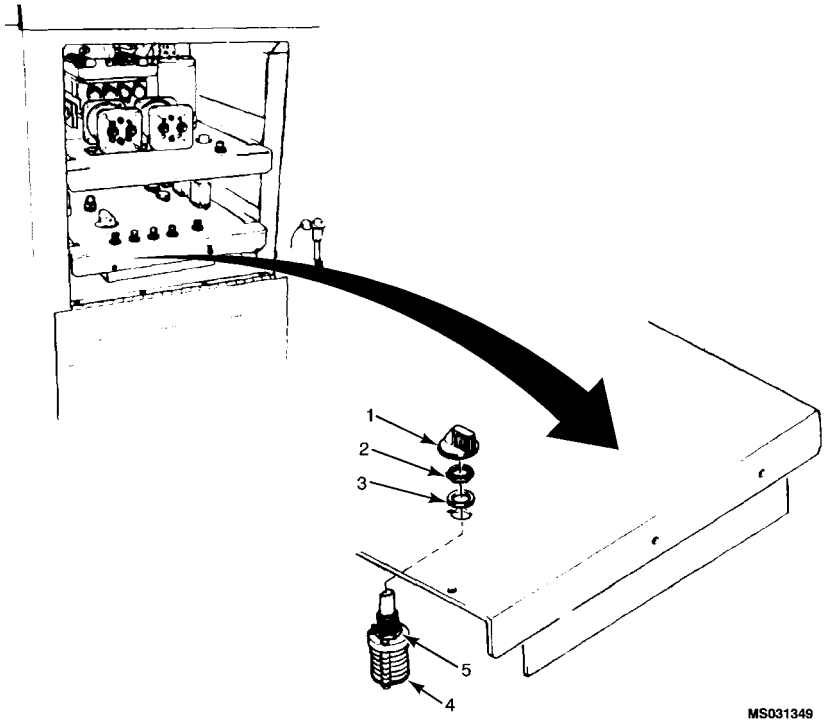
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

Materials/Parts

Solder, Tin Alloy (WP 0154 00, Item 53)

References

WP 0002 00
WP 0006 00
WP 0008 00
WP 0025 00
WP 0041 00
WP 0043 00
WP 0044 00



1. Knob
2. Nut
3. Lock Washer
4. Switch (3S1)
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

For test refer to troubleshooting procedure WP 0025 00, 98. CHARGER CIRCUIT MALFUNCTION, Step 5.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open electrical tray access door (WP 0002 00, Figure 1, Item 9).
3. Extend lower electrical tray (WP 0041 00).
4. Inspect switch (3S1) (Figure 1, Item 4) and knob (Figure 1, Item 1) for obvious damage. Replace broken knob or switch.
5. Check that switch (3S1) (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.
6. Turn knob (Figure 1, Item 1) to full counterclockwise position. If knob is loose, tighten set screws in knob. Replace missing setscrews.
7. Check that knob points to 28.5 VDC position when turned to full counterclockwise position. If not, loosen set screws, turn knob to 28.5 VDC position and tighten set screws. Tighten set screw opposite to knob pointer first.
8. Check that wire connections to switch solder lugs are secure.

REMOVAL

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open electrical tray access door (WP 0002 00, Figure 1, Item 9).
3. Extend lower electrical tray (WP 0041 00).
4. Loosen two set screws in switch knob (Figure 1, Item 1) and remove knob.
5. Tag and unsolder all wires from terminal lugs on switch (3S1) (Figure 1, Item 4).
6. Remove nut (Figure 1, Item 2), lock washer (Figure 1, Item 3) and switch (3S1) (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 (3S1) (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 (3S1) (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.

INSTALLATION – CONTINUED

4. Position knob (Figure 1, Item 1) on shaft of switch (3S1) (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 0041 00).
6. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
7. Start AGPU (WP 0008 00).
8. On the control panel look at the battery charge meter (WP 0006 00, Figure 1, Item 25), ensure the meter is in the green band.
9. Rotate switch (3S1) (Figure 1, Item 4) clockwise to the next higher output setting and verify that battery charge meter (WP 0006 00, Figure 1, Item 25) reading stays within the green band
10. After operational check of switch (3S1) (Figure 1, Item 4) rotate switch counter-clockwise to the lowest setting.
11. Shutdown AGPU (WP 0008 00).
12. Close electrical tray access door (WP 0002 00, Figure 1, Item 9).
13. Disconnect battery WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.

END OF WORK PACKAGE

FIELD MAINTENANCE

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

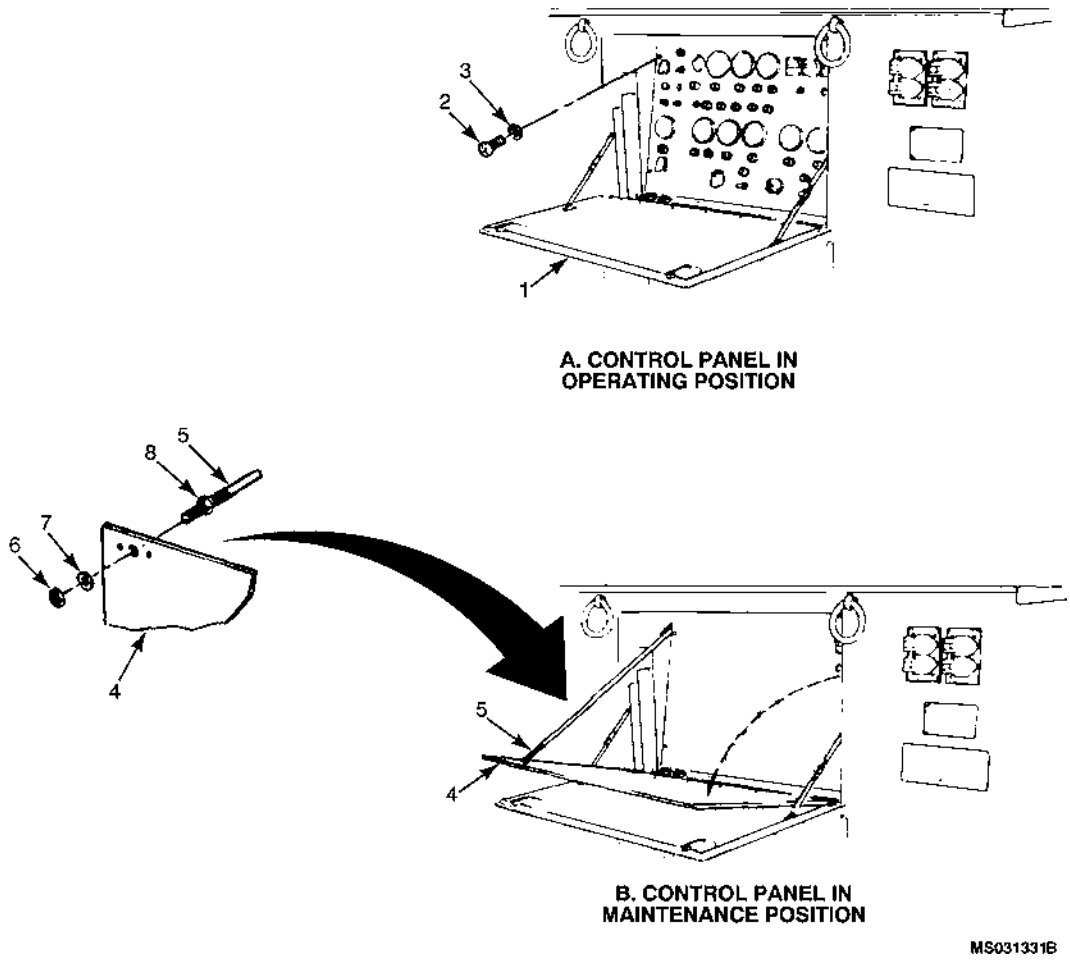
CONTROL PANEL

INITIAL SETUP:

Tools and Special Tools
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References
WP 0029 00

References (cont.)
WP 0032 00
WP 0043 00
WP 0044 00
WP 0047 00
WP 0072 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Remove battery charger access cover (WP 0032 00, Figure 1, Item 5).
4. Open control panel access door (Figure 1, Item 1).
5. Disconnect main harness connectors from control panel connectors 1P5, 1P6 and 1P7 (WP 0072 00, Figure 1, Item 6).
6. Remove four screws (Figure 1, Item 2), washers (Figure 1, Item 3) and lower the control panel (Figure 1, Item 4) so that panel is supported by support cable (Figure 1, Item 5).
7. Remove nut (Figure 1, Item 6) and washer (Figure 1, Item 7) from support cable (Figure 1, Item 5). Reinstall nut and washer on loose cable for reinstallation.
8. Remove control panel (Figure 1, Item 4) by removing the control panel from its location by feeding cables P5, P6 and P7 (WP 0072 00, Figure 1, Item 6) from battery charger compartment. Gently pull cables free from AGPU, taking care not to damage other wiring harness components during removal.

REMOVAL – CONTINUED

9. Place control panel (Figure 1, Item 4) on a suitable work surface. Ensure face of control panel is protected during maintenance procedures.

REPAIR OR REPLACEMENT

Replace control panel and damaged components or wiring harnesses as required.

INSTALLATION

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

1. Position control panel (Figure 1, Item 4) with lower edge of panel resting on ledge beneath panel opening in rear of AGPU.
2. Attach support cable (Figure 1, Item 5) to control panel using washers (Figure 1, Item 7) and nut (Figure 1, Item 6). Tighten nut and washer to cable as required.
3. Install the control panel (Figure 1, Item 4) in its location by feeding cables P5, P6 and P7 (WP 0072 00, Figure 1, Item 6) to battery charger compartment (WP 0032 00). Gently route cables from control panel compartment, down to the battery charger compartment. Ensure not to damage other wiring harness components during installation.
4. Connect main harness connectors to control panel connectors J5, J6 and J7 (WP 0047 00, Figure 2. (Sheet 1 of 2), Item 8).
5. Raise control panel (Figure 1, Item 4) into position and secure with four washers (Figure 1, Item 3) and screws (Figure 1, Item 2). Tighten screws as required.
6. Close the control panel access door (Figure 1, Item 1).
7. Install battery charger access cover (WP 0032 00) and reopen control panel access door (Figure 1, Item 1).
8. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
9. Perform MOC and PMCS (WP 0029 00).

END OF WORK PACKAGE

FIELD MAINTENANCE

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

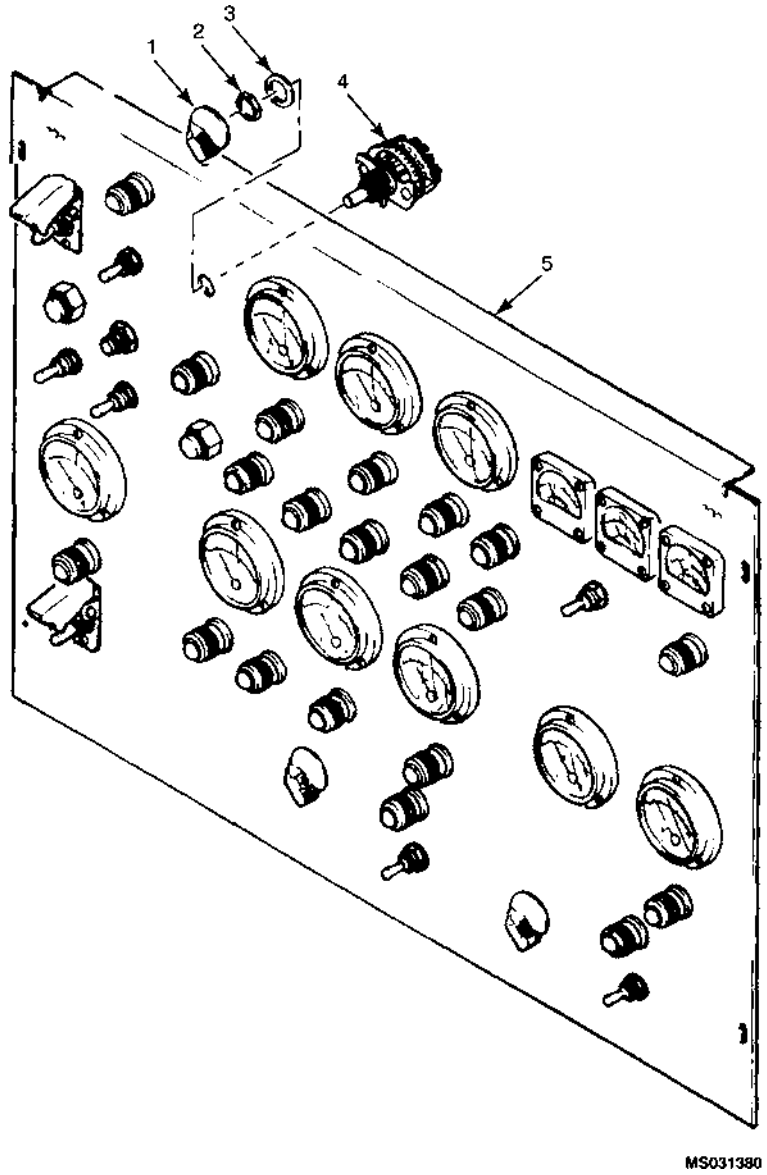
INITIAL SETUP:

Tools and Special Tools
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

Materials/Parts
Solder, Tin Alloy (WP 0154 00, Item 53)

References
WP 0006 00

References (cont.)
WP 0008 00
WP 0025 00
WP 0029 00
WP 0040 00
WP 0041 00
WP 0043 00
WP 0044 00
WP 0061 00



1. Knob
2. Nut
3. Lock Washer
4. Engine Control Switch
5. Panel

Figure 1. Control Panel ENGINE CONTROL Switch.

TEST AND INSPECTION

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Open control panel access door (WP 0040 00, Figure 1, Item 1).
3. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
4. Perform PMC Before (B) steps (WP 0029 00).
5. Turn on master switch (WP 0006 00, Figure 1, Item 1) on control panel.
6. Push press to test button (WP 0006 00, Figure 1, Item 4) on control panel.

TEST AND INSPECTION – CONTINUED

7. Rotate engine control switch (Figure 1, Item 4) clockwise to the start position and ensure engine control switch automatically returns to the run position. If engine control switch sticks or fails to automatically return to the run position the switch must be replaced.
8. If engine control switch (Figure 1, Item 4) fails to start engine troubleshoot engine control switch and circuit breaker (CB2) (WP 0006 00, Figure 1, Item 17).
9. If engine control switch (Figure 1, Item 4) functions properly shut down engine (WP 0008 00).
10. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
11. Close control panel access door (WP 0041 00, Figure 1, Item 1).

REMOVAL

NOTE

For test refer to troubleshooting procedure WP 0025 00, 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS.

NOTE

Procedures in this section require that wires be disconnected from control panel terminals. Prior to disconnecting wires from more than one terminal, make sure that wire numbers are legible and tagged. If not, use tape to identify wires. Refer to Figure FO 16.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Open control panel access door (WP 0041 00, Figure 1, Item 1).
4. Remove control panel (WP 0061 00, Figure 1, Item 4).
5. Loosen two setscrews in switch knob (Figure 1, Item 1) and remove knob. Safeguard screws for reuse.
6. Unsolder all tagged wires from terminal lugs on back of engine control switch (Figure 1, Item 4). Use care not to shorten wires any more than necessary. Do not overheat terminals during de-soldering operation.
7. Remove nut (Figure 1, Item 2), lock washer (Figure 1, Item 3) and engine control switch (Figure 1, Item 4).
8. Measure length of old switch shaft for reference.

INSTALLATION

1. Cut shaft of replacement switch to same length as shaft of old engine control switch (Figure 1, Item 4). 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 to front of panel and secure with lock washer (Figure 1, Item 3) and nut (Figure 1, Item 2). Tighten as required.
4. Solder tagged wires removed during the removal step to solder lugs on switch. Refer to Figure FO 34 for additional soldering instructions. Ensure not to overheat switch during soldering operation.
5. Position knob (Figure 1, Item 1) on shaft of engine control switch and tighten setscrews in knob.
6. Rotate knob (Figure 1, Item 1) pointing to STOP position, tighten both setscrews. Do not rotate engine control switch (Figure 1, Item 4) shaft during the knob adjustment operation.
7. Install control panel (WP 0061 00, Figure 1, Item 4).

INSTALLATION – CONTINUED

8. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
9. Perform PMC Before (B), During (D) and After (A) steps (WP 0029 00).
10. Perform MOC and verify pointer of knob is pointing to STOP, RUN, START positions.
11. Perform shut down operations (WP 0008 00).
12. Close control panel access door (WP 0041 00, Figure 1, Item 1).

END OF WORK PACKAGE

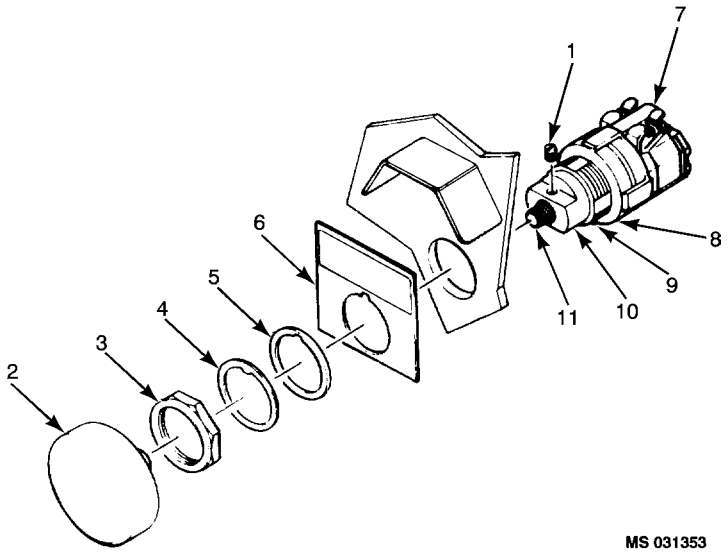
FIELD MAINTENANCE

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 (S-2)

INITIAL SETUP:

Tools and Special Tools	References
Aviation Foot Locker, AFL (WP 0155 00, Item 3)	WP 0025 00
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)	WP 0033 00
Tool Set, Aviation Unit (WP 0155 00, Item 41)	WP 0043 00
	WP 0044 00



1. Setscrew
2. Knob
3. Nut
4. Key Washer
5. Washer
6. Nameplate
7. Switch (S-2)
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

For test refer to troubleshooting procedure WP 0025 00, 83. EMERGENCY STOP SWITCH MALFUNCTION.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

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.

NOTE

For MEP 83-360E you do not need to remove the roof.

2. Remove AGPU roof (WP 0033 00). (This only applies to MEP 83-360A and D models that have not had the emergency shutdown switch (S-2) (Figure 1, Item 7) moved to the exterior side (wall) of the AC cable storage compartment (WP 0002 00, Figure 3, Item 13).
3. Remove setscrew (Figure 1, Item 1) from knob (Figure 1, Item 2).
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. Remove and lift switch (S-2) (Figure 1, Item 7) to top of AGPU if switch is mounted on interior wall of GTE compartment. If switch is mounted on exterior wall of AC cable storage compartment, then remove the switch. Ensure to tag wires prior to disconnecting from switch (S-2) 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) from knob (Figure 1, Item 2).
   b. Hold flat of switch plunger (Figure 1, Item 10) with wrench and remove knob (Figure 1, Item 2) by turning counterclockwise.

INSTALLATION – CONTINUED

c. Hold switch (S-2) (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 AGPU body panel from interior to exterior (wire mounting locations will be towards inside of GTE compartment or AC cable storage compartment).
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.
6. Install nut (Figure 1, Item 3) on switch mounting shaft (Figure 1, Item 9). Hold switch by hand and tighten nut (do not over tighten or allow switch to rotate when tightening 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) to knob (Figure 1, Item 2).
9. Install AGPU roof (WP 0033 00) (This only applies to MEP 83-360A and D models that have not had the emergency shutdown switch (S-2) (Figure 1, Item 7) moved to the exterior side (wall) of the AC cable storage compartment (WP 0002 00, Figure 3, Item 13).
10. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
11. Perform MOC (ensure emergency shutdown operation is performed).

END OF WORK PACKAGE

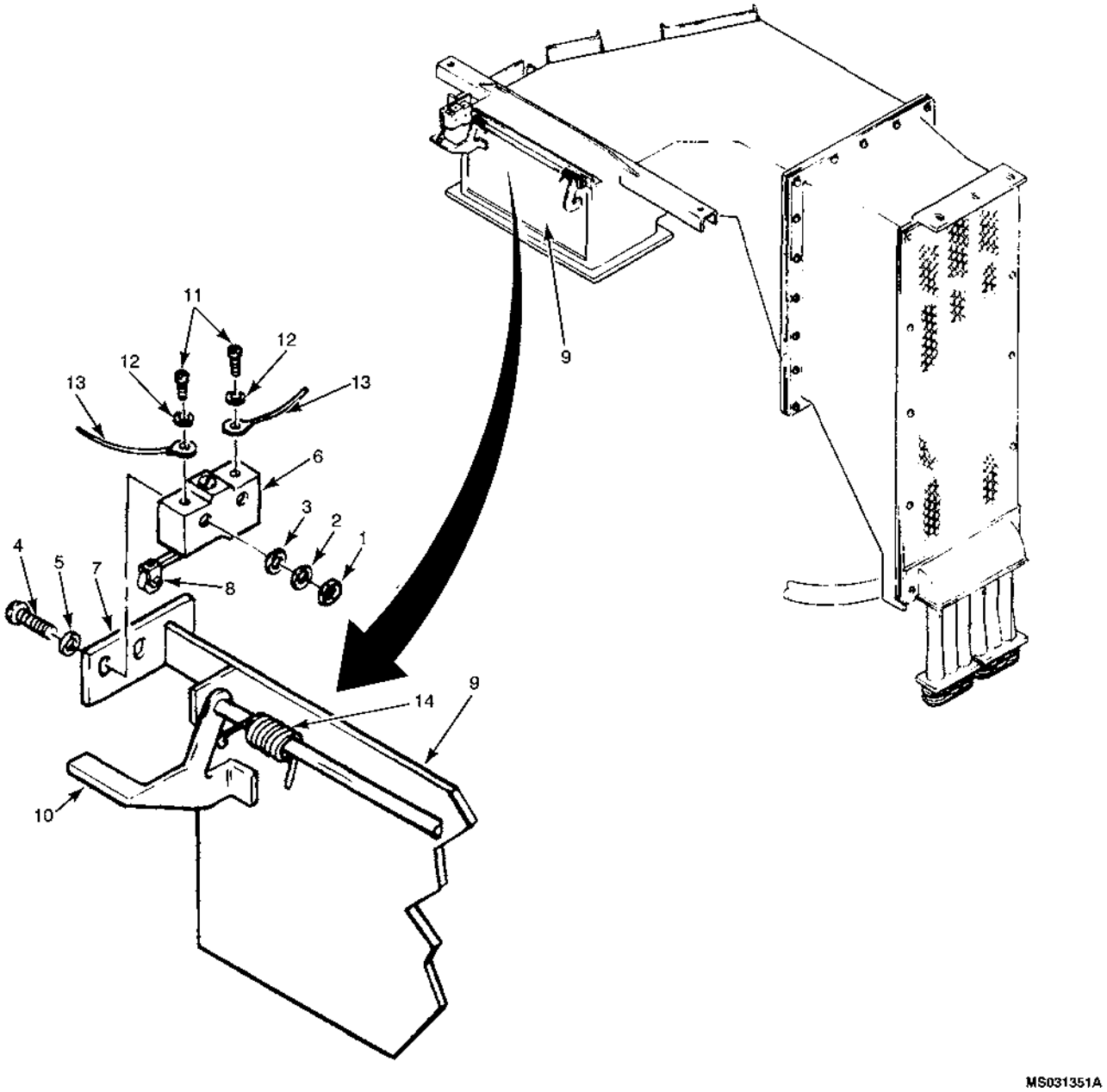
FIELD MAINTENANCE

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	References
Aviation Foot Locker, AFL (WP 0155 00, Item 3)	WP 0002 00
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)	WP 0025 00
	WP 0033 00
Tool Set, Aviation Unit (WP 0155 00, Item 41)	WP 0043 00
	WP 0044 00



1. Nut	6. Inlet Filter Switch	11. Screw
2. Lock Washer	7. Mounting Bracket	12. Washer
3. Washer	8. Switch Actuating Lever	13. Wire
4. Screw	9. Bypass Door	14. Enclosure Spring
5. Washer	10. Control Arm	

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

For test refer to troubleshooting procedure WP 0025 00, 109. INLET FILTER BLOCKED SWITCH MALFUNCTION .

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

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.

2. Remove roof (WP 0033 00).
3. Open Engine Access Door (WP 0002 00, Figure 1, Item 12) and secure door so it will not shut.
4. Inspect inlet filter switch (Figure 1, Item 6) for obvious damage. Replace switch if case is cracked.
5. Check that switch actuating lever (Figure 1, Item 8) is present and loaded against bypass door control arm (Figure 1, Item 10).
6. Check that switch mounting hardware is secure. Tighten screws (Figure 1, Item 4) if necessary.
7. Check that wire connections to switch terminal screws are secure. Tighten terminal screws if necessary.
8. Ensure bypass door enclosure spring (Figure 1, Item 14) has tension on bypass door (Figure 1, Item 9).

REMOVAL

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
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).

INSTALLATION – CONTINUED

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.
5. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
6. Turn on Master Switch (WP 0006 00, Figure 1, Item 1) on main control panel (do not start AGPU GTE).
7. With Master Switch (WP 0006 00, Figure 1, Item 1) in the on position, push in bypass door (Figure 1, Item 9) 1/4 to 1/2 inch and observe the inlet filter blocked light (WP 0006 00, Figure 1, Item 18) on the control panel (WP 0006 00, Figure 1, Item 1) to ensure that it illuminates.
8. Turn off Master Switch (WP 0006 00, Figure 1, Item 1) on main control panel.
9. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
10. Close Engine Access Door (WP 0002 00, Figure 1, Item 12).

CAUTION

During installation of the roof, one person should be stationed at each corner of the roof to prevent warping or damage to the roof.

11. Install roof (WP 0033 00).
12. Perform MOC.

END OF WORK PACKAGE

FIELD MAINTENANCE

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 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

Materials/Parts

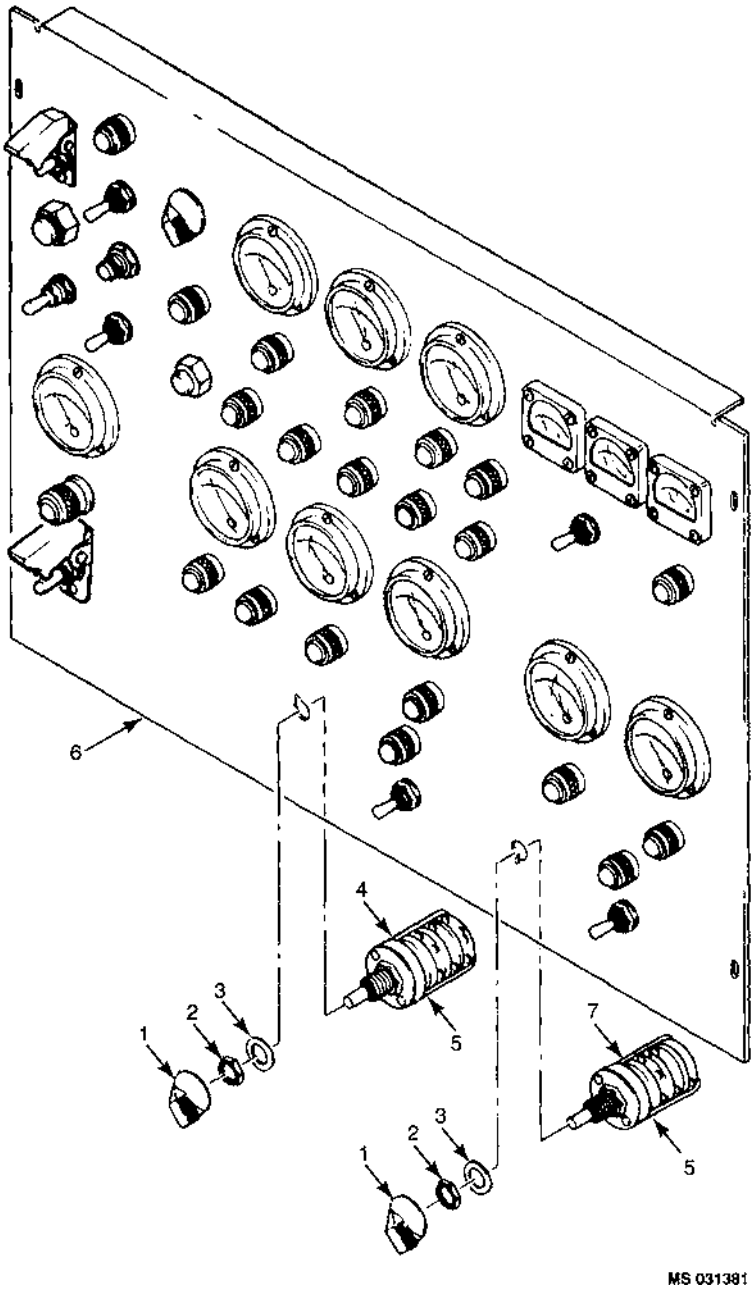
Solder, Tin Alloy (WP 0154 00, Item 53)

References

WP 0006 00

References (cont.)

WP 0007 00
WP 0008 00
WP 0009 00
WP 0025 00
WP 0041 00
WP 0043 00
WP 0044 00
WP 0061 00



1. Knob
2. Nut
3. Lock Washer
4. AC Phase Select Switch (1S9)
5. Switch Assembly Nut
6. Panel
7. Current Limit Selector (1S11)

Figure 1. Control Panel AC PHASE SELECT and CURRENT SELECTOR Switch.

TEST AND INSPECTION

1. Open control panel access door (WP 0041 00, Figure 1, Item 1).
2. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
3. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.

TEST AND INSPECTION – CONTINUED

4. Perform Before (B) steps in the WP 0029 00, Operator's Preventive Maintenance Checklist (PMC) Introduction.
5. Start AGPU (WP 0008 00).

CAUTION

Never move the current selector switch (Figure 1, Item 7) with AC or DC power output switches in the on position. Damage will occur internally to the switch if moved during operation.

6. Place the AC phase select switch (Figure 1, Item 4) in positions A, B or C.
7. Place the AC power output (WP 0009 00) into operation.
8. Monitor the AC voltage gauge (WP 0006 00, Figure 1, Item 34) to ensure when movement of AC phase select switch (Figure 1, Item 4) is moved from A, B or C position the gauge reads voltage.
9. Remove the AC power output (WP 0009 00) from operation.

NOTE

If testing and inspecting for DC current output, perform DC output operations refer to (WP 0009 00, Operation Under Usual Conditions - AC/DC Operations) (MEP 83-360 A Models only).

10. Move the current selector switch (Figure 1, Item 7) to an AC KW selection or KVA for MEP 83-360 D/E models.
11. Place the AC power output (WP 0009 00) into operation.
12. Monitor the AC voltage gauge (WP 0006 00, Figure 1, Item 34) to ensure the gauge reads AC voltage.

NOTE

If no AC voltage or DC voltage was monitored refer to troubleshooting procedure WP 0025 00, 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS for test.

13. Remove the AC power output (WP 0009 00) or DC power output from operation.
14. Shut down AGPU (WP 0008 00).
15. Close control panel access door (WP 0041 00, Figure 1, Item 1).
16. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

REMOVAL

NOTE

If no AC voltage or DC voltage was monitored refer to troubleshooting procedure WP 0025 00, 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS for test.

NOTE

Procedures in this section require that wires be disconnected from control panel terminals. Prior to disconnecting wires from more than one terminal, make sure that wire numbers are legible and tagged. If not, use tape to identify wires. Refer to Figure FO 16.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Open control panel access door (WP 0041 00, Figure 1, Item 1).
4. Remove control panel (WP 0061 00, Figure 1, Item 4).

NOTE

If removing current selector switch (Figure 1, Item 4.) removal of switch is the same as Steps 5 through 7.

5. Loosen two setscrews in switch knob (Figure 1, Item 1) and remove knob.
6. Unsolder all tagged wires from terminal lugs on back of AC phase select switch (1S9) (Figure 1, Item 4). Use care not to shorten wires any more than necessary. Do not overheat switch/terminals during de-soldering operation.

CAUTION

The nut against the switch body is the switch assembly nut (Figure 1, Item 5). Do not remove this nut.

7. Remove nut (Figure 1, Item 2), lock washer (Figure 1, Item 3) and AC phase select switch (1S9) (Figure 1, Item 4) from control panel.

INSTALLATION

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

CAUTION

The nut against the switch body is the switch assembly nut (Figure 1, Item 5). Do not remove this nut.

NOTE

If installing current selector switch (Figure 1, Item 7) installation of switch is the same as Steps 1 through 4.

1. Remove nut (Figure 1, Item 2) and lock washer (Figure 1, Item 3) from replacement AC phase select switch (1S9) (Figure 1, Item 4). If two nuts remain on AC phase select switch (1S9), remove outer nut. Do not remove switch assembly nut (Figure 1, Item 5).
2. Install replacement AC phase select switch (1S9) (Figure 1, Item 4) into back of panel (Figure 1, Item 6) and secure with lock washer (Figure 1, Item 3) and nut (Figure 1, Item 2). Tighten as required.
3. Solder all tagged wires removed during the removal process to solder lugs on switch AC phase select switch (1S9) (Figure 1, Item 4). Refer to Figure FO 34 for additional soldering instructions. Ensure not to overheat switch during soldering operation.
4. Position knob (Figure 1, Item 1) on shaft of AC phase select switch (1S9) (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 0061 00, Figure 1, Item 4).
6. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
7. Perform Before (B), During (D) and After (A) steps in the WP 0029 00, Operator's Preventive Maintenance Checklist (PMC) Introduction.
8. Perform MOC and verify AC and DC operations (WP 0009 00).
9. Perform AGPU shut down operations (WP 0008 00).
10. Close control panel access door (WP 0041 00, Figure 1, Item 1).

END OF WORK PACKAGE

FIELD MAINTENANCE

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

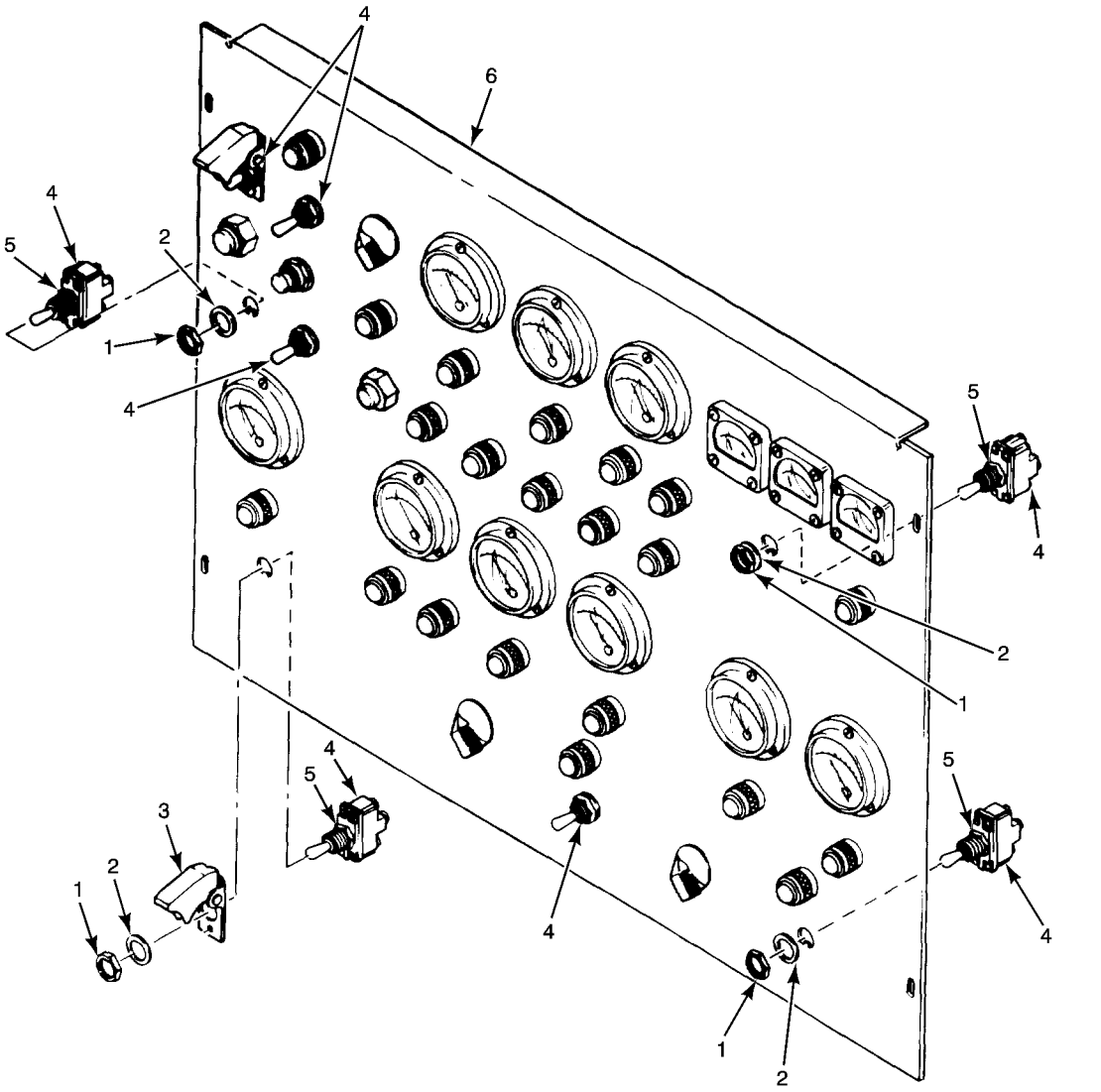
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References

WP 0007 00

References (cont.)

WP 0008 00
WP 0025 00
WP 0041 00
WP 0043 00
WP 0044 00
WP 0061 00



1. Nut
2. Lock Washer
3. Switch Guard
4. Switch, Toggle
5. Height Adjustment Nut
6. Panel

Figure 1. Control Panel Toggle Switches.

TEST AND INSPECTION

NOTE

For test refer to troubleshooting procedure WP 0025 00, 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

TEST AND INSPECTION – CONTINUED

3. Open control panel access door (WP 0041 00, Figure 1, Item 1).
4. Inspect each toggle switch (Figure 1, Item 4) and switch guard (Figure 1, Item 3) if applicable to ensure security.
5. Inspect toggle switch (Figure 1, Item 4) for movement to the on/off position. If movement is sticky or no resistance toggle switch could be defective. Replace if required.

REMOVAL

NOTE

Procedures in this section require that wires be disconnected from control panel terminals. Prior to disconnecting wires from more than one terminal, make sure that wire numbers are legible and tagged. If not, use tape to identify wires. Refer to Figure 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Open control panel access door (WP 0041 00, Figure 1, Item 1).
4. Remove control panel (WP 0061 00, Figure 1, Item 4).
5. Remove toggle switch (Figure 1, Item 4), terminal screws and lock washers as required to disconnect all tagged wires from back of toggle switch (Figure 1, Item 4). Replace toggle switch, retain lock washers and terminal screws and keep for reuse.
6. 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).
7. Remove toggle switch (Figure 1, Item 4) from behind control panel (Figure 1, Item 6).
8. Note position of height adjustment nut (Figure 1, Item 5) on threaded shaft of switch. For new switch the height adjustment must be the same.

INSTALLATION

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

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. 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.

INSTALLATION – CONTINUED

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 once tightened. 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 toggle switch (Figure 1, Item 4) as required to connect all tagged wires removed during the removal process. Replace toggle switch lock washers and terminal screws.
7. Install control panel (WP 0061 00, Figure 1, Item 4).
8. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
9. Perform Before (B), During (D) and After (A) steps in the WP 0029 00, Operator's Preventive Maintenance Checklist (PMC) Introduction.
10. Perform MOC and verify operation of all toggle switches (Figure 1, Item 4) that have been replaced.
11. Perform AGPU shut down operations (WP 0008 00).
12. Close control panel access door (WP 0041 00, Figure 1, Item 1).

END OF WORK PACKAGE

FIELD MAINTENANCE

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

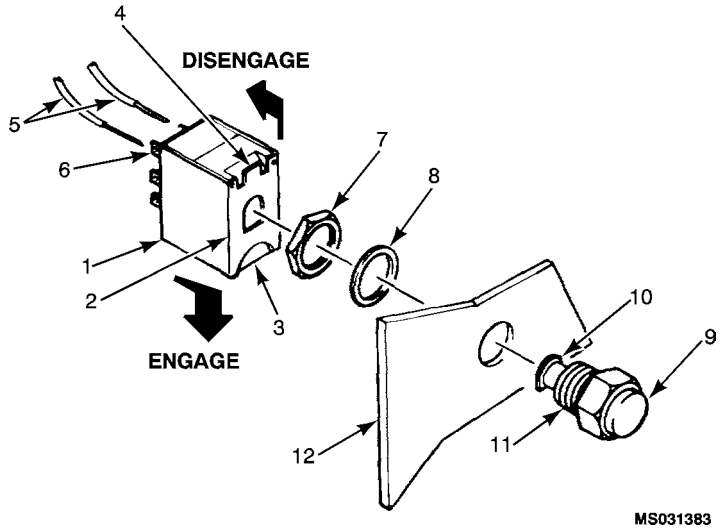
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

Materials/Parts

Solder, Tin Alloy (WP 0154 00, Item 53)

References

WP 0007 00
WP 0008 00
WP 0025 00
WP 0041 00
WP 0043 00
WP 0044 00
WP 0061 00



1. Switch (1S4)	5. Wire	9. Push Button
2. Bracket	6. Terminal Posts	10. Flange
3. Spring Plate	7. Nut	11. Seal
4. Adjustment Tab	8. Lock Washer	12. Panel

Figure 1. Control Panel PRESS TO TEST Switches.

TEST AND INSPECTION

NOTE

For test refer to troubleshooting procedure WP 0025 00, 96. CONTROL PANEL SWITCH AND CIRCUIT BREAKER (CB2) MALFUNCTIONS.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Open control panel access door (WP 0041 00, Figure 1, Item 1).
4. Inspect press to test switch (1S4) (Figure 1, Item 1) to ensure security.
5. Inspect press to test switch (1S4) (Figure 1, Item 1) for movement in and out. If movement is sticky or no resistance press to test switch could be defective. Replace if required.

REMOVAL

NOTE

Procedures in this section require that wires be disconnected from control panel terminals. Prior to 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 Figure FO 16.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Remove control panel (WP 0061 00, Figure 1, Item 4).

REMOVAL – CONTINUED

4. Lift switch spring plate (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 and tag all wires prior to removing solder from wires. Do not overheat push to test switch during removal of solder and wires.
5. Unsolder all tagged 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) from control panel.

INSTALLATION

PUSH BUTTON SWITCH

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

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 tagged wires (Figure 1, Item 5) previously removed to terminal posts (Figure 1, Item 6) on replacement switch (Figure 1, Item 1). Refer to Figure FO 34 for additional soldering instructions. Ensure not to overheat press to test switch during soldering operation.

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 0061 00, Figure 1, Item 4).
7. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
8. Perform Before (B), During (D) and After (A) steps in WP 0029 00, Operator's Preventive Maintenance Checklist (PMC) Introduction.
9. Perform MOC and verify operation of press to test swtich (1S4) (Figure 1, Item 1).
10. Perform AGPU shut down operations (WP 0008 00).
11. Close control panel access door (WP 0041 00, Figure 1, Item 1).

END OF WORK PACKAGE

FIELD MAINTENANCE

**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

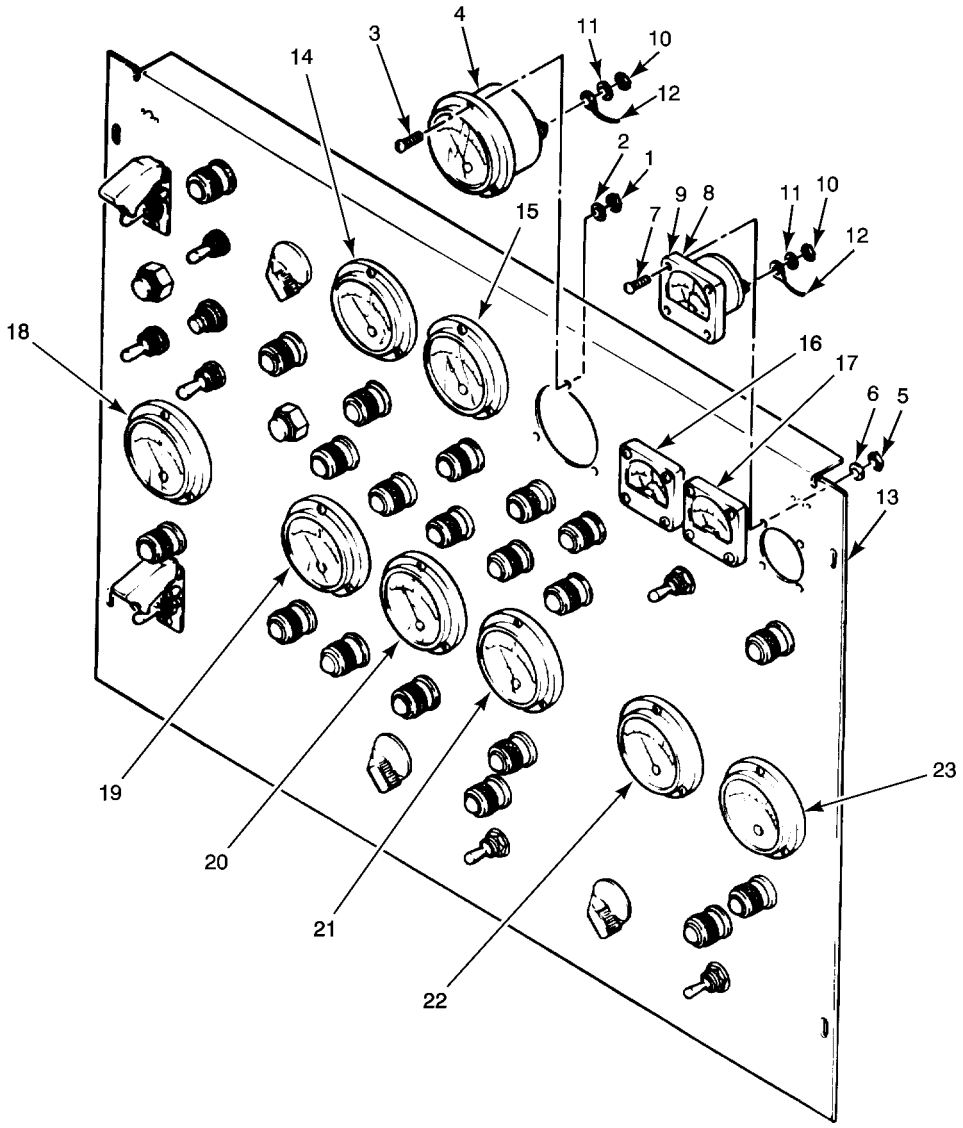
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References

WP 0008 00

References (cont.)

WP 0029 00
WP 0041 00
WP 0043 00
WP 0044 00
WP 0061 00
WP 0086 00



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.

TEST AND INSPECTION

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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Open control panel access door (WP 0041 00, Figure 1, Item 1).
4. Inspect meters (Figure 1, Item 4, 14, 15, 18, 19, 20, 21, 22 and 23) to ensure security and that glass is not broken.
5. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
6. Perform Before (B), During (D) and After (A) steps in WP 0029 00, Operator's Preventive Maintenance Checklist (PMC) Introduction.
7. Perform AGPU shut down operations (WP 0008 00).

REMOVAL

ROUND (LARGE) METERS (1M1, 1M2, 1M3, 1M7, 1M8, 1M9, 1M10, 1M11 AND 1M12)

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

NOTE

All round meter removal steps are the same as shown for 1M3 and all square meter removal steps 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Open control panel access door (WP 0041 00, Figure 1, Item 1).
4. Remove control panel (WP 0061 00, Figure 1, Item 4).

REMOVAL – CONTINUED

ROUND (LARGE) METERS (1M1, 1M2, 1M3, 1M7, 1M8, 1M9, 1M10, 1M11 AND 1M12) – CONTINUED

5. 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 back on terminals.
6. Remove meters that are to be replaced by removing 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

ROUND METERS

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

CAUTION

When replacing the AC Hertz Meter (1M10) (Figure 1, Item 21), it is essential to replace the frequency transducer (WP 0086 00, Figure 1, Item 22) as a matched set.

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. Install meters (Figure 1, Item 4, 14, 15, 18, 19, 20, 21, 22 and 23) from front of control 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 new meter (Figure 1, Item 4, 14, 15, 18, 19, 20, 21, 22 and 23). Connect all tagged wires (Figure 1, Item 12) disconnected in Step 1. Replace two terminal washers (Figure 1, Item 11) and terminal nuts (Figure 1, Item 10). Tighten terminal nuts as required.
3. Install control panel (WP 0061 00, Figure 1, Item 4).
4. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
5. Perform Before (B), During (D) and After (A) steps in WP 0029 00, Operator's Preventive Maintenance Checklist (PMC) Introduction.
6. Perform MOC and verify operation of meters (Figure 1, Item 4, 14, 15, 18, 19, 20, 21, 22 and 23).
7. Perform AGPU shut down operations (WP 0008 00).
8. Close control panel access door (WP 0041 00, Figure 1, Item 1).

REMOVAL

SQUARE (SMALL) METERS (1M4, 1M5 AND 1M6)

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

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. Remove control panel (WP 0061 00, Figure 1, Item 4).
3. 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 back on terminals.
4. 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

SQUARE METERS

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

1. Install meters (Figure 1, Item 9, 16 and 17) with gasket (Figure 1, Item 8) from front of panel (Figure 1, Item 13) and secure with four screws (Figure 1, Item 7), four lock washers (Figure 1, Item 6) and four nuts (Figure 1, Item 5). Tighten screws and nuts as required.
2. Remove nuts and washers from terminals on back of meters (Figure 1, Item 9, 16 and 17). Connect all tagged wires (Figure 1, Item 12) disconnected. Replace two terminal washers (Figure 1, Item 11) and nuts (Figure 1, Item 10). Tighten as required.
3. Install control panel (WP 0061 00, Figure 1, Item 4).
4. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
5. Perform Before (B), During (D) and After (A) steps in WP 0029 00, Operator's Preventive Maintenance Checklist (PMC) Introduction.
6. Perform MOC and verify operation of meters (Figure 1, Item 9, 16 and 17).
7. Perform AGPU shut down operations (WP 0008 00).
8. Close control panel access door (WP 0041 00, Figure 1, Item 1).

END OF WORK PACKAGE

FIELD MAINTENANCE

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)

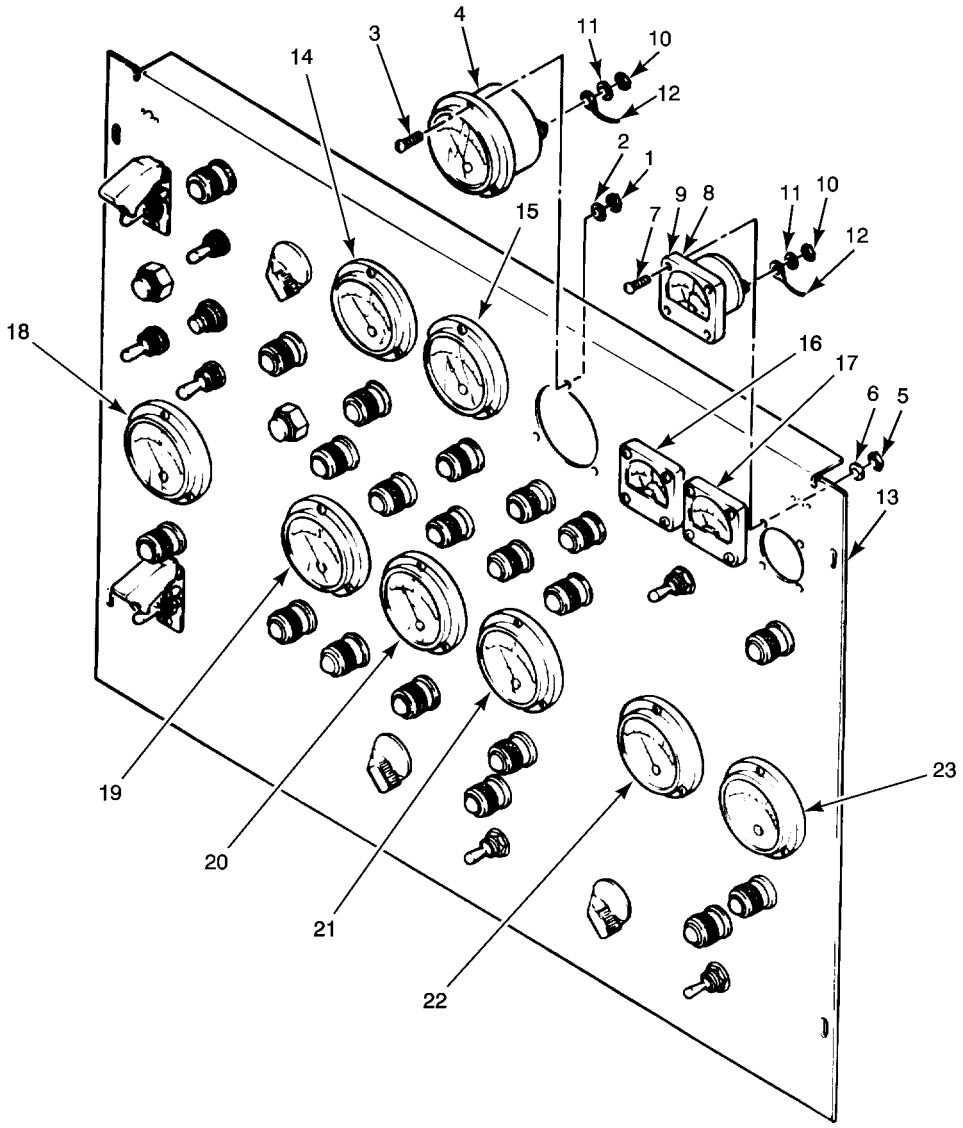
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References

WP 0043 00
WP 0044 00
WP 0061 00



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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Remove control panel (WP 0061 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 0061 00).
4. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
5. Perform MOC.

END OF WORK PACKAGE

FIELD MAINTENANCE

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

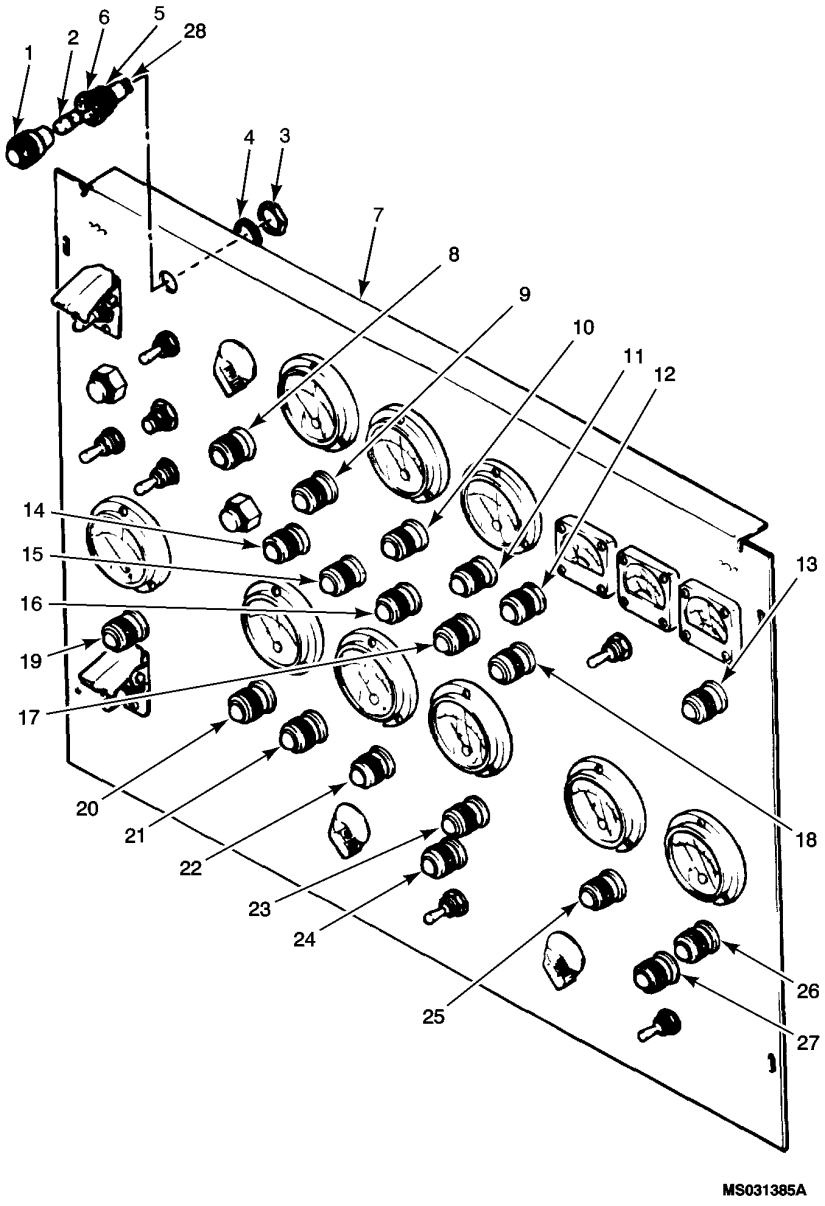
CONTROL PANEL INDICATOR LAMP SOCKETS (1DS1 - 1DS21)

INITIAL SETUP:

Tools and Special Tools
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References
WP 0025 00

References (cont.)
WP 0029 00
WP 0041 00
WP 0043 00
WP 0044 00
WP 0061 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)
26. Lamp, 1DS19 (DC OVER CURRENT)
27. Lamp, 1DS21 (DC POWER ON)
28. Terminal Screw

Figure 1. Control Panel Indicator Lamps/Sockets .

TEST AND INSPECTION

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
3. Open control panel access door (WP 0041 00, Figure 1, Item 11).
4. Perform PMCS (WP 0029 00).
5. Verify all indicator lamps are operational (illuminate).

REMOVAL

NOTE

All lamp sockets are removed in the same manner as prescribed in the following steps.

NOTE

DS18 (Figure 1, Item 25) is not used on MEP 83-360D and MEP 83-360E models.

NOTE

Refer to troubleshooting procedures WP 0025 00, 53. HYDRAULIC CONTROL PANEL INDICATOR LIGHT TEST FAILS - ONE INDICATOR DOES NOT LIGHT and 54. HYDRAULIC 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Open control panel access door (WP 0041 00, Figure 1, Item 11).
4. Remove control panel (WP 0061 00).
5. Remove lens (Figure 1, Item 1) by turning counterclockwise.
6. Remove 1DS1/drive lamp (Figure 1, Item 2) by pushing in and turning counterclockwise.
7. Remove terminal screws (Figure 1, Item 28), tag and disconnect all wires from lamp socket (Figure 1, Item 5).
8. 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

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

NOTE

All lamp sockets are installed in the same manner as prescribed in the following steps.

1. Remove nut (Figure 1, Item 3) and lock washer (Figure 1, Item 4) from replacement lamp socket (Figure 1, Item 5).

INSTALLATION – CONTINUED

2. Install replacement lamp socket (Figure 1, Item 5) with seal (Figure 1, Item 6) to front of panel. Position socket so that positive terminal is to the 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. Place lamp (Figure 1, Item 2) in lamp socket (Figure 1, Item 5). Press lamp and turn clockwise to lock in place.
4. Connect all tagged wires that were previously removed and replace terminal screws.
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 0061 00).
7. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
8. Perform Before (B) steps (WP 0029 00, Table 1. Operators Preventive Maintenance Checklist (PMC)) to ensure indicator lamps work.

END OF WORK PACKAGE

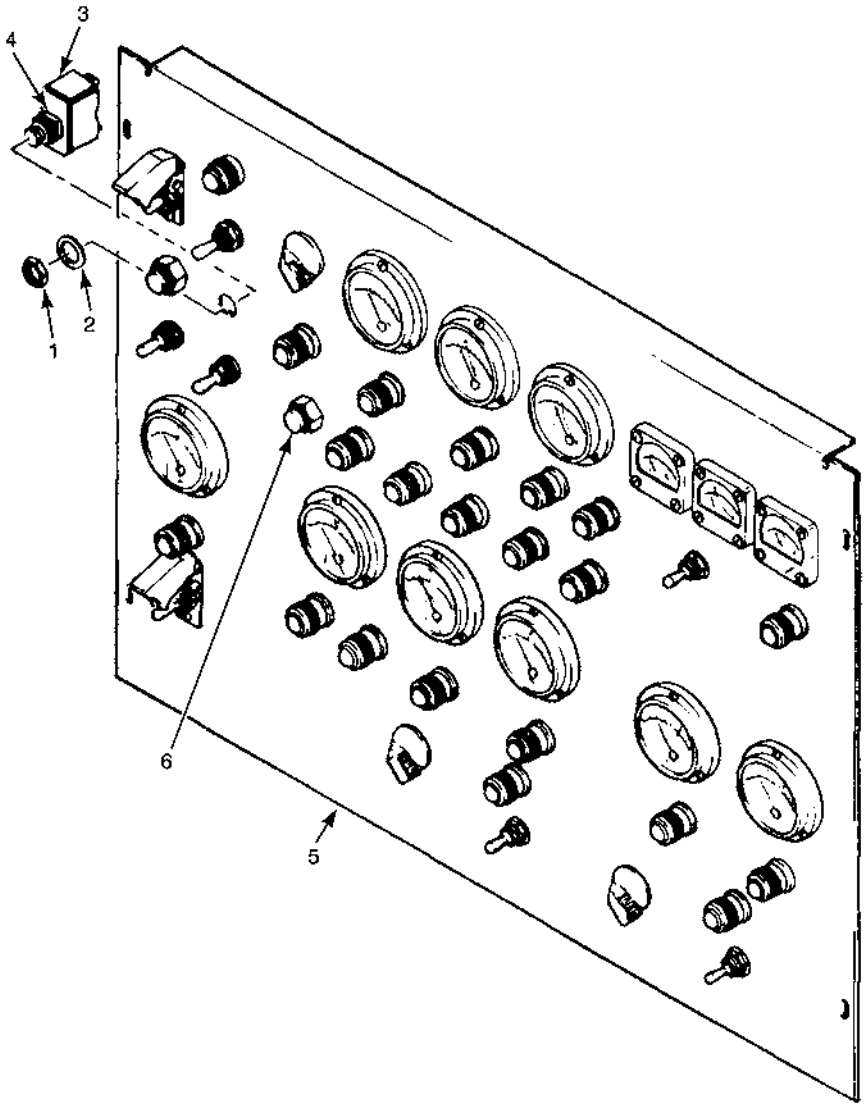
FIELD MAINTENANCE

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	References
Aviation Foot Locker, AFL (WP 0155 00, Item 3)	WP 0029 00
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)	WP 0041 00
	WP 0043 00
Tool Set, Aviation Unit (WP 0155 00, Item 41)	WP 0044 00
	WP 0061 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.

TEST AND INSPECTION

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
3. Open control panel access door (WP 0041 00, Figure 1, Item 11).
4. Perform (WP 0029 00, Table 2. Field Preventive Maintenance Checks and Services (PMCS)).
5. Verify all circuit breakers 1CB1 and 1CB2 (Figure 1, Item 3 and 6) are operational by pulling out on the circuit breaker stem and then depressing the circuit breaker stem inward (RESET position).

REMOVAL

NOTE

Circuit breakers 1CB1 and 1CB2 (Figure 1, Item 3 and 6) are removed in the same manner as prescribed in the following steps.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Open control panel access door (WP 0041 00, Figure 1, Item 11).
4. Remove control panel (WP 0061 00).
5. Remove terminal screws and lock washers as required to disconnect all tagged wires from back of circuit breaker (Figure 1, Item 3 or 6). Replace lock washers and terminal screws to be used for reinstallation.
6. Remove nut (Figure 1, Item 1), lock washer (Figure 1, Item 2) and circuit breaker (Figure 1, Item 3 or 6).
7. Note position of height adjustment nut (Figure 1, Item 4) on threaded shaft of circuit breaker.

INSTALLATION

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

NOTE

Circuit breakers 1CB1 and 1CB2 (Figure 1, Item 3 and 6) are removed in the same manner as prescribed in the following steps.

1. Remove nut (Figure 1, Item 1) and lock washer (Figure 1, Item 2) and key-washer (not shown) from replacement circuit breakers (Figure 1, Item 3 or 6). The new key-washer 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 breakers 1CB1 and 1CB2 (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 breakers 1CB1 and 1CB2 (Figure 1, Item 3 or 6) as required to connect all tagged wires removed in the previous steps. Replace lock washers and terminal screws, tighten as required.
5. Install control panel (WP 0061 00).
6. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
7. Perform PMC Before (B) steps (WP 0029 00).
8. Perform PMCS (WP 0029 00).
9. Close control panel access door (WP 0041 00, Figure 1, Item 11).

END OF WORK PACKAGE

FIELD MAINTENANCE

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

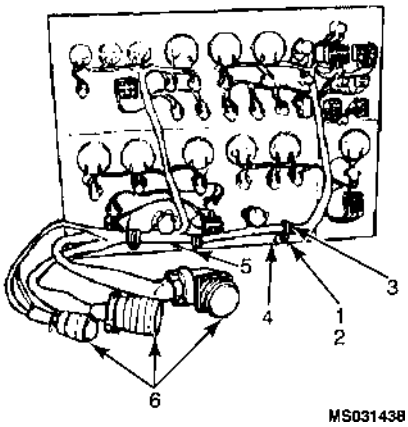
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References

TM 1-1500-323-24-1
MWO 1-1730-229-50-4

References (cont.)

WP 0029 00
WP 0032 00
WP 0041 00
WP 0043 00
WP 0044 00
WP 0061 00



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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Remove the battery charger access panel (WP 0032 00).
4. Open control panel access door (WP 0041 00, Figure 1, Item 1).

TEST AND INSPECTION – CONTINUED

5. Remove control panel (WP 0061 00).
6. Inspect wiring harness (Figure 1, Item 5) for damaged insulation and broken wires.
7. Check that cable clamps (Figure 1, Item 3) are secure. Tighten clamp screws (Figure 1, Item 1) if required.
8. Check that all harness (Figure 1, Item 5) terminal connections are secure.
9. Inspect harness connectors P5, P6 and P7 (Figure 1, Item 6) for damage.

REPAIR OR REPLACEMENT

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

NOTE

Repair broken wires by splicing. Refer to Figure FO 34.

1. For repair of wiring harnesses, refer to TM 1-1500-323-24-1.

NOTE

Prior to removal of wires from connectors and pin locations ensure all wire identification numbers and pin numbers are recorded for reinstallation.

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, if required. Use heat shrinkable sleeving over diode and splices to prevent shorting. If this requires de-soldering ensure not to over-heat connector, damage to the connector and insulation can result.

REMOVAL

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Remove battery charger access cover (WP 0032 00).
3. Disconnect mating connectors from control panel connectors P5, P6 and P7 (Figure 1, Item 6).
4. Open control panel access door (WP 0041 00, Figure 1, Item 1).
5. Remove control panel (WP 0061 00).
6. If a work space is available, remove control panel and move to work space, pad control panel to prevent damage to the face of gauges and other components.
7. Note routing of wiring harness (Figure 1, Item 5) and tag routing of bundles for reference.

NOTE

If control panel wiring harness is to be replaced ensure all wires and/or connectors are tagged with exact locations from where they were removed. If needed, draw a block diagram and number all locations for re-assembly. Refer to Figure FO 1 and Figure FO 2.

8. Disconnect tagged wires and harness (Figure 1, Item 5) from control panel terminals. As wires/harness are disconnected, replace terminal washers (Figure 1, Item 2), screws (Figure 1, Item 1), nuts and cable clamps (Figure 1, Item 3) to prevent loss.

INSTALLATION

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

NOTE

Prior to installation of the control panel, ensure all tagged wiring harness (Figure 1, Item 5) connections are tight and secured with the appropriate cable clamps (Figure 1, Item 3).

NOTE

Connect harness wires to control panel terminals (For 83-360A refer to Figure FO 14. 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).

1. Layout harness on the control panel, with wire bundles routed as noted during removal. Secure all tagged wire connections to control panel components.
2. Install wiring harness (Figure 1, Item 53) to control panel (WP 0061 00) and route P5, P6 and P7 (Figure 1, Item 6) through the electrical bay and connect to J5, J6 and J7 (WP 0061 00) main wiring harness connections.

NOTE

Connect harness wires to control panel terminals (For 83-360A refer to Figure 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).

3. 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).
4. Install control panel (WP 0061 00).
5. Install battery charger access cover (WP 0032 00).
6. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
7. Perform PMC Before (B) steps (WP 0029 00).
8. Perform MOC and check operation of control panel.
9. Close panel access door (WP 0061 00).

END OF WORK PACKAGE

FIELD MAINTENANCE

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

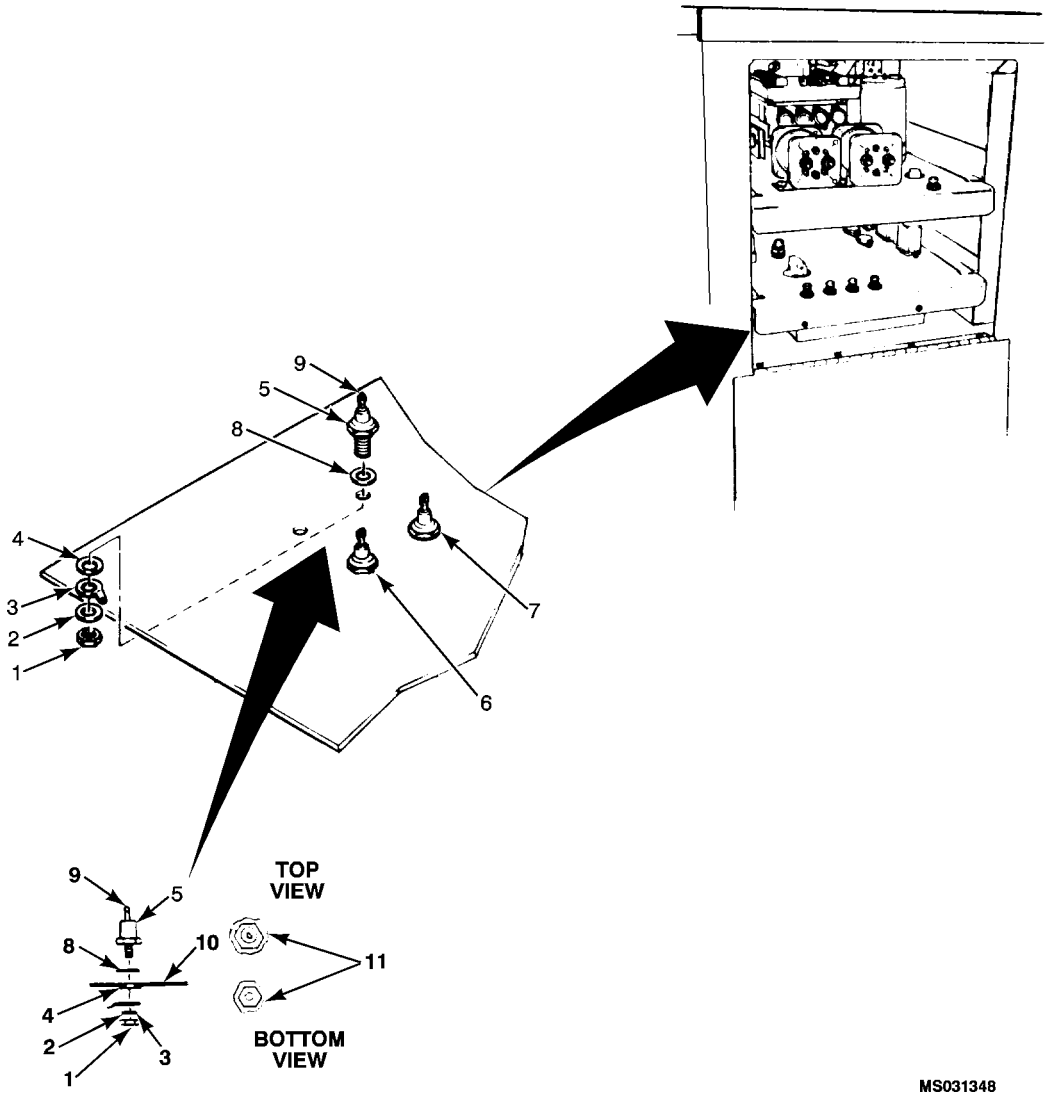
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

Materials/Parts

Compound, Sealing (WP 0154 00, Item 11)
Solder, Tin Alloy (WP 0154 00, Item 53)

References

WP 0002 00
WP 0025 00
WP 0041 00
WP 0043 00
WP 0044 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

For test refer to troubleshooting procedure WP 0025 00, 102. BATTERY/CHARGER TRANSFER RELAY 3K3 AND POWER DIODE MALFUNCTIONS.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open electrical tray access door (WP 0002 00, Figure 1, Item 9).
3. Extend lower electrical tray (WP 0041 00).
4. Inspect diodes (Figure 1, Item 5, 6 and 7) for obvious damage. Replace damaged diodes.
5. Check that diodes are securely mounted. Tighten nuts (Figure 1, Item 1) as required.
6. Check that wire connections to diode terminal lug (Figure 1, Item 9) and wire terminal lug (Figure 1, Item 3) are secure.

NOTE

Removal and installation procedures are the same for power diodes 3CR7P through 3CR9P. 3CR9P is illustrated.

REMOVAL

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open electrical tray access door (WP 0002 00, Figure 1, Item 9).
3. Extend lower tray (WP 0041 00, Figure 1, Item 1).
4. 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

(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. Clean tray area were diode is mounted.

INSTALLATION – CONTINUED

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 insulated and not touching tray.
4. Insert diode mounting stud through hole in tray.
5. Slide shrink tube over wire prior to soldering.
6. Resolder wire to diode terminal lug (Figure 1, Item 9) (do not over heat the diode terminal).
7. Install shrink tube over diode terminal lug (Figure 1, Item 9). Apply heat with heat gun to shrink tubing.
8. Push lower electrical tray (WP 0002 00, Figure 2, Item 3) in and secure with quick release pins (WP 0002 00, Figure 2, Item 2).
9. Close electrical tray access door (WP 0002 00, Figure 1, Item 9).
10. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
11. Perform MOC.

END OF WORK PACKAGE

FIELD MAINTENANCE

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:

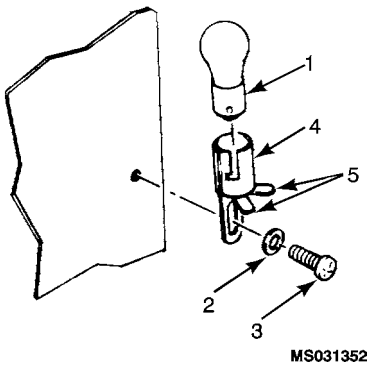
Tools and Special Tools

Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References

WP 0025 00
WP 0043 00
WP 0044 00

REMOVAL



1. Lamp
2. Washer
3. Screw
4. Socket
5. Solder Lugs

Figure 1. Panel or Utility Lamp (Typical).

REMOVAL – CONTINUED

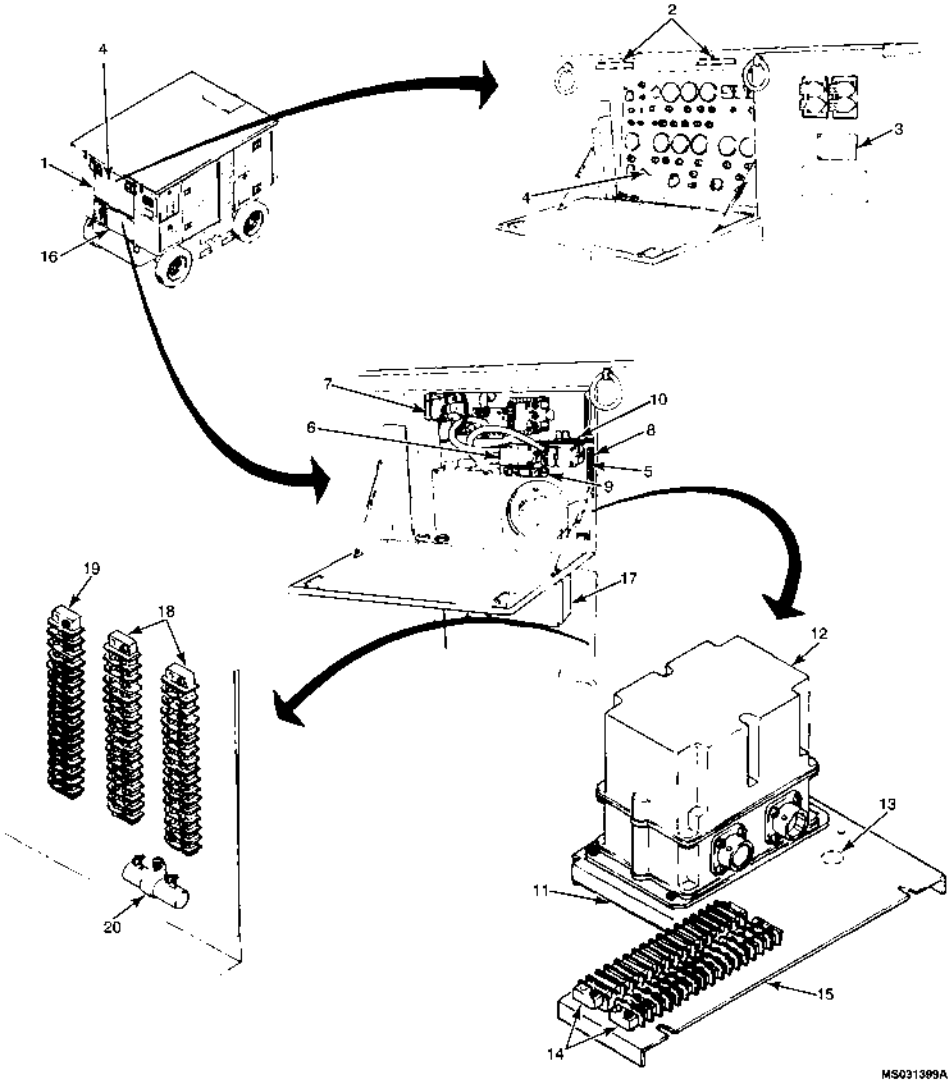


Figure 2. Panel or Utility Lamp Location (Sheet 1 of 3).

REMOVAL – CONTINUED

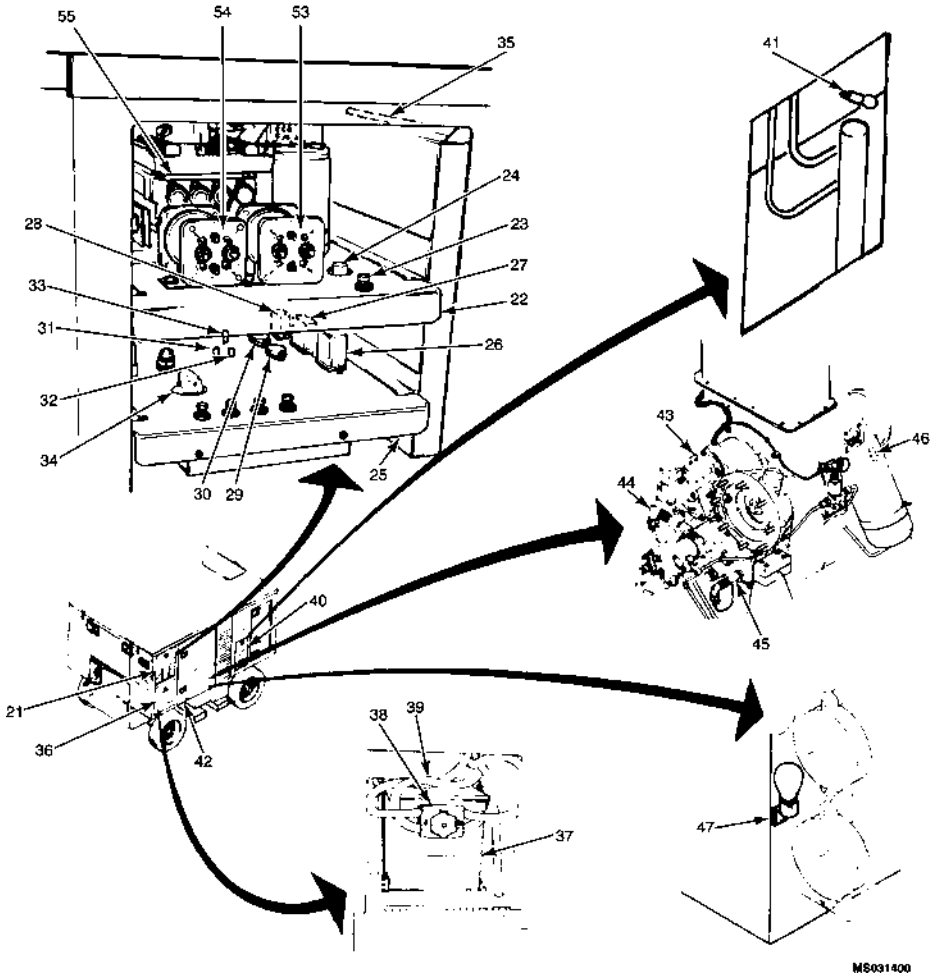
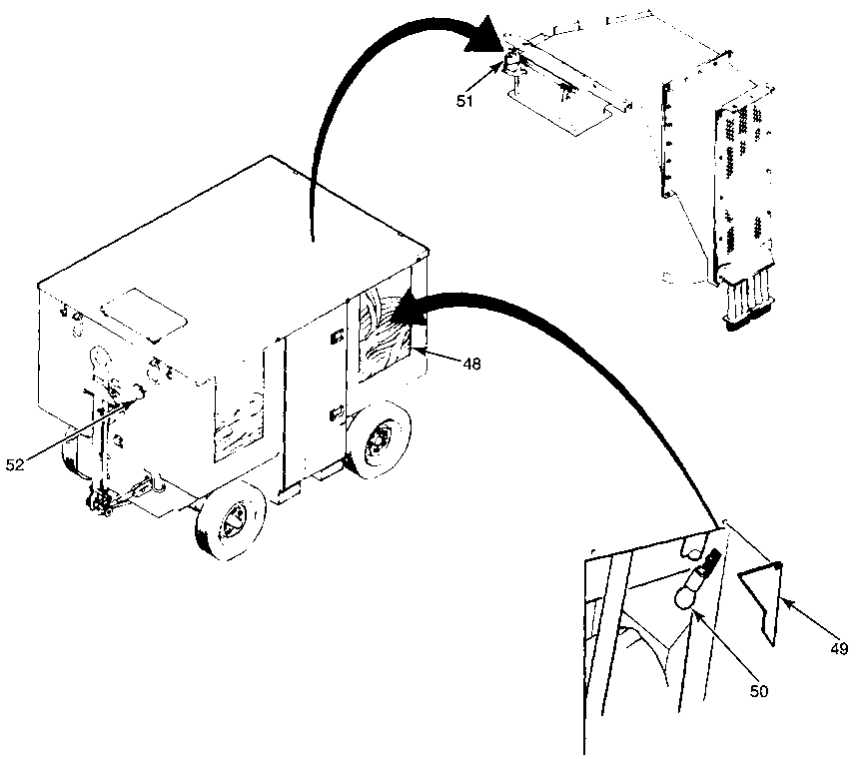


Figure 2. Panel or Utility Lamp Location (Sheet 2 of 3).

REMOVAL – CONTINUED



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

Figure 2. Panel or Utility Lamp Location (Sheet 3 of 3).

REMOVAL – CONTINUED

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

For tests refer to the following troubleshooting procedures:

- WP 0025 00, 55. PANEL LIGHT OPERATION DEFECTIVE, Step 12.
- WP 0025 00, 56. UTILITY LIGHT OPERATION DEFECTIVE, Step 10.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open control panel access door (Figure 2. (Sheet 1 of 3), Item 1) to reach control panel lamps (Figure 2. (Sheet 1 of 3), 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 DC cable 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 3 of 3), Item 50).
6. Remove lamp(s) (Figure 1, Item 1) from socket (Figure 1, Item 4) by pressing down on lamp and turning counterclockwise. This procedure will be followed for all lamp removal.

INSTALLATION

1. Place lamp (Figure 1, Item 1) in socket (Figure 1, Item 4). Press lamp down into socket and turn clockwise to lock in place.
2. Close control panel access door (Figure 2. (Sheet 1 of 3), Item 1).
3. Close hydraulic filter access doors (Figure 2. (Sheet 2 of 3), Item 40).
4. Close engine access door (Figure 2. (Sheet 2 of 3), Item 42).
5. Install fuel access cover (Figure 2. (Sheet 3 of 3), Item 49).
6. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
7. Perform MOC.

END OF WORK PACKAGE

FIELD MAINTENANCE

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

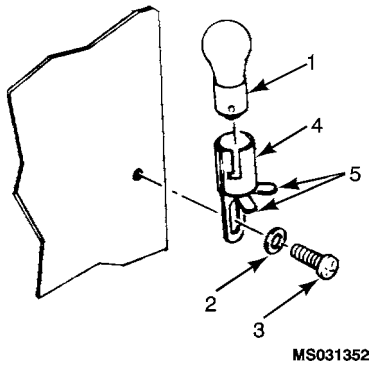
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References

WP 0025 00
WP 0043 00
WP 0044 00
WP 0074 00

Materials/Parts

Solder, Tin Alloy (WP 0154 00, Item 53)



1. Lamp
2. Washer
3. Screw
4. Lamp 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

For tests refer to the following troubleshooting procedures:

- WP 0025 00, 55. PANEL LIGHT OPERATION DEFECTIVE, Step 13.
- WP 0025 00, 56. UTILITY LIGHT OPERATION DEFECTIVE, Step 11.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Remove access panels or open access doors (WP 0074 00, Steps 2 through 5).
3. Remove screw (Figure 1, Item 3), washer (Figure 1, Item 2) and lamp socket (Figure 1, Item 4).
4. Remove heat shrink insulator from wires connected to lamp socket (Figure 1, Item 4). Unsolder wires from solder lugs (Figure 1, Item 5) and tag wires.

INSTALLATION

1. Install heat shrink insulator on wires and solder wires to solder lugs (Figure 1, Item 5). Use heat gun to shrink insulator. Verify that all wires and connections are protected with insulator material.
2. Attach lamp 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 lamp socket (Figure 1, Item 4). Push lamp down and turn clockwise to lock in place. Replace access panels or close access doors (WP 0074 00, Steps 2 through 5).
4. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
5. Perform MOC.

END OF WORK PACKAGE

FIELD MAINTENANCE

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) 1, 2, 3 AND 4 AND COMPONENTS

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

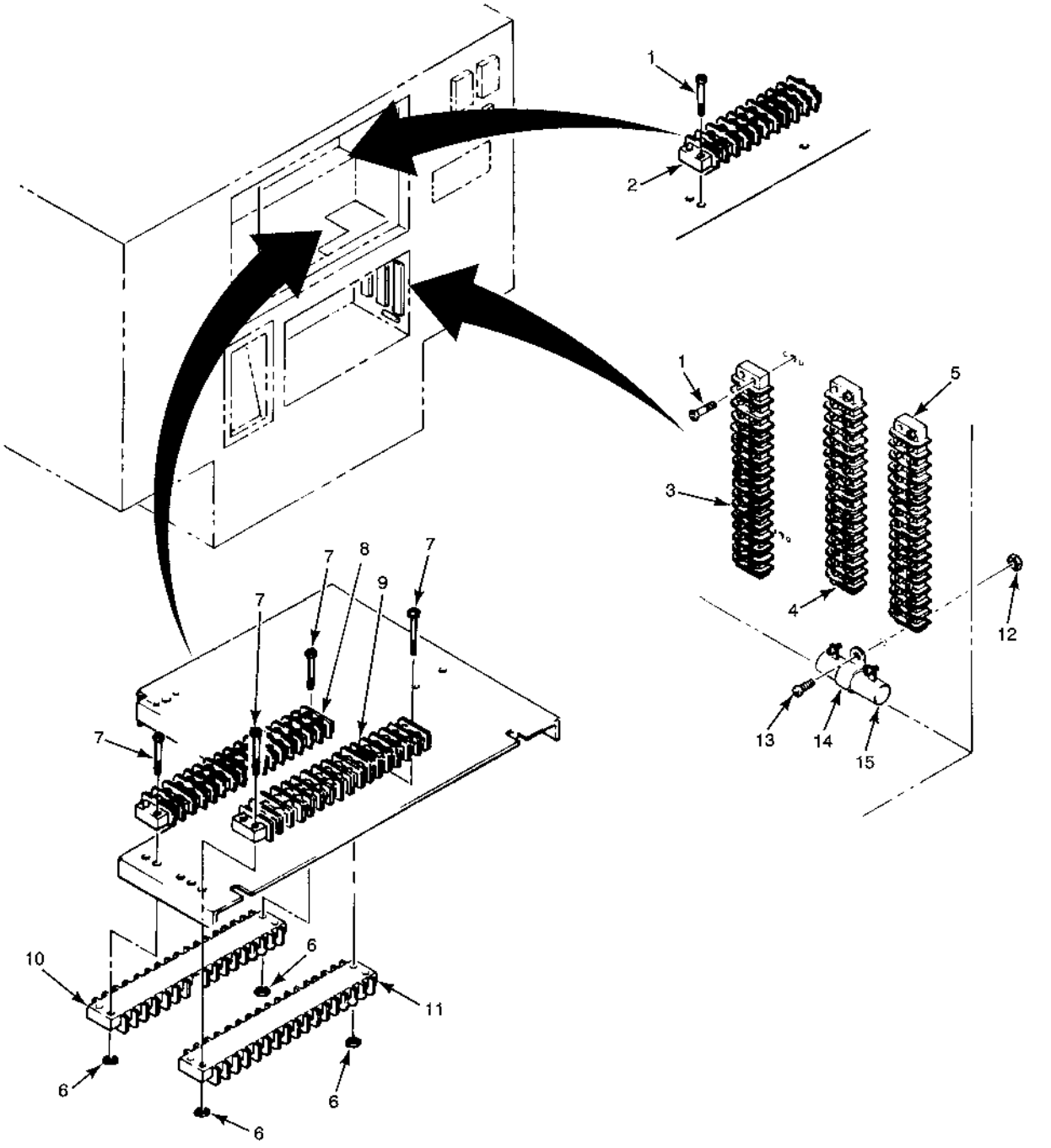
References

WP 0008 00

References (cont.)

WP 0025 00
WP 0026 00
WP 0032 00
WP 0041 00
WP 0043 00
WP 0044 00

TEST AND INSPECTION

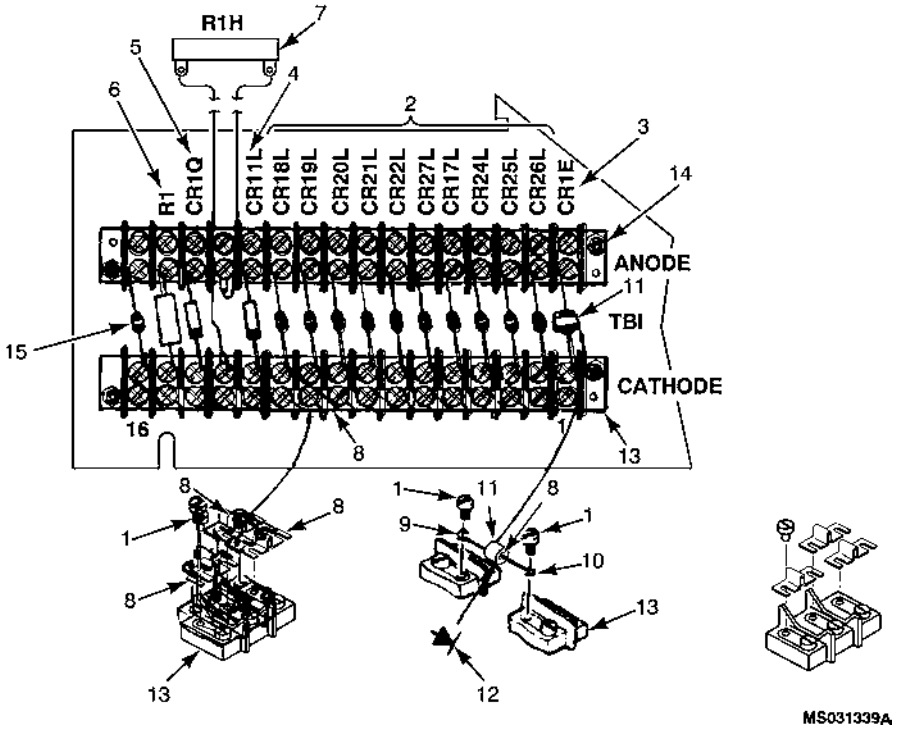


MS031338A

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.

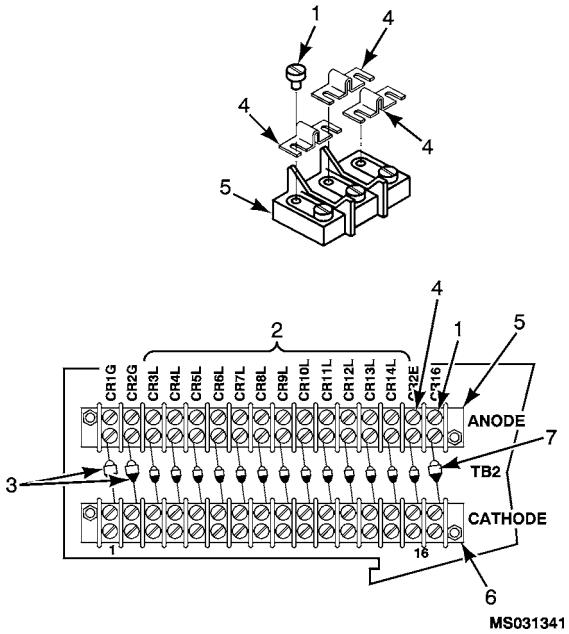
TEST AND INSPECTION – CONTINUED



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/E Only)

Figure 2. Terminal Board TB1 Components.

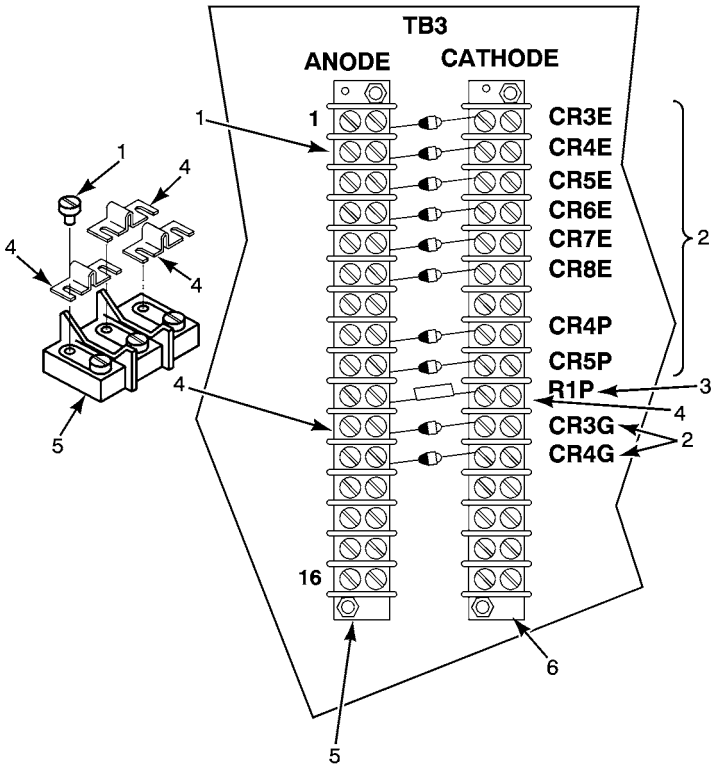
TEST AND INSPECTION – CONTINUED



1. Terminal Screw
2. Diode 1N5061
3. Diode MR756
4. Jumper
5. Anode Terminal Board
6. Cathode Terminal Board
7. Diode MR752

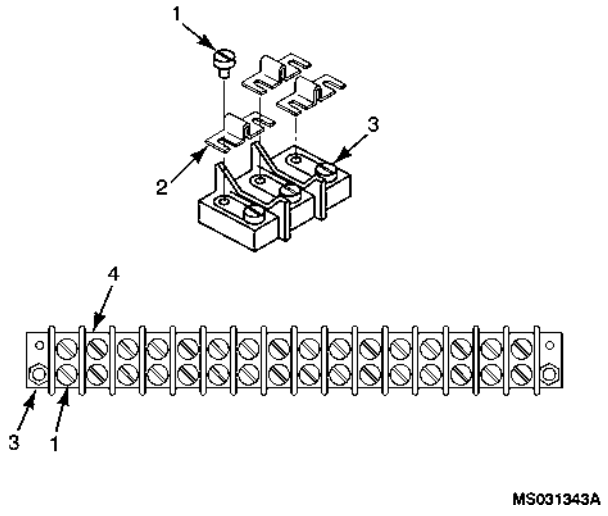
Figure 3. Terminal Board TB2 Components.

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

For tests refer to the following troubleshooting procedures:

- WP 0025 00, 47. CHRG/BAT FAULT INDICATOR ILLUMINATED (ENGINE RUNNING AT 100% RPM), Step 3.
- WP 0025 00, 52. FUEL METER READING INACCURATE, Steps 4 through 5.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open control panel access door (WP 0041 00, Figure 1, Item 1).
3. Lower control panel (WP 0041 00, Figure 1, Item 4) and remove battery charger access cover (WP 0032 00, Figure 1, Item 5).
4. Inspect all terminal boards (Figure 1, Item 2, 3, 4, 5, 8, 9, 10 and 11) for obvious damage. Replace any cracked or broken terminal boards.
5. Remove battery charger access cover (WP 0032 00, Figure 1, Item 5).
6. Inspect terminal boards for security of installation. Tighten mounting screws (Figure 1, Item 1 and 7) as required.
7. 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

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.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. If component to be removed is on TB1 (Figure 1, Item 8 and 9).
   a. Open control panel access door (WP 0041 00, Figure 1, Item 1).
   b. Lower the control panel (WP 0041 00, Figure 1, Item 4).
   c. Disconnect control panel support cable (WP 0041 00, Figure 1, Item 5) and lower control panel onto access door (surface).
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 0032 00, Figure 1, Item 5).
4. Remove two terminal screws (Figure 2, Item 1) and diode MR756 (Figure 2, Item 3). Note the cathode and anode sides of diode during removal to orientation of TB board location.

INSTALLATION

INSTALLATION OF TERMINAL BOARD ELECTRICAL COMPONENTS

1. Shape leads (Figure 2, Item 9 and 10) of replacement component to match removed component.
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 prior to installation. The diode resistance is near “0” when the multimeter (negative lead is on the **diode cathode**).

REMOVAL

REMOVAL OF RESISTOR R6

NOTE

For test refer to troubleshooting procedure WP 0026 00, 117. PSIG PNEUMATIC METER READS 0 OR LOW (PNEUMATIC POWER SWITCH ON, ENGINE UP TO SPEED AND EGT LESS THAN 1200 °F), Step 12.

1. If necessary for access to resistor (R6) nut (Figure 1, Item 12) perform the following:
   a. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
   b. Remove battery and tray (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E).
2. Remove battery charger access cover (WP 0032 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. Solder tagged wires to solder lugs on resistor.
4. If removed, install battery and tray (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E).
5. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
6. Perform MOC.
7. Replace battery charger access cover (WP 0032 00, Figure 1, Item 5).

REMOVAL

REMOVAL OF TERMINAL BOARDS

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Lower the control panel (WP 0041 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 0032 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:
    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), mounting 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 jumper 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 TBs.

INSTALLATION – CONTINUED

INSTALLATION OF TERMINAL BOARDS – CONTINUED

f. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.

g. Perform MOC.

3. Reinstall control panel as follows:

   a. Connect control panel support cable (WP 0041 00, Figure 1, Item 5).

   b. Close and secure control panel (WP 0041 00, Figure 1, Item 4).

4. Replace battery charger access cover (WP 0032 00, Figure 1, Item 5).

5. If AGPU is running perform shutdown operations (WP 0008 00).

END OF WORK PACKAGE

FIELD MAINTENANCE

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

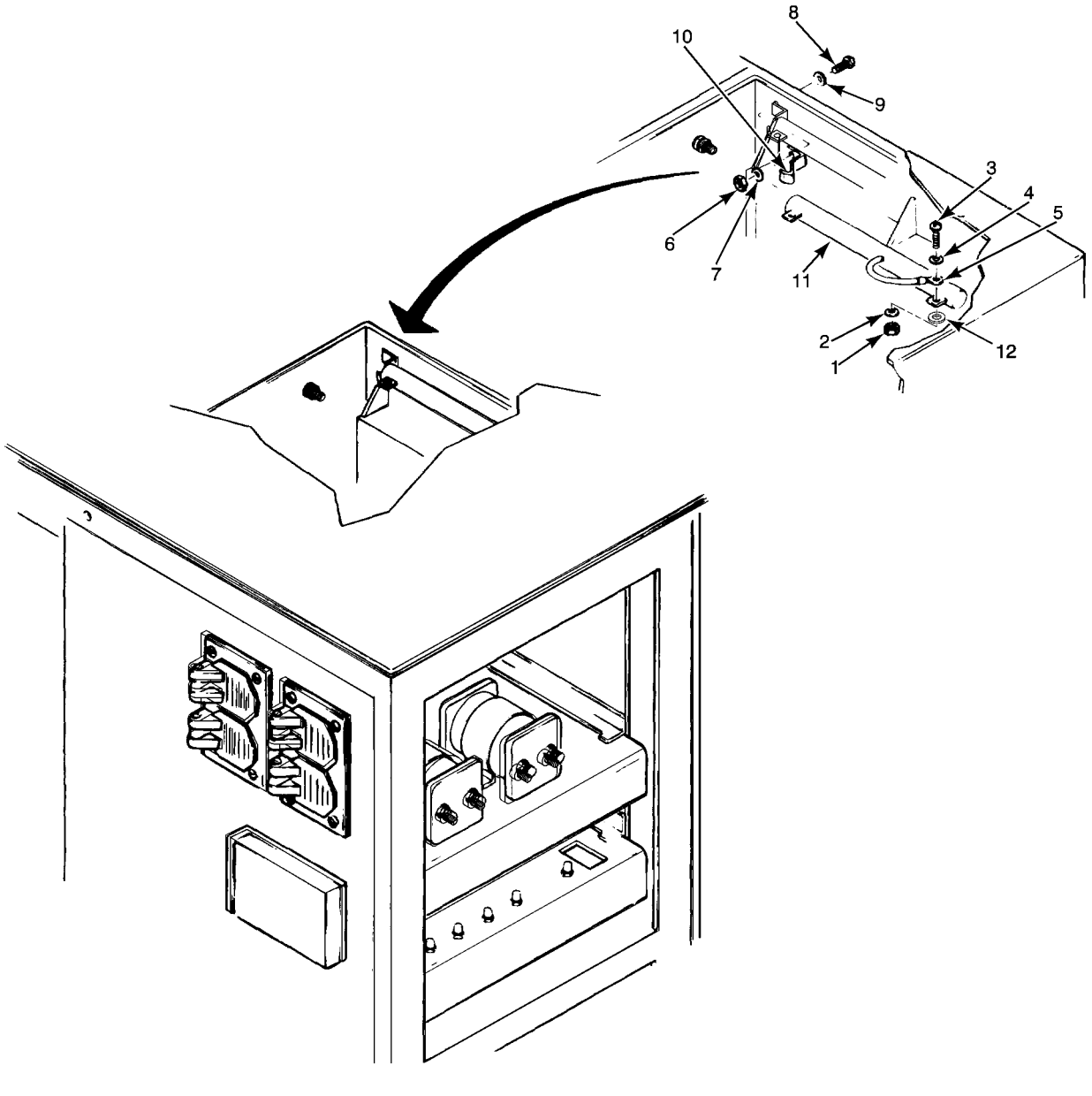
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References

WP 0002 00

References (cont.)

WP 0025 00
WP 0033 00
WP 0043 00
WP 0044 00
WP 0055 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 (R4)
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

For test refer to troubleshooting procedure WP 0025 00, 66. DC VOLTAGE FAULT INDICATOR ILLUMINATED , Step 11.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open electrical trays access door (WP 0002 00, Figure 1, Item 9).
3. Inspect resistor (Figure 1, Item 11) 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

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.

2. Remove roof (WP 0033 00).
3. Open electrical tray access door (WP 0002 00, Figure 1, Item 9).

CAUTION

When removing the generator DC load resistor (R4) (Figure 1, Item 11), be aware of the capacitor (C1G) (WP 0055 00, Figure 1, Item 11) to safeguard from electrical shock. Recommend to place a piece of rubber over terminals of capacitor while removing generator DC load resistor (R4).

NOTE

Be careful not to break resistor during removal.

4. Tag and 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).
5. 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

NOTE

Be careful not to break resistor during 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).

CAUTION

During installation of the roof, one person should be stationed at each corner of the roof to prevent warping or damage to the roof.

4. Install roof (WP 0033 00).
5. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
6. Close electrical tray access door (WP 0002 00, Figure 1, Item 9).
7. Perform MOC.

END OF WORK PACKAGE

FIELD MAINTENANCE

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

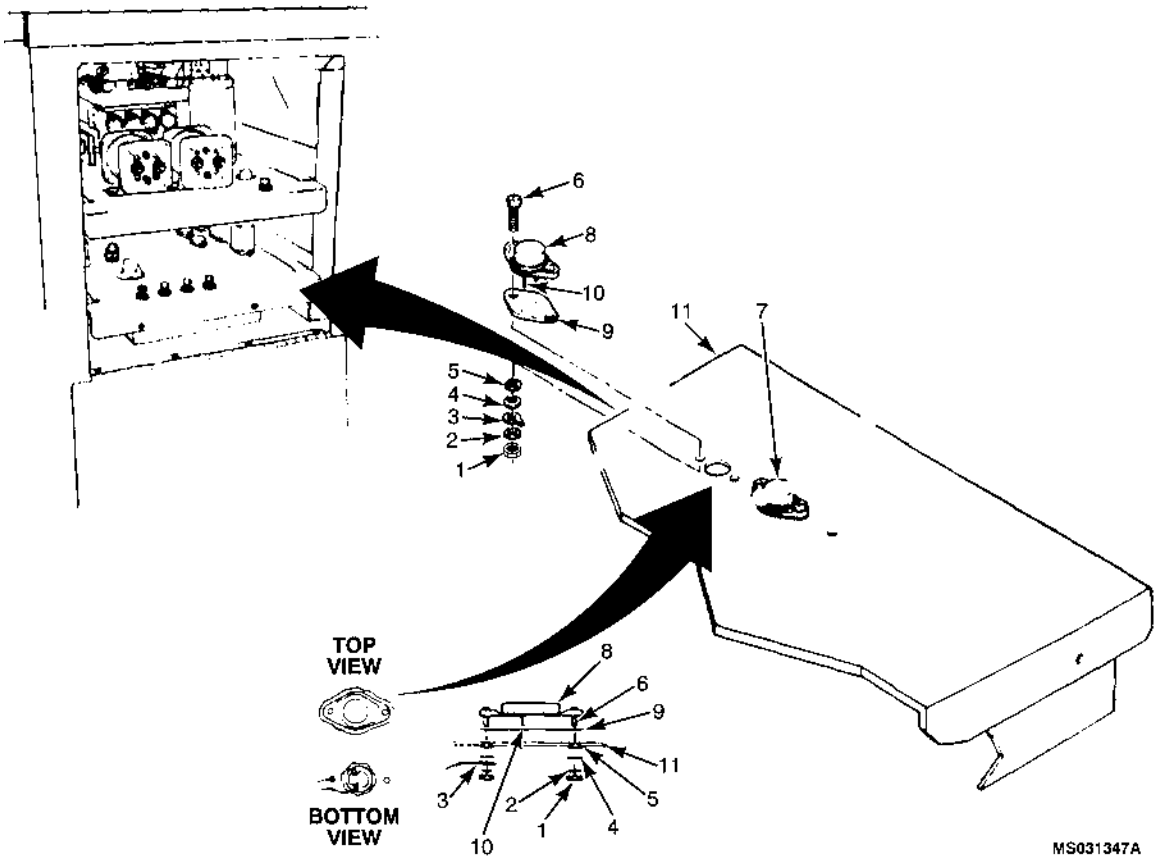
PANEL/UTILITY LAMP VOLTAGE REGULATORS (3VR1 AND 3VR2)

INITIAL SETUP:

Tools and Special Tools
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

Materials/Parts
Solder, Tin Alloy (WP 0154 00, Item 53)

References
WP 0002 00
WP 0006 00
WP 0025 00
WP 0041 00
WP 0043 00
WP 0074 00



1. Nut	5. Shoulder Washer	9. Insulator
2. Lock Washer	6. Mounting Screw	10. Pin (Cathode)
3. Wire Terminal Lug	7. Panel Lamp Voltage Regulator 3VR1	11. Lower Electrical Tray
4. Washer	8. Utility Lamp Voltage Regulator 3VR2	

Figure 1. Panel/Utility Lamp Voltage Regulators.

TEST AND INSPECTION

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

For tests refer to the following troubleshooting procedures:

- WP 0025 00, 55. PANEL LIGHT OPERATION DEFECTIVE, Step 9.
- WP 0025 00, 56. UTILITY LIGHT OPERATION DEFECTIVE, Step 11.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open electrical tray access door (WP 0002 00, Figure 1, Item 9)

TEST AND INSPECTION – CONTINUED

3. Extend lower electrical tray (WP 0041 00, Figure 2, Item 3).
4. Inspect voltage regulators (Figure 1, Item 7 and 8) for dents or punctures. Replace damaged regulators.
5. Check that regulators are securely mounted. Tighten mounting screws (Figure 1, Item 6) as required.
6. 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open electrical tray access door (WP 0002 00, Figure 1, Item 9).
3. Extend lower electrical tray (WP 0041 00, Figure 2, Item 3).
4. Remove insulation from solder joint.
5. Unsolder wire from pin (Figure 1, Item 10) on underside of regulator.
6. 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 lower electrical tray. Remove mounting screws (Figure 1, Item 6) from regulator (Figure 1, Item 7) and insulator (Figure 1, Item 9) from top of lower electrical 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 lower electrical tray (WP 0041 00, Figure 2, Item 3). Set replacement regulator 3VR1 (Figure 1, Item 7) in place of top insulator (Figure 1, Item 9). 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 lower electrical 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 mounting 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 wires.
5. Solder wires to either pin (Figure 1, Item 10) on regulator.
6. Slide shrink tube over solder joint. Apply heat to shrink tubing.
7. Push lower electrical tray (WP 0041 00, Figure 2, Item 3) in and secure with quick release pins (WP 0041 00, Figure 2, Item 2).

INSTALLATION – CONTINUED

8. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
9. Turn on master switch (WP 0006 00, Figure 1, Item 11) on the control panel.
10. Turn on panel light switch (WP 0006 00, Figure 1, Item 6) and utility light switch (WP 0006 00, Figure 1, Item 7). Move the utility light switch (WP 0006 00, Figure 1, Item 7) and verify that panel utility lamps (WP 0074 00, Figure 1, Item 1) go from dim to bright illumination.
11. Turn off panel light switch (WP 0006 00, Figure 1, Item 6) and utility light switch (WP 0006 00, Figure 1, Item 7). Move the utility light switch (WP 0006 00, Figure 1, Item 7) to the center position (OFF).
12. Turn off master switch (WP 0006 00, Figure 1, Item 1) on the control panel.
13. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

END OF WORK PACKAGE

FIELD MAINTENANCE

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) (MEP 83-360A ONLY) AC ALTERNATOR (G1) (MEP 83-360D/E ONLY)

INITIAL SETUP:

Tools and Special Tools
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References
WP 0002 00

References (cont.)
WP 0025 00
WP 0029 00
WP 0043 00
WP 0044 00
WP 0147 00

TEST AND INSPECTION

MEP 83-360A MODELS ONLY

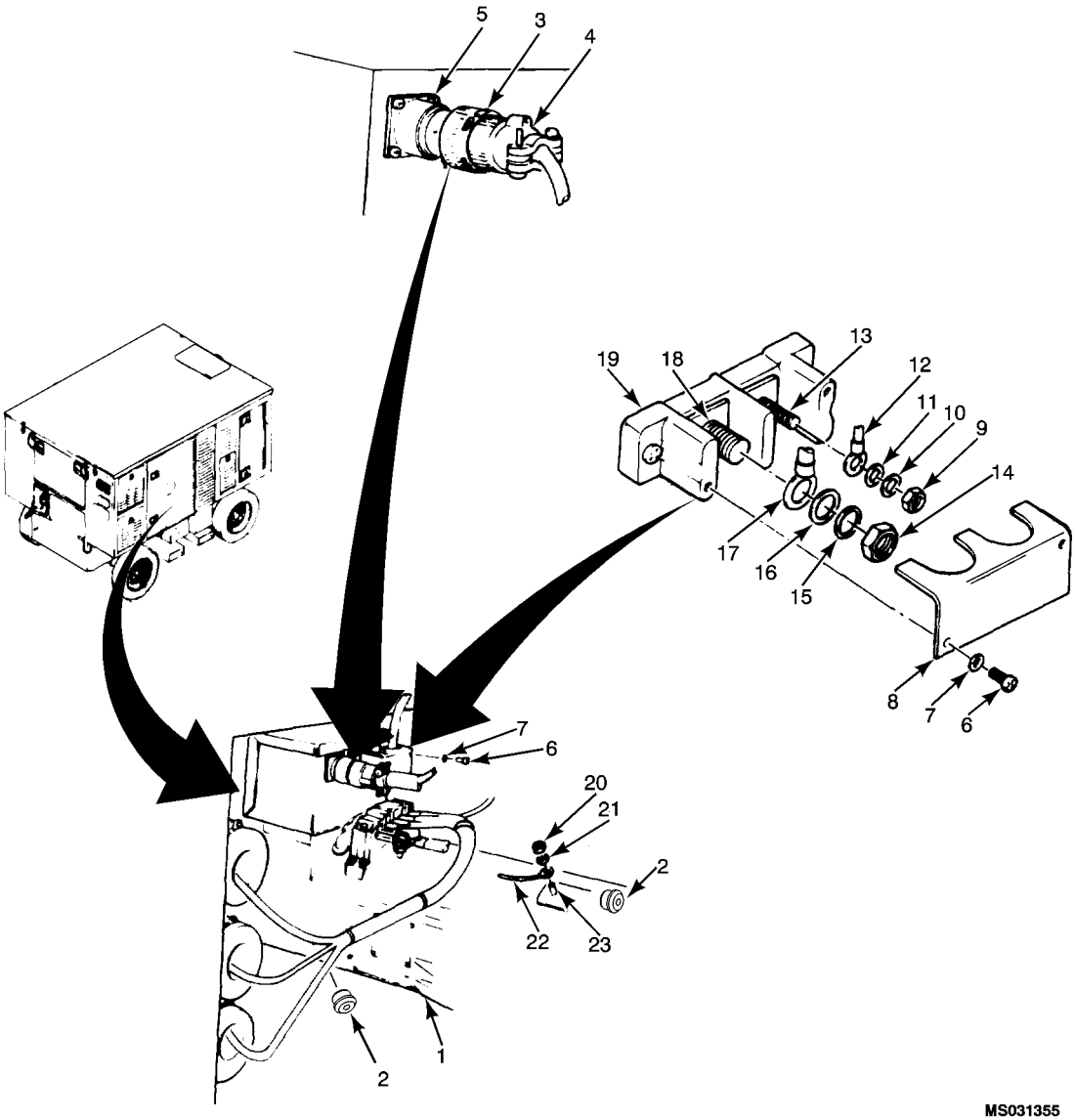
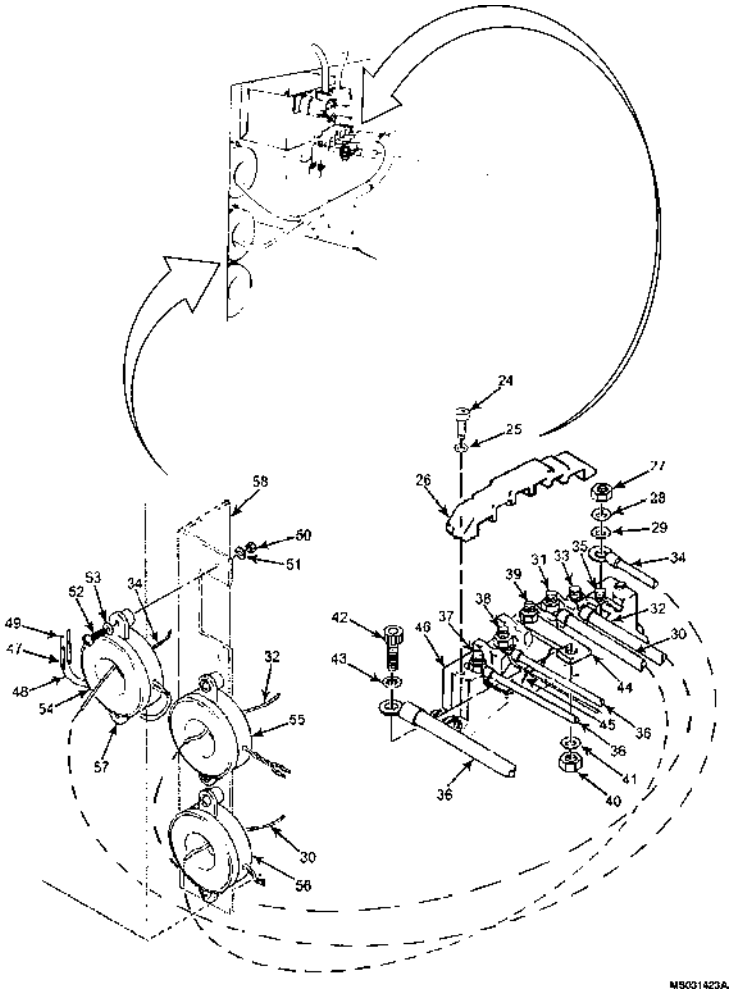


Figure 1. AC/DC Generator and AC Output Current Transformers, 83-360A Only (Sheet 1 of 2).

TEST AND INSPECTION – CONTINUED
MEP 83-360A MODELS ONLY – CONTINUED



1. AC/DC generator G1	16. Washer	31. AC ϕA Terminal Stud T1	46. AC Terminal Block
2. Grease Fitting	17. DC Output Cable (+)	32. AC ϕB Cable X2A4B	47. Splice
3. Locking Collar	18. DC Terminal Stud (+)	33. AC ϕB Terminal Stud T2	48. Transformer Leads
4. Harness Connector P13	19. DC Terminal Block	34. AC ϕC Cable X3A4C	49. Main Harness Wires
5. Generator Connector J1	20. Nut	35. AC ϕC Terminal Stud T3	50. Nut
6. Screw	21. Lock Washer	36. AC ϕN Cables	51. Lock Washer
7. Lock Washer	22. Ground Wire	37. AC ϕN Terminal Stud T4	52. Screw
8. DC Terminal Cover	23. Case Ground Stud	38. AC ϕN Terminal Stud T5	53. Washer
9. Nut	24. Screw	39. AC ϕN Terminal Stud T6	54. Transformer T2
10. Lock Washer	25. Lock Washer	40. Nut	55. Transformer T3
11. Washer	26. AC Terminal Cover	41. Lock Washer	56. Transformer T4
12. DC Output Cable (-)	27. Nut	42. Bolt	57. Mounting Lug
13. DC Terminal Stud (-)	28. Lock Washer	43. Washer	58. Mounting Bracket
14. Nut	29. Washer	44. Terminal T6 Extension Bar	
15. Lock Washer	30. ACϕA Cable X1A4A	45. AC ϕN Terminal Jumper	

Figure 1. AC/DC Generator and AC Output Current Transformers, 83-360A Only (Sheet 2 of 2).

TEST AND INSPECTION – CONTINUED

MEP 83-360A MODELS ONLY – 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

For tests refer to the following troubleshooting procedures:

- WP 0025 00, 65. DC POWER ON INDICATOR OFF (ENGINE UP TO SPEED AND DC POWER SWITCH ON), Step 11.
- WP 0025 00, 66. DC VOLTAGE FAULT INDICATOR ILLUMINATED , Step 8 and Step 12.
- WP 0025 00, 74. AC OVER VOLTAGE OR AC UNDER FREQUENCY INDICATOR ILLUMINATED, Step 1.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open engine access door (WP 0002 00, Figure 1, Item 12).
3. Inspect generator (Figure 1. (Sheet 1 of 2), Item 1) for obvious damage or loose or missing parts.
4. Check that harness connector P13 (Figure 1. (Sheet 1 of 2), Item 4) is securely connected to generator connector J1 (Figure 1. (Sheet 1 of 2), Item 5). Tighten locking collar (Figure 1. (Sheet 1 of 2), Item 3) if required.
5. Perform this step for the **MEP 83-360A only**. Remove two screws (Figure 1. (Sheet 1 of 2), Item 6), lock washers (Figure 1. (Sheet 1 of 2), Item 7) and DC terminal cover (Figure 1. (Sheet 1 of 2), Item 8).
6. Check that cable connections to the DC output terminal stud (-) (Figure 1. (Sheet 1 of 2), Item 13) and DC terminal stud (+) (Figure 1. (Sheet 1 of 2), Item 18) are secure. Tighten terminal nuts (Figure 1. (Sheet 1 of 2), Item 9) and (Figure 1. (Sheet 1 of 2), Item 14) if required. Inspect DC output cable (-) (Figure 1. (Sheet 1 of 2), Item 12) and DC output Cable (+) (Figure 1. (Sheet 1 of 2), Item 17) and terminals for signs of burning. Replace cover (Figure 1. (Sheet 1 of 2), Item 8), lock washer (Figure 1. (Sheet 1 of 2), Item 7) and screw (Figure 1. (Sheet 1 of 2), Item 6).
7. Remove two screws (Figure 1. (Sheet 2 of 2), Item 24), lock washers (Figure 1. (Sheet 2 of 2), Item 25) and AC output terminal cover (Figure 1. (Sheet 2 of 2), Item 26).
8. Check that cable connections to the AC output terminal studs (Figure 1. (Sheet 2 of 2), Item 31, 33, 35, 37, 38, and 39) are secure. Tighten terminal nuts (Figure 1. (Sheet 2 of 2), Item 27 and 40) if required. Inspect cables (Figure 1. (Sheet 2 of 2), Item 30, 32, 34, and 36) and terminals for signs of burning. Replace cover (Figure 1. (Sheet 2 of 2), Item 26), lock washers (Figure 1. (Sheet 2 of 2), Item 25) and screws (Figure 1. (Sheet 2 of 2), Item 24).

TEST AND INSPECTION – CONTINUED

MEP 83-360A MODELS ONLY – CONTINUED

9. Check that ground wire (Figure 1. (Sheet 1 of 2), Item 22) connection to generator case ground stud (Figure 1. (Sheet 1 of 2), Item 23) is tight. Tighten nut (Figure 1. (Sheet 1 of 2), Item 20) if necessary.
10. Check that grease fittings (Figure 1. (Sheet 1 of 2), Item 2) are secure, undamaged and not contaminated.

REMOVAL

GENERATOR FROM ENGINE (GTE)

CAUTION

Engine/pump/generator assembly weights over 200 pounds. Be sure engine assembly remains stable during procedure.

NOTE

The Engine (GTE) must be removed from AGPU before removing generator. Leave generator mounts and brackets (WP 0147 00, Figure 8, Item 5 and WP 0147 00, Figure 7, Item 4, 20 and 21) attached to generator until generator removed from engine.

1. Remove engine (GTE) assembly from AGPU (WP 0147 00). Place and support on suitable work bench.

CAUTION

During removal of generator from mounting pads studs, ensure weight of generator is equally distributed on the generator-engine mounting pad studs. Unequally weight distribution will cause damage to the stud bosses.

2. Remove eight (8) nuts and eight (8) washers from generator-engine mounting pad studs.
3. Remove generator from engine and place on suitable work bench.
4. Remove and safe guard generator mounting leg, bracket and support (WP 0147 00, Figure 8, Item 5 and WP 0147 00, Figure 7, Item 1, 2 and 3) from generator.

INSTALLATION

GENERATOR ONTO ENGINE (GTE)

CAUTION

Engine/pump/generator assembly weights over 200 pounds. Be sure engine assembly remains stable during procedure.

NOTE

Assure generator and engine assembly are on suitable work bench during this procedure.

1. Install generator mounting leg, bracket and support (WP 0147 00, Figure 8, Item 5 and WP 0147 00, Figure 7, Item 4, 20 and 21) by inserting (2) washers, (2) bolts and safety wire (WP 0147 00, Figure 7, Item 3, 2 and 1) onto generator.

INSTALLATION – CONTINUED

GENERATOR ONTO ENGINE (GTE) – CONTINUED

CAUTION

During installation of generator from mounting pads studs, ensure weight of generator is equally distributed on the generator-engine mounting pad studs. Unequal weight distribution will cause damage to the stud bosses. Replace packing if not all ready installed on generator spline shaft and coat with grease for ease of installation into engine

NOTE

It may be necessary to rotate engine (GTE) gars to properly align/orientate the generator. Rotate engine gears by removing (3) screws, (3) washers and end cap from starter assembly (WP 0110 00, Figure 2, Item 24, 25 and 23). Insert flat tip screwdriver into slot on starter armature shaft and rotate counter clockwise until generator is seated.

2. Carefully set generator into generator-engine mounting pad and studs. Install (8) washers and (8) nuts onto generator-engine mounting pad studs and tighten all nuts as required.
3. Install engine assembly (GTE) into AGPU (WP 0147 00).

REMOVAL

GENERATOR GREASE FITTING

1. Clean area around grease fitting (Figure 1. (Sheet 1 of 2), Item 2).
2. Remove fitting by turning counterclockwise.

INSTALLATION

GENERATOR GREASE FITTING

1. Install replacement grease fitting (Figure 1. (Sheet 1 of 2), Item 2) and position for easy access with grease gun.
2. Lube generator (WP 0029 00, Table 3).
3. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
4. Perform MOC.

TEST AND INSPECTION

MEP 83-360D/E MODELS ONLY

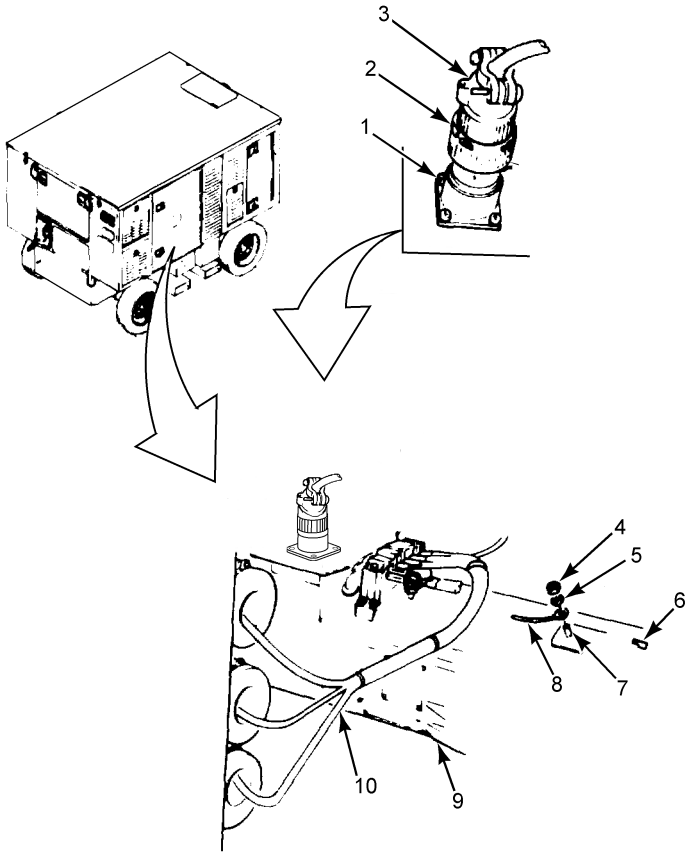
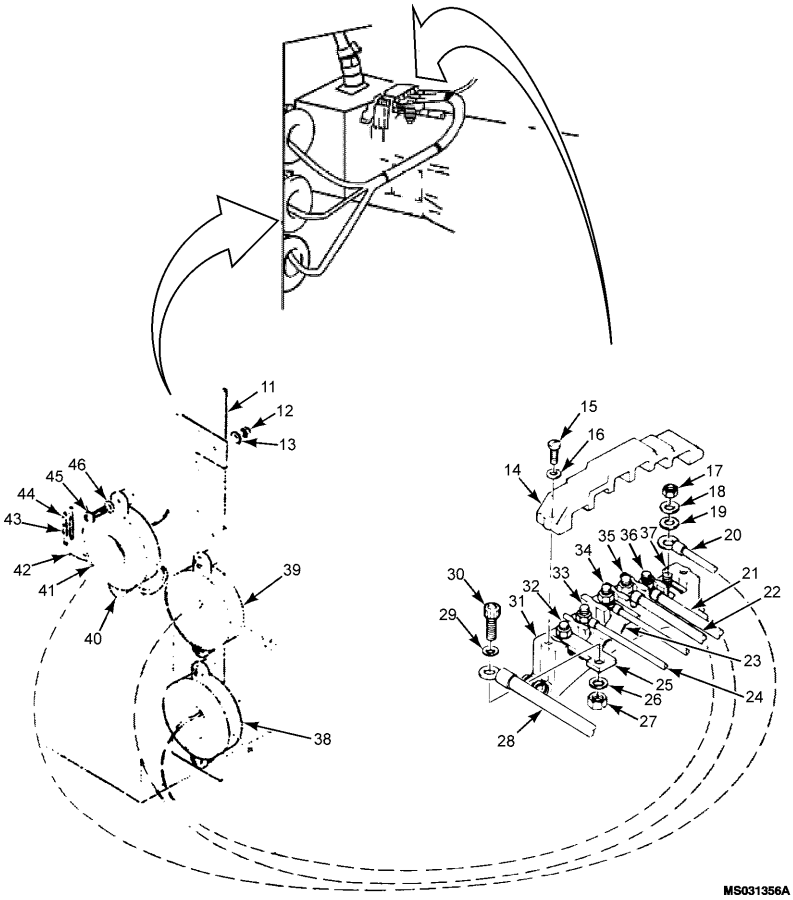


Figure 2. AC/DC Alternator and AC Output Current Transformers, 83-360D/E Only (Sheet 1 of 2).

TEST AND INSPECTION – CONTINUED

MEP 83-360D/E MODELS ONLY – CONTINUED



1. Alternator Connector J1	13. Lock Washer	25. Terminal T6 Extension Bar	37. AC ϕA Terminal Stud T1
2. Locking Collar	14. AC Terminal Cover	26. Lock Washer	38. Transformer T4
3. Harness Connector P13	15. Screw	27. Nut	39. Transformer T3
4. Nut	16. Lock Washer	28. AC ϕN Cables	40. Mounting Lug
5. Lock Washer	17. Nut	29. Washer	41. Transformer T2
6. Grease Fitting	18. Lock Washer	30. Bolt	42. Transformer Leads
7. Case Ground Stud	19. Washer	31. AC Terminal Block	43. Splice
8. Ground Wire	20. ACϕA Cable X1A4A	32. AC ϕN Terminal Stud T4	44. Main Harness Wires
9. AC/DC Alternator G1	21. AC ϕB Cable X2A4B	33. AC ϕN Terminal Stud T5	45. Screw
10. ACϕA, B,& C Cables	22. AC ϕC Cable X3A4C	34. AC ϕN Terminal Stud T6	46. Washer
11. Mounting Bracket	23. AC ϕN Terminal Jumper	35. AC ϕC Terminal Stud T3	
12. Nut	24. AC ϕN Cables	36. AC ϕB Terminal Stud T2	

Figure 2. AC/DC Alternator and AC Output Current Transformers, 83-360D/E Only (Sheet 2 of 2).

TEST AND INSPECTION – CONTINUED

MEP 83-360D/E MODELS ONLY – CONTINUED

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

CAUTION

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

NOTE

For tests refer to the following troubleshooting procedures:

- WP 0025 00, 65. DC POWER ON INDICATOR OFF (ENGINE UP TO SPEED AND DC POWER SWITCH ON), Step 11.
- WP 0025 00, 66. DC VOLTAGE FAULT INDICATOR ILLUMINATED , Step 8 and Step 12.
- WP 0025 00, 74. AC OVER VOLTAGE OR AC UNDER FREQUENCY INDICATOR ILLUMINATED, Step 1.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open engine access door (WP 0002 00, Figure 1, Item 12).
3. Inspect MEP 83-360D/E (only) AC alternator G1 (Figure 2. (Sheet 1 of 2), Item 9) for obvious damage or loose or missing parts.
4. Check that harness connector P13 (Figure 2. (Sheet 1 of 2), Item 3) is securely connected to alternator connector J1 (Figure 2. (Sheet 1 of 2), Item 1). Tighten locking collar (Figure 2. (Sheet 1 of 2), Item 2) if required.
5. Remove two screws (Figure 2. (Sheet 2 of 2), Item 15), lock washers (Figure 2. (Sheet 2 of 2), Item 16) and AC terminal cover (Figure 2. (Sheet 2 of 2), Item 14).
6. Check that cable connections to the AC terminal studs (Figure 2. (Sheet 2 of 2), Item 32 through 37) are secure. Tighten terminal nuts (Figure 2. (Sheet 2 of 2), Item 17 and 27) if required. Inspect cables (Figure 2. (Sheet 2 of 2), Item 20, 21, 22 and 24) and terminals for signs of burning. Replace AC terminal cover (Figure 2. (Sheet 2 of 2), Item 14), lock washers (Figure 2. (Sheet 2 of 2), Item 16) and screws (Figure 2. (Sheet 2 of 2), Item 15).
7. Check that ground wire (Figure 2. (Sheet 1 of 2), Item 8) connection to case ground stud (Figure 2. (Sheet 1 of 2), Item 7) is tight. Tighten nut (Figure 2. (Sheet 1 of 2), Item 4) if necessary.
8. Check that grease fittings (Figure 2. (Sheet 1 of 2), Item 6) are secure, undamaged and not contaminated.

REMOVAL

ALTERNATOR FROM ENGINE (GTE)

CAUTION

Engine/pump/generator assembly weights over 200 pounds. Be sure engine assembly remains stable during procedure.

NOTE

The Engine (GTE) must be removed from AGPU before removing alternator. Leave alternator mounts and brackets (WP 0147 00, Figure 8, Item 5 and WP 0147 00, Figure 7, Item 4, 20 and 21) attached to alternator until alternator removed from engine.

1. Remove engine (GTE) assembly from AGPU (WP 0147 00). Place and support on suitable work bench.

CAUTION

During removal of alternator from mounting pads studs, ensure weight of alternator is equally distributed on the alternator-engine mounting pad studs. Unequal weight distribution will cause damage to the stud bosses.

2. Remove eight (8) nuts and eight (8) washers from alternator-engine mounting pad studs.
3. Remove alternator from engine and place on suitable work bench.
4. Remove and safe guard alternator mounting leg, bracket and support (WP 0147 00, Figure 8, Item 5 and WP 0147 00, Figure 7, Item 1, 2 and 3) from alternator.

INSTALLATION

ALTERNATOR ONTO ENGINE (GTE)

CAUTION

Engine/pump/generator assembly weights over 200 pounds. Be sure engine assembly remains stable during procedure.

NOTE

Assure alternator and engine assembly are on a suitable work bench during this procedure.

1. Install alternator mounting leg, bracket and support (WP 0147 00, Figure 8, Item 5 and WP 0147 00, Figure 7, Item 4, 20 and 21) by inserting (2) washers, (2) bolts and safety wire (WP 0147 00, Figure 7, Item 3, 2 and 1) onto alternator.

CAUTION

During installation of alternator from mounting pads studs, ensure weight of alternator is equally distributed on the alternator-engine mounting pad studs. Unequal weight distribution will cause

INSTALLATION – CONTINUED

ALTERNATOR ONTO ENGINE (GTE) – CONTINUED

damage to the stud bosses. Replace packing if not all ready installed on alternator spline shaft and coat with grease for ease of installation into engine

NOTE

It may be necessary to rotate engine (GTE) gears to properly align/orientate the alternator. Rotate engine gears by removing (3) screws, (3) washers and end cap from starter assembly (WP 0110 00, Figure 2, Item 24, 25 and 23). Insert flat tip screwdriver into slot on starter armature shaft and rotate counter clockwise until alternator is seated.

2. Carefully set alternator into alternator-engine mounting pad and studs. Install (8) washers and (8) nuts onto alternator-engine mounting pad studs and tighten all nuts as required.
3. Install engine assembly (GTE) into AGPU (WP 0147 00).

REMOVAL

ALTERNATOR GREASE FITTING

1. Clean area around grease fitting (Figure 2. (Sheet 2 of 2), Item 6).
2. Remove fitting by turning counterclockwise.

INSTALLATION

ALTERNATOR GREASE FITTING

1. Install replacement grease fitting (Figure 2. (Sheet 1 of 2), Item 6) and position for easy access with grease gun.
2. Lube generator (WP 0029 00, Table 3).
3. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
4. Perform MOC.

END OF WORK PACKAGE

FIELD MAINTENANCE

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)

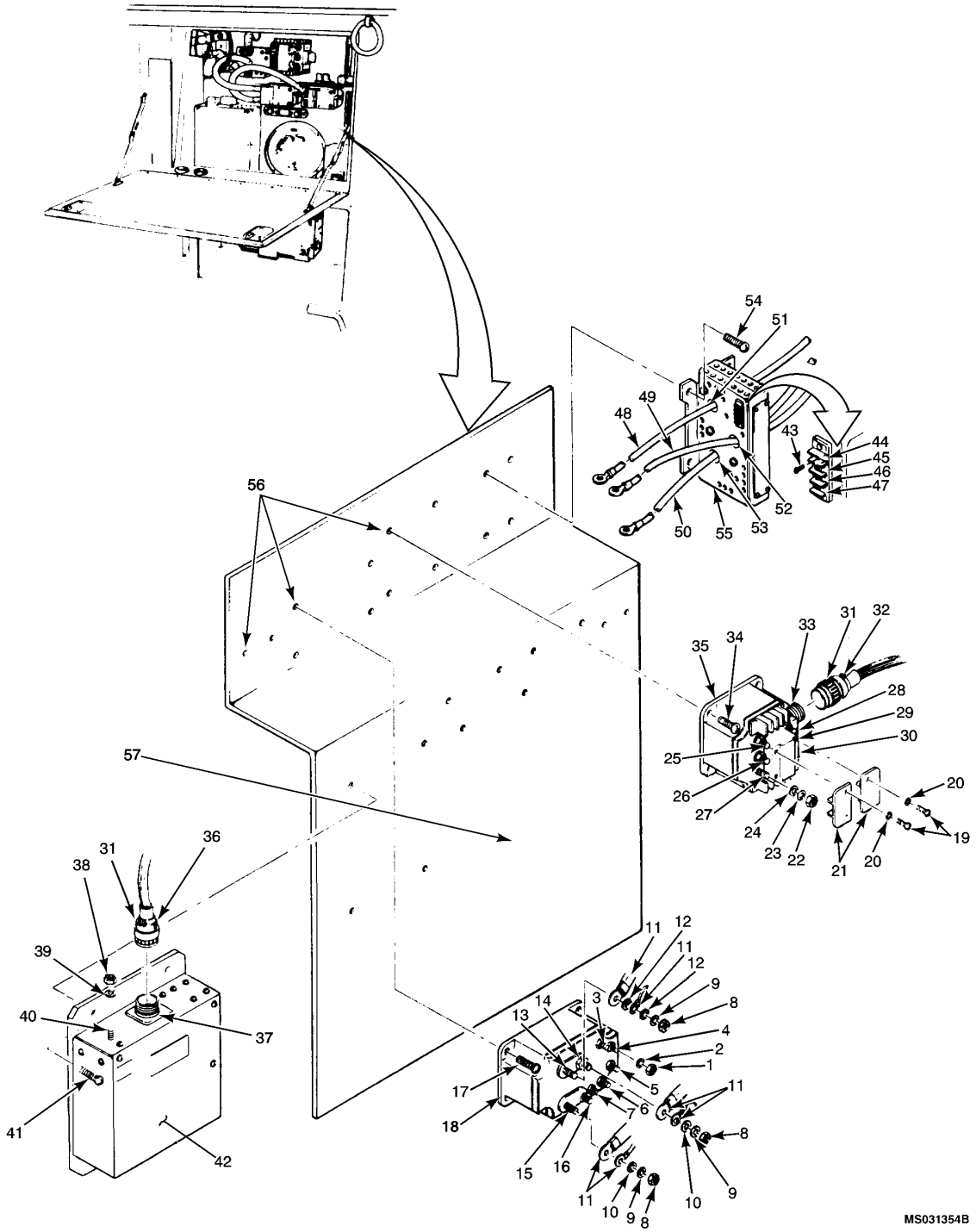
INITIAL SETUP:

Tools and Special Tools
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References
WP 0002 00

References (cont.)
WP 0003 00
WP 0025 00
WP 0041 00
WP 0043 00
WP 0044 00

TEST AND INSPECTION



TEST AND INSPECTION – CONTINUED

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 C2 (K1)
28. Terminal A1
29. Terminal B1
30. Terminal C1
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 Stud
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 X2A4B
50. Cable X3A4C
51. Load T1
52. Load T2
53. Load T3
54. Screw
55. Transformer T1
56. Nutplates
57. Electrical Bay

Figure 1. Output Contactors, GCU and GCU Input Current Transformer.

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

For tests refer to the following troubleshooting procedures:

- WP 0025 00, 66. DC VOLTAGE FAULT INDICATOR ILLUMINATED .
- WP 0025 00, 69. DC OVER CURRENT INDICATOR DOES NOT LIGHT WHEN DC AMPS METER READS MORE THAN 1070 AMPS.
- WP 0025 00, 70. DC VOLTAGE FAULT INDICATOR DOES NOT LIGHT FOLLOWING A DC OVER CURRENT FAULT.
- WP 0025 00, 71. DC VOLTAGE FAULT INDICATOR DOES NOT LIGHT WHEN DC AMPS METER READING EXCEEDS MAXIMUM ALLOWABLE FOR THE CURRENT SELECTOR SWITCH SETTING.
- WP 0025 00, 73. AC POWER ON INDICATOR OFF (ENGINE UP TO SPEED AND AC POWER SWITCH ON)
- WP 0025 00, 74. AC OVER VOLTAGE OR AC UNDER FREQUENCY INDICATOR ILLUMINATED
- WP 0025 00, 75. AC UNDER VOLTAGE INDICATOR ILLUMINATED
- WP 0025 00, 79. AC UNDER VOLTAGE INDICATOR DOES NOT LIGHT FOLLOWING AN AC OVER CURRENT FAULT
- WP 0025 00, 80. AC UNDER VOLTAGE INDICATOR DOES NOT LIGHT WHEN % LOAD METER EXCEEDS MAXIMUM ALLOWABLE FOR THE CURRENT SELECTOR SWITCH SETTING
- WP 0025 00, 81. AC OVER VOLTAGE INDICATOR DOES NOT LIGHT WHEN AC VOLTS METER READS MORE THAN 118 VOLTS

TEST AND INSPECTION – CONTINUED

• WP 0025 00, 82. AC UNDER FREQUENCY INDICATOR DOES NOT LIGHT WHEN AC HERTZ METER READS LESS THAN 375 HZ

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open control panel access door (WP 0041 00, Figure 1, Item 1).
3. Lower control panel (WP 0041 00, Figure 1, Item 4).
4. Remove battery charger access cover (WP 0002 00, Figure 1, Item 6).
5. Inspect GCU (Figure 1, Item 42) for signs of overheating or corrosion.
6. Check that harness connector P12 (Figure 1, Item 36) is securely connected to GCU connector J1 (Figure 1, Item 37).
7. Check GCU for security of installation. Tighten mounting screws (Figure 1, Item 41) as required.

REMOVAL

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open control panel access door (WP 0041 00, Figure 1, Item 1)
3. Lower control panel (WP 0041 00, Figure 1, Item 4).
4. Remove battery charger access cover (WP 0002 00, Figure 1, Item 6).
5. 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).
6. Remove nut (Figure 1, Item 38) and lock washer (Figure 1, Item 39) and remove ground wire from ground stud (Figure 1, Item 40).
7. Support GCU. Remove four mounting screws (Figure 1, Item 41).
8. Remove GCU (Figure 1, Item 42) from electrical bay (WP 0003 00, Figure 2). Ensure that GCU is removed and safeguarded from surrounding wiring harness.

INSTALLATION

1. Check GCU mounting nutplates on electrical bay (WP 0003 00, Figure 2). If any of the four nutplates are missing or damaged, notify supervisor.
2. Hold GCU (Figure 1, Item 42) in place against panel with electrical connector J1 (Figure 1, Item 37) up. Fasten GCU to nutplates with four mounting screws (Figure 1, Item 41).
3. Install ground wire on GCU case ground stud (Figure 1, Item 40). Install lock washer (Figure 1, Item 39) and nut (Figure 1, Item 38) on ground stud (Figure 1, Item 40).
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. Close control panel (WP 0041 00, Figure 1, Item 4) and close control panel access door (WP 0041 00, Figure 1, Item 1).
6. Install battery charger access cover (WP 0002 00, Figure 1, Item 6).
7. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
8. Perform MOC.

END OF WORK PACKAGE

FIELD MAINTENANCE

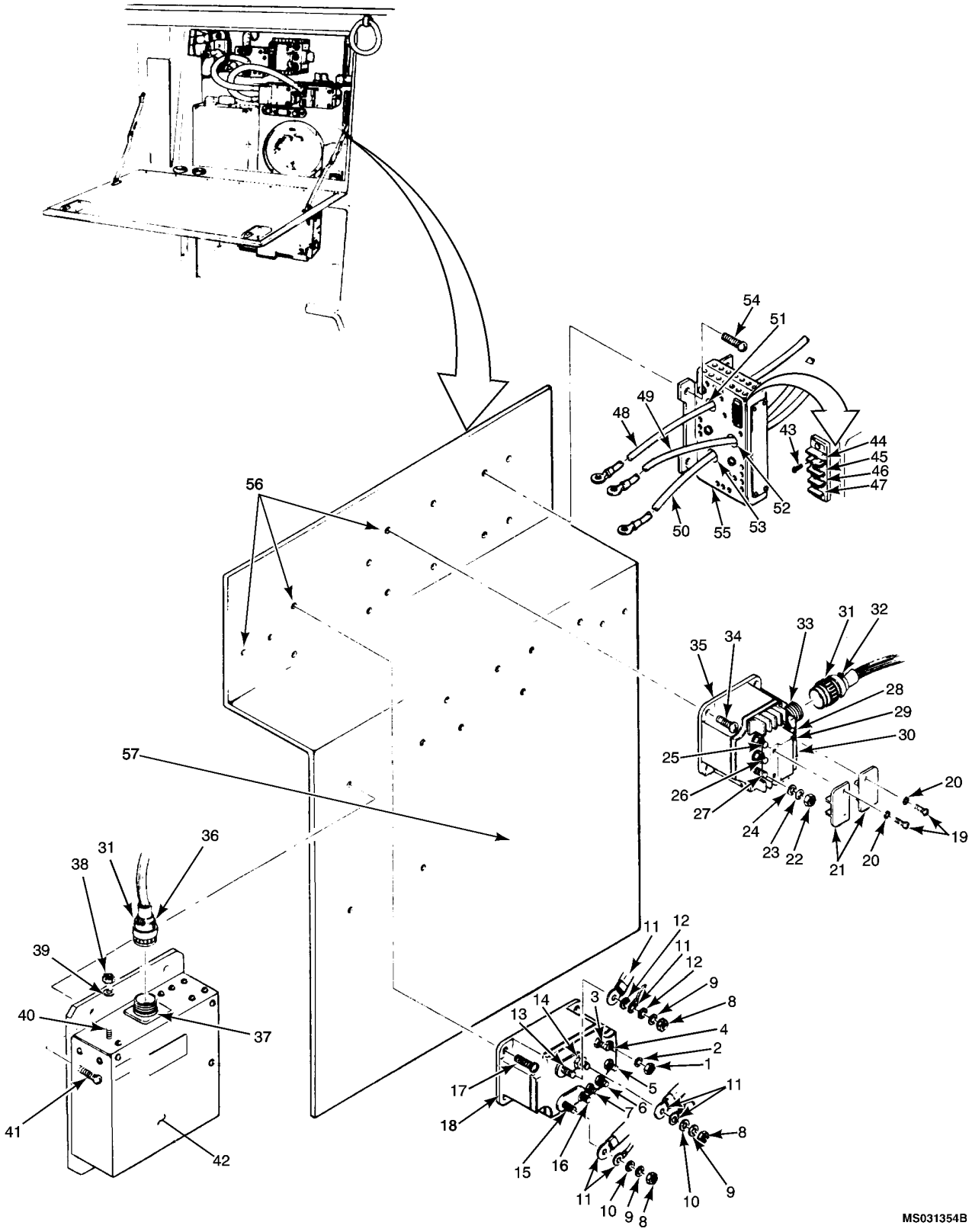
POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A) 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	References
Aviation Foot Locker, AFL (WP 0155 00, Item 3)	WP 0003 00
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)	WP 0025 00
	WP 0041 00
Tool Set, Aviation Unit (WP 0155 00, Item 41)	WP 0043 00
	WP 0044 00

TEST AND INSPECTION



TEST AND INSPECTION – CONTINUED

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 C2 (K1)
28. Terminal A1
29. Terminal B1
30. Terminal C1
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 Stud
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 X2A4B
50. Cable X3A4C
51. Load T1
52. Load T2
53. Load T3
54. Screw
55. Transformer T1
56. Nutplates
57. Electrical Bay

Figure 1. Output Contactors, GCU and GCU Input Current Transformer.

WARNING

Remove all rings watches and other jewelry when performing maintenance on this equipment.

NOTE

For test refer to troubleshooting procedure WP 0025 00, 80. AC UNDER VOLTAGE INDICATOR DOES NOT LIGHT WHEN % LOAD METER EXCEEDS MAXIMUM ALLOWABLE FOR THE CURRENT SELECTOR SWITCH SETTING, Step 5.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open control panel access door (WP 0041 00, Figure 1, Item 1) and lower control panel (WP 0041 00, Figure 1, Item 4).
3. Inspect transformer T1 (Figure 1, Item 55) for signs of overheating or corrosion.
4. Check that all transformer T1 (Figure 1, Item 55) wire connections are secure.

REMOVAL

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open control panel access door (WP 0041 00, Figure 1, Item 1) and lower control panel (WP 0041 00, Figure 1, Item 4).
3. Tag and disconnect all wires from transformer T1(Figure 1, Item 55) 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 GCU mounting nutplates on electrical bay (WP 0003 00, Figure 2). If any of the four nutplates are missing or damaged, notify maintenance supervisor.
2. Hold replacement transformer T1 (Figure 1, Item 55) with meter terminals (Figure 1, Item 44 through 47) at top left. Insert cable X1A4A (Figure 1, Item 48) through transformer hole marked load T1 (Figure 1, Item 51), cable X2A4A (Figure 1, Item 49) through hole marked load T2 (Figure 1, Item 52) and cable X3A4A (Figure 1, Item 50) through hole marked Load T3 (Figure 1, Item 53).
3. Fasten transformer T1 (Figure 1, Item 55) 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. Close control panel (WP 0041 00, Figure 1, Item 4) and close control panel access door (WP 0041 00, Figure 1, Item 1).
8. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
9. Perform MOC.

END OF WORK PACKAGE

FIELD MAINTENANCE

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 TRANSFORMERS (T2-T4) (AC OUTPUT)

INITIAL SETUP:

Tools and Special Tools	References
Aviation Foot Locker, AFL (WP 0155 00, Item 3)	WP 0002 00
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)	WP 0025 00
Tool Set, Aviation Unit (WP 0155 00, Item 41)	WP 0043 00
	WP 0044 00

TEST AND INSPECTION

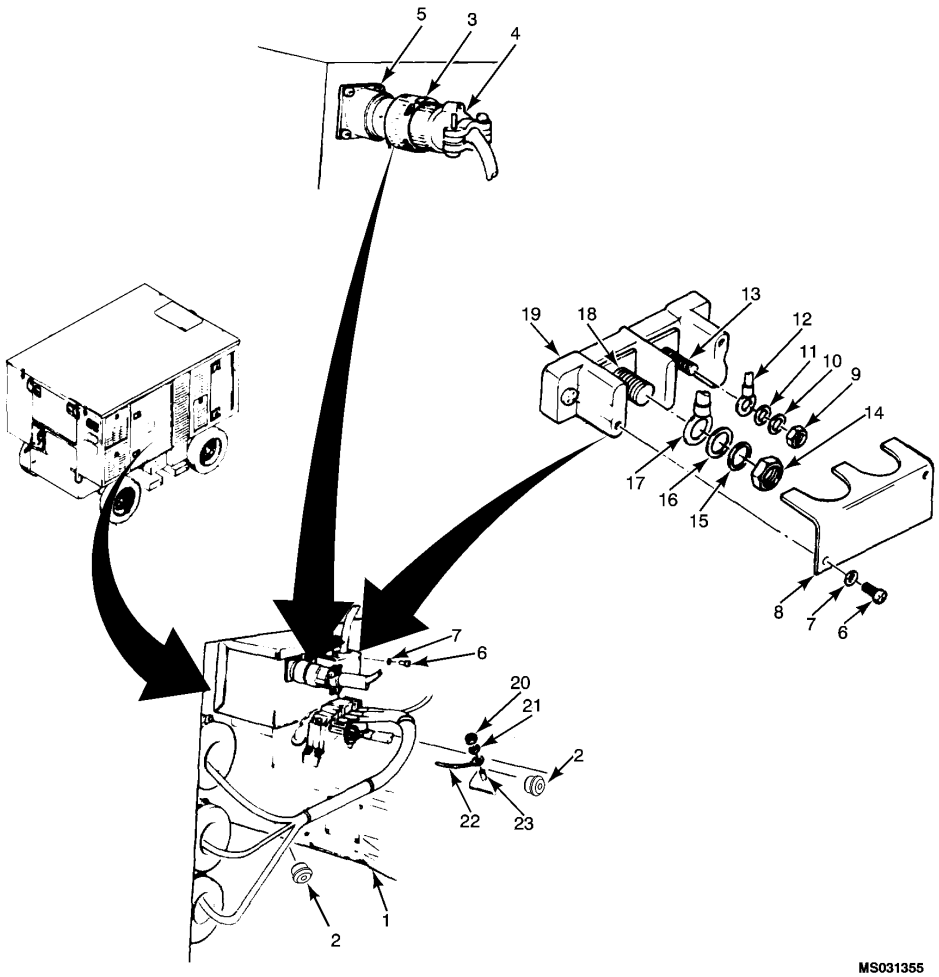
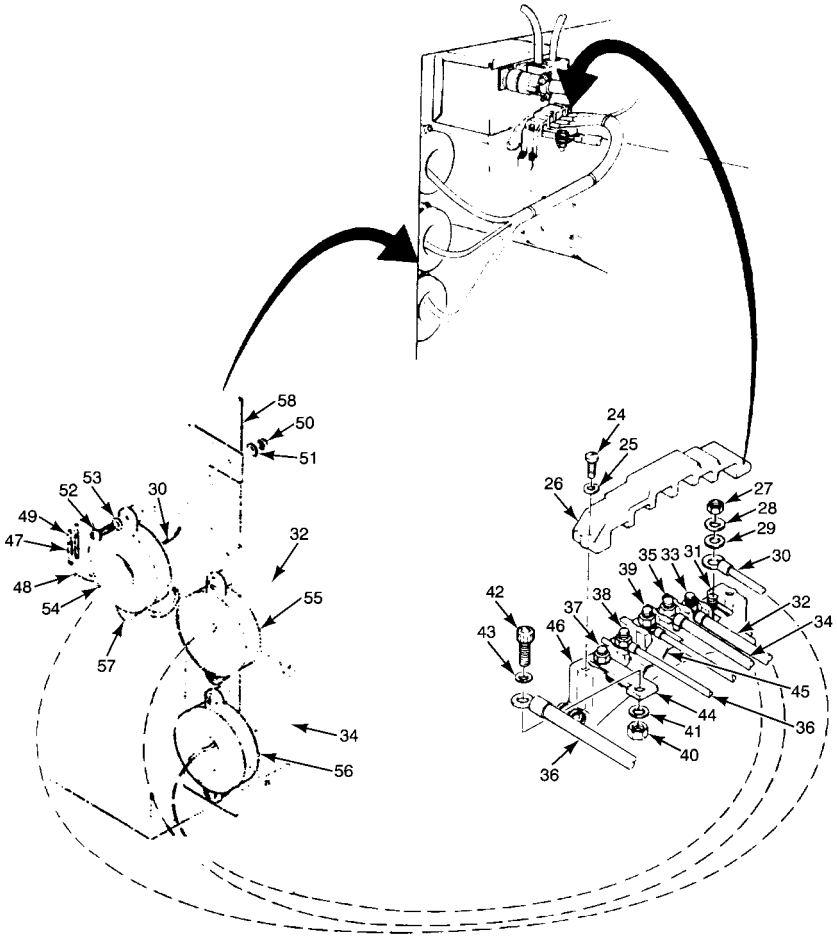


Figure 1. AC/DC Generator and AC Output Current Transformers, 83-360A Only (Sheet 1 of 2).

TEST AND INSPECTION – CONTINUED



1. AC/DC Generator G1	16. Washer	31. AC ϕA Terminal Stud T1	46. AC Terminal Block
2. Grease Fitting	17. DC Output Cable (+)	32. AC ϕB Cable X2A4B	47. Splice
3. Locking Collar	18. DC Terminal Stud (+)	33. AC ϕB Terminal Stud T2	48. Transformer Leads
4. Harness Connector P13	19. DC Terminal Block	34. AC ϕC Cable X3A4C	49. Main Harness Wires
5. Generator Connector J1	20. Nut	35. AC ϕC Terminal Stud T3	50. Nut
6. Screw	21. Lock Washer	36. AC ϕN Cables	51. Lock Washer
7. Lock Washer	22. Ground Wire	37. AC ϕN Terminal Stud T4	52. Screw
8. DC Terminal Cover	23. Case Ground Stud	38. AC ϕN Terminal Stud T5	53. Washer
9. Nut	24. Screw	39. AC ϕN Terminal Stud T6	54. Transformer T2
10. Lock Washer	25. Lock Washer	40. Nut	55. Transformer T3
11. Washer	26. AC Terminal Cover	41. Lock Washer	56. Transformer T4
12. DC Output Cable	27. Nut	42. Screw	57. Mounting Lug
13. DC Terminal Stud (-)	28. Lock Washer	43. Washer	58. Mounting Bracket
14. Nut	29. Washer	44. Terminal T6 Extension Bar	
15. Lock Washer	30. ACϕA Cable X1A4A	45. AC ϕN Terminal Jumper	

Figure 1. AC/DC Generator and AC Output Current Transformers, 83-360A Only (Sheet 2 of 2).

TEST AND INSPECTION – CONTINUED

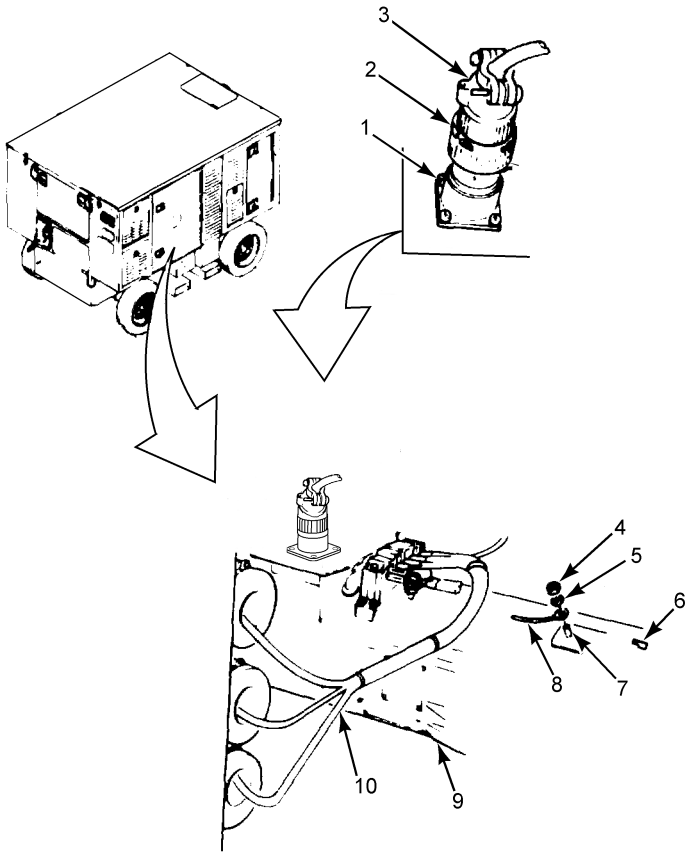
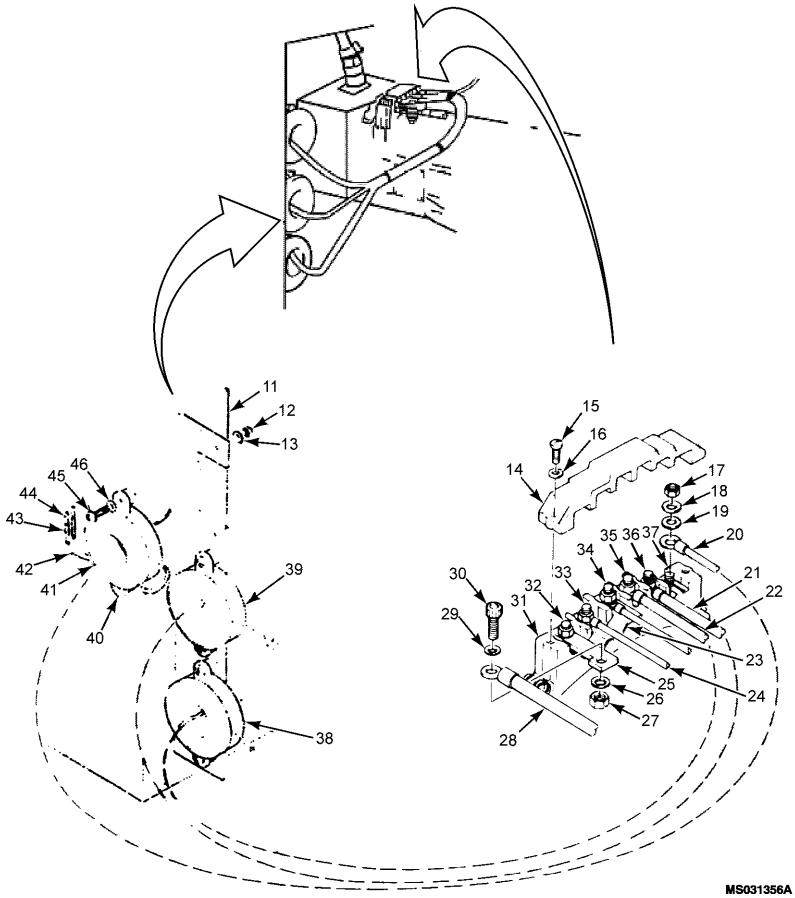


Figure 2. AC Generator and AC Output Current Transformers, 83-360D/E Only (Sheet 1 of 2).

TEST AND INSPECTION – CONTINUED



1. Alternator 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 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

RFor test refer to troubleshooting procedure WP 0025 00, 78. AC % LOAD METER READS 0 (AC POWER ON INDICATOR ILLUMINATED AND AC POWER CABLE CONNECTED TO LOAD), Step 7.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open engine access door (WP 0002 00, Figure 1, Item 12).
3. Check that transformers (Figure 1. (Sheet 1 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 screws (Figure 1. (Sheet 2 of 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open engine access door (WP 0002 00, Figure 1, Item 12).
3. Remove screws (Figure 1. (Sheet 2 of 2), Item 24), lock washer (Figure 1. (Sheet 2 of 2), Item 25) and AC terminal cover (Figure 1. (Sheet 2 of 2), Item 26).
4. Disconnect cable X1A4A (Figure 1. (Sheet 2 of 2), Item 30) running through transformer T2 (Figure 1. (Sheet 2 of 2), Item 54) from generator/alternator AC output terminal T1 (Figure 1. (Sheet 2 of 2), Item 31).
5. Locate splices (Figure 1. (Sheet 2 of 2), Item 47) between transformer leads (Figure 1. (Sheet 2 of 2), Item 48) and main harness wires (Figure 1. (Sheet 2 of 2), Item 49). Tag wires and disconnect transformer leads from main harness by removing splice.
6. Remove nuts (Figure 1. (Sheet 2 of 2), Item 50), lock washers (Figure 1. (Sheet 2 of 2), Item 51), screws (Figure 1. (Sheet 2 of 2), Item 52) and washers (Figure 1. (Sheet 2 of 2), Item 53) and slide transformer T2(Figure 1. (Sheet 2 of 2), Item 54) off cable.

INSTALLATION

1. Insert generator/alternator output cable X1A4A (Figure 1. (Sheet 2 of 2), Item 30) through center of replacement transformer T2 (Figure 1. (Sheet 2 of 2), Item 54).
2. Wrap transformer leads (Figure 1. (Sheet 2 of 2), Item 48) around transformer body, between body and mounting lugs (Figure 1. (Sheet 2 of 2), Item 57).
3. Install transformer on mounting bracket using washers (Figure 1. (Sheet 2 of 2), Item 53), screws (Figure 1. (Sheet 2 of 2), Item 52), lock washers (Figure 1. (Sheet 2 of 2), Item 51) and nuts (Figure 1. (Sheet 2 of 2), Item 50).

INSTALLATION – CONTINUED

4. Insert heat shrink tubing over transformer leads (Figure 1. (Sheet 2 of 2), Item 48). Use ID tags and splice (Figure 1. (Sheet 2 of 2), Item 47), connect transformer leads (Figure 1. (Sheet 2 of 2), Item 48) to main harness wiring (Figure 1. (Sheet 2 of 2), Item 49). Slide heat shrink tubing over splice and apply heat to tubing.
5. Install cable X1A4A (Figure 1. (Sheet 2 of 2), Item 30) to generator/alternator AC output terminal stud T1 (Figure 1. (Sheet 2 of 2), Item 31). Secure cable with washer (Figure 1. (Sheet 2 of 2), Item 29), lock washer (Figure 1. (Sheet 2 of 2), Item 28) and nut (Figure 1. (Sheet 2 of 2), Item 27).
6. Install AC terminal cover (Figure 1. (Sheet 2 of 2), Item 26), two lock washers (Figure 1. (Sheet 2 of 2), Item 25) and screws (Figure 1. (Sheet 2 of 2), Item 24).
7. Close engine access door (WP 0002 00, Figure 1, Item 12).
8. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
9. Perform MOC.

END OF WORK PACKAGE

FIELD MAINTENANCE

**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) MEP 83-360D/E ONLY

INITIAL SETUP:

Tools and Special Tools	References
Aviation Foot Locker, AFL (WP 0155 00, Item 3)	WP 0002 00
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)	WP 0033 00
Tool Set, Aviation Unit (WP 0155 00, Item 41)	WP 0043 00
	WP 0044 00

TEST AND INSPECTION

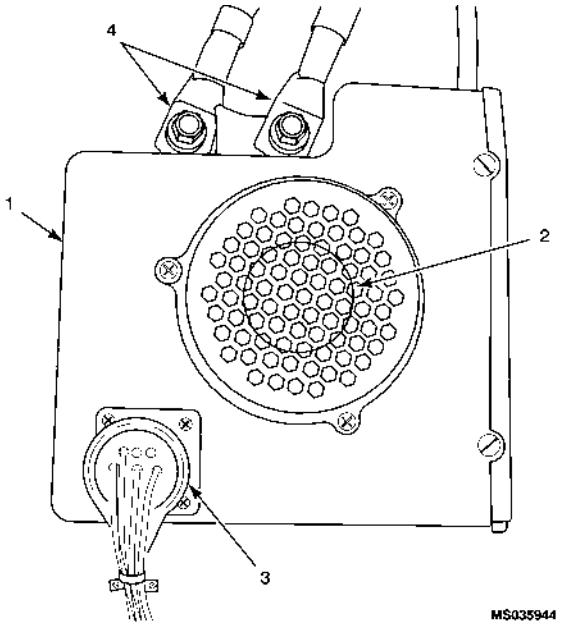
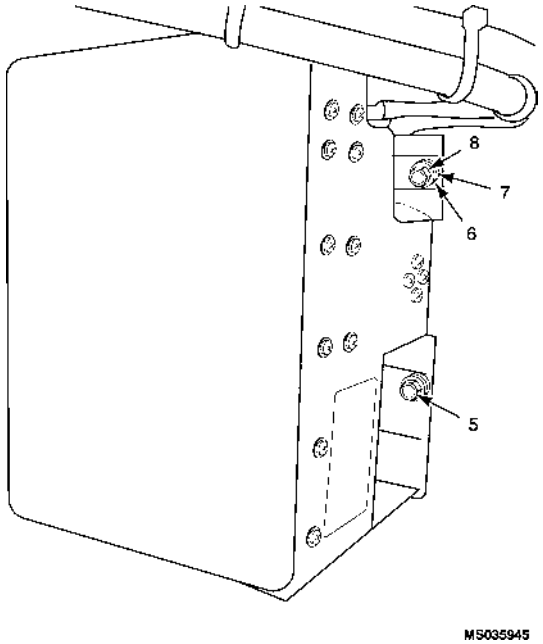


Figure 1. Transformer Rectifier Unit (Sheet 1 of 2).



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).

TEST AND INSPECTION – CONTINUED

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

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.

2. Slide AGPU roof (WP 0033 00, Figure 1, Item 2) back to get clear access to the DC cable compartment (WP 0002 00, Figure 4, Item 13).
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 (P-20) (Figure 1, Item 3) is secured.
5. Check DC output cable connections (Figure 1, Item 4) are secure, clean and not corroded. If dirt or corrosion are present ensure cables are clean and tighten as needed.

REMOVAL

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

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.

2. Slide AGPU roof (WP 0033 00, Figure 1, Item 2) back to get clear access to the DC cable compartment (WP 0002 00, Figure 4, Item 13).
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). Tag wires for reinstallation.
5. Support the TRU (Figure 1, Item 1) 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 compartment (WP 0002 00, Figure 4, Item 13).
6. Remove the TRU (Figure 1, Item 1). Safeguard TRU cooling fan (Figure 1, Item 2) from debris entry into fan.

INSTALLATION

1. Secure the TRU (Figure 1, Item 1) to the sidewall of the DC cable compartment (WP 0002 00, Figure 4, Item 13) 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).
2. Install DC output cable connections (Figure 1, Item 4) to positive and negative lug of the TRU (Figure 1, Item 1).
3. Install AC input connector (P-20) (Figure 1, Item 3).

INSTALLATION – CONTINUED

CAUTION

During installation of the roof, one person should be stationed at each corner of the roof to prevent warping or damage to the roof.

4. Secure AGPU roof (WP 0033 00).
5. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
6. Perform MOC.
7. Ensure TRU cooling fan (Figure 1, Item 2) is operational. If not notify maintenance supervisor.

END OF WORK PACKAGE

FIELD MAINTENANCE

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

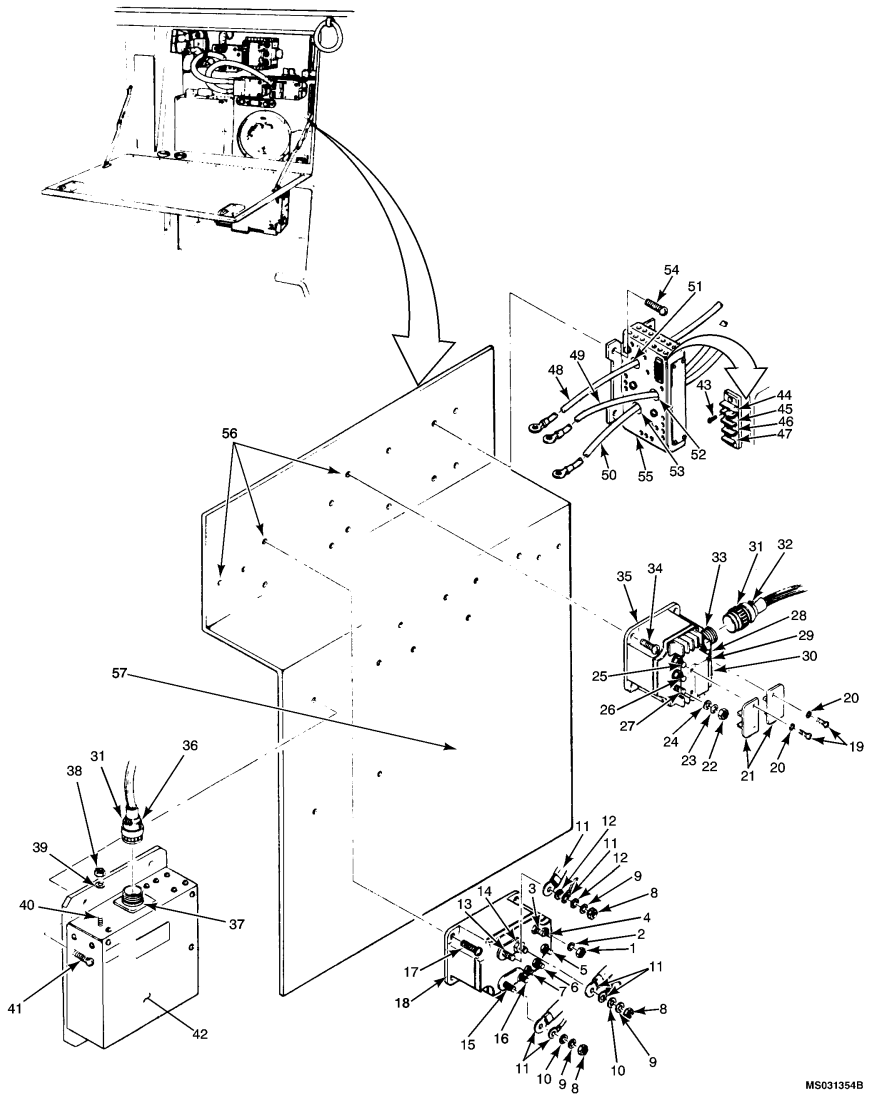
AC AND DC OUTPUT CONTACTOR (K1, K2, K3 AND K4)

INITIAL SETUP:

Tools and Special Tools	References
Aviation Foot Locker, AFL (WP 0155 00, Item 3)	WP 0025 00
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)	WP 0041 00
	WP 0043 00
Tool Set, Aviation Unit (WP 0155 00, Item 41)	WP 0044 00

TEST AND INSPECTION

K1 CONTACTOR



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 C2 (K1)
28. Terminal A1
29. Terminal B1
30. Terminal C1
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 Stud
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 X2A4B
50. Cable X3A4C
51. Load T1
52. Load T2
53. Load T3
54. Screw
55. Transformer T1
56. Nutplates
57. Electrical Bay

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.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open control panel access door (WP 0041 00, Figure 1, Item 1).
3. Lower control panel (WP 0041 00, Figure 1, Item 4).
4. Inspect AC output contactor K1 (Figure 1, Item 35) for signs of overheating or corrosion. If corrosion is present, clean as needed.
5. Check that all contactor cable and wire connections are tight.

REMOVAL

K1 CONTACTOR

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open control panel access door (WP 0041 00, Figure 1, Item 1).
3. Lower control panel (WP 0041 00, Figure 1, Item 4).
4. Remove screws (Figure 1, Item 19), lock washers (Figure 1, Item 20) and terminal shields (Figure 1, Item 21).
5. Tag and remove all wires and cables from contactor. Mark contactor K1 (Figure 1, Item 35) for orientation of output and input terminals.
6. 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).
7. Support contactor. Remove screws (Figure 1, Item 34) and contactor K1 (Figure 1, Item 35).

INSTALLATION

K1 CONTACTOR

1. Check nutplates (Figure 1, Item 56) on electrical bay (Figure 1, Item 56). 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 K1 (Figure 1, Item 35).
3. Hold contactor K1 (Figure 1, Item 35) in position against panel with electrical connector J1 (Figure 1, Item 33) to right of contactor. Fasten contactor to nutplates with four screws (Figure 1, Item 34).
4. Install harness connector P11 (Figure 1, Item 32) to contactor K1 (Figure 1, Item 35) to connector J1 (Figure 1, Item 33) by turning locking collar (Figure 1, Item 31) clockwise.

INSTALLATION – CONTINUED

K1 CONTACTOR – CONTINUED

5. Use ID tags and install wires (large wires first) on contactor K1 (Figure 1, Item 35) to terminals (Figure 1, Item 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 of contactor K1 (Figure 1, Item 35).
6. Install terminal shields (Figure 1, Item 21), lock washers (Figure 1, Item 20) and screws (Figure 1, Item 19) on contactor K1 (Figure 1, Item 35).
7. Close control panel (WP 0041 00, Figure 1, Item 4).
8. Close control panel access door (WP 0041 00, Figure 1, Item 1).
9. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
10. Perform MOC.

TEST AND INSPECTION

K2 CONTACTOR

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

For test refer to troubleshooting procedure WP 0025 00, 92. DC POWER NOT AVAILABLE AT SLAVE RECEPTACLE.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open control panel access door (WP 0041 00, Figure 1, Item 1).
3. Open control panel (WP 0041 00, Figure 1, Item 4).
4. Inspect DC output contactor K2 (Figure 1, Item 18) for signs of overheating or corrosion. If corrosion is present, clean as needed.
5. Check that all DC output contactor K2 cables and wire connections are tight.

REMOVAL

K2 CONTACTOR

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open control panel access door (WP 0041 00, Figure 1, Item 1).
3. Open control panel (WP 0041 00, Figure 1, Item 4).
4. Remove two screws (Figure 1, Item 19), lock 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 (K1) (Figure 1, Item 25), B2 (K1) Figure 1, Item 26) and C2 (K1) (Figure 1, Item 27). Removing these cables is necessary for access to DC output contactor K2.
5. Tag and remove all wires and cables from DC output contactor K2 terminals (Figure 1, Item 3, 4, 5, 6, 13, 14 and 15). Save spacer washers (Figure 1, Item 12) on terminal A1-Left (Figure 1, Item 13) for reinstallation.

REMOVAL – CONTINUED

K2 CONTACTOR – CONTINUED

6. Support DC output contactor K2 (Figure 1, Item 18) and remove four screws (Figure 1, Item 17) and DC output contactor K2 (Figure 1, Item 18).

INSTALLATION

K2 CONTACTOR

1. Check nutplates (Figure 1, Item 56) on electrical bay (Figure 1, Item 57). If any of the four nutplates is missing or damaged, notify maintenance supervisor.
2. Hold contactor K2 (Figure 1, Item 18) in position against electrical bay (Figure 1, Item 57) position small terminals (Figure 1, Items 3 through 7) facing to the right-hand side of the electrical bay. Fasten DC contactor K2 to nutplates (Figure 1, Item 56) with four screws (Figure 1, Item 17).
3. Remove nuts (Figure 1, Item 1) and lock washers (Figure 1, Item 2) from DC output contactor terminals B1 (K2) (Figure 1, Item 3), terminal X1 (K2) (Figure 1, Item 4), terminal X2 (K2) (Figure 1, Item 5) and terminal B2 (K2) (Figure 1, Item 6). Use ID tags and install wires on terminals B1, X1, X2 and B2 (K2). Secure wires with lock washers and nuts.

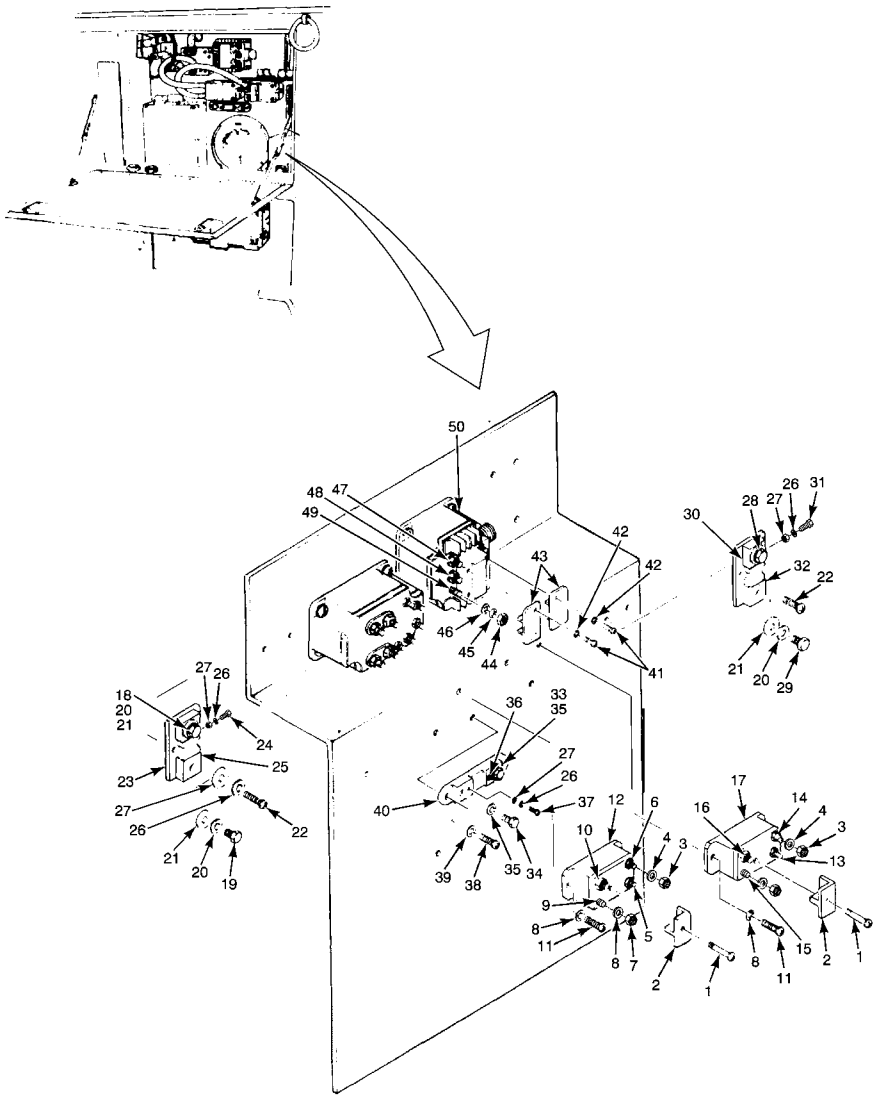
NOTE

On the 83-360D and 83-360E models only, install jumper wire P2D20 to connect terminal A1-right (K2) to terminal B1 (K2). Install jumper wire P2E20A and connect between terminal B1 (K2) to terminal X1 (K2). On all models terminal X1 (K2) connects to wires P38B20 and G25A20 and terminal B2 (K2) connects wire P46A20.

4. Remove nuts (Figure 1, Item 8), lock washers (Figure 1, Item 9) and washers (Figure 1, Item 10) from new DC output contactor (Figure 1, Item 18) terminals A1-Left (Figure 1, Item 13), A1-Right (Figure 1, Item 14) and A2-Left (Figure 1, Item 15) of DC output contactor. Use ID tags, install wires and hardware (in order) on DC output contactor terminals as follows:
   a. On DC output contactor (Figure 1, Item 18) 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), tighten as required.
   b. On DC output contactor (Figure 1, Item 18) 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), tighten as required.
   c. On DC output contactor (Figure 1, Item 18) 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), tighten as required.
5. Using ID tags, install wires (large wires first) on terminals A2 (Figure 1, Item 25), terminal B2 (Figure 1, Item 26) and terminal C2 (Figure 1, Item 27) of contactor K1. Install washer (Figure 1, Item 24), lock washer (Figure 1, Item 23) and nut (Figure 1, Item 22) on each terminal of the contactor K1 (Figure 1, Item 35).
6. Install terminal shield (Figure 1, Item 21) on contactor K1 (Figure 1, Item 35), lock washers (Figure 1, Item 20) and screws (Figure 1, Item 19).
7. Close control panel (WP 0041 00, Figure 1, Item 4).
8. Close control panel access door (WP 0041 00, Figure 1, Item 1).
9. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
10. 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 K3	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 K4	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.

NOTE

For tests refer to the following troubleshooting procedures:

- WP 0025 00, 103. GTE STARTER RELAY K4 MALFUNCTION.
- WP 0025 00, 104. BATTERY OUTPUT/TRACTION MOTOR CONTACTOR K3 MALFUNCTION.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open control panel access door (WP 0041 00, Figure 1, Item 1).
3. Lower control panel (WP 0041 00, Figure 1, Item 4).
4. Inspect contactor K3 (Figure 2, Item 12) and contactor K4 (Figure 2, Item 17) for signs of overheating or corrosion. If corrosion is present, clean as needed.
5. Check that all cable and wire connections at contactor terminals' screws X1 (K3), X2 (K3), A1 (K3), A2 (K3), X1 (K4), X2 (K4), A1 (K4) and A2 (K4) (Figure 2, Item 5, 6, 9, 10, 13, 14, 15 and 16) are tight.

REMOVAL

K3 AND K4 CONTACTORS

NOTE

Removal and installation procedures are the same for contactors K3 and K4. (K3 is illustrated).

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open control panel access door (WP 0041 00, Figure 1, Item 1).
3. Lower control panel (WP 0041 00, Figure 1, Item 4).
4. Remove screw (Figure 2, Item 1) and terminal shield (Figure 2, Item 2).
5. Tag and remove all wires and cables from contactor terminals X1 (K3), X2 (K3), A1 (K3) and A2 (K3) (Figure 2, Item 5, 6, 9 and 10).
6. Remove two screws (Figure 2, Item 11) and battery output/traction motor contactor K3 (Figure 2, Item 12).

INSTALLATION

K3 AND K4 CONTACTORS

1. Check nutplates (Figure 1, Item 56) on electrical bay (Figure 1, Item 57). If nutplates are missing or damaged, notify maintenance supervisor.
2. Remove screw (Figure 2, Item 1) and terminal shield (Figure 2, Item 2) from replacement contactor (Figure 2, Item 12).

INSTALLATION – CONTINUED

K3 AND K4 CONTACTORS – CONTINUED

3. Hold the battery output/traction motor contactor K3 (Figure 2, Item 12) in position with terminal X1 (K3) (Figure 2, Item 5) and X2 (K3) (Figure 2, Item 6) to right. Fasten battery output/traction motor contactor K3 to nutplates (Figure 1, Item 56) with two screws (Figure 2, Item 11).
4. Remove nuts (Figure 2, Item 3) and washers (Figure 2, Item 4) from terminals X1 (K3) (Figure 2, Item 5) and X2 (K3) (Figure 2, Item 6). Use ID tags and install wires on terminals X1 (K3) and X2 (K3). Secure with washers (Figure 2, Item 4) and nuts (Figure 2, Item 3).
5. Remove nuts (Figure 2, Item 7) and washers (Figure 2, Item 8) from terminal A1 (K3) (Figure 2, Item 9) and terminal A2 (K3) (Figure 2, Item 10). Use ID tags and install cables and wires on terminals A1 (K3) and A2 (K3). If a cable and wire is installed on same terminal, install cable first. Secure wires and cables with washers (Figure 2, Item 8) and nuts (Figure 2, Item 7).
6. Replace terminal shield (Figure 2, Item 2) and screw (Figure 2, Item 1).
7. Close control panel (WP 0041 00, Figure 1, Item 4).
8. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
9. Perform MOC.

END OF WORK PACKAGE

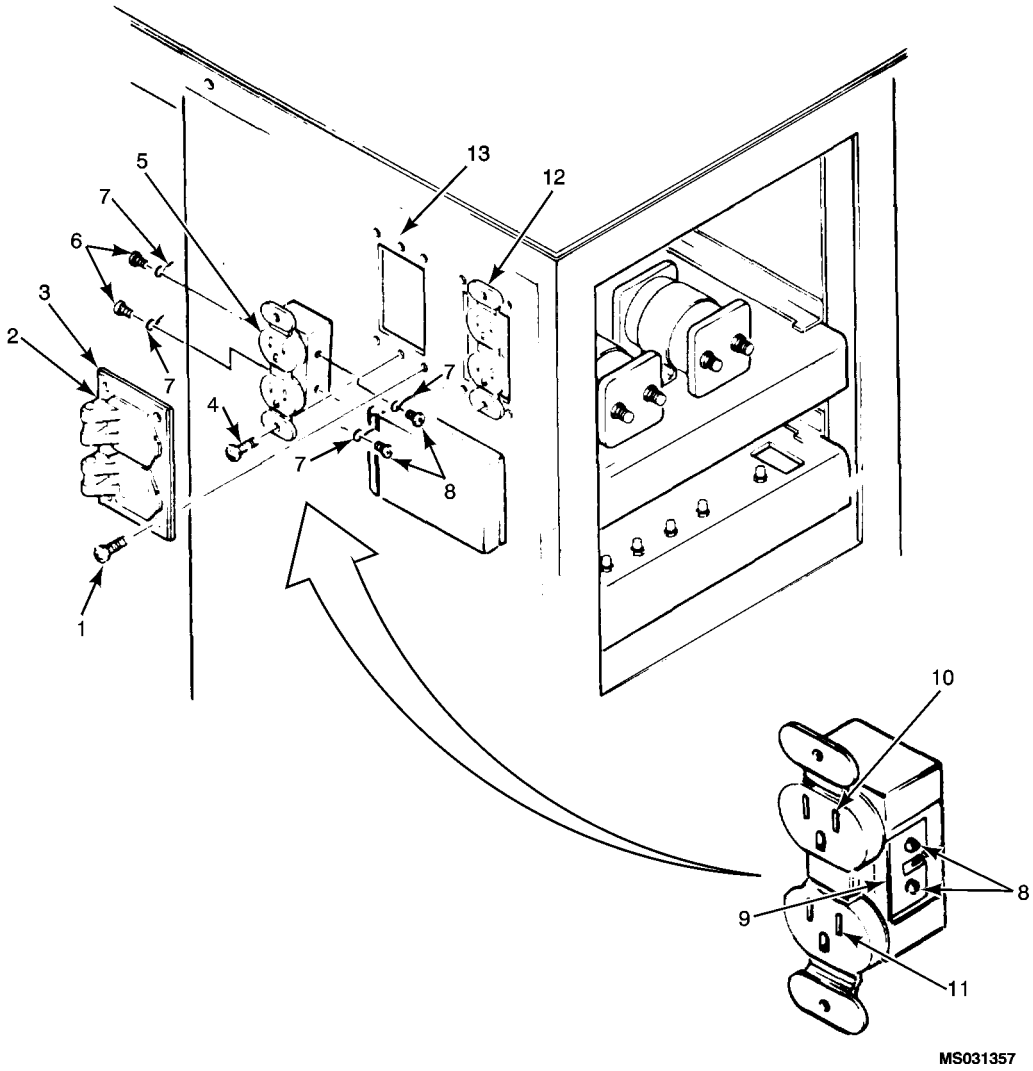
FIELD MAINTENANCE

**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 (3CB3–3CB6)

INITIAL SETUP:

Tools and Special Tools	References
Aviation Foot Locker, AFL (WP 0155 00, Item 3)	WP 0025 00
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)	WP 0041 00
	WP 0043 00
Tool Set, Aviation Unit (WP 0155 00, Item 41)	WP 0044 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)
		13. Nutplates

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

For test refer to troubleshooting procedure WP 0025 00, 94. AC POWER NOT AVAILABLE AT CONVENIENCE RECEPTACLES (ENGINE RUNNING AND AC POWER SWITCH ON).

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open electrical tray access door (WP 0041 00, Figure 2, Item 1).
3. Remove four screws (Figure 1, Item 1), cover plate (Figure 1, Item 2) and gasket (Figure 1, Item 3).
4. Remove two screws (Figure 1, Item 4) and retract receptacle J3/J4 (J3 Top) (Figure 1, Item 5) far enough to reach wires.
5. Tag and remove four wires (Figure 1, Item 7) by removing neutral (silver) terminal screws (Figure 1, Item 6) and hot (brass) terminal screws (Figure 1, Item 8) from receptacles J3/J4 (J3 Top) (Figure 1, Item 5).

INSTALLATION

CAUTION

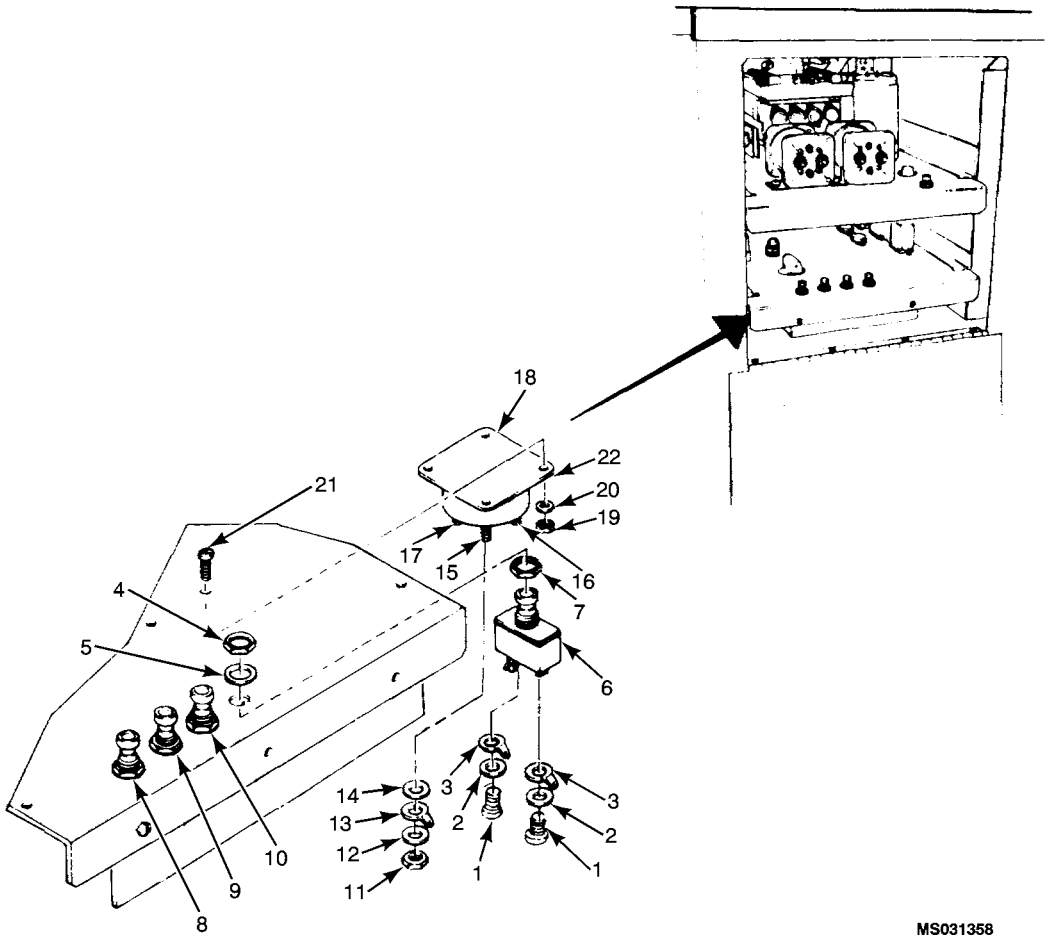
When installing new receptacles ensure terminal strip (Figure 1, Item 9) between both silver screws and brass colored screws is either cut or removed. If terminal strip is not removed this will cause the circuit breakers to malfunction or could cause a fire.

1. If installing a new receptacle J3/J4 (J3 Top) (Figure 1, Item 5), cut the terminal strip (Figure 1, Item 9) between the two brass hot (brass) terminal screws (Figure 1, Item 8) and neutral (silver) terminal screws (Figure 1, Item 6). After cutting terminal strip verify an open circuit between the two contacts.
2. Use ID tags and connect wires (Figure 1, Item 7) to replacement receptacle J3/J4 (J3 Top) (Figure 1, Item 5), neutral (silver) terminal screws (Figure 1, Item 6) and hot (brass) terminal screws (Figure 1, Item 8).
3. Inspect nutplates (Figure 1, Item 13) on AGPU face panel. There should be two nutplates to mount each receptacle and four nutplates for cover plate (Figure 1, Item 2) screws (Figure 1, Item 1). If any nutplates are damaged or missing, notify maintenance supervisor.
4. Attach receptacle J3/J4 (J3 Top) (Figure 1, Item 5) to panel with two screws (Figure 1, Item 1).
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 (Figure 1, Item 1). Do not over tighten cover plate mounting screws to prevent damaging the receptacles.

INSTALLATION – CONTINUED

7. Close electrical tray access door (WP 0041 00, Figure 2, Item 1).
8. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
9. 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

For test refer to troubleshooting procedure WP 0025 00, 94. AC POWER NOT AVAILABLE AT CONVENIENCE RECEPTACLES (ENGINE RUNNING AND AC POWER SWITCH ON).

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open electrical tray access door (WP 0041 00, Figure 2, Item 1).
3. Remove one quick release pin (WP 0041 00, Figure 2, Item 2).
4. Carefully extend lower electrical tray (WP 0041 00, Figure 2, Item 3) as required for maintenance by pulling tray outward. If there is any abnormal resistance to tray movement, lower control panel (WP 0041 00, Figure 2, Item 4). It may be necessary to remove some cable ties to extend tray.

NOTE

Removal and installation procedures are the same for circuit breakers 3CB3 through 3CB6. 3CB3 is illustrated.

5. 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).
6. Remove nut (Figure 2, Item 4), lock washer (Figure 2, Item 5) and 15 amp circuit breaker 3CB3 (Figure 2, Item 6).
7. Note position of height adjustment nut (Figure 2, Item 7) on threaded shaft of circuit breaker 3CB3 (Figure 2, Item 6).

INSTALLATION

1. If installing new circuit breaker, 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 15 amp circuit breaker 3CB3 (Figure 2, Item 6) shaft to same position as adjustment on old 15 amp circuit breaker 3CB3.
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 15 amp circuit breaker 3CB3 should be visible from top of electrical tray. If not, loosen nut (Figure 2, Item 4), reset height adjustment nut (Figure 2, Item 7) as required and tighten nut (Figure 2, Item 4).
4. Install tagged wires (Figure 2, Item 3), lock washers (Figure 2, Item 2) and screws (Figure 2, Item 1) on 15 amp circuit breaker 3CB3 (Figure 2, Item 6).
5. Carefully close lower electrical tray (WP 0041 00, Figure 2, Item 3) as required by pushing tray inward. If there is any abnormal resistance to tray movement, it may be necessary to move some cables to install tray.
6. Install quick release pin (WP 0041 00, Figure 2, Item 2).
7. Close electrical tray access door (WP 0041 00, Figure 2, Item 1).
8. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.

INSTALLATION – CONTINUED

9. Perform MOC.

END OF WORK PACKAGE

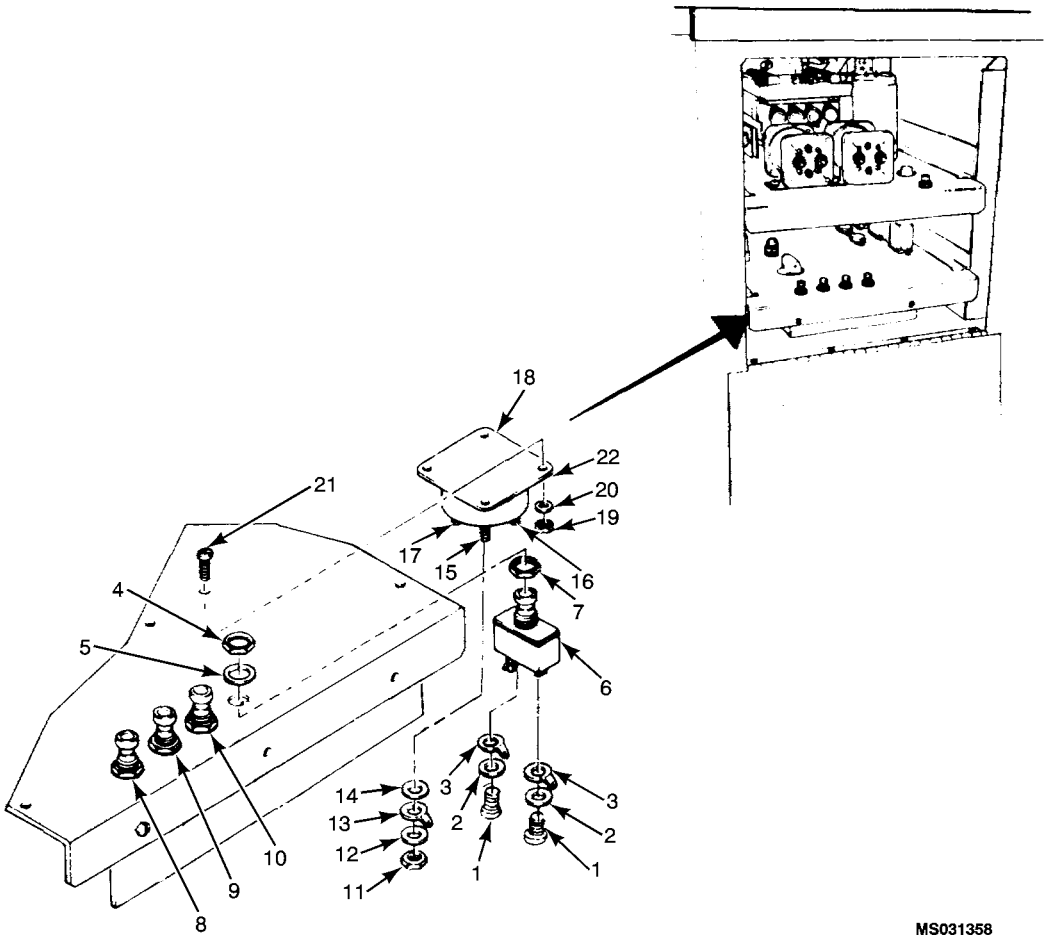
FIELD MAINTENANCE

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	References
Aviation Foot Locker, AFL (WP 0155 00, Item 3)	WP 0025 00
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)	WP 0041 00
	WP 0043 00
Tool Set, Aviation Unit (WP 0155 00, Item 41)	WP 0044 00
	WP 0068 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

For test refer to troubleshooting procedure WP 0025 00, 85. AC CONTACTOR K1 MALFUNCTION.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open electrical tray access door (WP 0041 00, Figure 2, Item 1).
3. Remove one quick release pin (WP 0041 00, Figure 2, Item 2).
4. Carefully extend lower electrical tray (WP 0041 00, Figure 2, Item 3) as required for maintenance by pulling tray outward. If there is any abnormal resistance to tray movement, lower control panel (WP 0041 00, Figure 2, Item 4). It may be necessary to remove some cable ties to extend tray.
5. Inspect frequency transducer (Figure 1, Item 22) for punctures or dents.
6. Check that transducer is securely mounted. Tighten mounting screws (Figure 1, Item 21) as required.
7. Check that wire connections to transducer are secure. Tighten nuts (Figure 1, Item 19) as required.

REMOVAL

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open electrical tray access door (WP 0041 00, Figure 2, Item 1).
3. Remove one quick release pin (WP 0041 00, Figure 2, Item 2).
4. Carefully extend lower electrical tray (WP 0041 00, Figure 2, Item 3) as required for maintenance by pulling tray outward. If there is any abnormal resistance to tray movement, lower control panel (WP 0041 00, Figure 2, Item 4). It may be necessary to remove some cable ties to extend tray.
5. Tag and disconnect wires (Figure 1, Item 13) from terminals (Figure 1, Item 15 through 18) on underside of frequency transducer (Figure 1, Item 22).
6. 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

CAUTION

When replacing frequency transducer (Figure 1, Item 22) it is essential to replace the AC hertz meter (1M10) (WP 0068 00, Figure 1, Item 21) as a matched set.

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).

INSTALLATION – CONTINUED

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. Carefully close lower electrical tray (WP 0041 00, Figure 2, Item 3) as required by pushing tray inward. If there is any abnormal resistance to tray movement, it may be necessary to remove some cables to extend tray.
5. Install quick release pin (WP 0041 00, Figure 2, Item 2).
6. Close electrical tray access door (WP 0041 00, Figure 2, Item 1).
7. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
8. Perform MOC.

END OF WORK PACKAGE

FIELD MAINTENANCE

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

Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References

WP 0002 00

References (cont.)

WP 0025 00
WP 0033 00
WP 0041 00
WP 0043 00
WP 0044 00

REMOVAL

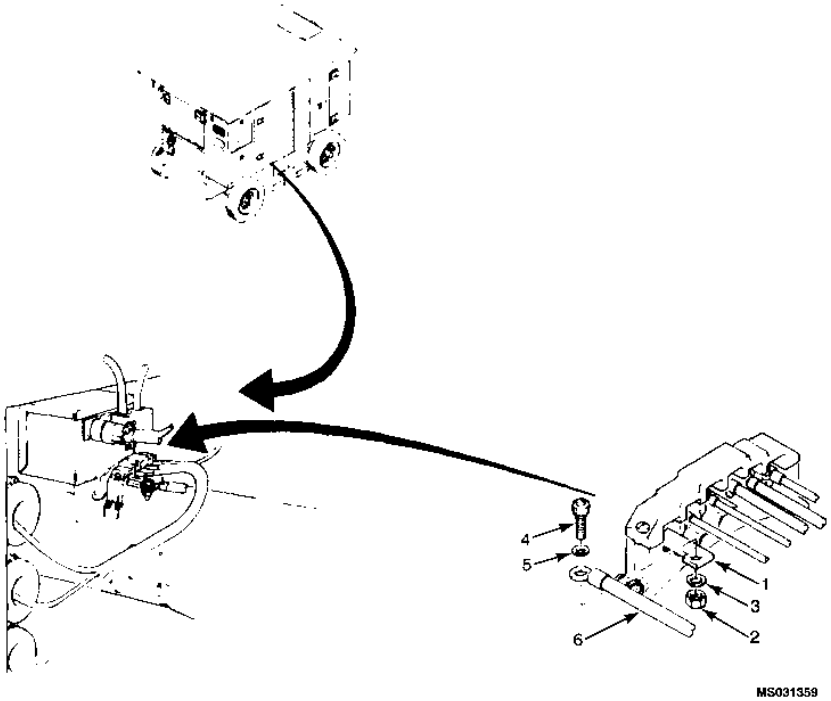


Figure 1. AC Power Cable (Sheet 1 of 3).

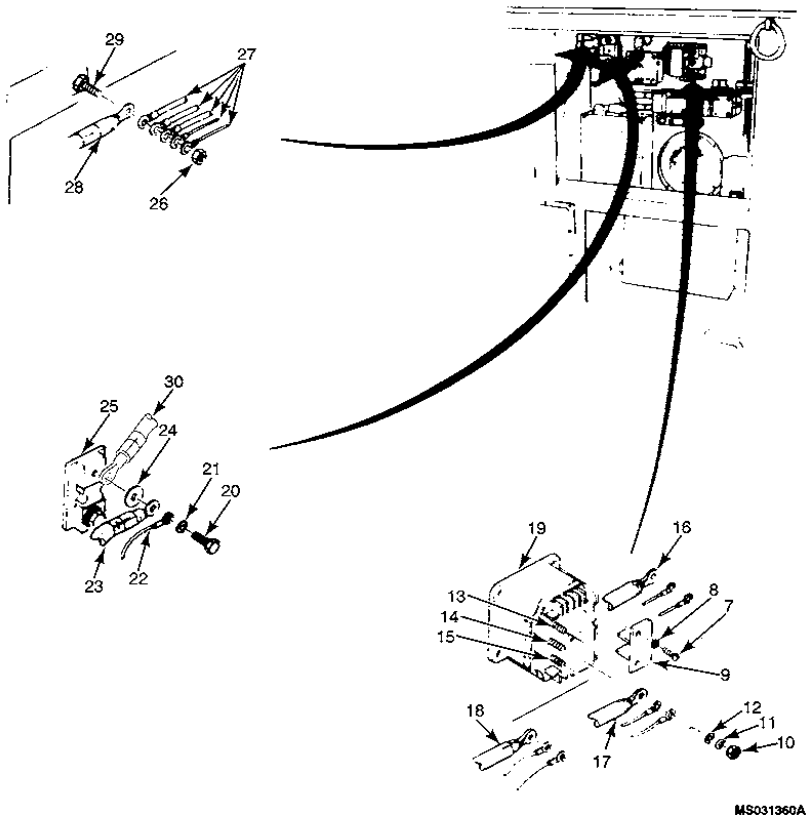
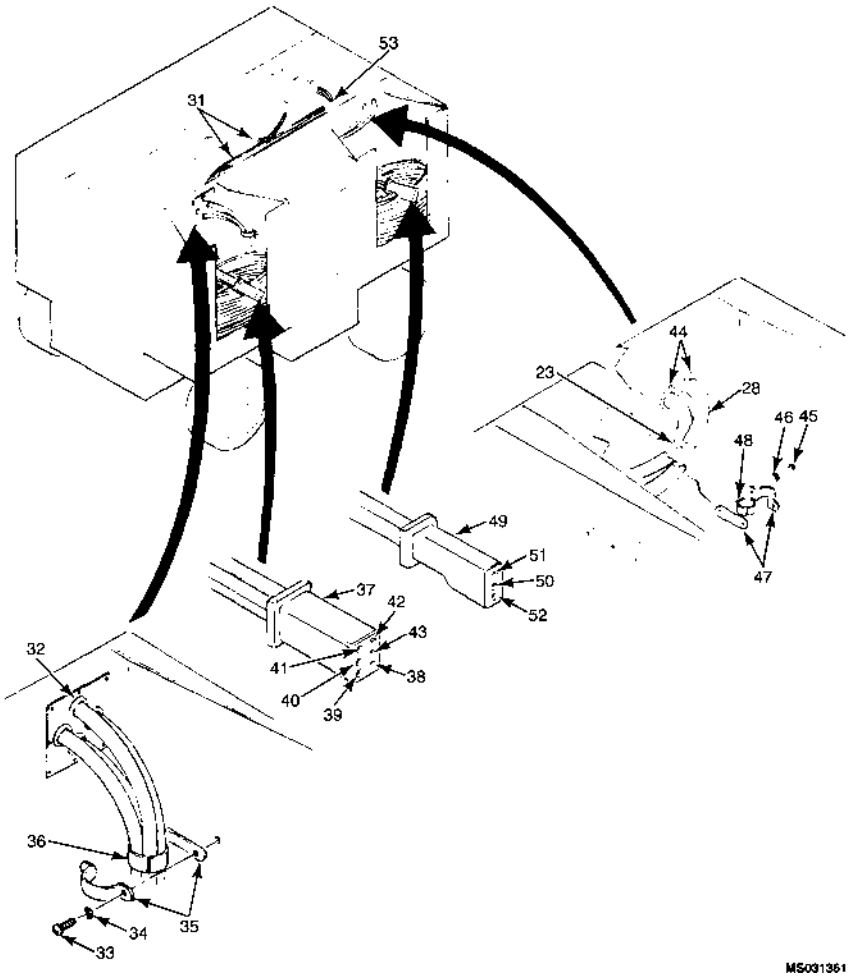


Figure 1. AC Power Cable (Sheet 2 of 3).

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. Power Wire G11C2
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. AC Cable Grommet

Figure 1. AC Power Cable (Sheet 3 of 3).

REMOVAL – CONTINUED

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

For test refer to troubleshooting procedure WP 0025 00, 78. AC % LOAD METER READS 0 (AC POWER ON INDICATOR ILLUMINATED AND AC POWER CABLE CONNECTED TO LOAD).

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

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.

2. Remove roof (WP 0033 00).
3. Open control panel access door (WP 0041 00, Figure 1, Item 1).
4. Lower control panel (WP 0041 00, Figure 1, Item 4).
5. Open engine access door (WP 0002 00, Figure 1, Item 12).
6. Disconnect neutral cable (Figure 1. (Sheet 1 of 3), Item 6) from generator/alternator AC output terminal T6 extension bar (Figure 1. (Sheet 1 of 3), Item 1).
7. Remove screw (Figure 1, Item 7b), lock washer (Figure 1. (Sheet 2 of 3), Item 8) and terminal shield (Figure 1. (Sheet 2 of 3), Item 9) from left side of AC contactor K1 (Figure 1. (Sheet 2 of 3), Item 19).
8. Tag and remove cables (Figure 1. (Sheet 2 of 3), Item 16, 17 and 18) along with the co-located wires from AC contactor (K1) (Figure 1. (Sheet 2 of 3), Item 19) terminal A2 (Figure 1. (Sheet 2 of 3), Item 13), terminal B2 (Figure 1. (Sheet 2 of 3), Item 14) and terminal C2 (Figure 1. (Sheet 2 of 3), Item 15).
9. Remove screws (Figure 1. (Sheet 3 of 3), Item 33), washers (Figure 1. (Sheet 3 of 3), Item 34), clamp (Figure 1. (Sheet 3 of 3), Item 35) and cushion (Figure 1. (Sheet 3 of 3), Item 36) from AC cables.
10. Note location of any plastic cable ties or clamps and remove as needed.

NOTE

The AC cable is removed from the electrical bay first and then drawn through the engine compartment and out of the AC cable storage compartment. This is the only way the cable can be removed or installed.

11. Carefully pull cables through AC cable grommets (Figure 1. (Sheet 3 of 3), Item 32 and 53) in electrical bay bulkhead panel and AC cable storage compartment panel.

INSTALLATION

CAUTION

When installing AC (phase) ϕA, ϕB, ϕC and AC neutral (N) cables to the generator (MEP 83-360A model refer to Figure FO 5 for phasing), for (MEP 83-360D and E models refer to

INSTALLATION – CONTINUED

Figure FO 19 for phasing). If phasing is incorrect the aircraft will not accept AC power from the AGPU. This also can result to damage of electronic components on both the AGPU and aircraft.

1. Inspect AC cable grommets (Figure 1. (Sheet 3 of 3), Item 32 and 53) in AC power cable storage compartment panel and in electrical bay bulkhead panel. Replace grommets with new ones if damaged.

NOTE

Ensure AC (phase) ϕA, ϕB, ϕC and AC neutral (N) cables are routed from the AC cable storage compartment through engine compartment into the electrical bay bulkhead panel. There may be extra leads on some cables that will not be routed as stated; these cables will be terminated in the AC cable storage compartment.

2. Route AC cables through AC cable grommets (Figure 1. (Sheet 3 of 3), Item 32) in AC cable storage compartment panel and through tray on intake shroud (Figure 1. (Sheet 3 of 3), Item 31) in engine compartment. Further route the cables through AC cable grommet (Figure 1. (Sheet 3 of 3), Item 53) in electrical bay bulkhead panel.
3. Connect the ϕA, ϕB and ϕC cables to contactor K1 terminal A2 (1, Figure 1. (Sheet 2 of 3), Item 13), terminal B2 (Figure 1. (Sheet 2 of 3), Item 14) and terminal C2 (Figure 1. (Sheet 2 of 3), Item 15), respectively. Use ID tags and connect other co-located wires to contactor terminals (Figure 1. (Sheet 2 of 3), Item 13 through 15,). Install washer (Figure 1. (Sheet 2 of 3), Item 12), lock washer (Figure 1. (Sheet 2 of 3), Item 11) and nut (Figure 1. (Sheet 2 of 3), Item 10) on each AC contactor (K1) terminals. Tighten all connections and ensure all connectors are flat against mating surface of connection terminals.
4. Install terminal shield (Figure 1. (Sheet 2 of 3), Item 9), lock washers (Figure 1. (Sheet 2 of 3), Item 8) and screws (Figure 1. (Sheet 2 of 3), Item 7) on AC contactor (K1) (Figure 1. (Sheet 2 of 3), Item 19).
5. Connect AC neutral (N) cable (Figure 1. (Sheet 1 of 3), Item 6) to terminal T6 extension bar (Figure 1. (Sheet 1 of 3), Item 1) generator/alternator. Attach cable to bar using washer (Figure 1. (Sheet 1 of 3), Item 5), screw (Figure 1. (Sheet 1 of 3), Item 4), lock washer (Figure 1. (Sheet 1 of 3), Item 3) and nut (Figure 1. (Sheet 1 of 3), Item 2).
6. Pull AC cable(s) back through AC cable grommets (Figure 1. (Sheet 3 of 3), Item 32 and 53) as necessary to remove excess slack. Ensure AC cables are routed and laying in the cable tray on the intake shroud (Figure 1. (Sheet 3 of 3), Item 31).
7. Replace any cable ties or clamps removed during Step 10, REMOVAL.
8. Install cushion (Figure 1. (Sheet 3 of 3), Item 36) and clamp (Figure 1. (Sheet 3 of 3), Item 35) around the four AC cables. Secure clamp to AC cable compartment wall with washers (Figure 1. (Sheet 3 of 3), Item 34) and screws (Figure 1. (Sheet 3 of 3), Item 33). Tighten clamp and ensure not to over tighten to prevent cutting or harming installation on cable.
9. Close control panel (WP 0041 00, Figure 1, Item 4).
10. Close control panel access door (WP 0041 00, Figure 1, Item 1).
11. Close engine access door (WP 0002 00, Figure 1, Item 12).

INSTALLATION – CONTINUED

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.

12. Install roof (WP 0033 00).
13. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
14. Perform MOC.

END OF WORK PACKAGE

FIELD MAINTENANCE

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 0155 00, Item 3)	WP 0025 00
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)	WP 0033 00
Tool Set, Aviation Unit (WP 0155 00, Item 41)	WP 0041 00
	WP 0043 00
	WP 0044 00

REMOVAL

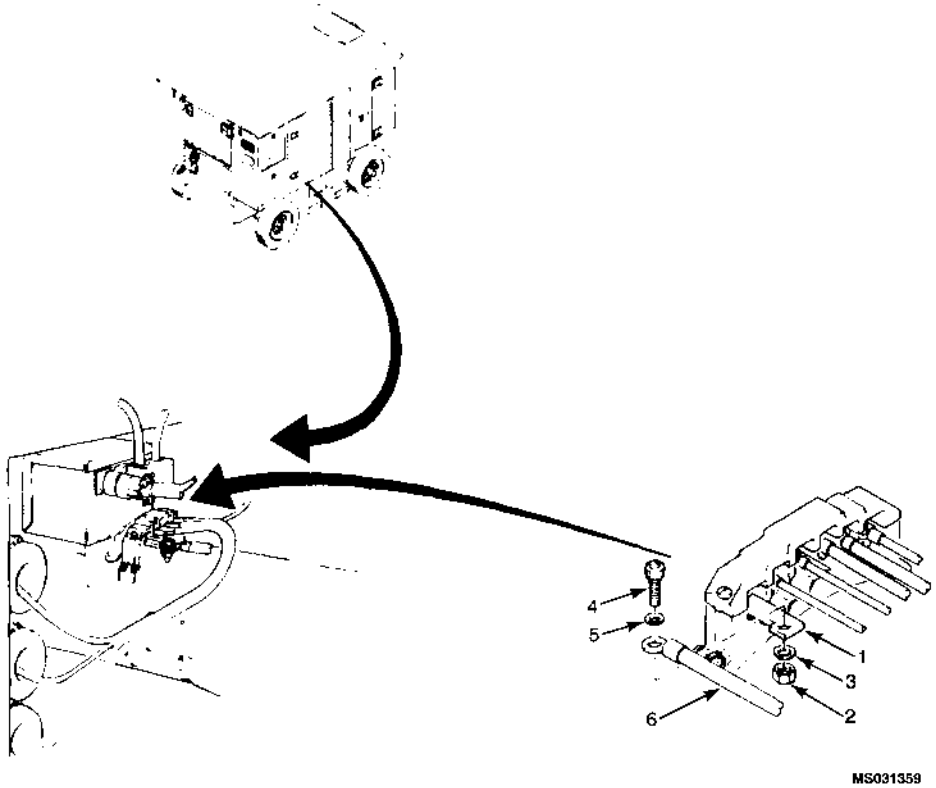


Figure 1. DC Power Cable (Sheet 1 of 3).

REMOVAL – CONTINUED

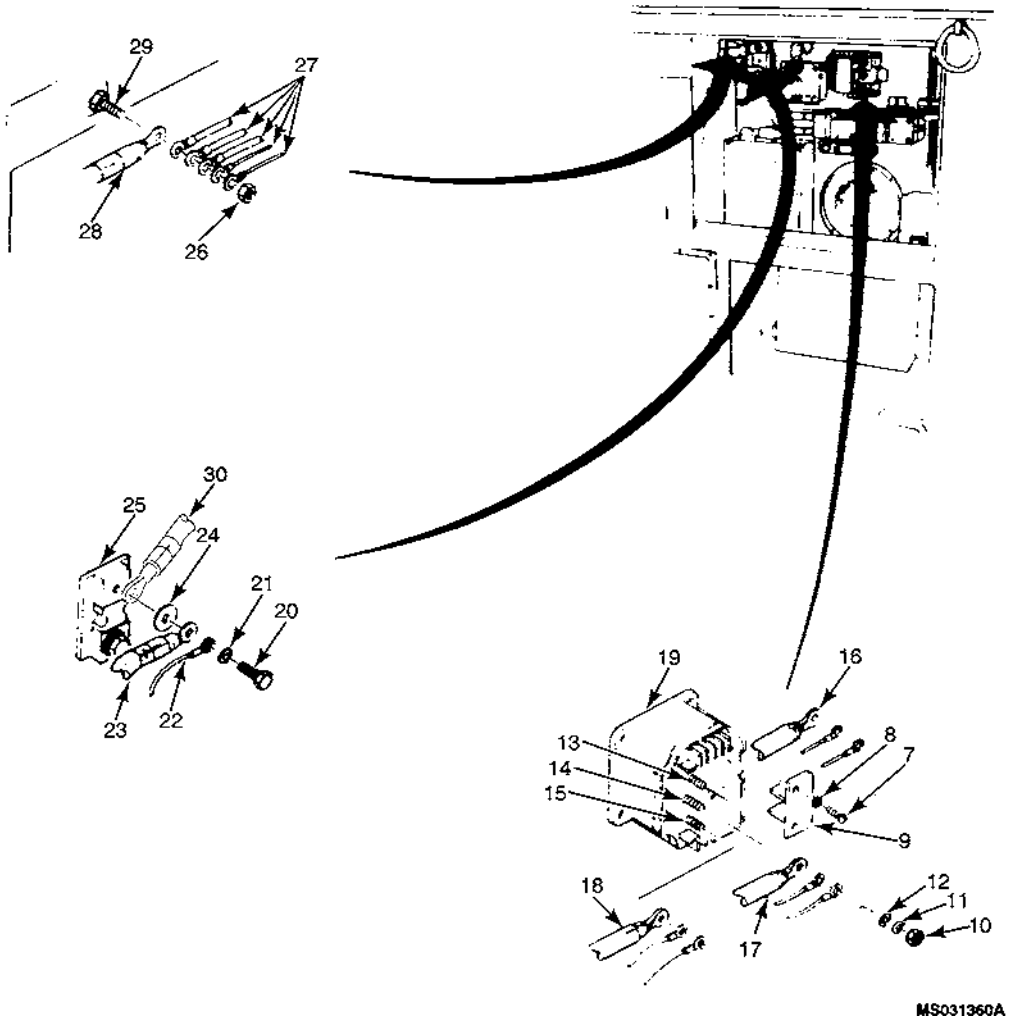
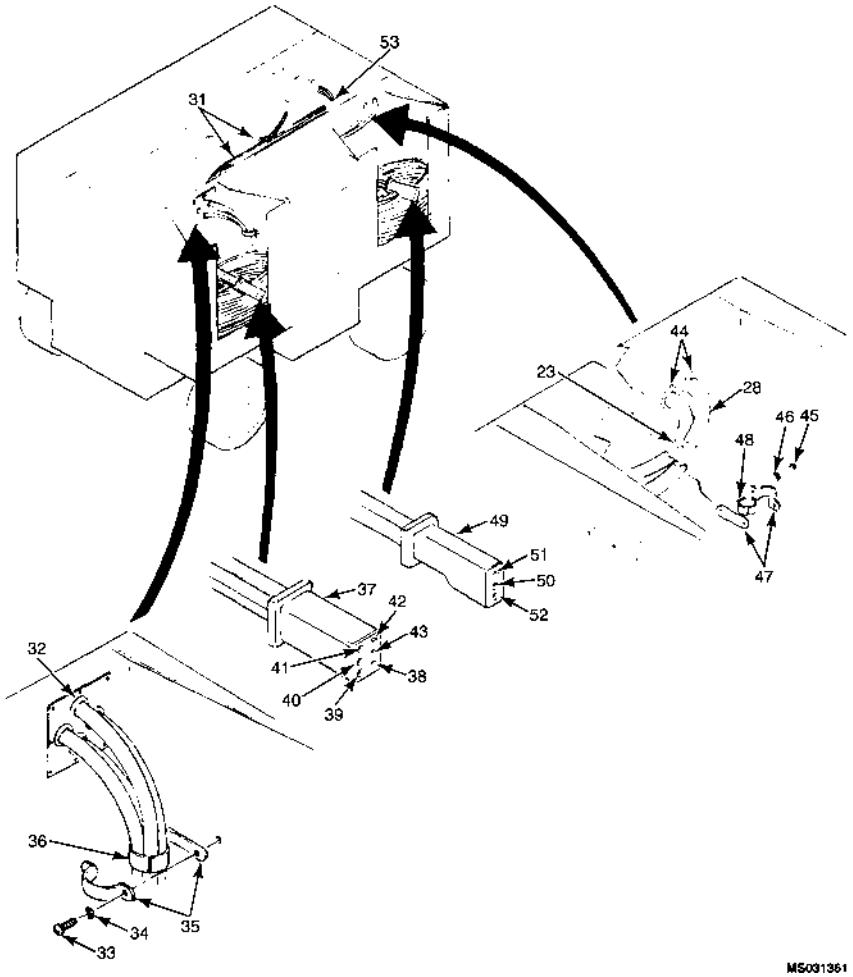


Figure 1. DC Power Cable (Sheet 2 of 3).

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. Power Wire G11C2
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. AC Cable Grommet

Figure 1. DC Power Cable (Sheet 3 of 3).

REMOVAL – CONTINUED

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

Ensure that batteries are completely disconnected before performing the following procedures. Personal injury and/or damage to the equipment will occur.

NOTE

For test refer to troubleshooting procedure WP 0025 00, 68. DC AMPS METER READS 0 (DC POWER ON INDICATOR ILLUMINATED AND DC POWER CABLE CONNECTED TO LOAD).

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open control panel access door (WP 0041 00, Figure 1, Item 1).
3. Lower control panel (WP 0041 00, Figure 1, Item 4).

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.

4. Remove roof (WP 0033 00).
5. Tag and disconnect wires (Figure 1. (Sheet 2 of 3), Item 22, 23 and 30) from lower terminal screw (Figure 1. (Sheet 2 of 3), Item 20) on shunt R1.
6. Tag and disconnect wires (Figure 1. (Sheet 2 of 3), Item 27 and 28) from AGPU ground stud (Figure 1. (Sheet 2 of 3), Item 29).
7. Remove screws (Figure 1. (Sheet 3 of 3), Item 45), washers (Figure 1. (Sheet 3 of 3), Item 46), clamps (Figure 1. (Sheet 3 of 3), Item 47), from DC Negative (-) Cable (Figure 1. (Sheet 3 of 3), Item 28) and DC positive (+) cable (Figure 1. (Sheet 3 of 3), Item 23). Spread clamps and remove from cables and cushions (Figure 1. (Sheet 3 of 3), Item 48).
8. Carefully pull DC cables (Figure 1. (Sheet 3 of 3), Item 23 and 28) through DC cable grommets (Figure 1. (Sheet 3 of 3), Item 44) from DC cable compartment panel.

INSTALLATION

WARNING

Ensure that batteries are completely disconnected before performing the following procedures. Personal injury and/or damage to the equipment will occur.

1. Inspect DC cable grommets (Figure 1. (Sheet 3 of 3), Item 44) in DC power cable compartment panel. Replace DC cable grommets with new ones if damaged.
2. Route DC cables (Figure 1. (Sheet 3 of 3), Item 28 and 23) through DC cable grommets (Figure 1. (Sheet 3 of 3), Item 44).
3. Install in order on terminal screw (Figure 1. (Sheet 2 of 3), Item 20), lock washer (Figure 1. (Sheet 2 of 3), Item 21), wire (Figure 1. (Sheet 2 of 3), Item 22) (+) power wire G11C2 (Figure 1. (Sheet 2 of 3), Item 30),

INSTALLATION – CONTINUED

DC positive (+) cable (Figure 1. (Sheet 2 of 3), Item 23) and washer (Figure 1. (Sheet 2 of 3), Item 24) to DC output shunt R1 (Figure 1. (Sheet 2 of 3), Item 25). Tighten screw (Figure 1. (Sheet 2 of 3), Item 20) as required.

4. Install DC negative (-) cable (Figure 1. (Sheet 2 of 3), Item 28) and other wires (Figure 1. (Sheet 2 of 3), Item 27) (mount larger wires first) on the AGPU ground stud (Figure 1. (Sheet 2 of 3), Item 29). Tighten nut (Figure 1. (Sheet 2 of 3), Item 26) as required.
5. Install cushions (Figure 1. (Sheet 3 of 3), Item 48) and cable clamps (Figure 1. (Sheet 3 of 3), Item 47) around DC cables (Figure 1. (Sheet 3 of 3), Item 23 and 28). Secure clamps to compartment wall with washers (Figure 1. (Sheet 3 of 3), Item 46) and screws (Figure 1. (Sheet 3 of 3), Item 45). Tighten clamp and ensure not to over tighten to prevent cutting or harming installation on cable.
6. Close control panel (WP 0041 00, Figure 1, Item 4).
7. Close control panel access door (WP 0041 00, Figure 1, Item 1).

CAUTION

During installation of the roof, one person should be stationed at each corner of the roof to prevent warping or damage to the roof.

8. Install roof (WP 0033 00).
9. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
10. Perform MOC.

END OF WORK PACKAGE

FIELD MAINTENANCE

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

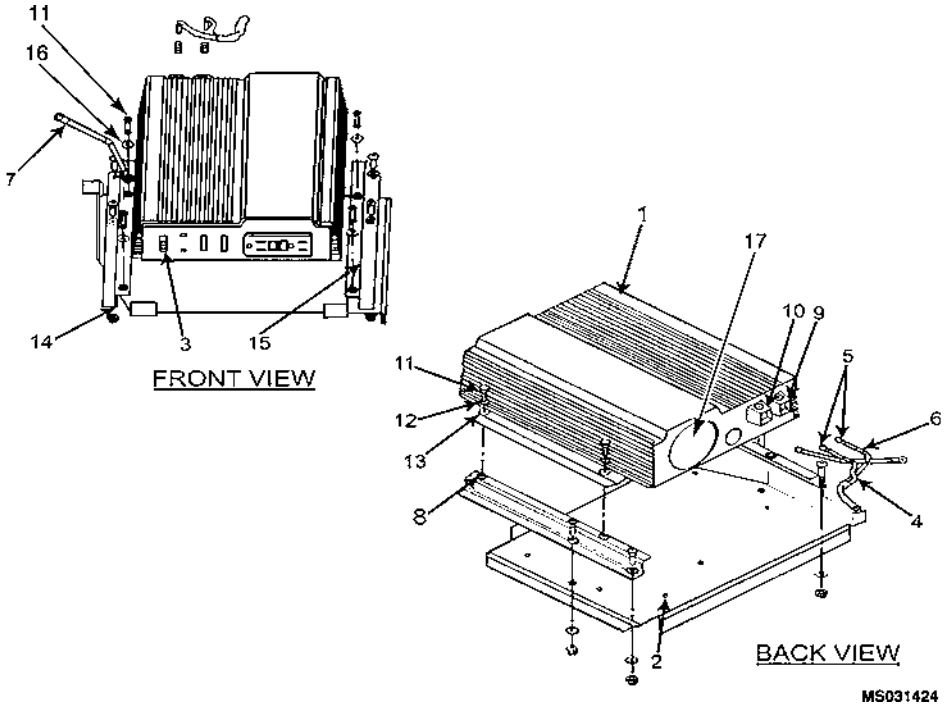
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References

WP 0002 00

References (cont.)

WP 0006 00
WP 0025 00
WP 0033 00
WP 0043 00
WP 0044 00



1.DC-To-AC Inverter	5. Parallel Connector	9. Positive Terminal	13. Washer, Flat
2. Mounting Tray	6. Wire (P55A10N)	10. Negative Terminal	14. Left Mounting Angle
3. ON/OFF Switch	7. Chassis Ground (P56A8N)	11. Machine Screw	15. Right Mounting Angle
4. Wire (P54A10)	8. Rivet Nut	12. Lock Washer	16. Star Lock Washer
			17. Fan Grill

Figure 1. Inverter Installation (ProWatt 800/24).

REMOVAL

REMOVAL OF THE NEW TYPE INVERTER

WARNING

Remove all rings, watches and other jewelry when performing maintenance on this equipment.

NOTE

For test refer to troubleshooting procedure WP 0025 00, 95. AC POWER NOT AVAILABLE AT DC-TO-AC INVERTER RECEPTACLES (ENGINE RUNNING AND DC POWER SWITCH ON).

NOTE

Ensure that control panel output switches, master switch (WP 0006 00, Figure 1, Item 1) and the battery output switch (WP 0006 00, Figure 1, Item 26) are in the OFF position.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

REMOVAL – CONTINUED

REMOVAL OF THE NEW TYPE INVERTER – CONTINUED

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.

2. Remove roof (WP 0033 00).
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 DC-to-AC 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).

INSTALLATION

INSTALLATION OF THE NEW TYPE INVERTER

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

NOTE

Ensure that control panel output switches, master switch (WP 0006 00, Figure 1, Item 1) and battery output switch (WP 0006 00, Figure 1, Item 26) are in the OFF position.

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 of the AGPU can occur if polarity is reversed when connecting wires to the inverter. Reverse polarity connections can blow the fuse in the inverter and will cause damage to the power supply. It is important to maintain the correct polarity of the power wires in the following steps.

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

INSTALLATION OF THE NEW TYPE INVERTER – CONTINUED

WARNING

Shock hazard exists if inverter is not properly grounded to the AGPU chassis.

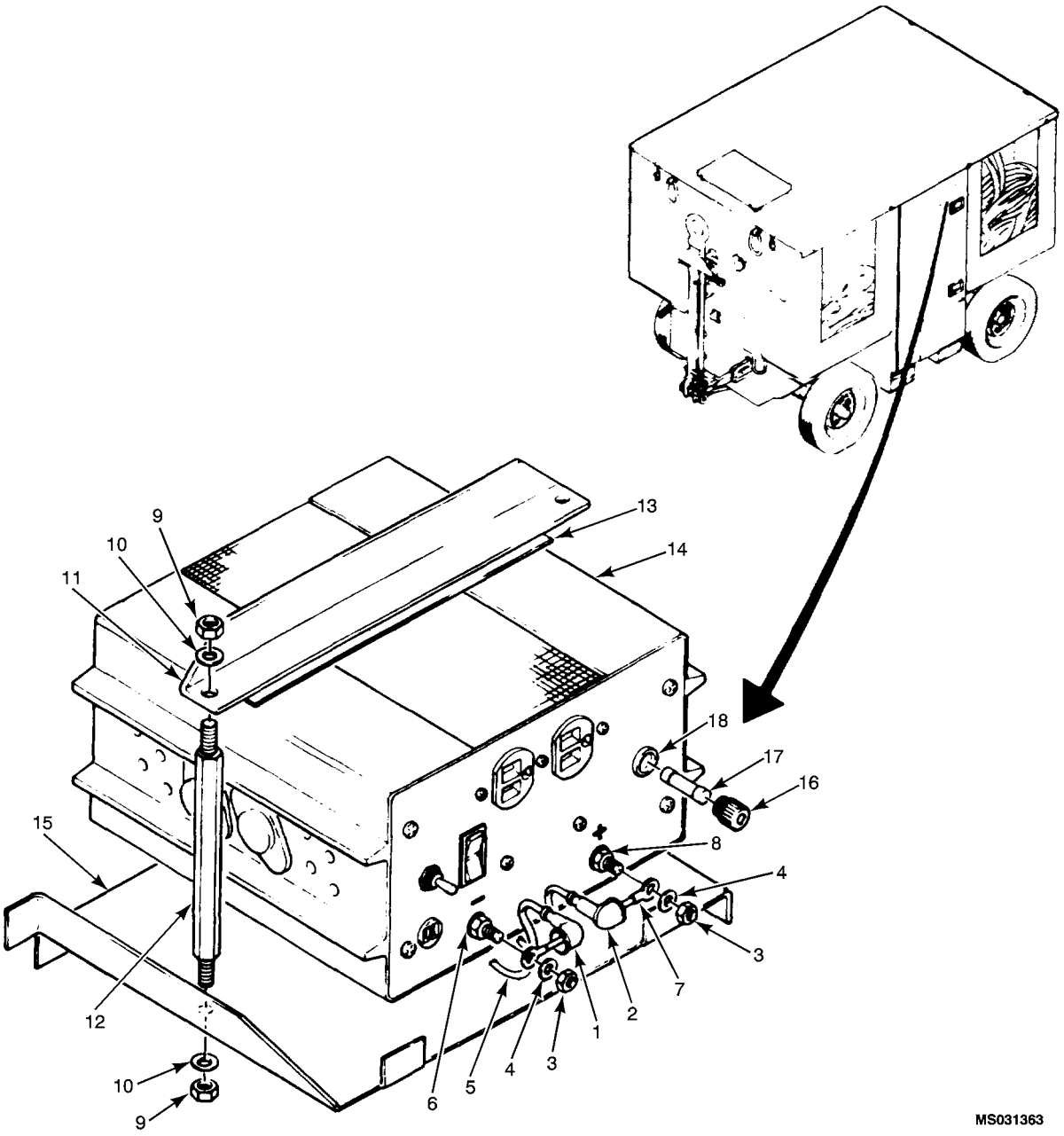
4. Check that all connections are tight and correct (positive to positive). Loosely secured connectors will result in excessive voltage drop and overheated wires or failure of the ground fault circuit interrupter to detect ground fault situations.
5. Position the DC-to-AC inverter (Figure 1, Item 1) on mounting tray (Figure 1, Item 2) with On/Off switch (Figure 1, Item 3) facing outward.
6. Insert lock washer (Figure 1, Item 12) and flat washer (Figure 1, Item 13) onto one 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 (Figure 1, Item 16). 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 DC-to-AC inverter (Figure 1, Item 1). This completes the wiring of the DC-to-AC 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 both positive and negative terminals (Figure 1, Item 9 and 10) and wires (Figure 1, Item 4, 6 and 7) are wired correctly.
9. Verify that the fan grill (Figure 1, Item 17) on the rear of the inverter DC-to-AC inverter (Figure 1, Item 1) is not blocked from airflow.

CAUTION

During installation of the roof, one person should be stationed at each corner of the roof to prevent warping or damage to the roof.

10. Install roof (WP 0033 00).
11. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
12. Perform MOC.
13. Close pneumatic access door (WP 0002 00, Figure 4, Item 11).

REMOVAL



1. Black Terminal Cover	7. Positive Wire	13. Rubber Strip
2. Red Terminal Cover	8. Positive Terminal	14. DC to AC Inverter
3. Nut	9. Nut	15. Mounting Tray
4. Lock Washer	10. Lock Washer	16. Fuse Cap
5. Negative Wire	11. Retaining Bar	17. Fuse (25 AMP)
6. Negative Terminal	12. Mounting Stud	18. Fuse Holder

Figure 2. DC to AC Inverter Internal Fuse (Old Type).

REMOVAL – CONTINUED

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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

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.

2. Remove roof (WP 0033 00).
3. Open pneumatic access door (WP 0002 00, Figure 4, Item 11).

NOTE

Ensure that control panel output switches, master switch (WP 0006 00, Figure 1, Item 1) and the battery output switch (WP 0006 00, Figure 1, Item 26) are in the OFF position.

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 negative and positive 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 OLD TYPE INVERTER

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

NOTE

Ensure that control panel output switches, master switch (WP 0006 00, Figure 1, Item 1) and battery output switch (WP 0006 00, Figure 1, Item 26) are in the OFF position.

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 of the AGPU can occur if polarity is reversed when connecting wires to the inverter. Reverse polarity connections can blow the fuse in the

INSTALLATION – CONTINUED

INSTALLATION OF THE OLD TYPE INVERTER – CONTINUED

inverter and will cause damage to the power supply. It is important to maintain the correct polarity of the power wires in the following steps.

2. Connect the 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 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.

WARNING

Shock hazard exists if inverter is not properly grounded to AGPU chassis.

4. Check that all connections are tight and correct (positive to positive, negative to negative). Loose connections can result in excessive voltage drop and overheated wires. As a result, failure of the ground fault circuit interrupter to detect ground fault situations can occur.
5. Position the DC-to-AC inverter (Figure 2, Item 14) on mounting tray (Figure 2, Item 15) with negative, positive wires (Figure 2, Item 5 and 7) and receptacles facing outward.
6. Install four nuts (Figure 2, Item 9) and four lock washers (Figure 2, Item 10), to the 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 mounting of the DC to AC inverter (Figure 2, Item 14) and associated wiring and hardware are mounted correctly.
8. Verify that the fan grill on the rear of the inverter is not blocked.

CAUTION

During installation of the roof, one person should be stationed at each corner of the roof to prevent warping or damage to the roof.

9. Install roof (WP 0033 00).
10. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
11. Perform MOC.
12. Close pneumatic access door (WP 0002 00, Figure 4, Item 11).

REMOVAL

REMOVE INVERTER OUTPUT FUSE (25 AMP) OLD TYPE INVERTER

Figure 2, Item 17

NOTE

Ensure that control panel output switches, master switch (WP 0006 00, Figure 1, Item 1) and battery output switch (WP 0006 00, Figure 1, Item 26) are in the OFF position.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open pneumatic access door (WP 0002 00, Figure 4, Item 11).
3. Remove fuse cap (Figure 2, Item 16) by pressing in and turning counterclockwise. Fuse holder (cap) is spring loaded, ensure when removing cap that fuse (25 AMP) (Figure 2, Item 17) does not fall.
4. Remove fuse (25 AMP) (Figure 2, Item 17) from fuse cap (Figure 2, Item 16).

INSTALLATION

INSTALL INVERTER OUTPUT FUSE (25 AMP) OLD TYPE INVERTER

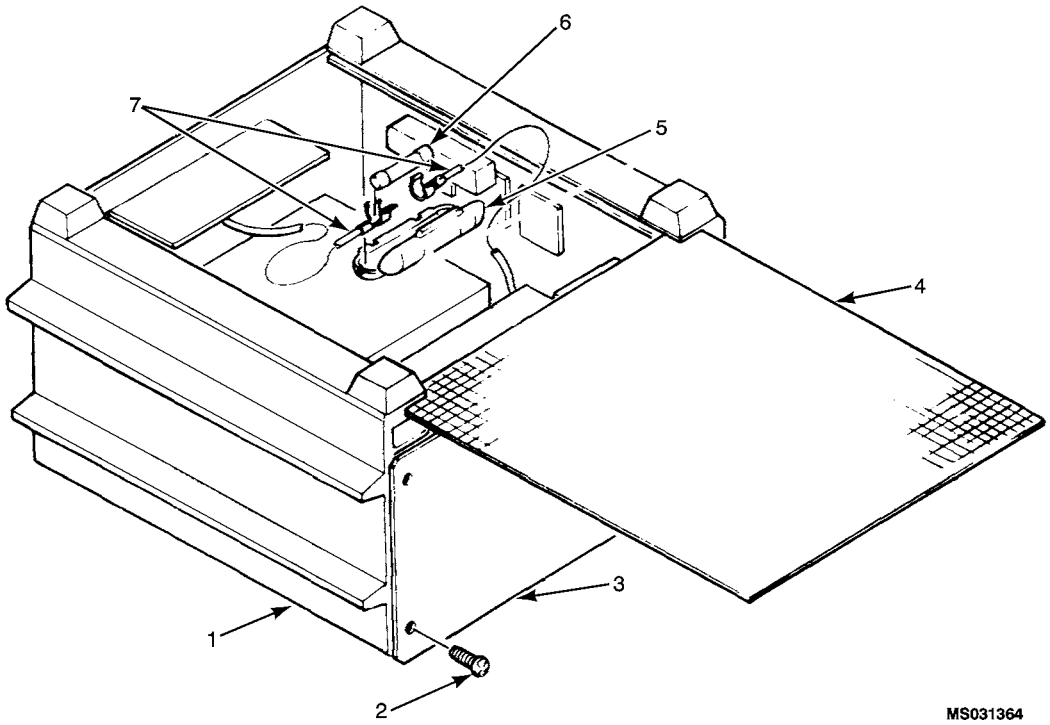
Figure 2, Item 17

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur

1. Install fuse (25 AMP) (Figure 2, Item 17) in fuse cap (Figure 2, Item 16).
2. Insert fuse into fuse holder (Figure 2, Item 18), press fuse cap (Figure 2, Item 16) and turn cap clockwise.
3. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
4. Perform MOC.
5. Close pneumatic access door (WP 0002 00, Figure 4, Item 11) after check out.

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 (4 AMP) OLD TYPE INVERTER

Figure 3, Item 6

1. Remove old type inverter (Removal of the Old Type Inverter).
2. After removal place DC-to-AC inverter (Figure 3, Item 1) on work surface with bottom screen (Figure 3, Item 4) face up.
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. Open fuse cover (Figure 3, Item 5) by unsnapping clips.
6. Remove fuse (Figure 3, Item 6) from fuse clips (Figure 3, Item 7).

INSTALLATION

INSTALL INVERTER INTERNAL FUSE (4 AMP) OLD TYPE INVERTER

Figure 3, Item 6

1. Insert fuse (4 AMP) (Figure 3, Item 6) into fuse clips (Figure 3, Item 7) of fuse cover (Figure 3, Item 5).
2. Close fuse cover (Figure 3, Item 5) around fuse and 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 DC-to-AC inverter (Installation of the Old Type Inverter) as described in the inverter installation process.
6. Perform MOC.
7. Close pneumatic access door (WP 0002 00, Figure 4, Item 11).

END OF WORK PACKAGE

FIELD MAINTENANCE

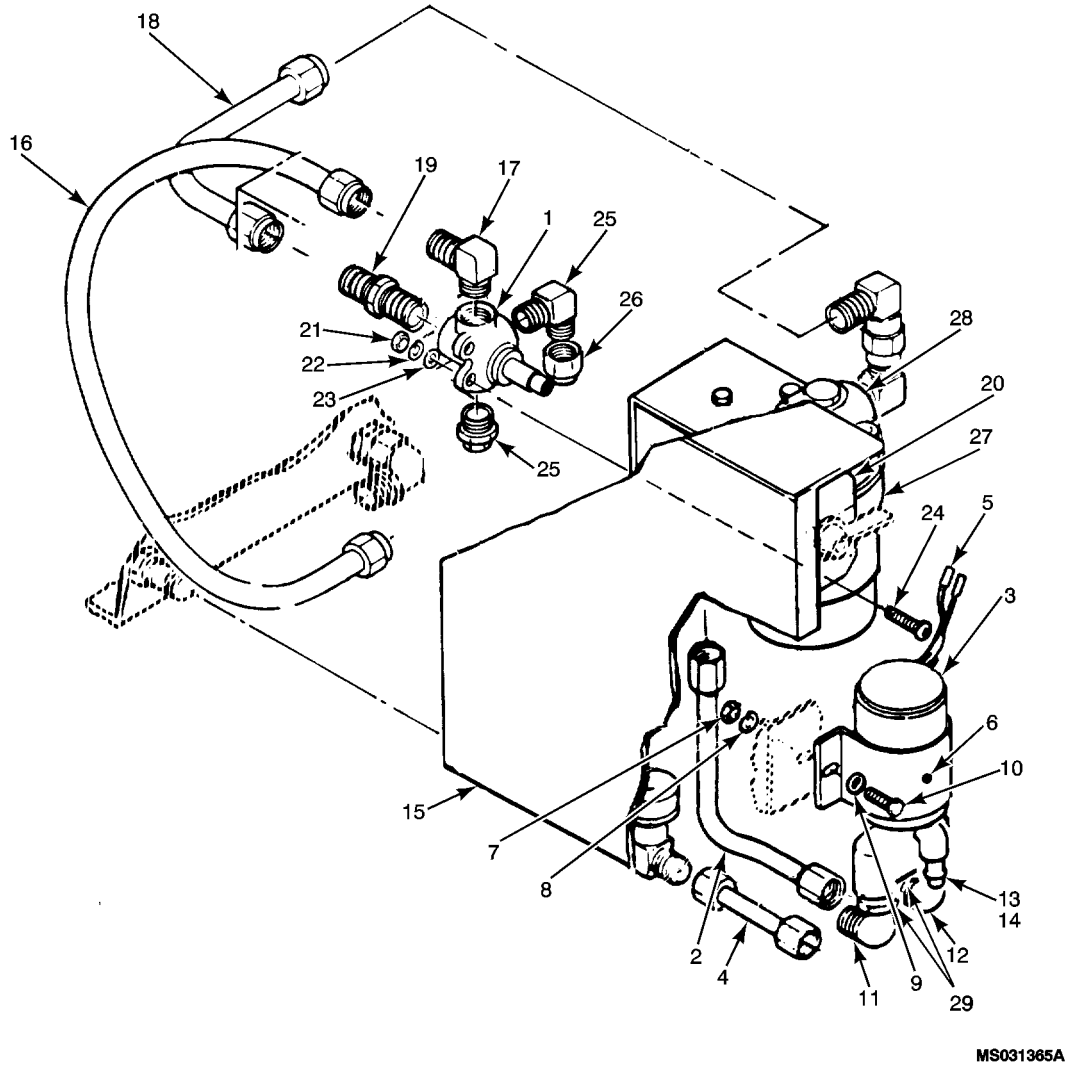
POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL, HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15.2 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A)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

PUMP FUEL, ELECTRICAL

INITIAL SETUP:

Tools and Special Tools	References
Aviation Foot Locker, AFL (WP 0155 00, Item 3)	WP 0022 00
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)	WP 0027 00
	WP 0043 00
Tool Set, Aviation Unit (WP 0155 00, Item 41)	WP 0044 00

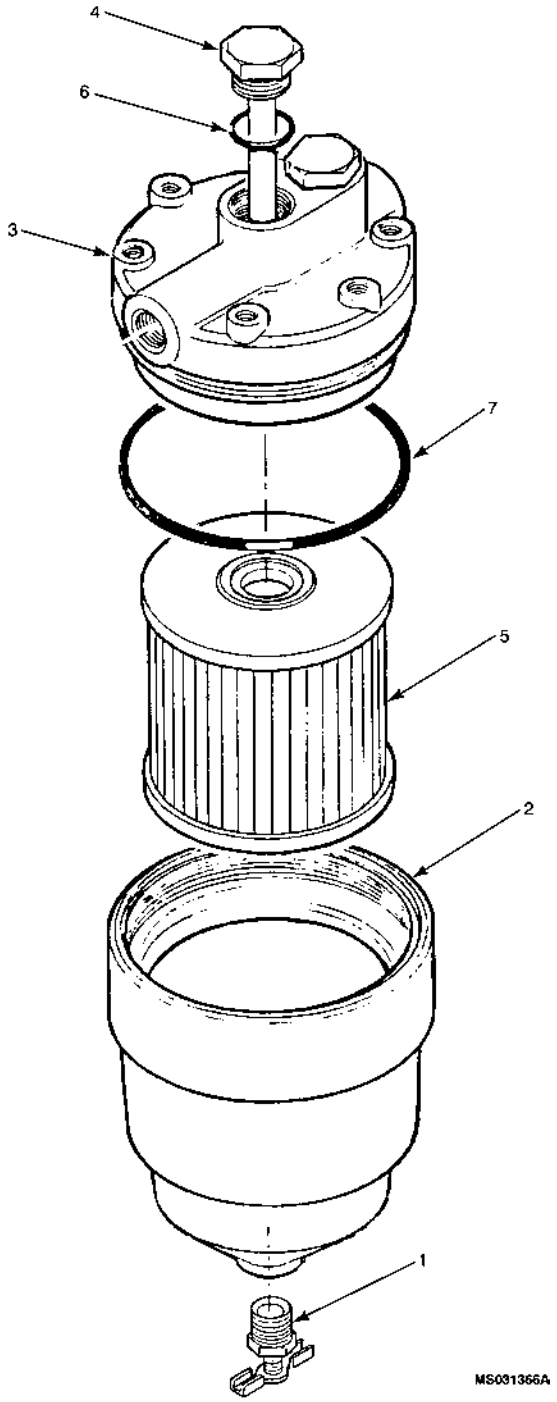
TEST AND INSPECTION



1. Four Way Valve	11. Elbow	21. Nut
2. Fuel Tube (Line)	12. Elbow	22. Lock Washer
3. Fuel Pump	13. Drain Elbow	23. Washer
4. Fuel Tube (Line)	14. Adapter	24. Screw
5. Wires	15. Fuel Pump Support Bracket	25. Elbow
6. Fuel Pump Support Clamp	16. Hose Assembly (Line)	26. Cap Nut
7. Nut	17. Tube Adapter	27. Plug
8. Lock Washer	18. Hose Assembly (Line)	28. Fuel Filter Water Separator
9. Washer	19. Straight Adapter	29. O-Ring
10. Cap Screw	20. Valve Support	

Figure 1. Fuel Supply System.

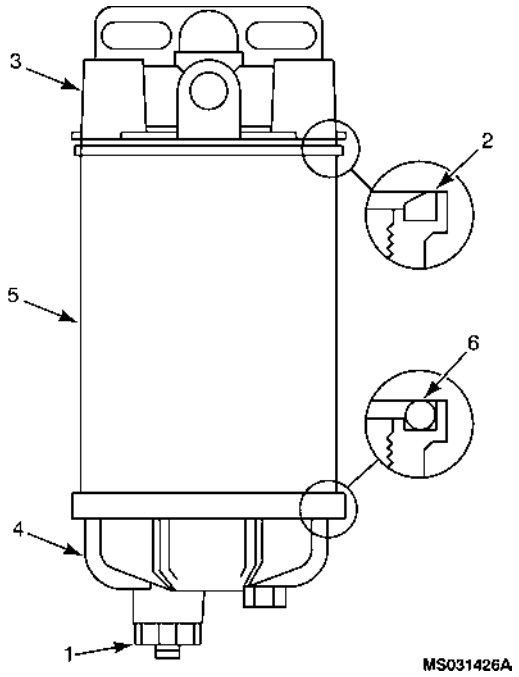
TEST AND INSPECTION – CONTINUED



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

Fuels are flammable and 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

For test refer to troubleshooting procedure WP 0022 00, 10. ENGINE HANGS DURING START - EGT LESS THAN NORMAL, Step 2.

1. Inspect fuel pump (Figure 1, Item 3) for dents, cracks or other damage. No dents or cracks are allowed.
2. Inspect fuel pump (Figure 1, Item 3) fittings and lines (Figure 1) for leaks. If tightening fitting does not stop leak, replace fitting or line.
3. Inspect wires (Figure 1, Item 5) for frays, cracks in insulation and loose connections.

REMOVAL

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Set four way valve (Figure 1, Item 1) to OFF position (9 o'clock position).
3. Open drain valve (Figure 2, Item 1 or Figure 3, Item 1) by turning drain valve counter clockwise to open. Catch draining fuel in a suitable container.

REMOVAL – CONTINUED

4. Disconnect fuel tube (line) (Figure 1, Item 2) from fuel pump (Figure 1, Item 3) inlet and fuel tube (line) (Figure 1, Item 4) from fuel pump outlet.
5. Tag two white wires (Figure 1, Item 5) on fuel pump (Figure 1, Item 3). Ensure both sides of crimp connections are tagged prior to cutting 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) and place on work bench.
8. Remove elbows (Figure 1, Item 11 and 12), drain elbow (Figure 1, Item 13) and adapter (Figure 1, Item 14) and retain for reinstallation on replacement fuel pump.

INSTALLATION

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

1. Install elbows (Figure 1, Item 11 and 12), with O-Ring (Figure 1, Item 29), drain elbow (Figure 1, Item 13) and adapter (Figure 1, Item 14) in the replacement fuel pump (Figure 1, Item 3).
2. Position fuel pump (Figure 1, Item 3) 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. Reconnect tagged wires (Figure 1, Item 5) to fuel pump (Figure 1, Item 3). Ensure proper size of butt splice and crimp wire connections.
4. Connect fuel tube (line) (Figure 1, Item 4) to fuel pump (Figure 1, Item 3) outlet and fuel tube line (Figure 1, Item 2) to fuel pump inlet. Torque fuel (line) connections to **120 inch-pound**.
5. Close drain valve (Figure 2, Item 1 or Figure 3, Item 1) by turning valve clockwise (finger tight). Set four way valve (Figure 1, Item 1) to INTL position (12 o'clock).
6. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
7. Purge the fuel system of air (WP 0027 00, Step 13). Continue purging until fuel stream is free of air.
8. Perform MOC and check for fuel leaks (no fuel leaks are allowed).

END OF WORK PACKAGE

FIELD MAINTENANCE

**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 FUEL VALVE

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

Materials/Parts

Sealing Compound (WP 0154 00, Item 48)

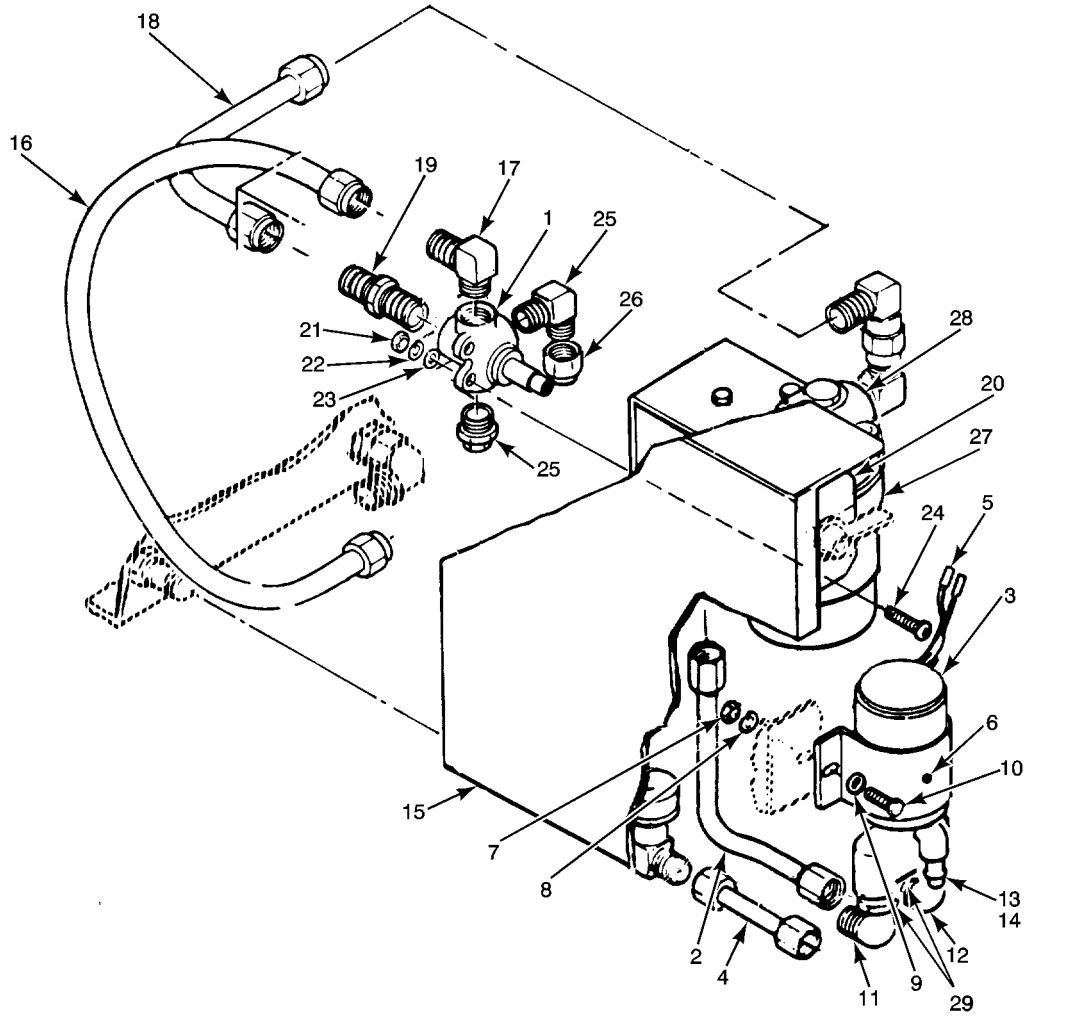
Materials/Parts (cont.)

Turbine Fuel, Aviation (WP 0154 00, Item 58)

References

WP 0027 00
WP 0043 00
WP 0044 00
WP 0099 00

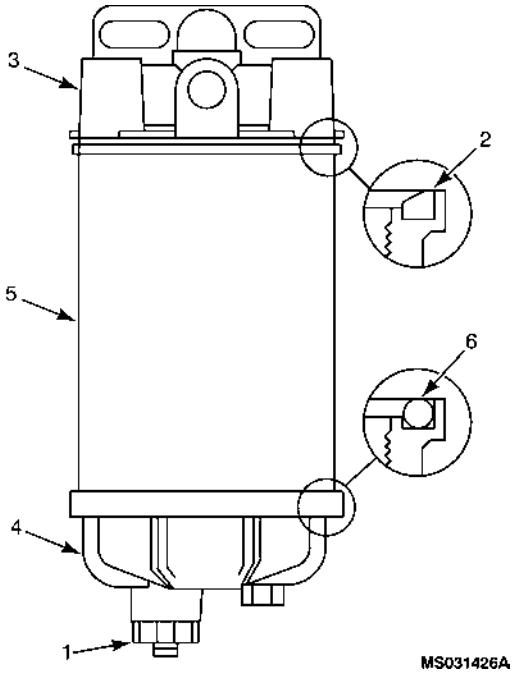
TEST AND INSPECTION



1. Four Way Valve
2. Fuel Tube (Line)
3. Fuel Pump
4. Fuel Tube (Line)
5. Wires
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 (Line)
17. Tube Adapter
18. Hose Assembly (Line)
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.

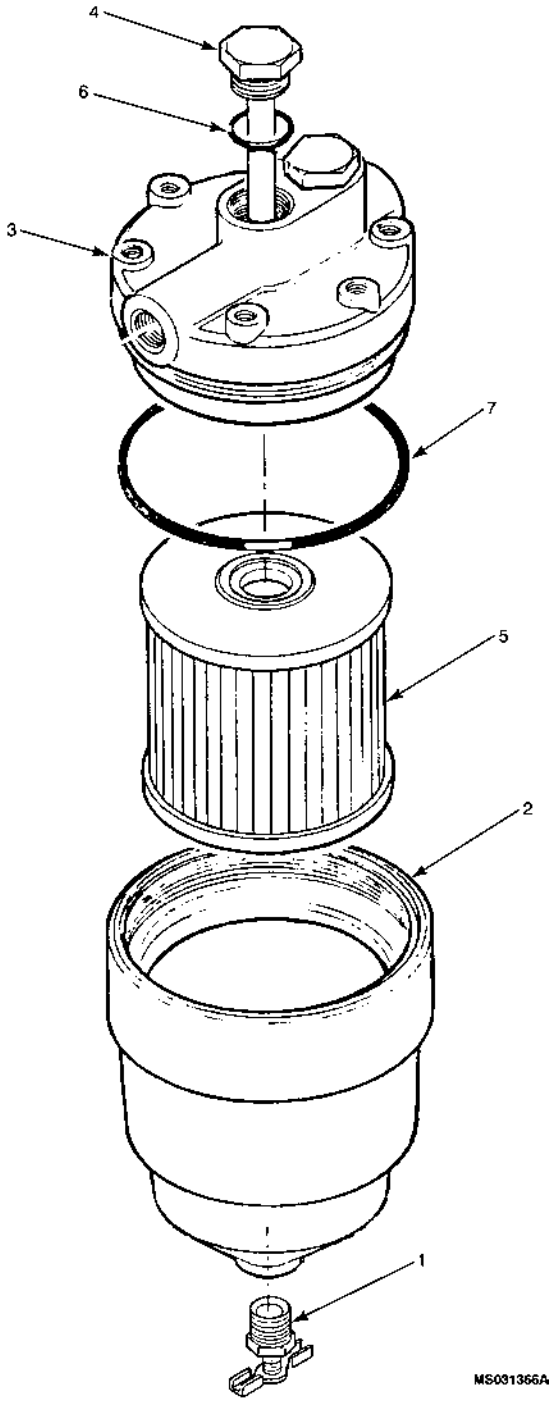
TEST AND INSPECTION – CONTINUED



1. Drain Valve
2. Gasket
3. Head
4. Sediment Bowl
5. Element Service
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

Fuels are flammable and 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 (Figure 1, Item 1) fittings, hose and line assembly connections for evidence of fuel leakage. If tightening connections or fittings does not stop leakage, replace leaking components. No fuel leaks are permitted.
3. During inspection of the four way valve (Figure 1, Item 1), check and tighten attaching hardware (Figure 1, Item) for security. Replace missing hardware as required.

REMOVAL

WARNING

Fuels are flammable and 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. If fuel level is above 1 / 2 tank it may be necessary to drain fuel tank (WP 0099 00) to prevent fuel spillage during removal of four way valve (Figure 1, Item 1).
3. Open drain valve (Figure 2, Item 1 or Figure 3, Item 1)(counter clockwise). Catch fuel in a suitable container.
4. Disconnect hose assembly (Figure 1, Item 16) from tube adapter (Figure 1, Item 17). Remove tube adapter from four way valve. Retain tube adapter for installation in new four way valve.
5. Disconnect hose assembly (Figure 1, Item 18) from straight adapter (Figure 1, Item 19). Remove straight adapter from four way valve (Figure 1, Item 1). Retain straight adapter for installation in new four way valve.
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 sealing compound 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). Tighten connections as required.
2. Apply sealing compound to interface of 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). Tighten connections as required.
3. Install cap nut (Figure 1, Item 26) on elbow (Figure 1, Item 25).

INSTALLATION – CONTINUED

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**.
7. Close drain valve (Figure 2, Item 1 or Figure 3, Item 1) by turning valve clockwise.

WARNING

Fuels are flammable and 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. Refill fuel tank with aviation grade fuel.
9. Set four way valve (Figure 1, Item 1) to internal (INTL) (12 o'clock position).
10. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
11. Purge fuel system of air (WP 0027 00, Step 13). Continue purging until an air free flow of fuel is attained.
12. Perform MOC and check for fuel leaks (no fuel leaks allowed).

END OF WORK PACKAGE

FIELD MAINTENANCE

**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

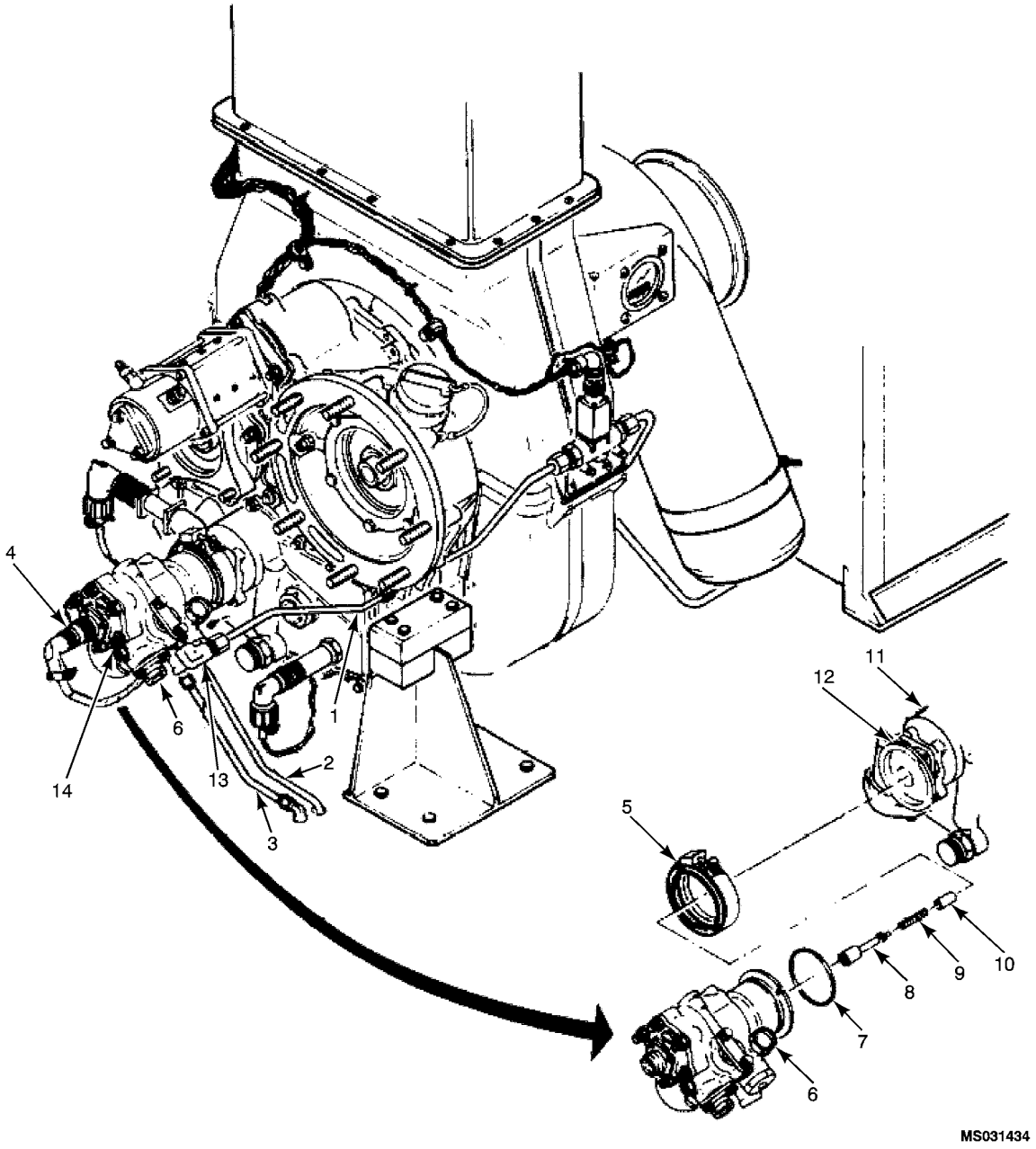
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

Materials/Parts

Wire, Nonelectrical (WP 0154 00, Item 60)
Grease, Ball and Roller Bearing (WP 0154 00, Item 23)

References

WP 0002 00
WP 0025 00
WP 0027 00
WP 0043 00
WP 0044 00



1. Fuel Line (HP)	6. Fuel control unit (FCU)	11. Oil Pump Housing
2. Drain Tube	7. Packing	12. FCU Adapter
3. Fuel Hose Supply (LP)	8. Shaft	13. Elbow
4. Electrical Connector (P9)	9. Spring	14. Fuel Filter Canister
5. Clamp	10. Spacer	

Figure 1. Fuel Control Unit (FCU) (MEP 83-360A and MEP 83-360D/E).

TEST AND INSPECTION

NOTE

For test refer to troubleshooting procedure WP 0025 00, 111. FUEL CONTROL UNIT MALFUNCTION.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open engine access door (WP 0002 00, Figure 1, Item 12).
3. Inspect Fuel Control Unit (FCU) (Figure 1, Item 6) for security of installation or loose components. Tighten loose components and fittings if required.
4. Inspect FCU (Figure 1, Item 6) for cracks, dents and leaks. No leakage or damage is allowed.

REMOVAL

CAUTION

When removing the FCU (Figure 1, Item 6) it is extremely important that all internal components (Figure 1, Item 8, 9 and 10) are accounted for. If the components are not accounted for, then internal damage to the Gas Turbine Engine (GTE) will occur.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Place small container under FCU (Figure 1, Item 6) to catch fuel.
3. Disconnect fuel line (HP) (Figure 1, Item 1) at elbow (Figure 1, Item 13) from FCU (Figure 1, Item 6).
4. Disconnect drain tube (Figure 1, Item 2) from FCU (Figure 1, Item 6).
5. Disconnect fuel hose supply (LP) (Figure 1, Item 3) from FCU (Figure 1, Item 6)
6. Cut safety wire and disconnect electrical connector (P9) (Figure 1, Item 4) from FCU (Figure 1, Item 6).
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)) and loss of internal components (Figure 1, Item 9 and 10).
8. Remove and discard packing (Figure 1, Item 7).

NOTE

Safeguard shaft, spring and spacer (Figure 1, Item 8, 9 and 10) in a secure location for reuse during FCU (Figure 1, Item 6) installation.

9. Remove shaft (Figure 1, Item 8), spring (Figure 1, Item 9) and spacer (Figure 1, Item 10) from FCU (Figure 1, Item 6).
10. Inspect shaft (Figure 1, Item 8) and spacer (Figure 1, Item 10) for cracks, nicks or burrs. Damage to component is not allowed.
11. Inspect spring (Figure 1, Item 9) for deformation. Damage to component is not allowed.

INSTALLATION

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

NOTE

By applying al light coat of grease to the spacer (Figure 1, Item 10) and spring (Figure 1, Item 9) this will prevent dropping the components internally into the GTE gear case.

1. Apply a light coat of grease to both spacer (Figure 1, Item 10) and spring (Figure 1, Item 9) prior to installing 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 (P9) (Figure 1, Item 4) and lockwire as required.
5. Connect fuel hose (Figure 1, Item 3) to FCU (Figure 1, Item 6).
6. Connect drain tube (Figure 1, Item 2) to FCU (Figure 1, Item 6).
7. Connect elbow (Figure 1, Item 13) to FCU (Figure 1, Item 6) and fuel line (HP) (Figure 1, Item 1) to elbow (Figure 1, Item 13). Tighten as required.
8. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
9. Purge air from fuel system (WP 0027 00, PRELIMINARY CHECKS AND ADJUSTMENTS, Step 13) and check for fuel leaks.
10. Close engine access door (WP 0041 00, Figure 2, Item 12).
11. Perform MOC (ensure no fuel leaks).

END OF WORK PACKAGE

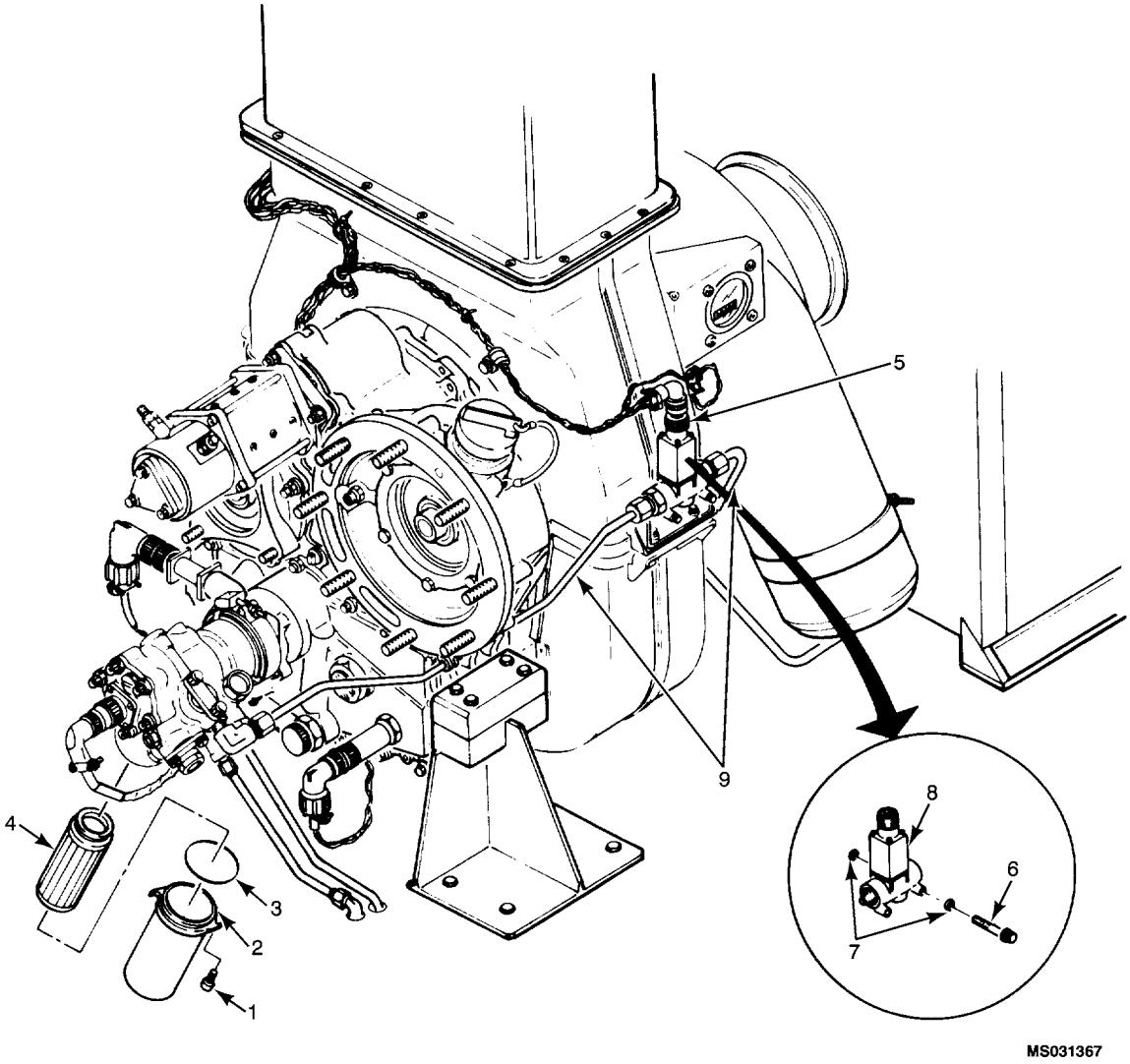
FIELD MAINTENANCE

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	References
Aviation Foot Locker, AFL (WP 0155 00, Item 3)	WP 0027 00
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)	WP 0032 00
Tool Set, Aviation Unit (WP 0155 00, Item 41)	WP 0043 00
	WP 0044 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 0032 00, Figure 2, Item 15).
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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

REMOVAL – CONTINUED

2. Loosen bolts (Figure 1, Item 1) and rotate filter cover (Figure 1, Item 2) counter clockwise to disengage. Remove filter cover (Figure 1, Item 2) with packing (Figure 1, Item 3) and filter assembly (Figure 1, Item 4).
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. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
6. Purge fuel system (WP 0027 00, PRELIMINARY CHECKS AND ADJUSTMENTS, Step 13). Inspect filter cover (Figure 1, Item 2) for leaks.
7. Install hydraulic access cover (WP 0032 00, Figure 2, Item 15).
8. Perform MOC and check for fuel leaks. No leaks allowed.

END OF WORK PACKAGE

FIELD MAINTENANCE

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 WATER SEPERATOR

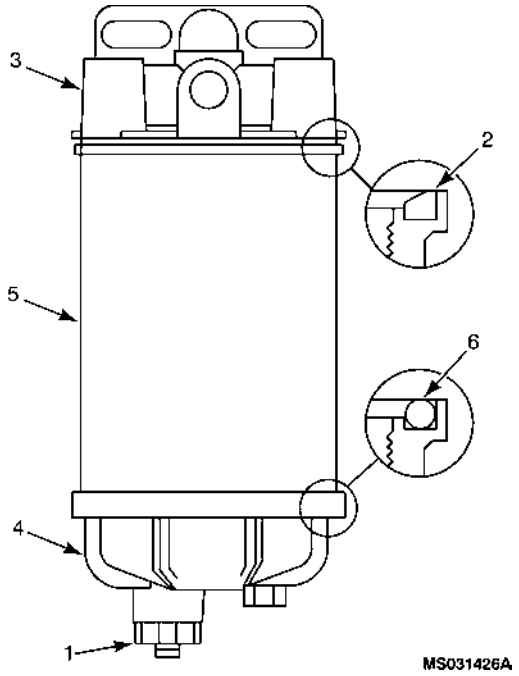
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References

TB 1-1730-229-20-1
WP 0027 00
WP 0043 00
WP 0044 00
WP 0091 00



1. Drain Valve
2. Gasket
3. Filter Head
4. Sediment Bowl
5. Element Service
6. O-Ring

Figure 1. Auxiliary Fuel Filter, Cartridge Replacement (Racor) Only (New type).

REPAIR OR REPLACEMENT

Raycor Type

WARNING

Fuels are flammable and 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 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Inspect fuel filter head (Figure 1, Item 3) for dents, cracks or other damage. No dents or cracks are allowed.
3. Inspect all filter fittings and lines for leaks. If tightening fittings does not stop leakage, replace fittings and/or lines (WP 0091 00, Figure 1).
4. Rotate four way valve to OFF position (9 o'clock) (WP 0091 00) (counter clockwise)

REPAIR OR REPLACEMENT – CONTINUED

NOTE

Place a drip pan under the fuel filter while performing the following steps:

5. Open drain valve (Figure 1, Item 1) by turning counter clockwise. Drain fuel into a suitable container.
6. Remove element service (Figure 1, Item 5) from filter head (Figure 1, Item 3) by rotating the element service (counter clockwise).
7. After removal of element service (Figure 1, Item 5) remove sediment bowl (Figure 1, Item 4) from element service. Retain sediment bowl for reuse.
8. Discard element service (Figure 1, Item 5), gasket (Figure 1, Item 2) and O-ring (Figure 1, Item 6).
9. Install new gasket (Figure 1, Item 2) and O-ring (Figure 1, Item 6) onto new filter element service (Figure 1, Item 5) and sediment bowl (Figure 1, Item 4).
10. Install sediment bowl (Figure 1, Item 5) on element service (Figure 1, Item 4) by turning sediment bowl clockwise.
11. Install element service (Figure 1, Item 5) and sediment bowl (Figure 1, Item 4) assembly onto the filter head (Figure 1, Item 3) by rotating clockwise to tighten.
12. Close drain valve (Figure 1, Item 1) by turning valve clockwise.
13. Set four way valve to internal (INTL) (12 o'clock position) (WP 0091 00).
14. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
15. Purge fuel system of air (WP 0027 00, Step 13). Continue purging until an air free flow of fuel is attained.
16. Perform MOC and check fuel system for fuel leakage. No leaks allowed.

END OF WORK PACKAGE

FIELD MAINTENANCE

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 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

Materials/Parts

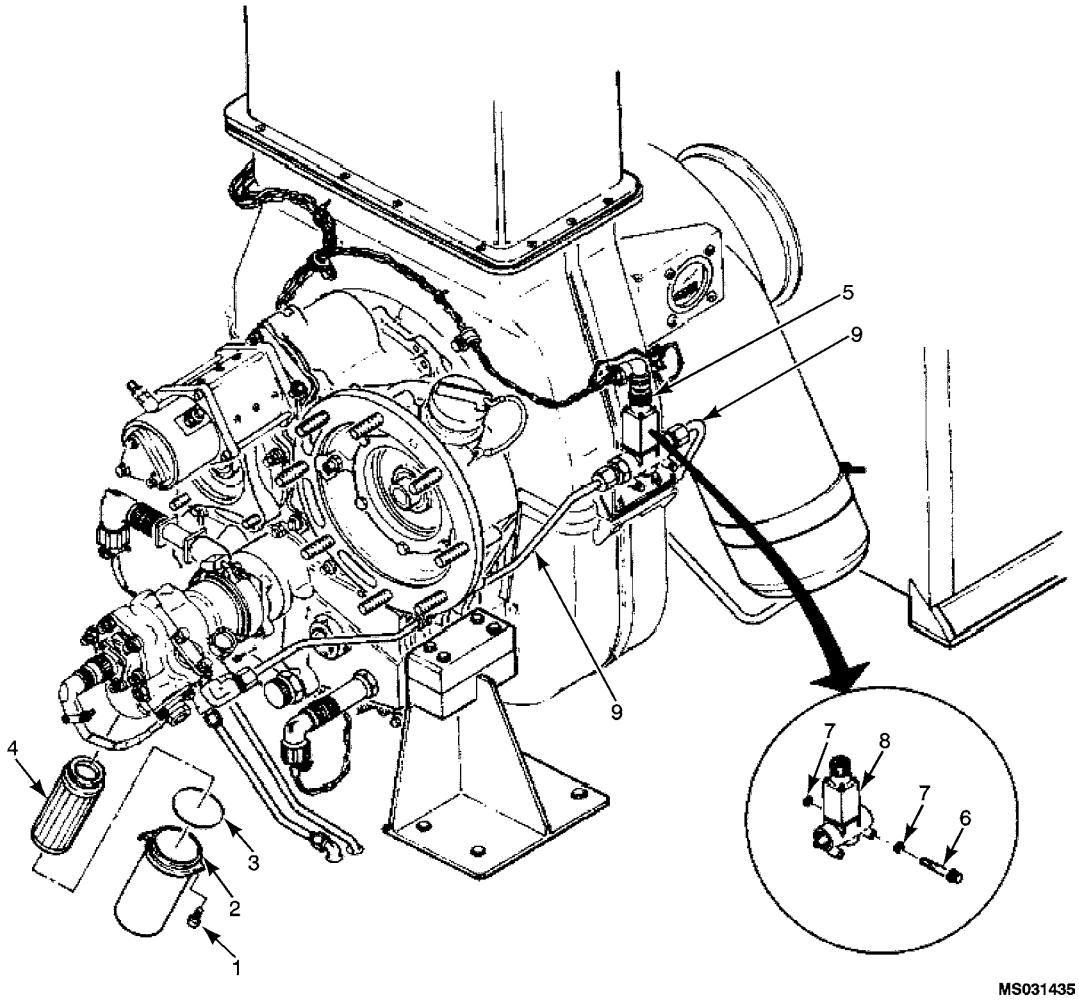
Lubricating Oil, Molybdenum Disul (WP 0154 00, Item 36)

Materials/Parts (cont.)

Wire, Nonelectrical (WP 0154 00, Item 60)

References

WP 0002 00
WP 0025 00
WP 0043 00
WP 0044 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

For test refer to troubleshooting procedure WP 0025 00, 112. FUEL SHUTDOWN SOLENOID MALFUNCTION.

1. Open engine access door (WP 0002 00, Figure 1, Item 12).
2. Inspect shutdown 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 bolt (Figure 1, Item 6) or fuel line (Figure 1, Item 9) connections if required.

REMOVAL

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Disconnect fuel lines (Figure 1, Item 9), electrical connector (Figure 1, Item 5) and cut nonelectrical wire from shutdown fuel solenoid (Figure 1, Item 8).
3. Remove bolts (Figure 1, Item 6), washers (Figure 1, Item 7) and shutdown fuel solenoid (Figure 1, Item 8) 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 shutdown fuel solenoid (Figure 1, Item 8) and secure to bracket.
3. Attach fuel lines (Figure 1, Item 9) and electrical connector (Figure 1, Item 5) to shutdown fuel solenoid (Figure 1, Item 8). Use nonelectrical wire and secure electrical connector to shutdown fuel solenoid.
4. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
5. Perform MOC and check for fuel leaks. No leaks allowed.

END OF WORK PACKAGE

FIELD MAINTENANCE

**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 NOZZLE

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0155 00, Item 3)
Brush, Brass (WP 0155 00, Item 4)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

Materials/Parts

Wire, Nonelectrical (WP 0154 00, Item 60)

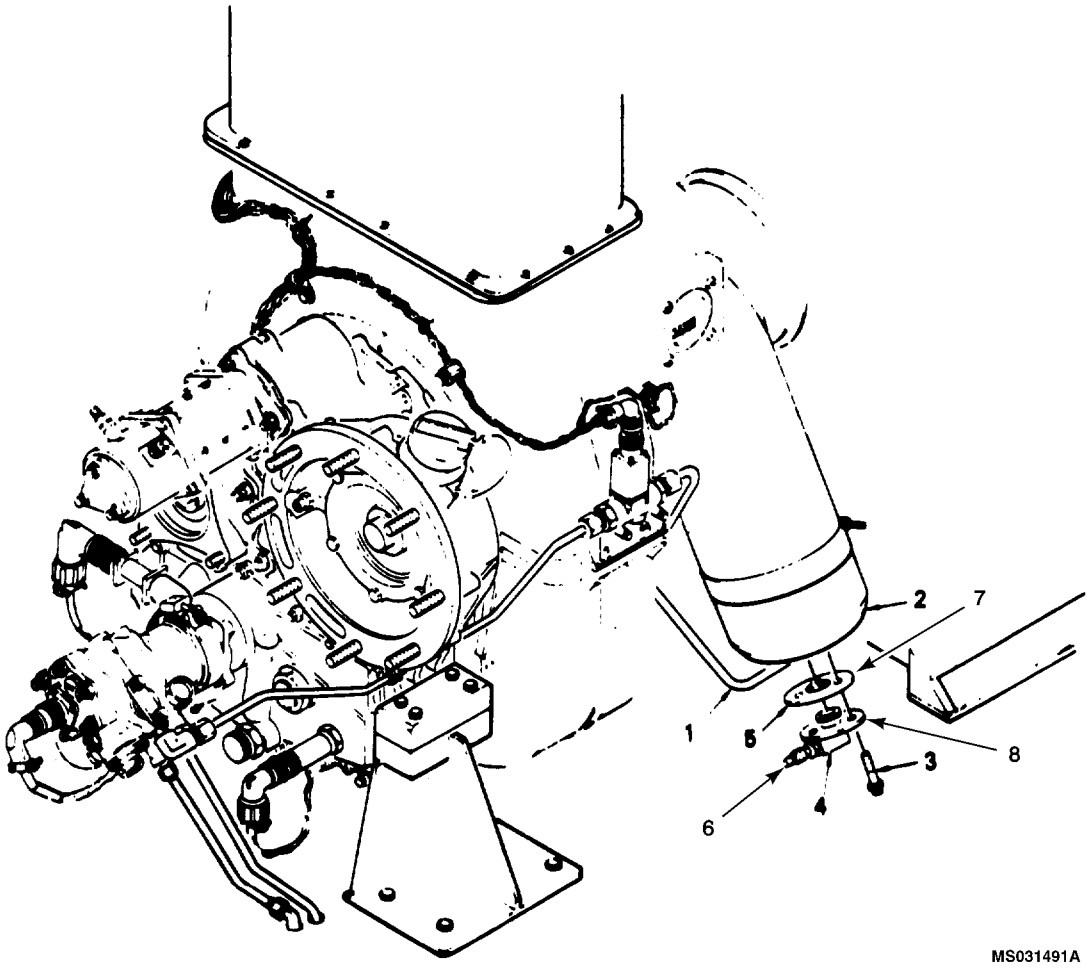
References

WP 0006 00
WP 0043 00
WP 0044 00

GENERAL

Refer to WP 0006 00 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
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

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

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 nonelectrical wire.
2. Reconnect fuel line (Figure 1, Item 1) to fuel nozzle (Figure 1, Item 4). Do not cross thread fitting.
3. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
4. Perform MOC and start GTE and check for fuel leakage. No leaks allowed.

END OF WORK PACKAGE

FIELD MAINTENANCE

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

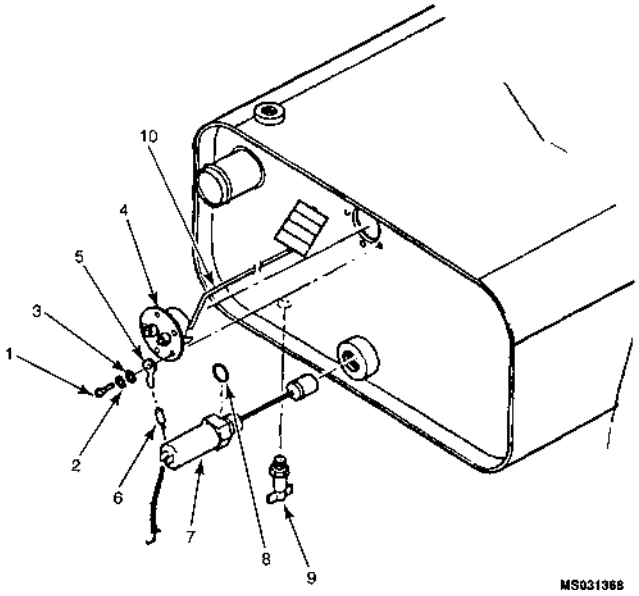
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

Materials/Parts

Turbine Fuel, Aviation (WP 0154 00, Item 58)

References

WP 0025 00
WP 0043 00
WP 0044 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
8. O-Ring
9. Drain Valve
10. Float Arm

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

For test refer to troubleshooting procedure WP 0025 00, 52. FUEL METER READING INACCURATE, Step 8.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Ensure parking brake is set and wheels are chocked 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 2 wire lugs (Figure 1, Item 5) from fuel level sensor with gasket (Figure 1, Item 4).
5. Remove screws (Figure 1, Item 1), lock washer and flat washer (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 during removal.
7. Check that float arm (Figure 1, Item 10) moves freely up and down and no binding is evident. Replace if damaged or if binding occurs. Check resistance between full and empty positions by moving float arm full range of motion. Resistance should vary between approximately 35 ohms (full position) and 240 ohms (empty position).

INSTALLATION

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

1. Clean fuel tank and fuel level sensor with gasket (Figure 1, Item 4) mounting interface. Remove all traces of old gasket material.
2. Carefully install fuel level sensor with gasket (Figure 1, Item 4) in tank mounting interface. Rotate fuel level sensor to align bolt mounting pattern. Ensure fuel level sensor with gasket is correctly positioned to allow up-and-down movement of the sensor float.
3. Install screws (Figure 1, Item 1), lock washers (Figure 1, Item 2) and flat washers (Figure 1, Item 3) and tighten screws securely.
4. Reconnect wire lugs (Figure 1, Item 5) to sensor terminals (do not over tighten terminals).
5. Check for leaks after fuel tank is refilled.
6. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
7. Perform MOC. Recheck fuel system for leakage. No leaks are allowed.

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

For test refer to troubleshooting procedure WP 0025 00, 58. GTE LOW FUEL PRESS INDICATOR NOT ILLUMINATED - MASTER SWITCH ON AND ENGINE NOT RUNNING.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Ensure parking brake is set and wheels are chocked 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 (Figure 1, Item 6).
5. Remove low level fuel sensor (Figure 1, Item 7) from tank.

INSTALLATION

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

1. Clean low fuel level sensor (Figure 1, Item 7) and tank interface mounting threads.
2. Install o-ring (Figure 1, Item 8) on low fuel level sensor (Figure 1, Item 7).
3. Install low fuel level sensor (Figure 1, Item 7) in tank mounting hole. Ensure arrow on low fuel level sensor is pointed UP to twelve o'clock position.
4. Connect wiring (Figure 1, Item 6) to low fuel level sensor (Figure 1, Item 7).
5. Check for fuel leakage after tank has been filled to at least 1/2 full.
6. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
7. Perform MOC. Recheck fuel system for leakage. No leaks are allowed.

END OF WORK PACKAGE

FIELD MAINTENANCE

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

FUEL TUBE AND HOSE ASSEMBLIES AND FITTINGS

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

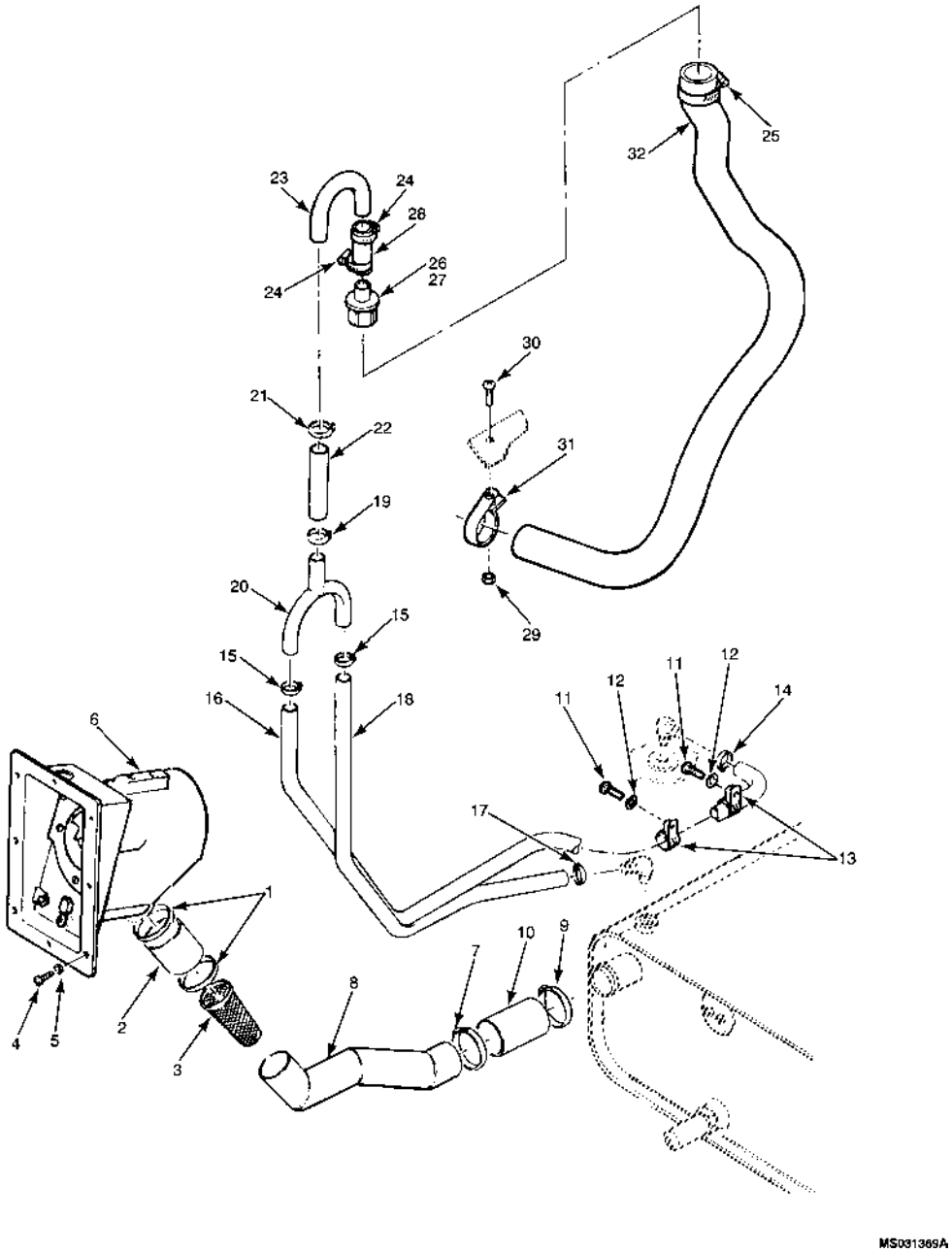
References

WP 0027 00
WP 0032 00
WP 0043 00
WP 0044 00

Materials/Parts

RTV Red Gasket Maker (WP 0154 00, Item 47)

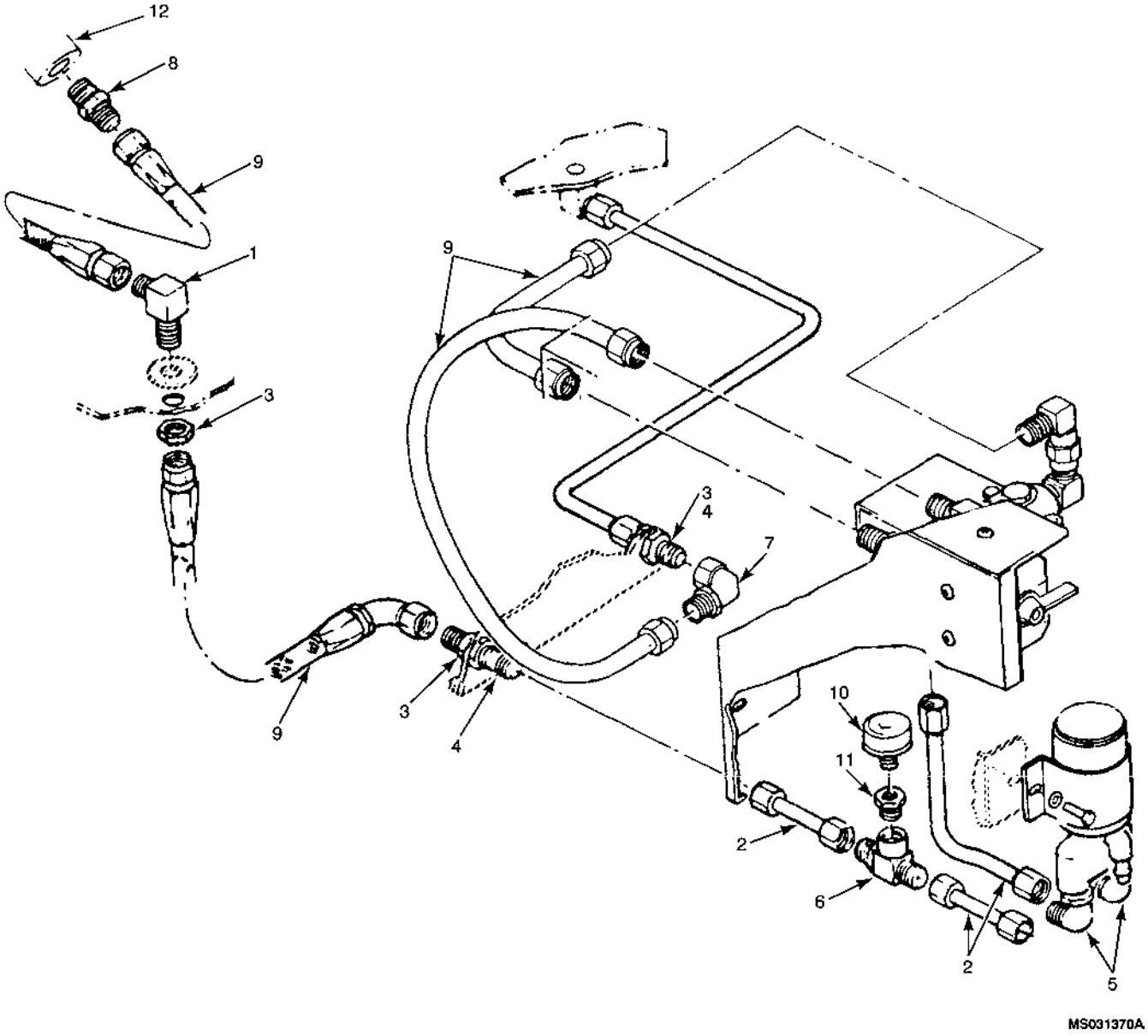
REMOVAL



1. Clamp	9. Clamp	17. Clamp	25. Clamp
2. Hose	10. Hose	18. Hose	26. Fuel Vent Breather Assembly
3. Screen Strainer	11. Screw	19. Clamp	27. Washer
4. Screw	12. Lock Washer	20. Y-Vent Tube	28. Hose
5. Lock Washer	13. Clamp, Loop Cushioned	21. Clamp	29. Locknut
6. Fuel Fill Plenum	14. Clamp	22. Hose	30. Screw
7. Clamp	15. Clamp	23. Fuel Hose Coupler	31. Clamp
8. Fuel Pipe	16. Hose	24. Clamp	32. Hose

Figure 1. Fuel Fill and Vent Hoses and Fittings.

REMOVAL – CONTINUED



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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Ensure parking brake is set and wheels are chocked 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 the fuel access cover (WP 0032 00, Figure 2, Item 18).
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 M/F (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) (counter clockwise).

INSTALLATION

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

NOTE

Use RTV Red gasket maker (Permatex 26B) when installing hoses (Figure 1, Items 2, 10, 16, 18 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 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 fuel fill plenum (Figure 1, Item 6). 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 clamp (Figure 1, Item 31) on hose (Figure 1, Item 32) 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 M/F (Figure 2, Item 7). Secure with coupling nuts (Figure 2, Item 3).
7. Install tube assemblies (Figure 2, Item 2) and hose assembly (Figure 2, Item 9). Torque coupling nuts (Figure 2, Item 3) to 100-140 inch-pounds.
8. Install pressure sensor (Figure 2, Item 10) in fitting (Figure 2, Item 11) by turning clockwise.
9. Install tagged wires and connect to pressure sensor (Figure 2, Item 10).
10. Completely refill fuel tank and inspect all hose connections for fuel leaks.

INSTALLATION – CONTINUED

11. Perform Closed Circuit Refueling (CCR) nozzle refill and check all hoses and connections for fuel leaks (Ensure CCR nozzle door is closed when refueling).
12. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
13. Purge the fuel system of air (WP 0027 00, PRELIMINARY CHECKS AND ADJUSTMENTS, Step 13). Continue purging until an air free flow of fuel is attained.
14. Install fuel access cover (WP 0032 00).
15. Perform MOC. Recheck for fuel leaks. No leaks are allowed.
16. Install fuel access cover (WP 0032 00, Figure 2, Item 18).

END OF WORK PACKAGE

FIELD MAINTENANCE

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 TANK

INITIAL SETUP:

Tools and Special Tools
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References
WP 0027 00
WP 0043 00

References (cont.)
WP 0044 00
WP 0097 00
WP 0098 00
WP 0132 00
WP 0134 00
WP 0136 00

REMOVAL

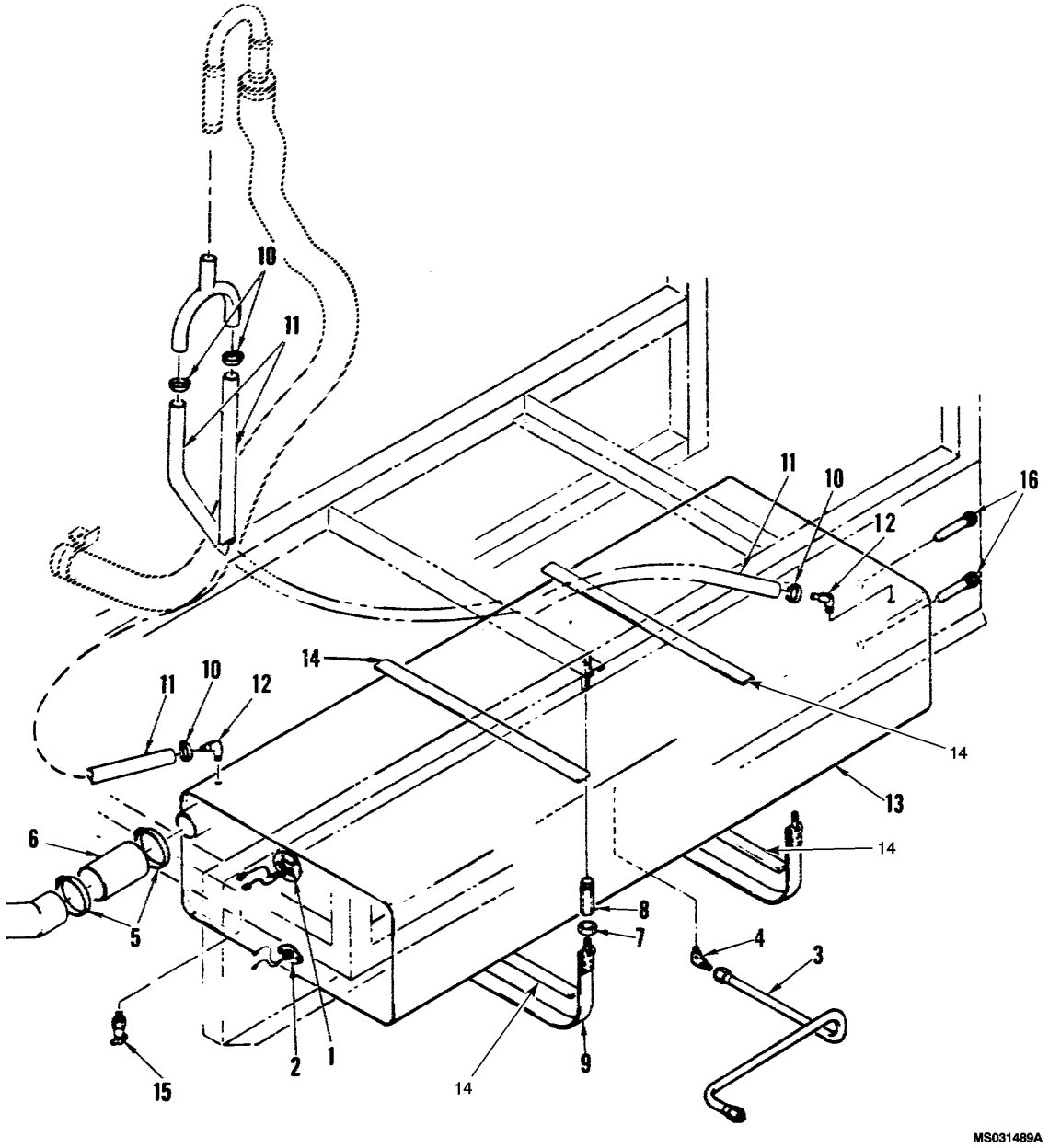
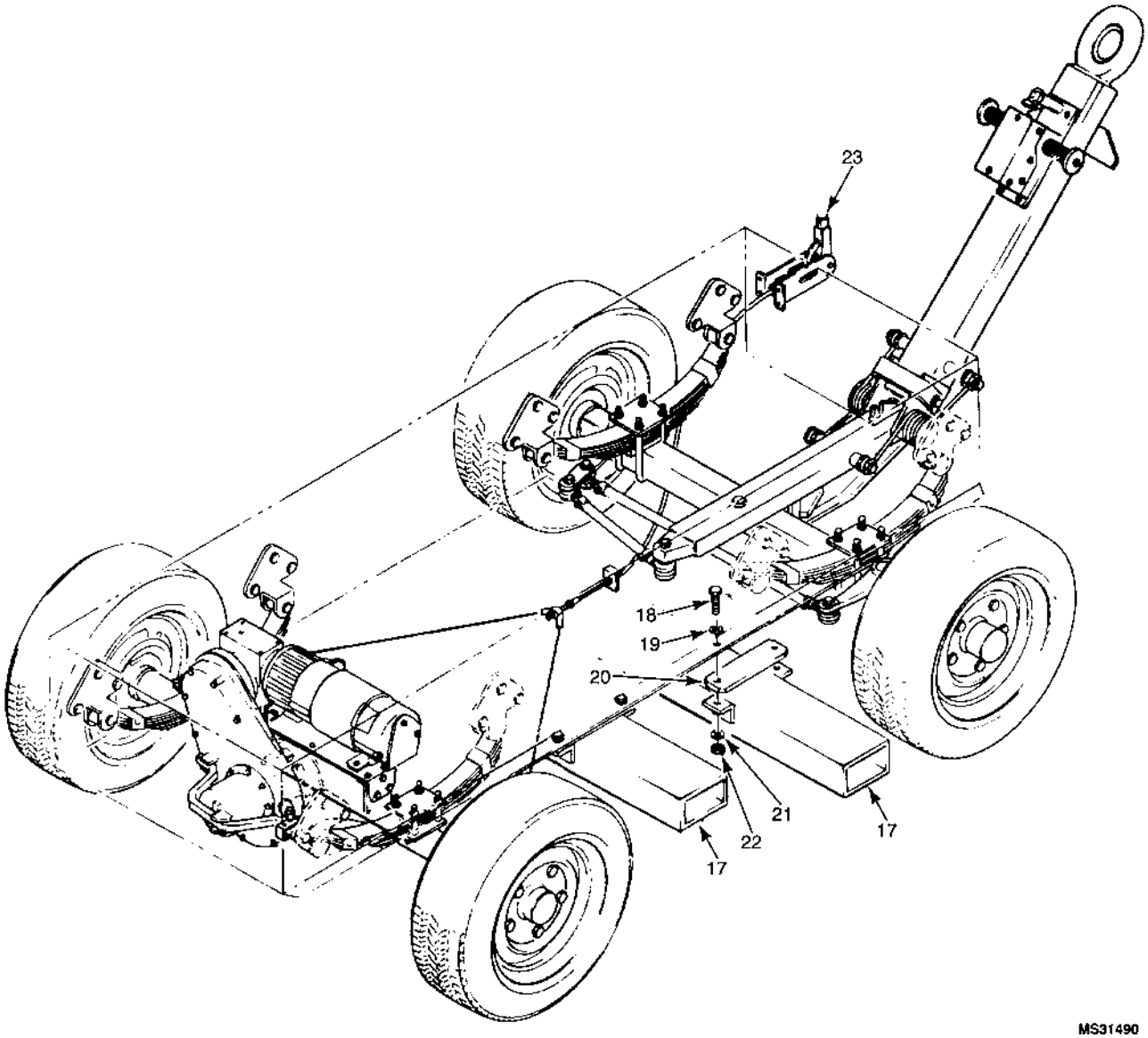


Figure 1. Fuel Tank Removal (Sheet 1 of 2).

REMOVAL – CONTINUED



1. Fuel Level Sensor	7. Jam Nut	13. Fuel Tank	19. Washer, Flat
2. Low Fuel Sensor	8. Turnbuckle	14. Cushion, Tank, Top or Bottom	20. Spacer
3. Fuel Line	9. Strap, Tank	15. Drain Valve	21. Washer, Lock
4. Elbow	10. Hose Clamp	16. Cat Eye Indicator	22. Nut
5. Hose Clamp	11. Vent Hose	17. Forklift Tubes	23. Hand Brake
6. Hose Section	12. Elbow	18. Bolt	

Figure 1. Fuel Tank Removal (Sheet 2 of 2).

REMOVAL – CONTINUED

NOTE

Ensure AGPU is chocked and on level ground. It will be necessary to jack up the AGPU off the ground prior to performing the following steps. In addition the front suspension (WP 0136 00) must be removed in order to fully remove the fuel tank.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Drain fuel tank (Figure 1. (Sheet 1 of 2), Item 13) completely in suitable container, using drain valve (.Figure 1. (Sheet 1 of 2), Item 15).
3. After raising AGPU off the ground and placing jack stands under all four corners of the AGPU release hand brake (Figure 1. (Sheet 2 of 2), Item 23).
4. Disconnect front and rear brake cables at brake cable adjustment fitting (WP 0132 00). Remove front brake cable mounting clamp from front fork lift beam (WP 0132 00).

WARNING

Support forklift tubes with jack or jack stands prior to removing mounting hardware.

5. Remove forklift tubes (Figure 1, Item 17) by removing eight nuts (Figure 1, Item 22), lock washers (Figure 1, Item 21), flat washers (Figure 1, Item 19), bolts (Figure 1, Item 18) and two spacers (Figure 1, Item 20). Place forklift tubes and hardware out of the way of work area.
6. Move the speed/direction (WP 0134 00) control harness to one side of AGPU frame safeguard and secure.
7. Remove front axle assembly (WP 0136 00) and place out of work area.
8. Tag and disconnect wiring from fuel level sensor (WP 0097 00, Figure 1, Item 4) and low fuel sensor (WP 0097 00, Figure 1, Item 7).
9. 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. Cap both ends of fuel lines after removal and safeguard for reinstallation.
10. Loosen both hose clamps (Figure 1, Item 5).

CAUTION

Ensure that fuel tank is supported so it does not drop when straps are released. Fuel tank is easily damaged or punctured if dropped. Residue fuel within the tank may spill if not captured in suitable container.

NOTE

It is necessary to clean and lubricate the turn buckles (Figure 1, Item 8) prior to removal. This will prevent damage to the turn buckle and associated threads.

11. Loosen four jam nuts (Figure 1, Item 7) and unscrew four turn buckles (Figure 1, Item 8) (turn counter clockwise) from frame stud and tank strap (Figure 1, Item 9) studs. Carefully lower tank until there is clearance to disconnect vent hoses (Figure 1, Item 11).
12. Loosen hose clamps (Figure 1, Item 10) and disconnect vent hoses (Figure 1, Item 11) from elbows at each top corner of fuel tank (Figure 1, Item 13).

REMOVAL – CONTINUED

13. Lower fuel tank and remove hose section (Figure 1, Item 6) from flange on fuel tank. Remove fuel tank. Always place fuel tank bottom down and never stand on its end, unless cleaning is required.
14. Remove top or bottom tank cushions (Figure 1, Item 14) only if damaged.

REPAIR OR REPLACEMENT

1. Flush internal parts of tank to clean or remove all signs of rust or corrosion. Repaint exterior of tank 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 and fill tank with water prior to commencing the repair. 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. After repairs are made spot paint as necessary.
3. Clean and iInspect elbows (Figure 1, Item 4 and 12) and drain valve (Figure 1, Item 15). Replace if damaged.
4. Clean and inspect fuel level cat eye indicators (Figure 1, Item 16). Replace if damaged.
5. Clean any paint residue and inspect two vent hoses (Figure 1, Item 11) remaining on AGPU. Replace if split or torn.

INSTALLATION

CAUTION

Ensure that fuel tank is supported so it does not drop during strap installation. Fuel tank is easily damaged or punctured if dropped. Residue fuel within the tank may spill if not captured in suitable container.

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

NOTE

Ensure AGPU is chocked and on level ground. It will be necessary to jack up the AGPU off the ground prior to performing the following steps. In addition, the front suspension (WP 0136 00) must be removed in order to fully install the fuel tank.

1. Position fuel tank (Figure 1, Item 13) under AGPU. Place top or bottom tank cushions (Figure 1, Item 14) in position on top and bottom of tank. Position two tank straps (Figure 1, Item 9) with top or bottom tank cushion (Figure 1, Item 14) under tank.
2. Raise rear of fuel tank (Figure 1, Item 13) approximately ten inches and connect vent hoses (Figure 1, Item 11) to elbows (Figure 1, Item 12) at each top corner of fuel tank. Install hose section (Figure 1, Item 6) and two hose clamps (Figure 1, Item 5). Install fuel hose section on flange of fuel tank. Securely tighten two hose clamps prior to lifting tank in its rest position.
3. Install jam nuts (Figure 1, Item 7) on strap studs by turning clockwise. Raise fuel tank and secure to frame studs with four turnbuckles (Figure 1, Item 8).
4. Tighten four turnbuckles (Figure 1, Item 8) securely; turn clockwise and then tighten four jam nuts (Figure 1, Item 7) to bottom of turnbuckles to prevent loosening of turnbuckles.

INSTALLATION – CONTINUED

5. Connect fuel line (Figure 1, Item 3) from elbow (Figure 1, Item 4) to union bulkhead (WP 0098 00, Figure 2, Item 4) on frame.
6. Connect tagged wiring to fuel level sensor (Figure 1, Item 1) and low fuel sensor (Figure 1, Item 2).

WARNING

Prior to installing front axle assembly ensure AGPU is stable on jack stands. If not, stabilize prior to performing the following steps.

7. Install and align front axle assembly (WP 0136 00).
8. Reinstall speed control assembly (WP 0134 00) if removed.
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 lock washers (Figure 1, Item 21) and nuts (Figure 1, Item 22). Tighten securely.
10. Connect front and rear brake cables and mounting clamp (WP 0132 00). Adjust both hand brake and cable (WP 0132 00, Installation).
11. Refill fuel tank completely and check for leaks. No fuel leaks permitted.
12. Remove AGPU from jack stands and set hand brake.
13. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
14. Purge the fuel system of air (WP 0027 00, PRELIMINARY CHECKS AND ADJUSTMENTS, Step 13). Continue purging until an air free flow of fuel is attained.
15. Perform MOC and recheck for leaks. No leaks are allowed.

END OF WORK PACKAGE

FIELD MAINTENANCE

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

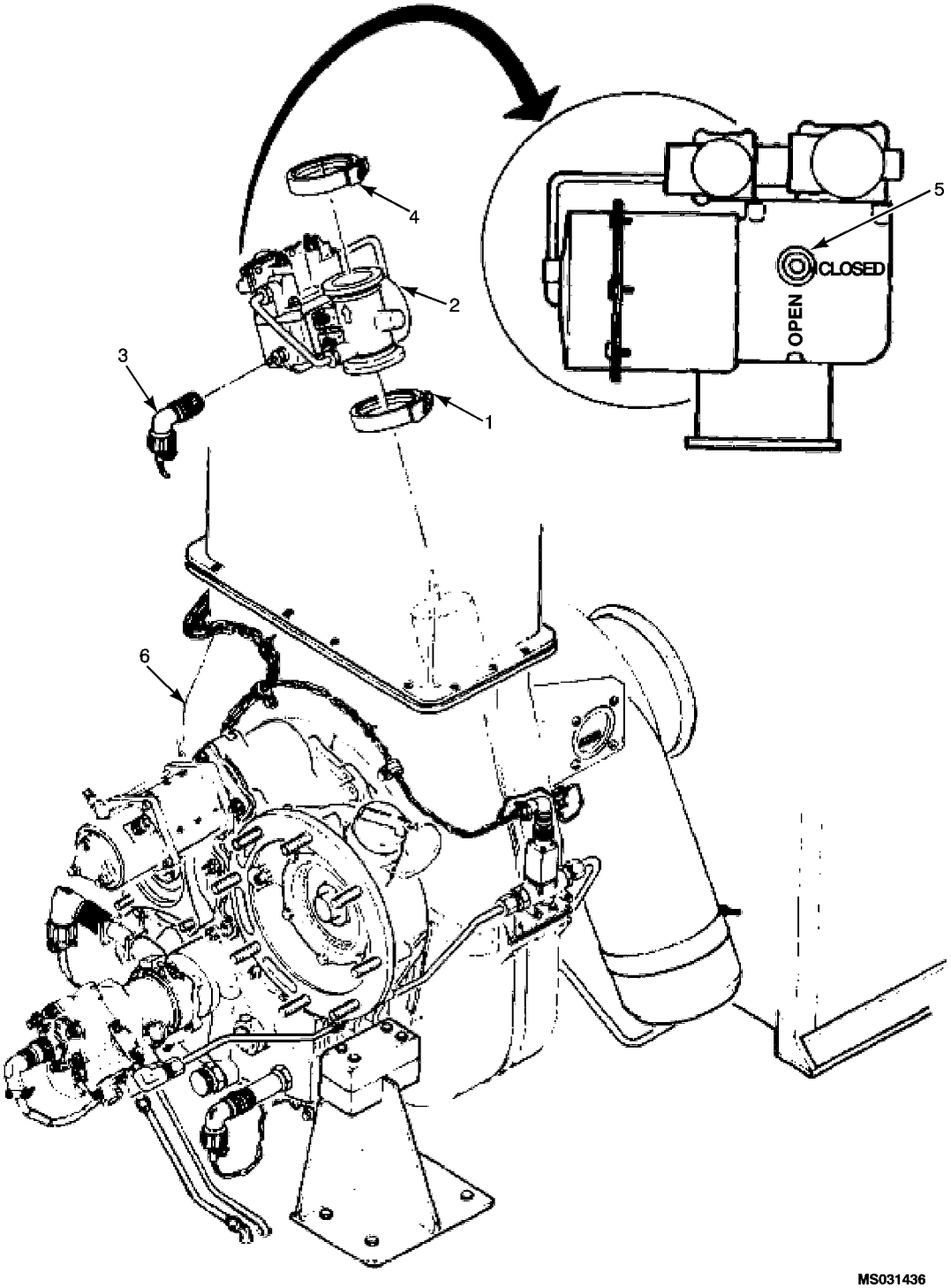
LOAD CONTROL VALVE (LCV)

INITIAL SETUP:

Tools and Special Tools
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

Materials/Parts
Wire, Nonelectrical (WP 0154 00, Item 60)

References
WP 0002 00
WP 0026 00
WP 0032 00
WP 0033 00
WP 0043 00
WP 0044 00



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 the AGPU to cool for 1 hour if AGPU has been placed into operation.

NOTE

For test refer to troubleshooting procedure WP 0026 00, 117. PSIG PNEUMATIC METER READS 0 OR LOW (PNEUMATIC POWER SWITCH ON, ENGINE UP TO SPEED AND EGT LESS THAN 1200 °F), Step 5.

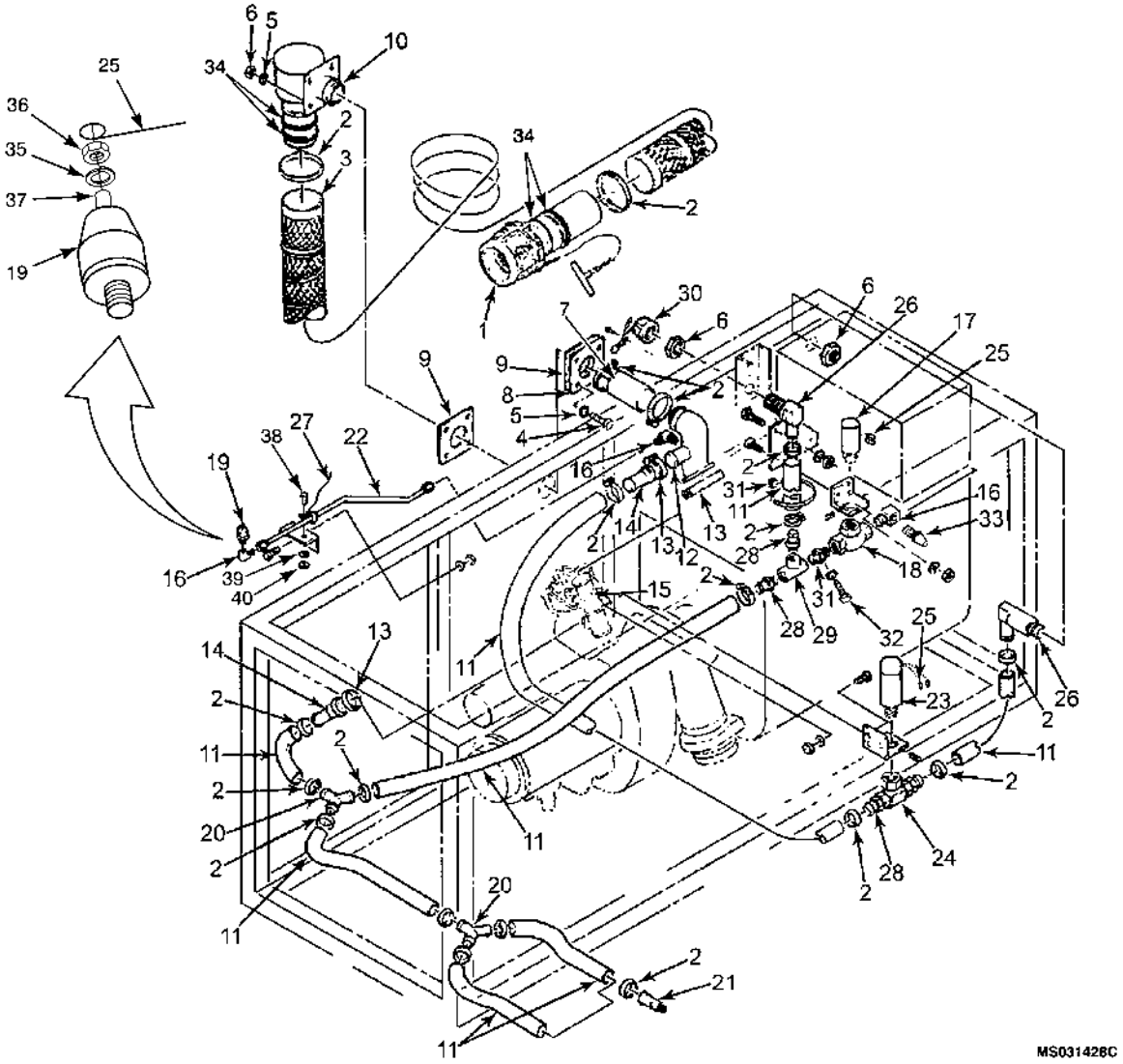
1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

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.

2. Remove roof (WP 0033 00). Place roof out of the way of the AGPU and work area.
3. Inspect Load Control Valve (LCV) (Figure 1, Item 2) and electrical connector P5 (Figure 1, Item 3) 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.
5. Inspect marmon clamps (Figure 1, Item 1 and 4) for security. Ensure nonelectrical wire is not broken on both marmon clamp.
6. Inspect 1 inch pneumatic hose (Figure 2, Item 11) and hose clamp (Figure 2, Item 2) are connected to LCV (Figure 1, Item 2) and ensure clamps are securely tightened.

REMOVAL



1. Coupling, Aircraft	11. Hose, Pneumatic, 1-inch	21. Fitting, Air Cleaner	31. Union, Pipe
2. Clamp, Hose	12. Manifold, LCV Adapter	22. Tube Assembly	32. Plug, Self-Tapping
3. Hose Pneumatic Output	13. Clamp, Marmon	23. Solenoid, N.O.	33. Muffler
4. Bolt	14. Flange, Adapter	24. Valve, Pressure Release	34. Internal Band Clamps
5. Washer	15. Load Control Valve	25. Electrical Leads	35. Washer
6. Nut	16. Elbow, Pipe	26. Elbow, Bulkhead	36. Nut
7. 2-1/2 in. ID Bleed Airhose	17. Bracket	27. Wire, Ground	37. Terminal
8. Flange	18. Valve, Surge Control	28. Fitting, Pipe	38. Screw
9. Gasket, Bulkhead	19. Transducer, Pressure	29. Tee, Pipe	39. Washer
10. Elbow, Bulkhead	20. Y Fitting	30. Cap, De-Icing Port	40. Nut

Figure 2. Pneumatic System.

REMOVAL – CONTINUED

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

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 roof (WP 0033 00). Place roof out of the way of the AGPU and work area.
2. Open pneumatic hose access door (WP 0002 00, Figure 4, Item 11).
3. Remove engine access cover (WP 0032 00, Figure 2, Item 12).
4. Disconnect two pneumatic 1 inch hoses (Figure 2, Item 11) connected to LCV adapter manifold (Figure 2, Item 12).
5. Disconnect bulkhead elbow (Figure 2, Item 10) by removing two hose clamps (Figure 2, Item 2), four nuts (Figure 2, Item 6), four washers (Figure 2, Item 5) and four bolts (Figure 2, Item 4), from LCV adapter manifold (Figure 2, Item 12). Remove the 2 1/2 inch bleed air hose (Figure 2, Item 7).
6. Disconnect tubing assembly (Figure 2, Item 22) from pipe elbow (Figure 2, Item 16) on LCV adapter manifold (Figure 2, Item 12).
7. Cut and remove nonelectrical wire and disconnect electrical connector (P5) (Figure 1, Item 3) from LCV adapter manifold (Figure 2, Item 12).
8. Loosen marmon clamps (Figure 2, Item 13) and remove LCV adapter manifold (Figure 2, Item 12) from LCV (Figure 2, Item 15).
9. Loosen marmon clamp (Figure 1, Item 1) holding LCV.
10. Carefully remove LCV (Figure 1, Item 2). Do not twist LCV to remove from marmon clamps.

INSTALLATION

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

1. Position LCV (Figure 1, Item 2) on engine (Figure 1, Item 6) 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. Install bulkhead elbow (Figure 2, Item 10) and 2 1/2 inch bleed air hose (Figure 2, Item 7) by installing four bolts (Figure 2, Item 4), four washers (Figure 2, Item 5) and four nuts (Figure 2, Item 6) to LCV adapter manifold (Figure 2, Item 12). Install two hose clamps (Figure 2, Item 2) and tighten clamps as required. Tighten 4 nuts and nuts (Figure 2, Item 4 and 6) to secure bulkhead elbow.
3. Install nonelectrical wire to secure marmon clamps (Figure 1, Item 1) and connect electrical connector (P5) (Figure 1, Item 3) to LCV (Figure 1, Item 2).
4. Connect two hoses (Figure 2, Item 11) to manifold (Figure 2, Item 12). Tighten clamps (Figure 2, Item 2) to secure to pneumatic 1 inch hoses (Figure 2, Item 11)
5. Connect tube assembly (Figure 2, Item 22) to pipe elbow (Figure 2, Item 16) on LCV adapter manifold (Figure 2, Item 12). Tighten tube assembly as required.
6. Install nonelectrical wire and connect electrical connector (P5) (Figure 1, Item 3) to LCV (Figure 1, Item 2).

INSTALLATION – CONTINUED

CAUTION

During installation of the roof, one person should be stationed at each corner of the roof to prevent warping or damage to the roof.

7. Install roof (WP 0033 00).
8. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
9. Perform MOC and check for air leaks. No leaks allowed.
10. Install engine access cover (WP 0032 00, Figure 2, Item 12).
11. Close pneumatic hose access door (WP 0002 00, Figure 4, Item 11).

END OF WORK PACKAGE

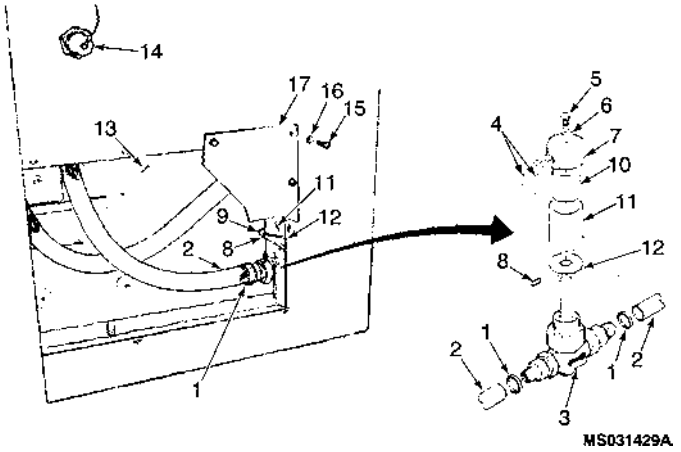
FIELD MAINTENANCE

**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**

SOLENOID VALVE, BLEED AIR

INITIAL SETUP:

Tools and Special Tools	References
Aviation Foot Locker, AFL (WP 0155 00, Item 3)	WP 0026 00
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)	WP 0032 00
	WP 0043 00
Tool Set, Aviation Unit (WP 0155 00, Item 41)	WP 0044 00



1. Clamp, Hose	7. Cap	13. Exhaust Ejector
2. Hose	8. Setscrew	14. Engine Bleed Air Fitting
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 the AGPU to cool for 1 hour if AGPU has been placed into operation.

NOTE

For test refer to troubleshooting procedure WP 0026 00, 117. PSIG PNEUMATIC METER READS 0 OR LOW (PNEUMATIC POWER SWITCH ON, ENGINE UP TO SPEED AND EGT LESS THAN 1200 °F), Step 10.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Remove exhaust and engine access covers (WP 0032 00, Figure 2, Item 9 and 12).
3. Inspect hoses (Figure 1, Item 2) for cracks or tears. No cracks or tears are allowed. Ensure that hose clamps (Figure 1, Item 1) are tight.
4. Inspect wiring (Figure 1, Item 4) for cuts or abraded insulation. Repair wiring if damaged.
5. Inspect 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. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

REMOVAL – CONTINUED

2. Remove exhaust and engine access covers (WP 0032 00, Figure 2, Item 9 and 12).
3. Disconnect wiring (Figure 1, Item 4) by cutting at splice. Tag wires to ensure locations.
4. 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.
5. Remove screw (Figure 1, Item 5) and washer (Figure 1, Item 6) from cap (Figure 1, Item 7).
6. Remove case (Figure 1, Item 11) and solenoid winding (Figure 1, Item 10) from valve body (Figure 1, Item 3) and remove washer (Figure 1, Item 12).
7. Loosen setscrew (Figure 1, Item 8) installed in bracket (Figure 1, Item 9).
8. 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).
3. Install case (Figure 1, Item 11), solenoid 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 hose clamps (Figure 1, Item 1). Torque clamps to 65 in/lbs.
5. Reconnect wiring (Figure 1, Item 4).
6. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
7. Perform MOC and check for air leaks. No leaks allowed.
8. Install exhaust and engine access cover (WP 0032 00, Figure 2, Item 9 and 12).

END OF WORK PACKAGE

FIELD MAINTENANCE

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

PNEUMATIC HOSES AND FITTINGS

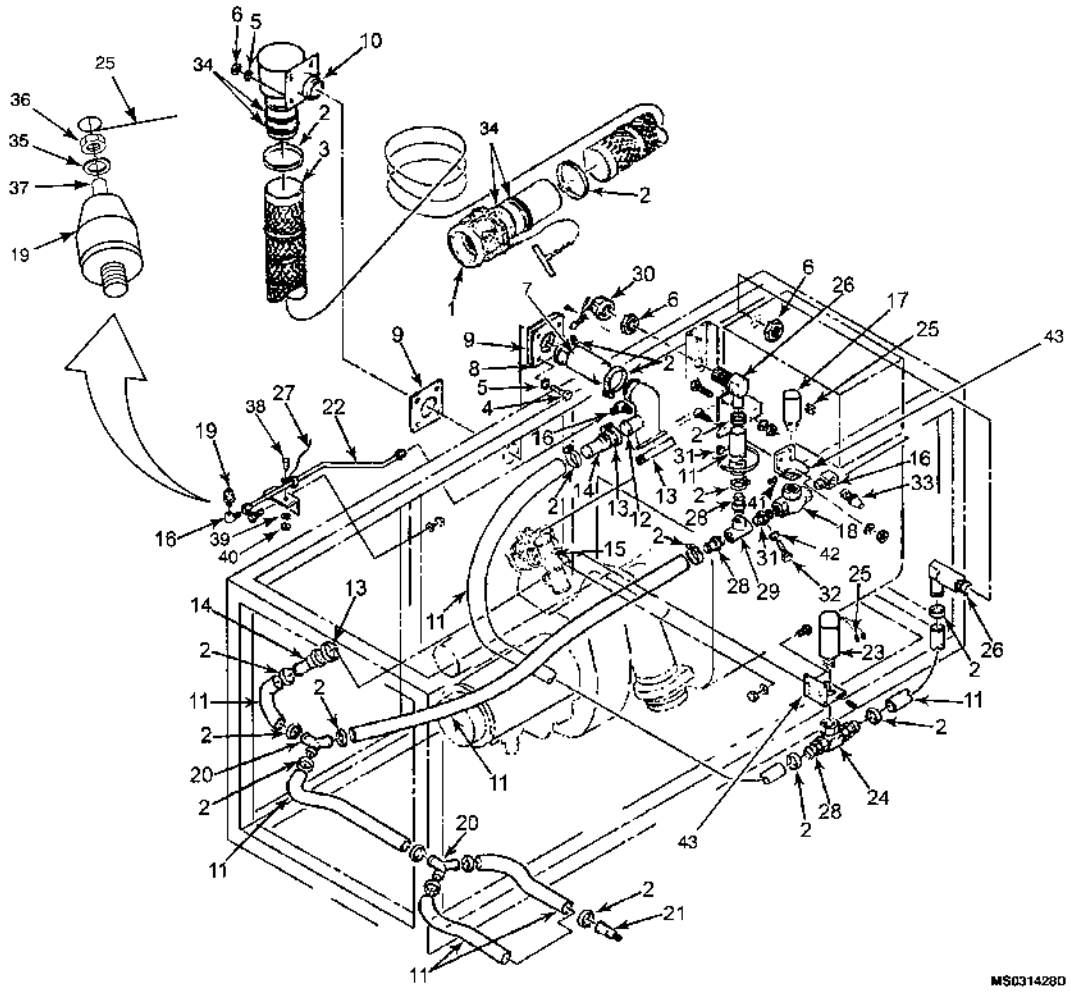
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References

TM 1-1730-229-24P
WP 0032 00
WP 0033 00
WP 0043 00
WP 0044 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 Screw (5/16)
33. Muffler
34. Internal Band Clamps
35. Washer, Lock
36. Nut
37. Transducer Terminal
38. Screw
39. Lock Washer
40. Nut
41. Setscrew
42. Washer
43. Mounting Bracket

Figure 1. Pneumatic System.

TEST AND INSPECTION

WARNING

Prior to performing the following procedures, allow the AGPU to cool for 1 hour if AGPU has been placed into operation.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Ensure parking brake is set and wheels are chocked with AGPU on level ground.

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.

3. Remove roof (WP 0033 00).
4. Remove engine access cover (WP 0032 00, Figure 2, Item 12).

NOTE

Individual 1-inch ID hoses are manufactured from bulk pneumatic hose. Bulk hose material can be found in TM 1-1730-229-24P, Bulk Materials Listing and can be cut to the required length.

5. Inspect hose pneumatic output, 2 1/2 in. ID bleed air hose and 1 in. pneumatic hose (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 in. ID (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 during operation.
6. Check that all hose pneumatic output, 2 1/2 in. ID bleed air hose and 1 in. pneumatic hose (Figure 1, Item 3, 7 and 11) are securely attached to fittings and secured with clamps (Figure 1, Item 2).
7. Ensure that bulkhead elbow (Figure 1, Item 10) bolts (Figure 1, Item 4) are tight.
8. Install roof (WP 0033 00) and engine access cover (WP 0032 00, Figure 2, Item 12).
9. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
10. Perform MOC and check for air leakage, if EGT at no load condition is higher than 600 ºF recheck hoses and hose connections.

REMOVAL

WARNING

Prior to performing the following procedures, allow the AGPU to cool for 1 hour if AGPU has been placed into operation.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Ensure parking brake is set and wheels are chocked with AGPU on level ground.

REMOVAL – CONTINUED

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.

3. Remove roof (WP 0033 00), engine and exhaust access cover (WP 0032 00, Figure 2).
4. Remove engine access cover (WP 0032 00, Figure 2, Item 12).

NOTE

Pneumatic hose connections are located in close or tight positions within the engine compartment. Care should be taken to surrounding components of the engine during removal and installation of pneumatic hose and connections to prevent damage.

5. To remove hose pneumatic output, 2 1/2 in. ID bleed air hose and 1 inch pneumatic hose (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.
6. To remove bulkhead elbow (Figure 1, Item 10), first loosen hose clamp (Figure 1, Item 2) on each fitting and disconnect hose pneumatic output, 2 1/2 in. ID bleed air hose and 1 inch pneumatic hose (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

WARNING

Prior to performing the following procedures, allow the AGPU to cool for 1 hour if AGPU has been placed into operation.

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

1. To install hose pneumatic output, 2 1/2 in. ID bleed air hose and 1 inch pneumatic hose (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).

CAUTION

During installation of the roof, one person should be stationed at each corner of the roof to prevent warping or damage to the roof.

3. Install roof (WP 0033 00).
4. Install engine access cover (WP 0032 00, Figure 2, Item 12).

INSTALLATION – CONTINUED

5. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
6. Perform MOC and check for air leakage, if EGT at no load condition is higher than 600 ºF recheck hoses and hose connections.

END OF WORK PACKAGE

FIELD MAINTENANCE

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

PNEUMATIC OUTPUT HOSE AND COUPLER

INITIAL SETUP:

Tools and Special Tools

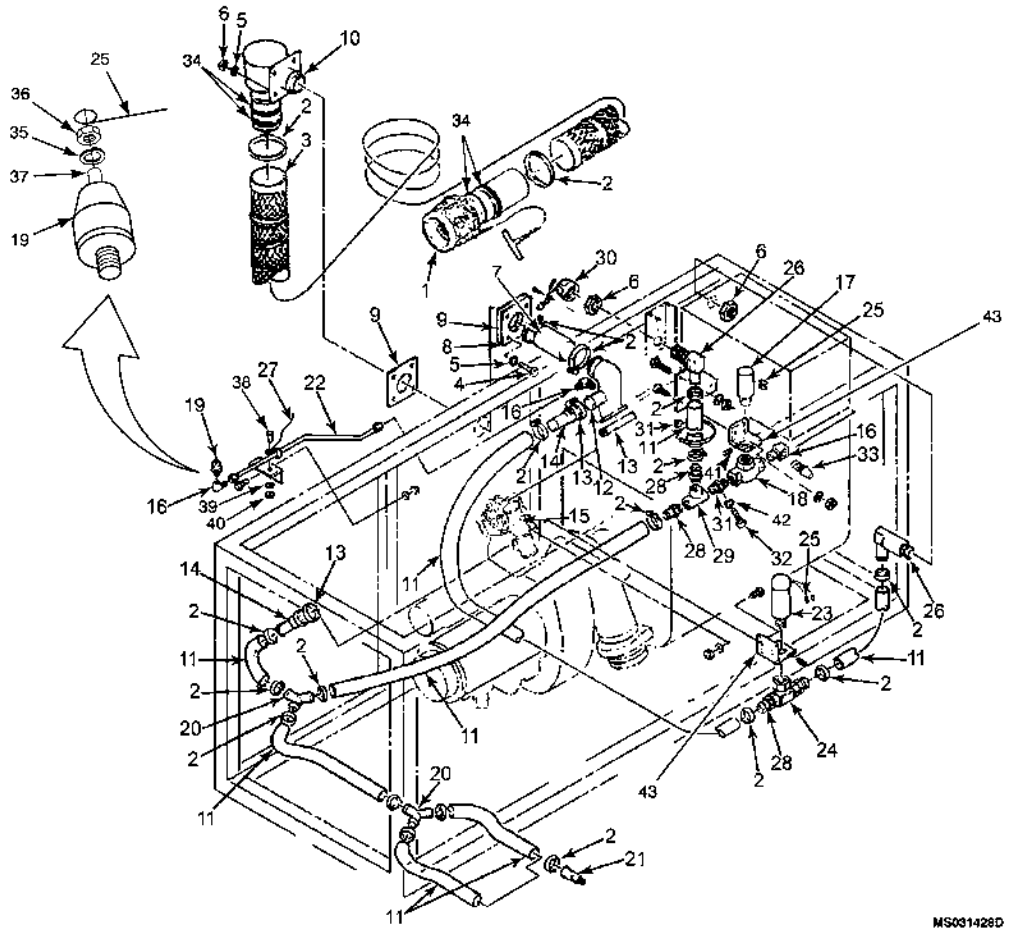
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References

WP 0002 00
WP 0006 00
WP 0043 00
WP 0044 00

Materials/Parts

Lubricating Oil, Engine (WP 0154 00, Item 34)



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 Screw (5/16)
33. Muffler
34. Internal Band Clamps
35. Washer, Lock
36. Nut
37. Transducer Terminal
38. Screw
39. Lock Washer
40. Nut
41. Setscrew
42. Washer
43. Mounting Bracket

Figure 1. Pneumatic System.

TEST AND INSPECTION

WARNING

Prior to performing the following procedures, allow the AGPU to cool for 1 hour if AGPU has been placed into operation.

Eye, hand and ear protection must be worn during the following procedures.

Never turn on the pneumatic power switch (WP 0006 00, Figure 1, Item 33) with the pneumatic hose in the stowed position.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
3. Open pneumatic door (WP 0002 00, Figure 3, Item 11) and extract pneumatic hose.
4. Inspect hose pneumatic output (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.

NOTE

It may be necessary to lubricate the ball bearings and slide coupler of the aircraft coupling (Figure 1, Item 1) with a light coat of engine lubricating oil to improve connecting and disconnecting from aircraft.

5. Inspect aircraft coupling (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 chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Open pneumatic door (WP 0002 00, Figure 3, Item 11) and extract hose pneumatic output (Figure 1, Item 3) (fully).
4. Loosen outer hose clamp (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 coupler.
5. Remove hose pneumatic output (Figure 1, Item 3) from bulkhead elbow (Figure 1, Item 10) by loosening outer hose clamps (Figure 1, Item 2). Save outer hose clamps for installing replacement bulkhead elbow.

INSTALLATION

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

NOTE

Lay out the entire length of the hose to be installed. Ensure there are no kinks or twists in the hose prior to installation. When installing internal band clamps ensure locking collars are staggered away from each other to prevent air leakage.

1. To install hose pneumatic output (Figure 1, Item 3), slip internal band clamps (2 ea.) (Figure 1, Item 34) on pneumatic output hose and install hose on bulkhead elbow (Figure 1, Item 10). Install two internal band clamps with banding tool. Cut excess banding material and file tabs of banding. Slide chafe protection liner over bands Install outer hose 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 hose pneumatic output hose (2 ea.) (Figure 1, Item 3) 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. chafe protection liner over bands and aircraft coupler. Install outer hose clamps (Figure 1, Item 2) and torque outer clamps to 65 in/lbs.
3. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.

WARNING

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.

Ensure hose pneumatic output is fully extended and re-verify that the internal butterflies on the internal aircraft coupling are in the closed position. It is required to secure coupling unless otherwise connected to aircraft prior to performing MOC.

4. Perform MOC and check for air leakage, no leakage allowed in hose or aircraft coupling connection.

WARNING

Prior to performing the following procedures, allow the AGPU to cool for 1 hour.

5. Stow pneumatic hose and close pneumatic door (WP 0002 00, Figure 3, Item 11).

END OF WORK PACKAGE

FIELD MAINTENANCE

**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

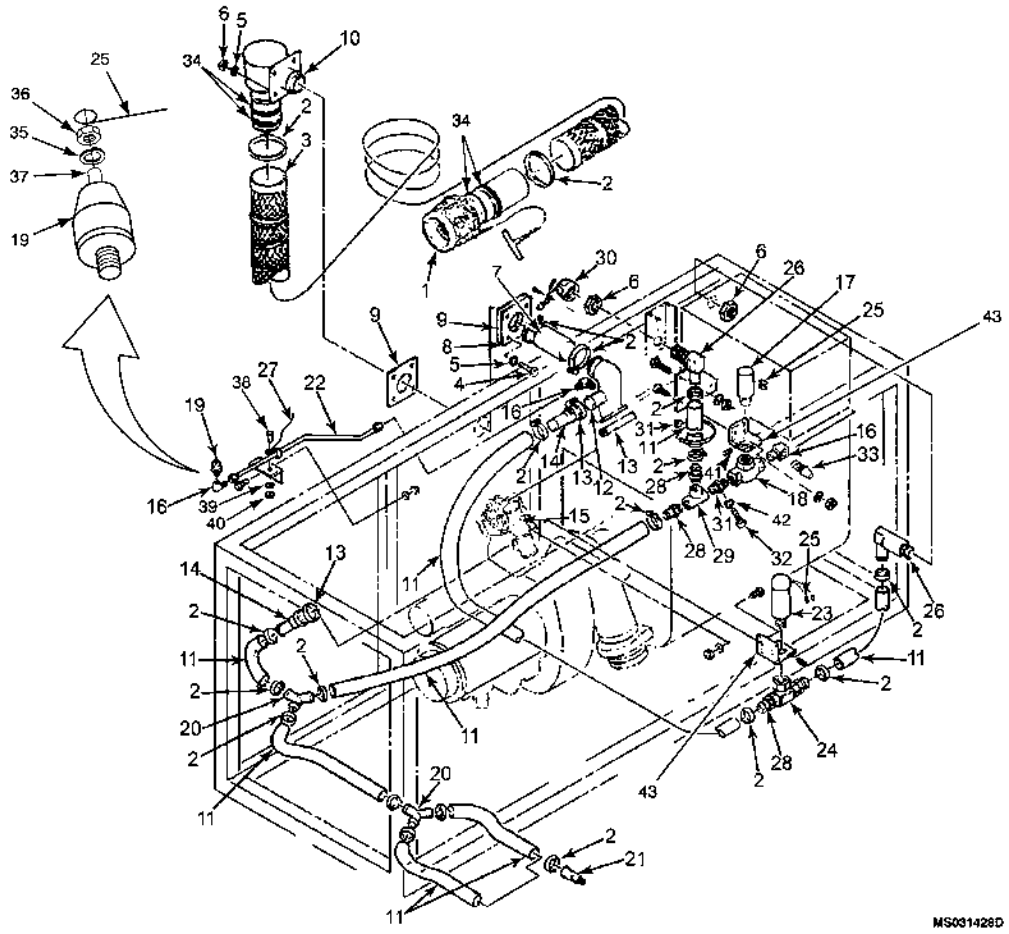
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References

WP 0002 00
WP 0032 00
WP 0043 00
WP 0044 00

Materials/Parts

Anti-Seize Compound (WP 0154 00, Item 3)



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 Screw (5/16)
33. Muffler
34. Internal Band Clamps
35. Washer, Lock
36. Nut
37. Transducer Terminal
38. Screw
39. Lock Washer
40. Nut
41. Setscrew
42. Washer
43. Mounting Bracket

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") (Figure 1, Item 32) and exhaust muffler (Figure 1, Item 33) 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

NOTE

The AC cable (WP 0002 00, Figure 3, Item 9) must be removed from storage compartment to gain access to the exhaust access cover.

3. Remove exhaust and engine access covers (WP 0032 00, Figure 2, Item 9 and 12).
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 screw (5/16") plug (Figure 1, Item 32) is plugging the bleed hole in pipe union (Figure 1, Item 31) at input to surge control valve (Figure 1, Item 18).
6. Inspect solenoid electrical leads (Figure 1, Item 25) for burned, cut or abraded insulation. Repair wiring if damaged.
7. Inspect solenoid NC (Figure 1, Item 17) and surge control valve (Figure 1, Item 18) body for dents or cracks. No dents or cracks are allowed.

REMOVAL

WARNING

Prior to performing the following procedures, allow the AGPU to cool for 1 hour.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

NOTE

The AC cable (WP 0002 00, Figure 3, Item 9) must be removed from storage compartment to gain access to the engine access cover.

3. Remove exhaust and engine access covers (WP 0032 00, Figure 2, Item 9 and 12).

REMOVAL – CONTINUED

4. Remove muffler (Figure 1, Item 33) and solenoid NC (Figure 1, Item 17) from surge control valve (Figure 1, Item 18).
5. Disconnect surge control valve (Figure 1, Item 18) from pipe union (Figure 1, Item 31).
6. Tag and disconnect two wires from solenoid electrical leads(Figure 1, Item 25) by cutting at splice, mark wires with numbers.
7. Remove self-tapping screw (5/16") plug (Figure 1, Item 32) and washer (Figure 1, Item 42) from pipe union (Figure 1, Item 31).
8. Remove solenoid NC (Figure 1, Item 17) from surge control (Figure 1, Item 18) body and remove washer.
9. Loosen setscrew (Figure 1, Item 41) installed valve in mounting bracket (Figure 1, Item 43).
10. Remove surge valve (Figure 1, Item 18).

CAUTION

Do not allow AGPU to be started without the surge control valve installed.

11. Safeguard all hardware removed for reinstallation of surge control valve.

INSTALLATION

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

NOTE

The AC cable (WP 0002 00, Figure 3, Item 9) must be removed from storage compartment to gain access to the engine access cover.

1. Remove exhaust and engine access covers (WP 0032 00, Figure 2, Item 9 and 12).
2. Install surge control valve (Figure 1, Item 18) through bottom of hole in mounting bracket and install washer. Ensure that arrow on surge control valve is pointing toward front of AGPU (Tow Bar End). Screw solenoid NC (Figure 1, Item 17) into surge control valve. Tighten as required (be careful not to damage solenoid housing during tighten).
3. Install setscrew (Figure 1, Item 41) through threaded hole in mounting bracket (Figure 1, Item 43) to hold valve.
4. Connect tagged electrical leads (Figure 1, Item 25) to solenoid NC (Figure 1, Item 17).
5. Install union pipe (Figure 1, Item 31) by coating threads with anti-seize compound onto surge control valve (Figure 1, Item 18). Hold surge control valve while installing union pipe. Safeguard solenoid from being damaged during the tighten process of union to surge control valve.
6. Install muffler (Figure 1, Item 33) to elbow pipe (Figure 1, Item 16) by screwing muffler clockwise into elbow. It is recommended coating threads of the muffler with anti-seize compound.
7. Install self-tapping screw (5/16") plug (Figure 1, Item 32) and washer (Figure 1, Item 42) to pipe union (Figure 1, Item 31). Tighten as required.

INSTALLATION – CONTINUED

NOTE

Check tightness of hose clamp (Figure 1, Item 2), tighten as required.

8. (If removed) replace hose pneumatic (Figure 1, Item 11) and hose clamp (Figure 1, Item 2) to fitting pipe (Figure 1, Item 28) and tighten hose clamp as required.
9. Install exhaust and engine access covers (WP 0032 00, Figure 2).
10. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
11. Perform MOC and check for operation, EGT should raise 200 ºF.
12. Install exhaust and engine access covers (WP 0032 00, Figure 2, Item 9 and 12).

END OF WORK PACKAGE

FIELD MAINTENANCE

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

PRESSURE TRANSDUCER

INITIAL SETUP:

Tools and Special Tools

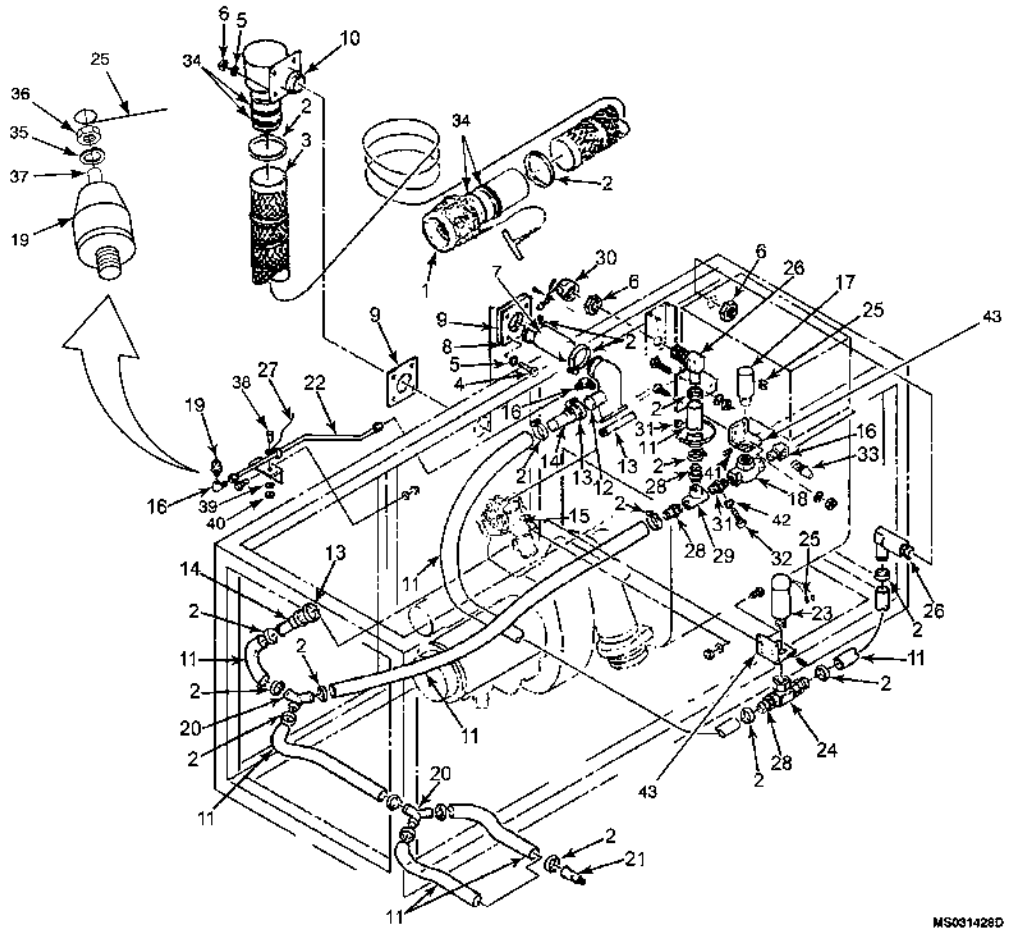
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References

WP 0026 00
WP 0033 00
WP 0043 00
WP 0044 00

Materials/Parts

Solder, Tin Alloy (WP 0154 00, Item 53)



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 Screw (5/16)
33. Muffler
34. Internal Band Clamps
35. Washer, Lock
36. Nut
37. Transducer Terminal
38. Screw
39. Lock Washer
40. Nut
41. Setscrew
42. Washer
43. Mounting Bracket

Figure 1. Pneumatic System.

TEST AND INSPECTION

WARNING

Prior to performing the following procedures, allow the AGPU to cool for 1 hour if AGPU has been placed into operation.

NOTE

For test refer to troubleshooting procedure WP 0026 00, 114. PRESSURE TRANSDUCER MALFUNCTION.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

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.

3. Remove roof (WP 0033 00).
4. Inspect pressure transducer (Figure 1, Item 19) for cracks or dents. No cracks or dents are allowed.
5. Inspect wires (Figure 1, Item 25 and 27) for cut or abraded insulation and security. Secure or repair wiring if damaged.
6. Inspect tube assembly (Figure 1, Item 22) and both pipe elbows (Figure 1, Item 16) for cracks or bent tubing. Replace if damaged.

REMOVAL

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Disconnect electrical lead (Figure 1, Item 25) from pressure transducer (Figure 1, Item 19) by removing nut (Figure 1, Item 36) and lock washer (Figure 1, Item 35).

NOTE

After removal of pressure transducer cover inlet hole in elbow pipe until reinstallation of pressure transducer (use tape or any other material to cover opening).

3. Remove pressure transducer (Figure 1, Item 19) by unthreading (counter clockwise) from elbow pipe (Figure 1, Item 16).

INSTALLATION

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

1. Install thread end of pressure transducer (Figure 1, Item 19) into elbow pipe (Figure 1, Item 16) by turning pressure transducer clockwise.

INSTALLATION – CONTINUED

2. Connect electrical lead (Figure 1, Item 25) to transducer terminal (Figure 1, Item 34) with nut (Figure 1, Item 36) and lock washer (Figure 1, Item 35). Tighten as required. Do not over tighten. If over tightened, it will result in pressure transducer malfunction.

CAUTION

During installation of the roof, one person should be stationed at each corner of the roof to prevent warping or damage to the roof.

3. Install roof (WP 0033 00).
4. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
5. Perform MOC and check that pneumatic gauge (psig) reads between **24-60 psig**.

END OF WORK PACKAGE

FIELD MAINTENANCE

**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, OIL CHANGE, SIGHT GLASS AND MAGNETIC DRAIN PLUGS

INITIAL SETUP:

Tools and Special Tools

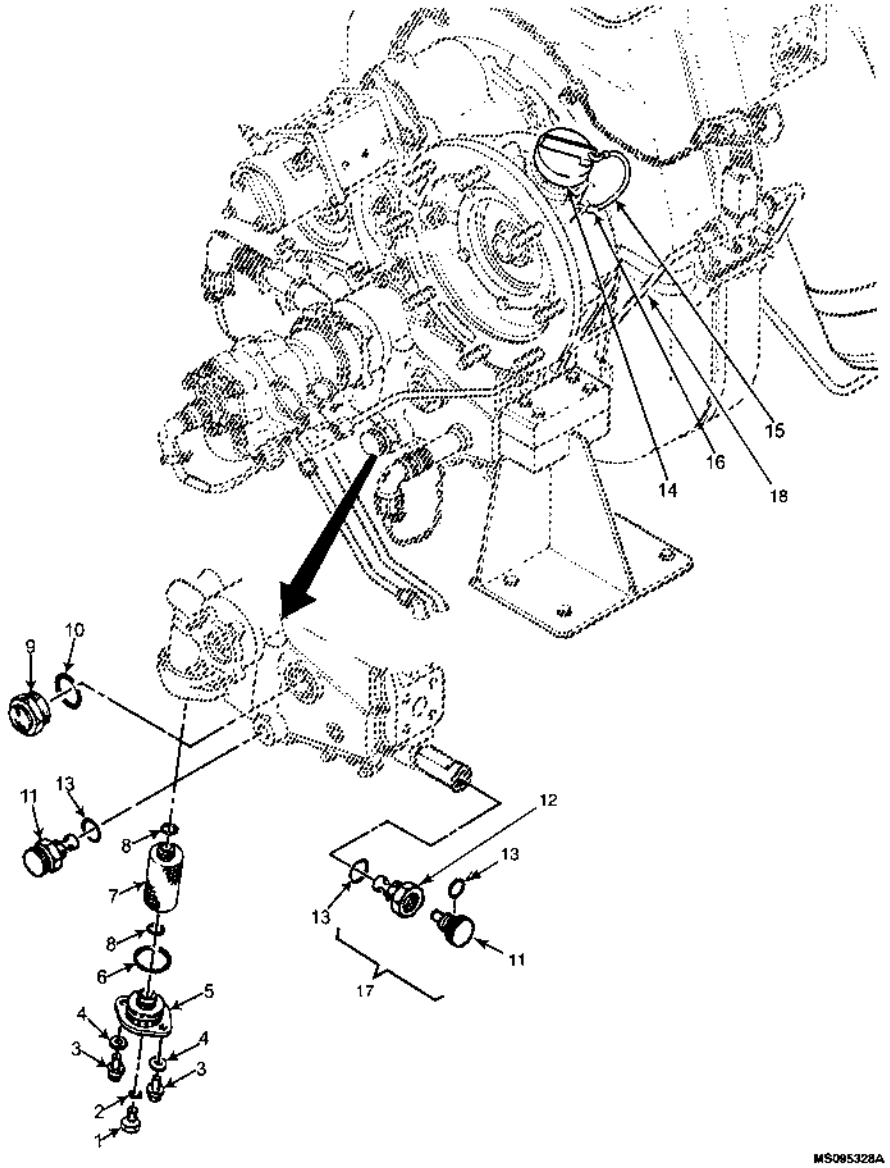
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

Materials/Parts

Lockwire (WP 0154 00, Item 60)
Hose Assembly, Nonmetallic, Engine Oil Drain (WP 0153 00, Figure 2, Item 2)

References

WP 0002 00
WP 0029 00
WP 0032 00
WP 0043 00
WP 0044 00



1. Tap Plug	7. Filter Element	13. Packing
2. Packing	8. Packing	14. Engine Fill Cap
3. Screw	9. Sight Level Indicator	15. Wire Rope
4. Washer	10. Packing	16. Splice Connector
5. Filter Cover	11. Magnetic Drain Plug (Gearcase)	17. Magnetic Drain Plug (Overflow Tube)
6. Packing	12. Receiver	18. Fuel Line

Figure 1. Engine Lubrication System Components.

TEST AND INSPECTION

MAGNETIC DRAIN PLUGS AND GEARCASE (RECEIVERS)

WARNING

Prior to performing the following procedures, allow the AGPU to cool for 1 hour if AGPU has been placed into operation.

NOTE

The following procedures will be followed when removing and installing both the magnetic drain plug (gearcase), the magnetic drain plug (overflow tube) (Figure 1, Item 11) and the receiver (Figure 1, Item 12).

1. Open engine access door (WP 0002 00, Figure 1, Item 12).

NOTE

Tools are not required to remove drain plug.

2. Remove magnetic drain plug (Figure 1, Item 11) by pushing in and turning counterclockwise to unlock, then remove drain plug.
3. Inspect magnetic drain plug (Figure 1, Item 11) for metal particles which may indicate internal damage to engine. If metal particles are present on drain plug, notify maintenance supervisor.
4. Inspect packing (Figure 1, Item 13) and replace if damaged.
5. If engine oil starts to drain from engine when magnetic drain plug (Figure 1, Item 11) is removed from the magnetic drain plug (gearcase) receiver (Figure 1, Item 12) the receiver must be replaced in the engine gearcase.

REMOVAL

MAGNETIC DRAIN PLUGS AND GEARCASE (RECEIVERS)

WARNING

Prior to performing the following procedures, allow the AGPU to cool for 1 hour if AGPU has been placed into operation.

NOTE

The following procedures will be followed when removing and installing both the magnetic drain plug (gearcase) (Figure 1, Item 11), the magnetic drain plug (overflow tube) and the receiver (Figure 1, Item 12).

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open engine access door (WP 0002 00, Figure 1, Item 12).

REMOVAL – CONTINUED

MAGNETIC DRAIN PLUGS AND GEARCASE (RECEIVERS) – CONTINUED

3. Remove magnetic drain plugs (Figure 1, Item 11 and 12) by pushing in and turning counterclockwise to unlock, then remove drain plug.
4. If engine oil starts to drain from engine when magnetic drain plug (Figure 1, Item 11) is removed from the magnetic drain plug (gearcase) receiver (Figure 1, Item 12) the receiver must be replaced in the engine gearcase.

CAUTION

Be careful not to crack engine gearcase during removal of receiver.

NOTE

When removing receiver from engine gearcase a suitable container must be used to catch engine oil. The engine oil will drain completely. Refer toWP 0029 00 for oil type refill.

5. To remove the receiver (Figure 1, Item 12) the magnetic drain plug (Figure 1, Item 11) must be removed first. Unscrew the receiver (counterclockwise) from the engine gearcase.

INSTALLATION

MAGNETIC DRAIN PLUGS AND GEARCASE (RECEIVERS)

WARNING

Prior to performing the following procedures, allow the AGPU to cool for 1 hour if AGPU has been placed into operation.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open engine access door (WP 0002 00, Figure 1, Item 12).

NOTE

If the magnetic drain plug receivers have been removed they must be reinstalled before the magnetic drain plug (gearcase) (Figure 1, Item 11) and magnetic drain plug (overflow tube) (Figure 1, Item 17) can be installed.

3. Install magnetic drain plug (gearcase) (Figure 1, Item 11) and magnetic drain plug (overflow tube) (Figure 1, Item 17) by pushing in and turning clockwise (cw) to lock.
4. Check that proper oil level is shown in sight level indicator. Add GTE oil as required (WP 0029 00).
5. Close engine access door (WP 0002 00, Figure 1, Item 12).
6. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
7. Perform MOC and check for oil leaks. No leaks are allowed.

REMOVAL

SIGHT LEVEL INDICATOR

WARNING

Prior to performing the following procedures, allow the AGPU to cool for 1 hour if AGPU has been placed into operation.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open engine access door (WP 0002 00, Figure 1, Item 12).
3. Drain oil completely in a suitable container to remove sight level indicator (Figure 1, Item 9) and packing (Figure 1, Item 10).
4. Disconnect fuel line (Figure 1, Item 18) at both ends and move it to gain access to sight level indicator (Figure 1, Item 9) and packing (Figure 1, Item 10).
5. Cut and remove nonelectrical wire from sight level indicator (Figure 1, Item 9).

NOTE

If the appropriate socket is not used to remove the sight level indicator (Figure 1, Item 9) damage to the sight level indicator and engine gearcase will occur.

6. Remove sight level indicator (Figure 1, Item 9) and packing (Figure 1, Item 10) by turning indicator counter clockwise. When removed discard packing.

INSTALLATION

SIGHT LEVEL INDICATOR

WARNING

Prior to performing the following procedures, allow the AGPU to cool for 1 hour if AGPU has been placed into operation.

1. Install sight level indicator (Figure 1, Item 9) with new packing (Figure 1, Item 10) by screwing sight level indicator clockwise into engine gearcase. Tighten sight level indicator as required.
2. Lockwire sight level indicator (Figure 1, Item 9) using non electrical wire.
3. Connect fuel line (Figure 1, Item 18) at both ends.
4. Add GTE oil to engine as required (WP 0029 00) check that proper oil level is shown in sight level indicator.
5. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
6. Close engine access door (WP 0002 00, Figure 1, Item 12).
7. Perform MOC and check for oil leaks. No leaks are allowed.

INSTALLATION – CONTINUED

SIGHT LEVEL INDICATOR – CONTINUED

NOTE

After replacing sight level indicator, engine oil supply must be replenished (WP 0029 00).

REMOVAL

OIL FILTER ELEMENT AND SEALS

WARNING

Prior to performing the following procedures, allow the AGPU to cool for 1 hour if AGPU has been placed into operation.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Open engine access door (WP 0002 00, Figure 1, Item 12).
3. Remove the DC power cable (WP 0002 00, Figure 4, Item 12) from storage compartment (WP 0002 00, Figure 4, Item 14).
4. Remove hydraulic access cover (WP 0032 00, Figure 2, Item 15).

NOTE

Take oil sample from GTE before the engine completely drains of oil.

5. Drain engine oil completely in a suitable container by removing the magnetic drain plug (gearcase) (Figure 2, Item 1) connect hose assembly, non-metallic prior to removal of filter element assembly (Figure 1, Item 7).
6. 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). Drain engine oil in suitable container.
7. Remove two screws (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 all packing (Figure 1, Item 6 and 8) and oil filter element (Figure 1, Item 7). Never reuse oil filter element after removal.

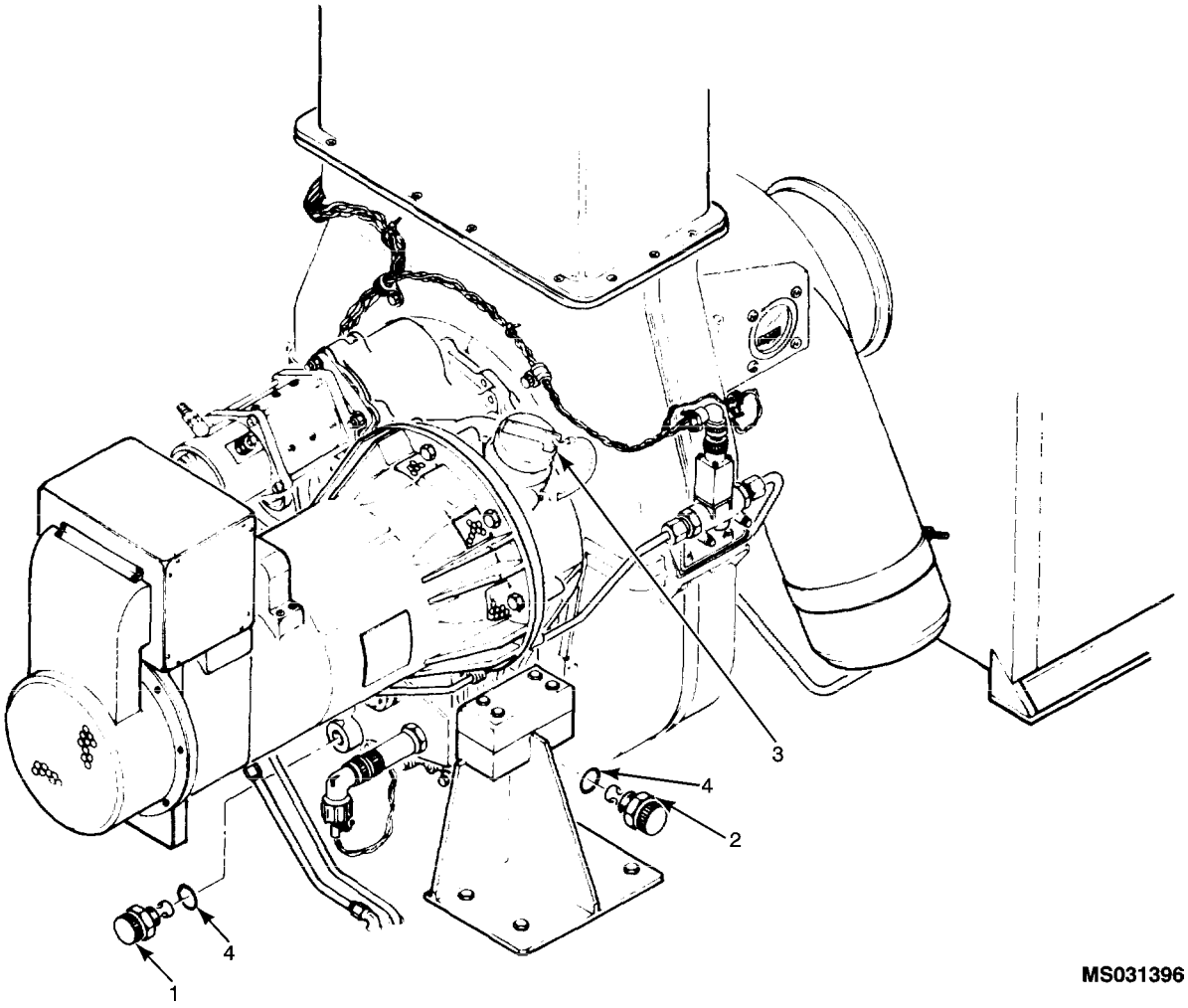
NOTE

If oil filter element is free of metal particles or foreign materials, engine is acceptable for continued service. Engine oil and oil filter element should always be changed at same interval (WP 0029 00).

8. 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. Submit engine oil for sampling if metal particles were found in oil filter element or magnetic drain plug (gearcase) (Figure 2, Item 1).

REMOVAL – CONTINUED

OIL FILTER ELEMENT AND SEALS – CONTINUED



1. Magnetic Drain Plug (Gearcase)
2. Magnetic Drain Plug (Overflow Tube)
3. Oil Filler Cap
4. Packing

Figure 2. Engine Oil Change.

INSTALLATION

OIL FILTER ELEMENT AND SEALS/LUBRICATION, ENGINE OIL CHANGE

WARNING

Prior to performing the following procedures, allow the AGPU to cool for 1 hour if AGPU has been placed into operation.

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

NOTE

After replacing oil filter element, new engine oil must be replenished (WP 0029 00).

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 screws (Figure 1, Item 3). Tighten bolts to a torque value of **50 inch-pounds**. Lockwire bolts using nonelectrical wire.
3. Install oil pressure tap plug (Figure 1, Item 1), with new packing (Figure 1, Item 2) into filter cover (Figure 1, Item 5).

NOTE

Remove engine oil drain tube if still connected, hose assembly, non-metallic.

4. Install magnetic drain plug (gearcase) (Figure 1, Item 11) by pushing in and turning clockwise (cw) to lock.
5. Remove engine oil fill cap (Figure 1, Item 14).
6. Refill engine with 2.3 quarts of Turbine Engine Oil. Refer to WP 0029 00 for type and proper amount of oil.
7. Replace engine oil fill cap (Figure 1, Item 14).
8. Install hydraulic access cover (WP 0032 00, Figure 2, Item 15).
9. Replace the DC power cable (WP 0002 00, Figure 4, Item 12) in storage compartment (WP 0002 00, Figure 4, Item 14).
10. Close engine access door (WP 0002 00, Figure 1, Item 12).
11. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
12. Perform MOC and check for proper oil level and leaks. No oil leaks are allowed.

END OF WORK PACKAGE

FIELD MAINTENANCE

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 AND IGNITER PLUG LEAD

INITIAL SETUP:

Tools and Special Tools

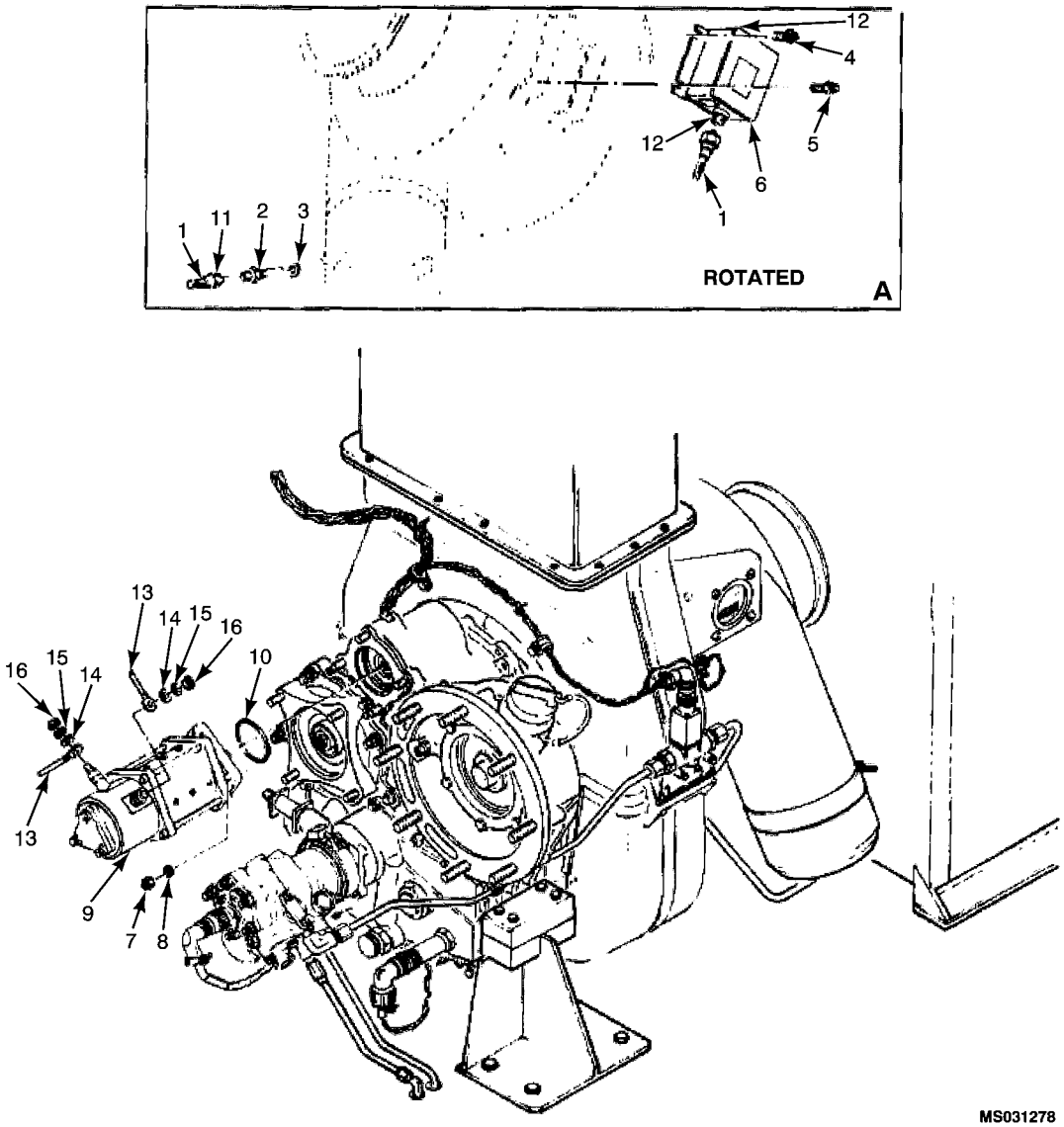
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

Materials/Parts

Anti-Seize Compound (WP 0154 00, Item 3)
Wire, Nonelectrical (WP 0154 00, Item 60)

References

WP 0002 00
WP 0032 00
WP 0043 00
WP 0044 00
WP 0114 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. Washer, Lock
4. Bolt	8. Washer	12. Connector	16. Nut

Figure 1. Engine Ignition System Components.

REMOVAL

WARNING

Do not disconnect igniter plug lead 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, electrocution or death.

WARNING

Prior to performing the following procedures, allow the AGPU to cool for 1 hour if AGPU has been placed into operation.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Open engine access door (WP 0002 00, Figure 1, Item 12).
4. Open pneumatic hose access door (WP 0002 00, Figure 12, Item 1) and remove pneumatic hose (WP 0002 00, Figure 12, Item 3) from compartment.
5. Remove engine access cover (WP 0032 00, Figure 2, Item 12).

NOTE

If required to remove the complete igniter plug lead (Figure 1, Item 1) it will be necessary to remove lockwire from the igniter plug lead on ignition unit (Figure 1, Item 6).

6. Cut and remove nonelectrical wire on igniter plug lead (Figure 1, Item 1) end only.
7. Disconnect igniter plug lead (Figure 1, Item 1) from igniter plug (Figure 1, Item 2).
8. Remove igniter plug (Figure 1, Item 2) and washer (Figure 1, Item 3).
9. Inspect ceramic insulation (inside of plug) of igniter plug (Figure 1, Item 2) for cracks and chips. No cracks or chips are allowed.
10. Inspect igniter plug (Figure 1, Item 2) electrode for distortion and erosion. Electrode shall not be less than 0.010 inch above ceramic insulator. Replace igniter plug if electrode is distorted or eroded.
11. 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.
12. Inspect combustor assembly housing and cap (WP 0114 00, Figure 1, Item 7) for cracks. No cracks are allowed.

INSTALLATION

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

1. Coat threads of igniter plug (Figure 1, Item 2) with anti-seize compound.

INSTALLATION – CONTINUED

2. Install igniter plug (Figure 1, Item 2) with washer (Figure 1, Item 3). Ensure washer is seated on end of plug prior to inserting plug in combustor cap, thread clockwise and torque igniter plug to a value of 100 inch-pounds.

NOTE

If required to remove the complete igniter plug lead (Figure 1, Item 1) it will be necessary to remove nonelectrical wire from the igniter plug lead on ignition unit (Figure 1, Item 6).

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.
4. Lockwire igniter plug lead using nonelectrical wire.
5. Install engine access cover (WP 0032 00, Figure 2, Item 12).
6. Replace pneumatic hose (WP 0002 00, Figure 12, Item 3) in compartment. Close pneumatic hose access door (WP 0002 00, Figure 12, Item 1).
7. Close engine access door (WP 0002 00, Figure 1, Item 12).
8. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
9. Perform MOC.

END OF WORK PACKAGE

FIELD MAINTENANCE

**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

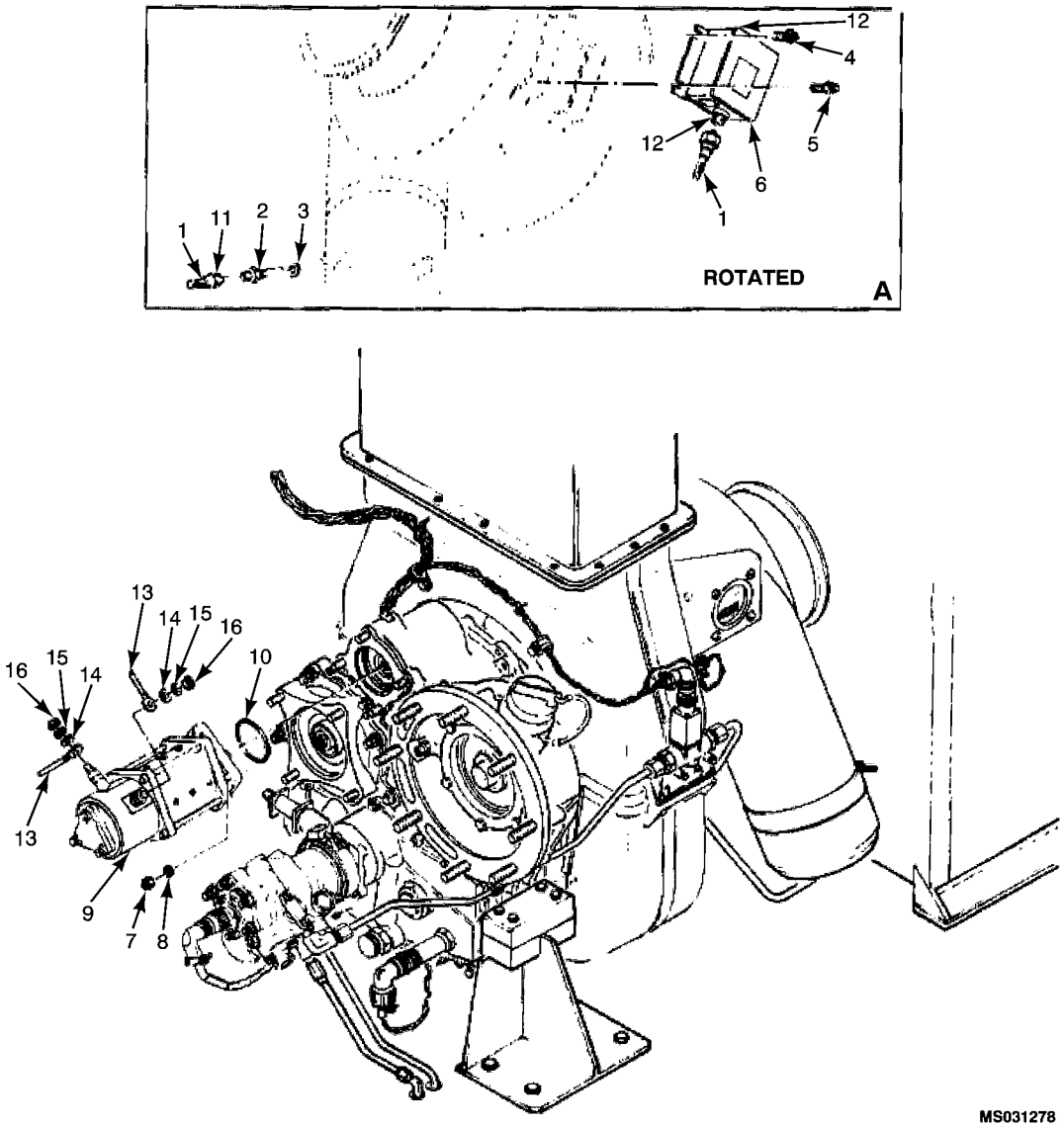
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

Materials/Parts

Wire, Nonelectrical (WP 0154 00, Item 60)

References

WP 0002 00
WP 0043 00
WP 0044 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. Washer, Lock
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. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
3. Open engine access door (WP 0002 00, Figure 1, Item 12).
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, Figure 1, Item 12).
4. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
5. Perform MOC.

END OF WORK PACKAGE

FIELD MAINTENANCE

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 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

Materials/Parts

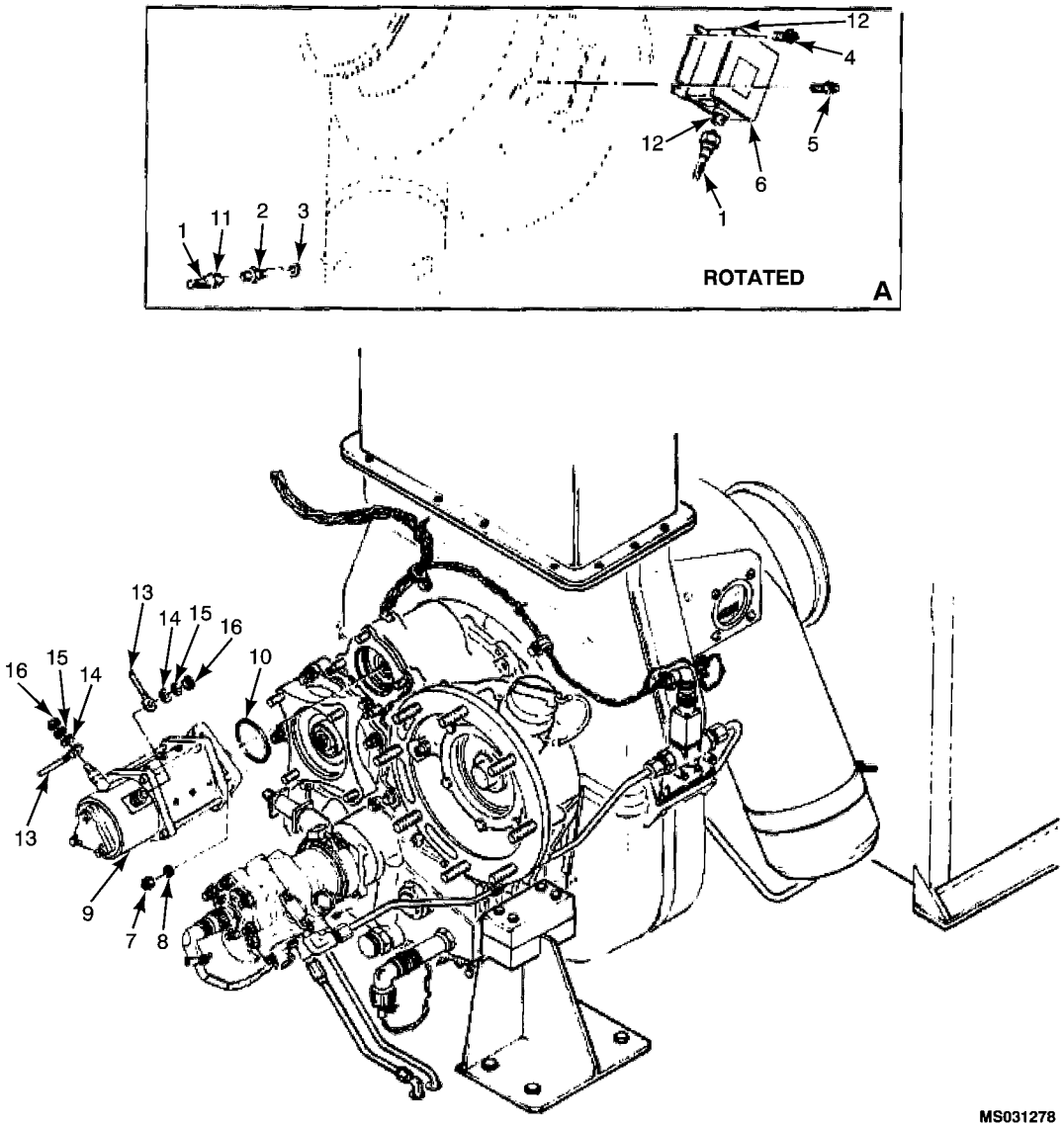
Anti-Seize Compound (WP 0154 00, Item 3)

Materials/Parts (cont.)

Lockwire (WP 0154 00, Item 30)

References

WP 0025 00
WP 0032 00
WP 0043 00
WP 0044 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. Washer, Lock
4. Bolt	8. Washer	12. Connector	16. Nut

Figure 1. Engine Ignition System Components.

TEST AND INSPECTION

WARNING

Do not disconnect igniter plug lead 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

TEST AND INSPECTION – CONTINUED

working with ignition system. Failure to observe all precautions may result in serious injury, electrocution or death.

WARNING

Prior to performing the following procedures, allow the AGPU to cool for 1 hour if AGPU has been placed into operation.

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

NOTE

For test refer to troubleshooting procedure WP 0025 00, 110. IGNITION UNIT MALFUNCTION.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Remove engine access cover (WP 0032 00, Figure 2, Item 12).
4. Inspect case of ignition unit (Figure 1, Item 6) for dents, cracks or discoloration. No dents or cracks are allowed. If discoloration appears check the V-clamp on exhaust plenum.
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

WARNING

Do not disconnect igniter plug lead 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, electrocution or death.

WARNING

Prior to performing the following procedures, allow the AGPU to cool for 1 hour if AGPU has been placed into operation.

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Remove engine access cover (WP 0032 00, Figure 2, Item 12).
3. Cut and remove nonelectrical wire from igniter plug lead (Figure 1, Item 1).
4. Disconnect igniter plug lead (Figure 1, Item 1) from ignition unit (Figure 1, Item 6).
5. 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-sieze 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 igniter plug lead (Figure 1, Item 1) to electrical connector (Figure 1, Item 12) on ignition unit (Figure 1, Item 6). Tighten igniter plug lead to a torque value of 35 inch-pounds. Use nonelectrical wire to lockwire igniter plug lead.
4. Reinstall engine access cover (WP 0032 00, Figure 2, Item 12).
5. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
6. Perform MOC.

END OF WORK PACKAGE

FIELD MAINTENANCE

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 OVERHAUL, DISASSEMBLY AND REPAIR

INITIAL SETUP:

Tools and Special Tools

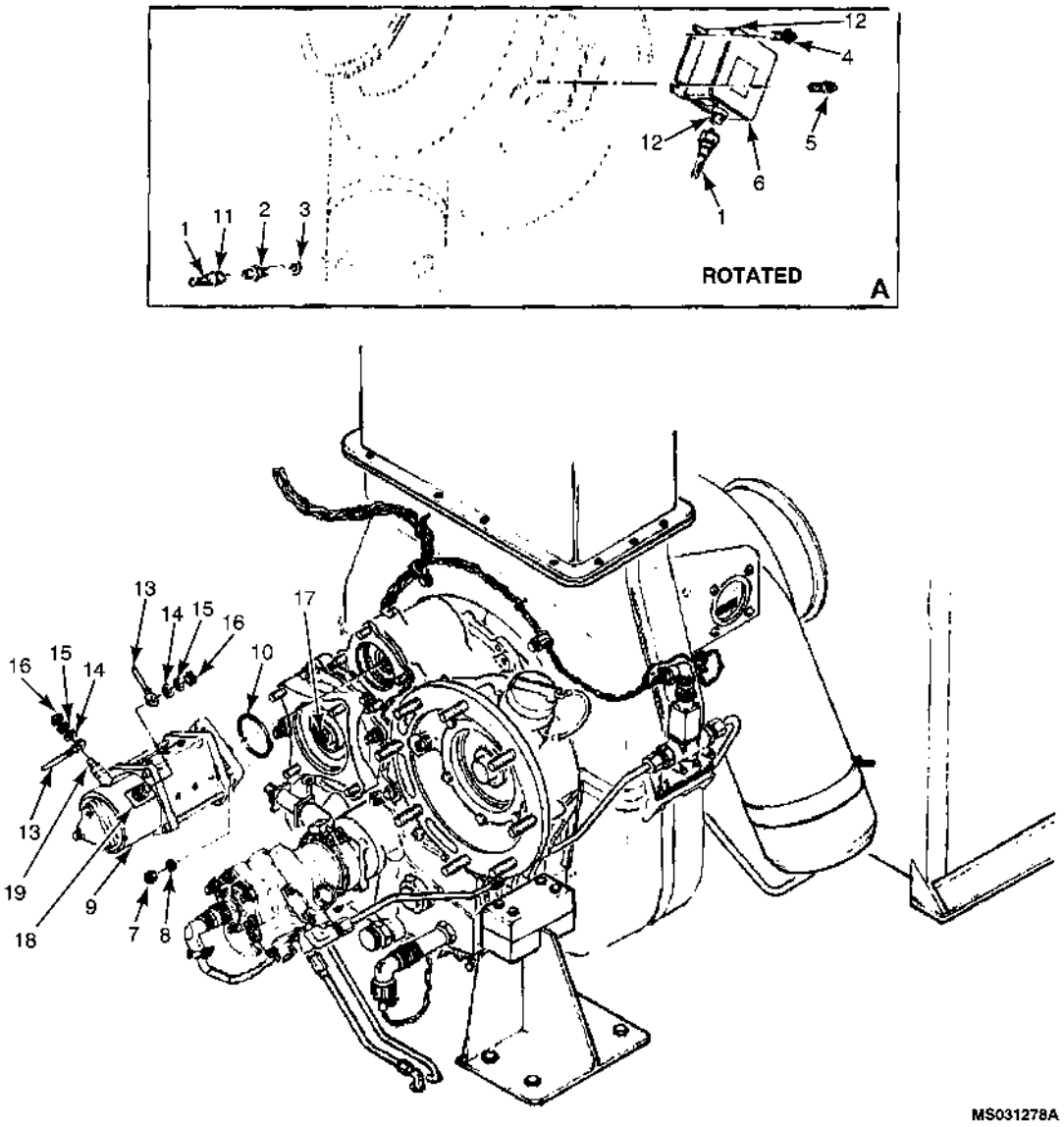
Tool Set, Aviation Unit (WP 0155 00, Item 41)
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)

Materials/Parts

Lubricating Oil, Molybdenum Disul (WP 0154 00, Item 36)

References

WP 0002 00
WP 0006 00
WP 0033 00
WP 0043 00
WP 0044 00



1. Igniter Plug Lead	7. Nut	13. Electrical Lead
2. Igniter Plug	8. Washer	14. Washer, Flat
3. Washer	9. Starter Assembly	15. Washer, Lock
4. Bolt	10. Packing	16. Nut
5. Bolt	11. Insulator Grommet	17. Sprag Clutch
6. Ignition Unit	12. Connector	18. Terminal (-)
		19. Terminal (+)

Figure 1. Engine Ignition System Components.

TEST AND INSPECTION

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
3. Lower control panel access door (WP 0002 00, Figure 1, Item 2).
4. Turn on master switch (WP 0006 00, Figure 1, Item 1). Look at battery voltage meter (WP 0006 00, Figure 1, Item 23) and ensure it reads in the green band (24-32 volts DC).
5. Attempt to start GTE by moving the engine control switch (WP 0006 00, Figure 1, Item 8) to the (momentary) start position. Starter assembly (Figure 1, Item 9) should engage and GTE RPM meter (WP 0006 00, Figure 1, Item 10) should begin to read engine RPM.
6. If starter does not engage or GTE fails to show RPM on RPM meter move engine control switch (WP 0006 00, Figure 1, Item 8) to the OFF position.
7. Turn off master switch (WP 0006 00, Figure 1, Item 1).
8. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
9. Open engine access door (WP 0002 00, Figure 1, Item 12).
10. Locate starter assembly (Figure 1, Item 9) and electrical leads (Figure 1, Item 13) and ensure they are tight to the starter terminals both (POS/NEG) (Figure 1, Item 18 and 19). Tighten as required.
11. If electrical leads (Figure 1, Item 13) and terminals both (POS/NEG) (Figure 1, Item 18 and 19) are tight proceed to removal steps of starter.

REMOVAL

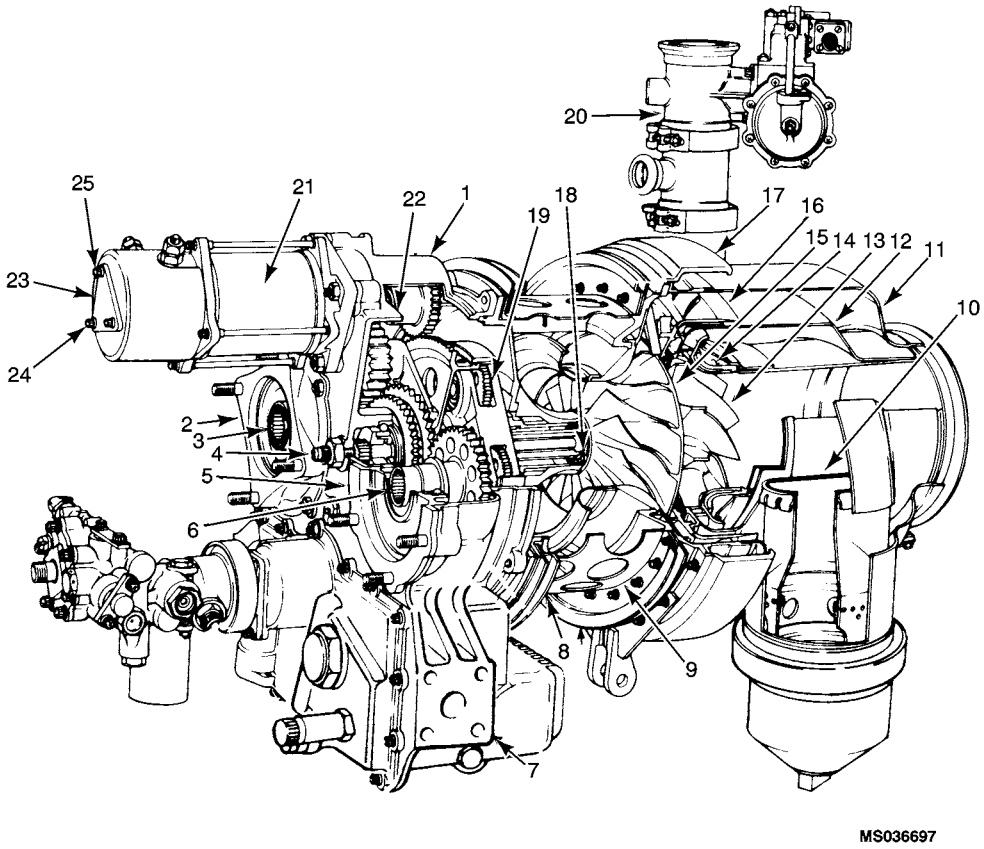
1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

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.

3. Remove roof (WP 0033 00).
4. Tag starter assembly (Figure 1, Item 9) and electrical leads (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) from terminals POS/NEG (Figure 1, Item 18 and 19).
6. Remove nuts (Figure 1, Item 7) and washers (Figure 1, Item 8) from starter assembly (Figure 1, Item 9) mounting studs.
7. Remove starter assembly (Figure 1, Item 9) and packing (Figure 1, Item 10). Discard packing after removal.

REMOVAL – CONTINUED



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	23. End Cap
6. Generator Splined Drive	12. Torus Scroll	18. Compressor Bearing	24. Screw
			25. Lock Washer

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 clutch by inserting a number 3 flat tip screw driver in gear spline of the sprag clutch and rotating in the clockwise and counter clockwise direction.
9. If starter sprag clutch (Figure 2, Item 22) rotation is rough or if the clutch is seized, the engine must be replaced. Notify maintenance supervisor.

INSTALLATION

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

1. Open engine access door (WP 0002 00, Figure 1, Item 12).

INSTALLATION – CONTINUED

2. Clean the surface of starter and install new packing (Figure 1, Item 10) in place on starter assembly (Figure 1, Item 9).
3. Apply a light coat of Lubricating Oil, Molybdenum Disul to the threads of the starter assembly mounting studs.
4. Install starter assembly and secure with washers (Figure 1, Item 8) and nuts (Figure 1, Item 7). Hand-tighten nuts while pushing starter assembly forward towards engine gear case mount. After flush mount of starter assembly to engine tighten nuts to a torque value of **100 inch-pounds.**
5. Reconnect two electrical leads (Figure 1, Item 13) to starter assembly (Figure 1, Item 9) terminals (POS/NEG) (Figure 1, Item 18 and 19) using tags for identification.

CAUTION

When tightening electrical leads (Figure 1, Item 13) to starter assembly (Figure 1, Item 9) terminals (POS/NEG) (Figure 1, Item 18 and 19). DO NOT over tighten or damage to the internal isolator of the starter assembly will occur. This will render the starter assembly inoperable.

6. Install two flat washers (Figure 1, Item 14), lock washers (Figure 1, Item 15) and nuts (Figure 1, Item 16) to starter assembly terminals (Figure 1, Item 18 and 19).
7. Close engine access door (WP 0002 00, Figure 1, Item 12).

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.

8. Install roof (WP 0033 00).
9. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
10. Perform MOC and ensure starter assembly functions properly.

END OF WORK PACKAGE

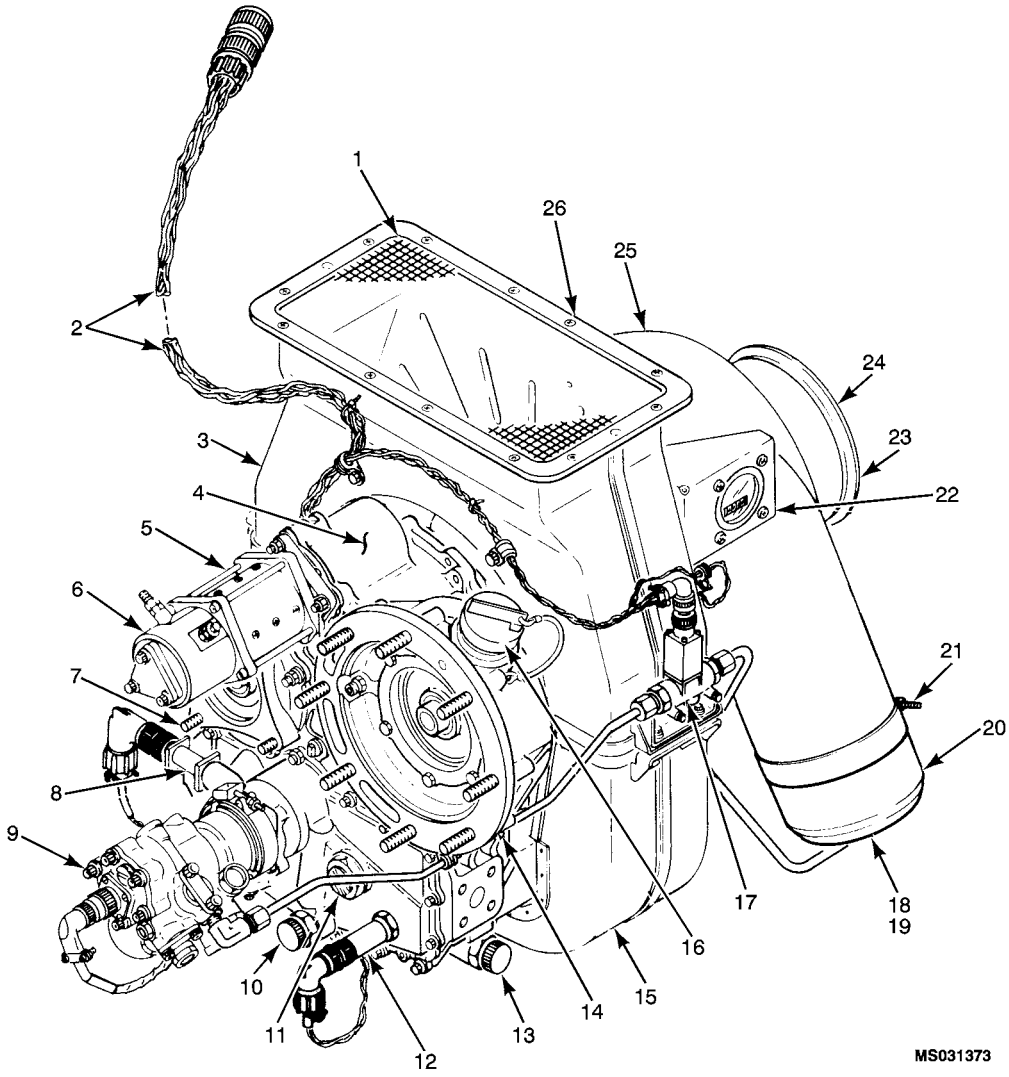
FIELD MAINTENANCE

**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	References
Aviation Foot Locker, AFL (WP 0155 00, Item 3)	WP 0002 00
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)	WP 0032 00
	WP 0033 00
Tool Set, Aviation Unit (WP 0155 00, Item 41)	WP 0043 00
	WP 0044 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

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.

3. Remove roof (WP 0033 00).
4. Open engine access door (WP 0002 00, Figure 1, Item 12).
5. Remove the AC/DC cables from storage compartments (WP 0002 00, Figure 4, Item 9 and 12).
6. Open pneumatic access door (WP 0002 00, Figure 12, Item 1) and remove pneumatic hose (WP 0002 00, Figure 12, Item 3)
7. Remove exhaust access cover, engine access cover and hydraulic access cover (WP 0032 00, Figure 2, Item 9, 12 and 15).
8. Inspect engine and compartment for leakage of fuel, oil and hydraulic fluid. No leakage of fluids is allowed.
9. Inspect electrical connectors for security of installation. Inspect wiring harness for cuts or abraded wires. Tighten connectors and repair wiring insulation as required. If corrosion is present clean and remove as required.
10. Inspect engine accessories; gearcase assembly, speed sensor, starter assembly, low oil pressure switch, fuel control unit (FCU), high oil temperature switch, inlet duct (lower half), fuel solenoids, combustor cap and combustor clamp (Figure 1, Item 4, 5, 6, 8, 9, 12, 15, 17, 20, and 21) for security of installation, damage or corrosion.
11. Inspect inlet duct (upper half) (Figure 1, Item 3) and inlet duct (lower half) (Figure 1, Item 15) for cracks, holes or damage. Inspect inlet duct screen (Figure 1, Item 1) for damage by opening bypass door and inspecting screen (Figure 1, Item 1). Remove any foreign material from screen. Inspect inlet duct (lower half) (Figure 1, Item 15) for loose rivets or damaged nut plates. Repair and tighten as needed.
12. Install exhaust access cover, engine access cover and hydraulic access cover (WP 0032 00, Figure 2, Item 9, 12 and 15).
13. Replace pneumatic hose (WP 0002 00, Figure 12, Item 3). Close pneumatic access door (WP 0002 00, Figure 12, Item 1).
14. Replace the AC/DC cables in storage compartments (WP 0002 00, Figure 4, Item 9 and 12).
15. Close engine access door (WP 0002 00, Figure 1, Item 12).

CAUTION

During installation of the roof, one person should be stationed at each corner of the roof to prevent warping or damage to the roof.

16. Install roof (WP 0033 00).
17. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
18. Perform MOC and check for exhaust or fluid leaks. No leaks are allowed.

END OF WORK PACKAGE

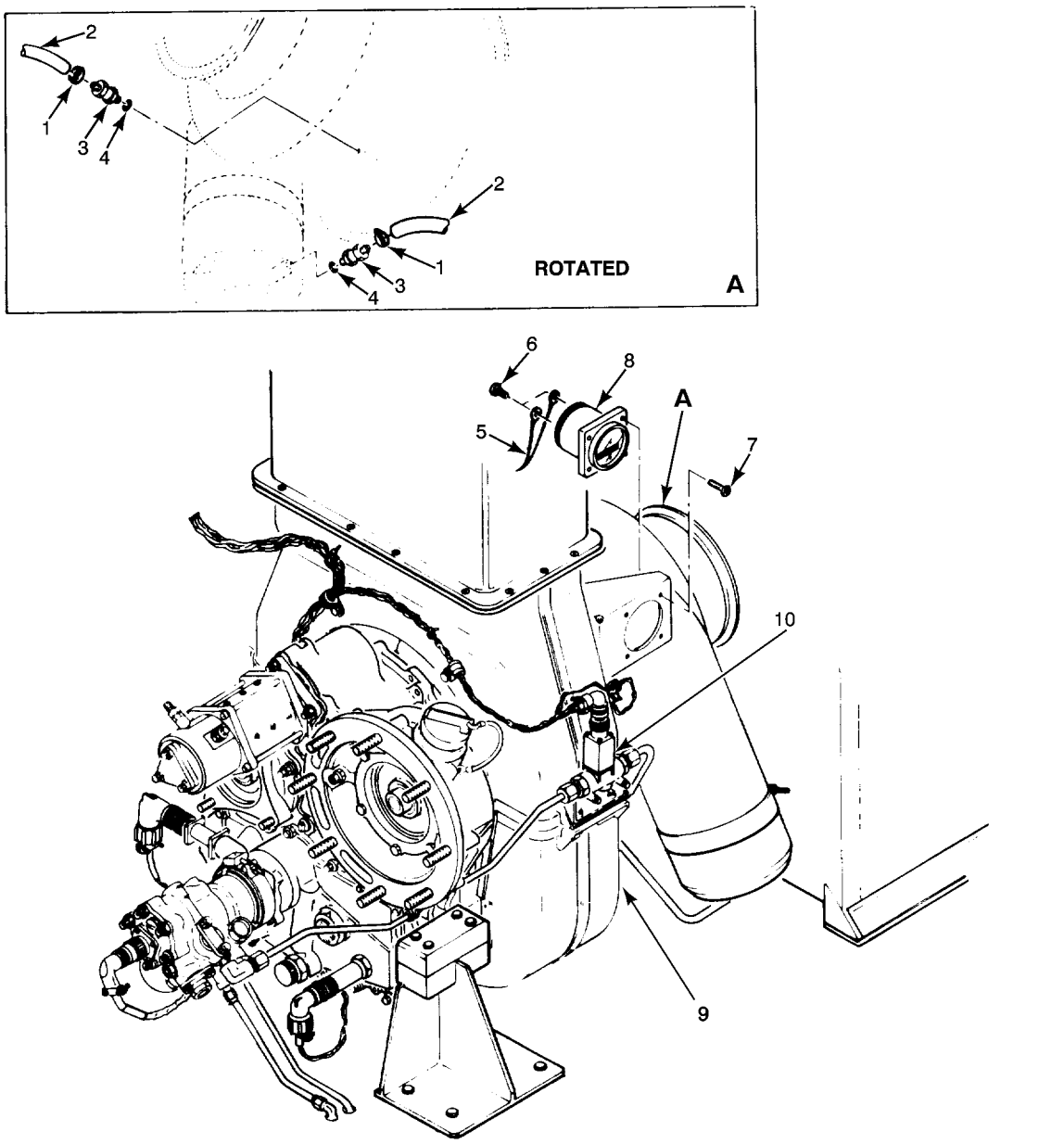
FIELD MAINTENANCE

**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	References
Aviation Foot Locker, AFL (WP 0155 00, Item 3)	WP 0002 00
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)	WP 0008 00
Tool Set, Aviation Unit (WP 0155 00, Item 41)	WP 0043 00
	WP 0044 00



1. Steel Fitting
2. Steel Drain Line
3. Check Valve
4. Packing
5. Electrical Connections
6. Screw
7. Screw
8. Hour Meter
9. Engine (GTE)
10. Shutdown Fuel Solenoid

Figure 1. Engine Components.

TEST AND INSPECTION

NOTE

If GTE fails to start, the malfunction could be the hour meter. The power supply wire to the shutdown fuel solenoid (Figure 1, Item 10) is wired in series with the power supply wire to the hour meter.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Open engine access door (WP 0002 00, Figure 1, Item 12). Secure door in the open position.
4. Inspect hour meter (Figure 1, Item 8) for dents, cracks, broken glass or missing hardware. No cracks or broken glass are allowed.
5. Inspect hour meter (Figure 1, Item 8) electrical connections (Figure 1, Item 5) for missing wires or loose connections. Replace or tighten wire connections as required.
6. Record hour meter reading for further reference.
7. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
8. Start AGPU (WP 0008 00).
9. Record hour meter reading to ensure it has advanced. If not refer to REMOVAL and INSTALLATION instructions.
10. Shut down AGPU (WP 0008 00).
11. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
12. Close engine access door (WP 0002 00, Figure 1, Item 12).

REMOVAL

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

1. Open engine access door (WP 0002 00, Figure 1, Item 12).
2. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
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

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

1. Open engine access door (WP 0002 00, Figure 1, Item 12). Secure door in the open position.

INSTALLATION – CONTINUED

2. 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**.
3. Attach electrical connections (Figure 1, Item 5) to hour meter using two screws (Figure 1, Item 6).
4. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
5. Close engine access door WP 0002 00, Figure 1, Item 12).
6. Perform MOC and see if hour meter (Figure 1, Item 8) increases in time.

END OF WORK PACKAGE

FIELD MAINTENANCE

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) PLUMBING AND WIRING HARNESSES

INITIAL SETUP:

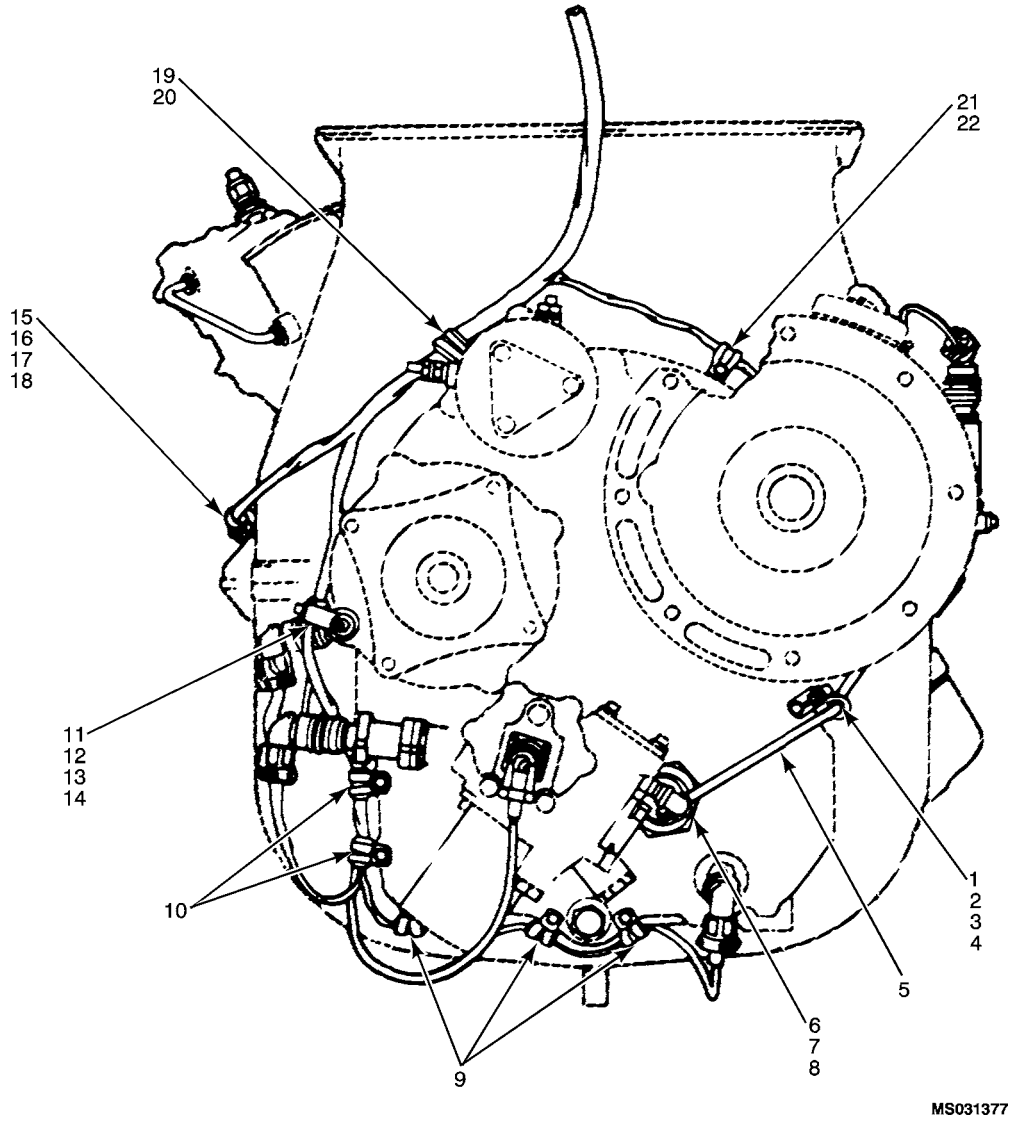
Tools and Special Tools
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

Materials/Parts
Solder, Tin Alloy (WP 0154 00, Item 53)
Tape, Anti-Seizing (WP 0154 00, Item 54)

References
TM 1-1730-229-24P

References (cont.)
TM 1-1500-204-23-2
TM 1-1500-323-24-1
MIL-HDBK-454B
QQ-B-654A(1)
WP 0002 00
WP 0032 00
WP 0033 00
WP 0043 00
WP 0044 00

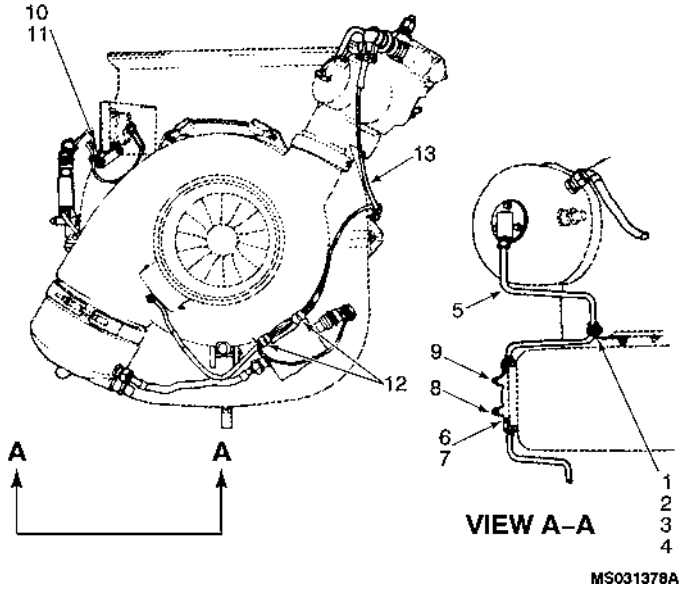
TEST AND INSPECTION



1. Nut	7. Nut	13. Clamp	19. Bolt
2. Bolt	8. Packing	14. Bracket, Angle	20. Clamp
3. Clamp	9. Clamp	15. Nut	21. Bolt
4. Bracket	10. Claw	16. Bolt	22. Clamp
5. Tube Assembly	11. Nut	17. Clamp	
6. Elbow	12. Bolt	18. Bracket	

Figure 1. Engine Plumbing and Wiring Harness Installation, Front View.

TEST AND INSPECTION – CONTINUED



1. Nut	5. Tube Assembly	9. Bolt
2. Bolt	6. Union	10. Clamp
3. Clamp	7. Packing	11. Bracket
4. Bracket	8. Nut	12. Clamp
		13. Harness Assembly, Wiring

Figure 2. Engine Plumbing and Wiring Harness Installation, Rear View.

Engine Wiring Harness

NOTE

The engine wiring harness connects between the ECU (J2) and (P2) on the engine harness and to all engine mounted components.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

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.

3. Remove roof (WP 0033 00).
4. Open engine access door (WP 0002 00, Figure 1, Item 12).
5. Remove the AC/DC cables from storage compartments (WP 0002 00, Figure 4, Item 9 and 12).
6. Open pneumatic access door (WP 0002 00, Figure 12, Item 1) and remove pneumatic hose (WP 0002 00, Figure 12, Item 3).
7. Remove exhaust access cover, engine access cover and hydraulic access cover (WP 0032 00, Figure 2, Item 9, 12 and 15).

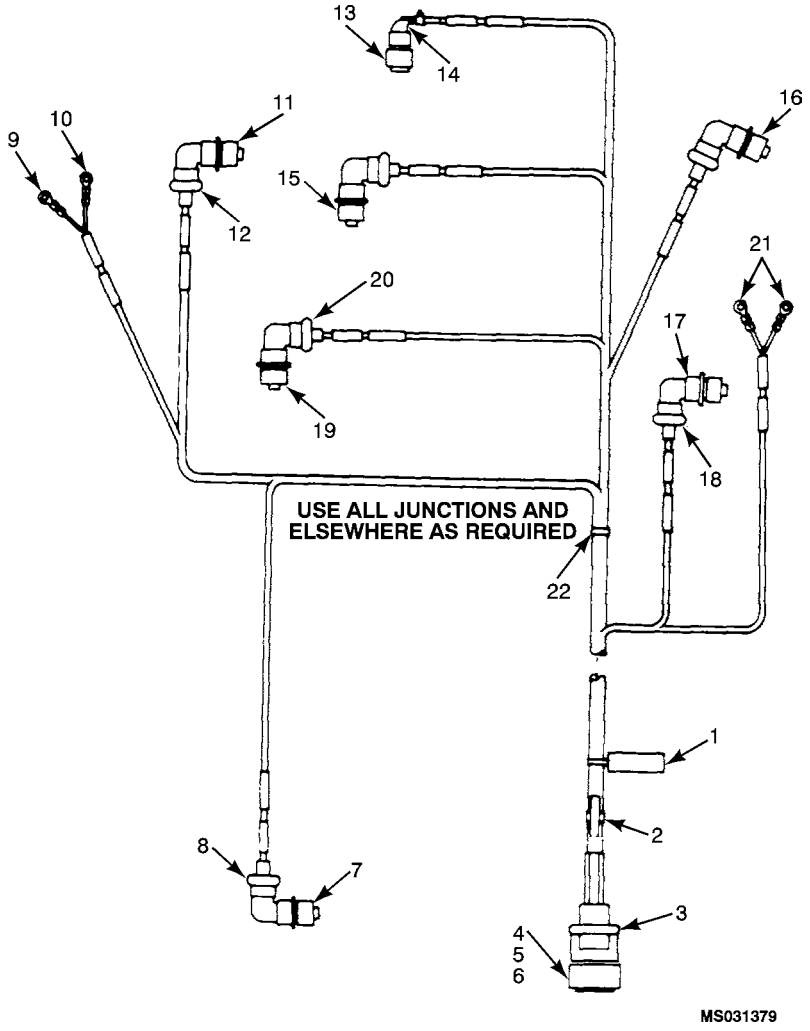
TEST AND INSPECTION – CONTINUED

8. Inspect wiring harness for damaged insulation and broken wires (Figure 2, Item 13). Refer to Figure FO 3 for wiring identification and connections.
9. Inspect and check that all terminal connections (Figure 3, Item 9, 10 and 21) are secure.
10. Inspect harness connectors (Figure 3, Item 4, 7, 11, 13, 15, 16, 17 and 19) for damage.
11. Visually inspect harness, sleeving for chaffing, tears and deterioration.
12. Visually inspect harness insulation for cracks, chaffing, deterioration and exposed wires.
13. Visually inspect electrical connectors (Figure 3, Item 4, 7, 11, 13, 15, 16, 17 and 19) 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.
14. Visually inspect identification straps (Figure 3, Item 1 and 2) for security and legibility.
15. Check wiring harness assembly (Figure 3) braiding for security, deterioration and chaffing.

Inspect Plumbing Components

16. Inspect tube assembly (Figure 1, Item 5) and (Figure 2, Item 5) as follows:
    a. Visually inspect tubing assembly (Figure 1, Item 5 and Figure 2, Item 5) for distortion, corrosion, splits, pits, cracks, nicks, dents, scratches and kinks.
    b. Visually inspect sleeves (tube assembly) (Figure 1, Item 5 and Figure 2, Item 5) for splits, cracks, galling, corrosion, nicks and dents.
    c. Visually inspect tubing assembly (Figure 1, Item 5 and Figure 2, Item 5) nuts and threaded bushings (Figure 2, Item 8) for galled, crossed, stripped or worn threads and for corrosion and rounded wrenching flats.
17. Inspect adapters, unions, elbows, tees, plugs and caps (Figure 1 and Figure 2) 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.

TEST AND INSPECTION – CONTINUED



1. Identification Strap	7. Connector (P5)	13. Connector (P10)	19. Connector (P9)
2. Identification Strap	8. Backshell	14. Backshell	20. Backshell
3. Backshell	9. Terminal (Couple)	15. Connector (P8)	21. Terminal (Hour Meter)
4. Connector (P4)	10. Terminal (Couple)	16. Connector (P6)	22. Retaining Strap
5. Contact	11. Connector (P7)	17. Connector (P4)	
6. Contact	12. Backshell	18. Backshell	

Figure 3. Wiring Harness Assembly.

REPAIR OR REPLACEMENT

Engine Wiring Harness

NOTE

Repair broken wires by splicing. Refer to TM 1-1500-323-24-1 and soldering instructions Figure FO 34.

1. Remove defective connectors as follows:

REPAIR OR REPLACEMENT – CONTINUED

NOTE

Prior to removal of wires from connectors and pin locations ensure all wire identification numbers and pin numbers are recorded for reinstallation.

a. Loosen connector plug screws. Pull back backshell (Figure 3, Item 18).
b. Remove all teflon tape (if applied) from back of connector, contacts and tag prior to removal of wires.
c. Heat contacts of connector to melt solder and disconnect tagged wires as necessary to remove defective connector. Do not over heat contacts to remove soldered wire connection. Damage to the connector insulator will occur.

2. Remove damaged wire from insulation sleeving and/or shrink wrap.
3. Repair damaged wires as follows:
   a. Select replacement wire with same type wire to be replaced.
   b. Measure the wire(s) to be replaced and cut replacement wire to same length for reinstallation.
   c. Route wiring in same path as originally routed prior to soldering or splicing to connector.
   d. Insert replacement wire through insulation sleeving and/or shrink wrap.
   e. Secure wire harness after repair with clamps, claws or wire ties.
4. 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. Refer to soldering instructions Figure FO 34 (Sheets 1 -3).
   b. Apply teflon tape to fill space inside clamp or connector, if required.
   c. Slide back backshell and secure with connector plug screws. Ensure wires did not chaff during installation of backshell.
5. Install exhaust access cover, engine access cover and hydraulic access cover (WP 0002 00, Figure 2, Item 9, 12 and 15).
6. Close engine access door (WP 0002 00, Figure 1, Item 12).
7. Replace pneumatic hose (WP 0002 00, Figure 12, Item 3) and close pneumatic access door (WP 0002 00, Figure 12, Item 1).
8. Install the AC/DC cables in storage compartments (WP 0002 00, Figure 4, Item 9 and 12).

CAUTION

During installation of the roof, one person should be stationed at each corner of the roof to prevent warping or damage to the roof.

9. Install roof (WP 0033 00).
10. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
11. Perform MOC.

REPAIR OR REPLACEMENT

Plumbing Components

1. Tag and remove tubing, adapters, unions, elbows, tees, plugs and caps (Figure 1 and Figure 2) as required for repair or replacement.

REPAIR OR REPLACEMENT – CONTINUED

2. After removal of damaged plumbing components refer to TM 1-1730-229-24P for replacement component.
3. If component is manufactured from bulk material refer to TM 1-1500-204-23-2.
4. Install tagged tubing, adapters, unions, elbows, tees, plugs and caps (Figure 1 and Figure 2) as required for replacement.
5. Tighten all connections and check for leaks. No leakage are allowed.
6. Install exhaust access cover, engine access cover and hydraulic access cover (WP 0032 00, Figure 2, Item 9, 12 and 15).
7. Close engine access door (WP 0002 00, Figure 1, Item 12).
8. Replace pneumatic hose (WP 0002 00, Figure 12, Item 3) and close pneumatic access door (WP 0002 00, Figure 12, Item 1).
9. Install the AC/DC cables in storage compartments (WP 0002 00, Figure 4, Item 9 and 12).

CAUTION

During installation of the roof, one person should be stationed at each corner of the roof to prevent warping or damage to the roof.

10. Install roof (WP 0033 00).
11. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
12. Perform MOC and check for fluid leaks. No leaks are allowed.

END OF WORK PACKAGE

FIELD MAINTENANCE

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

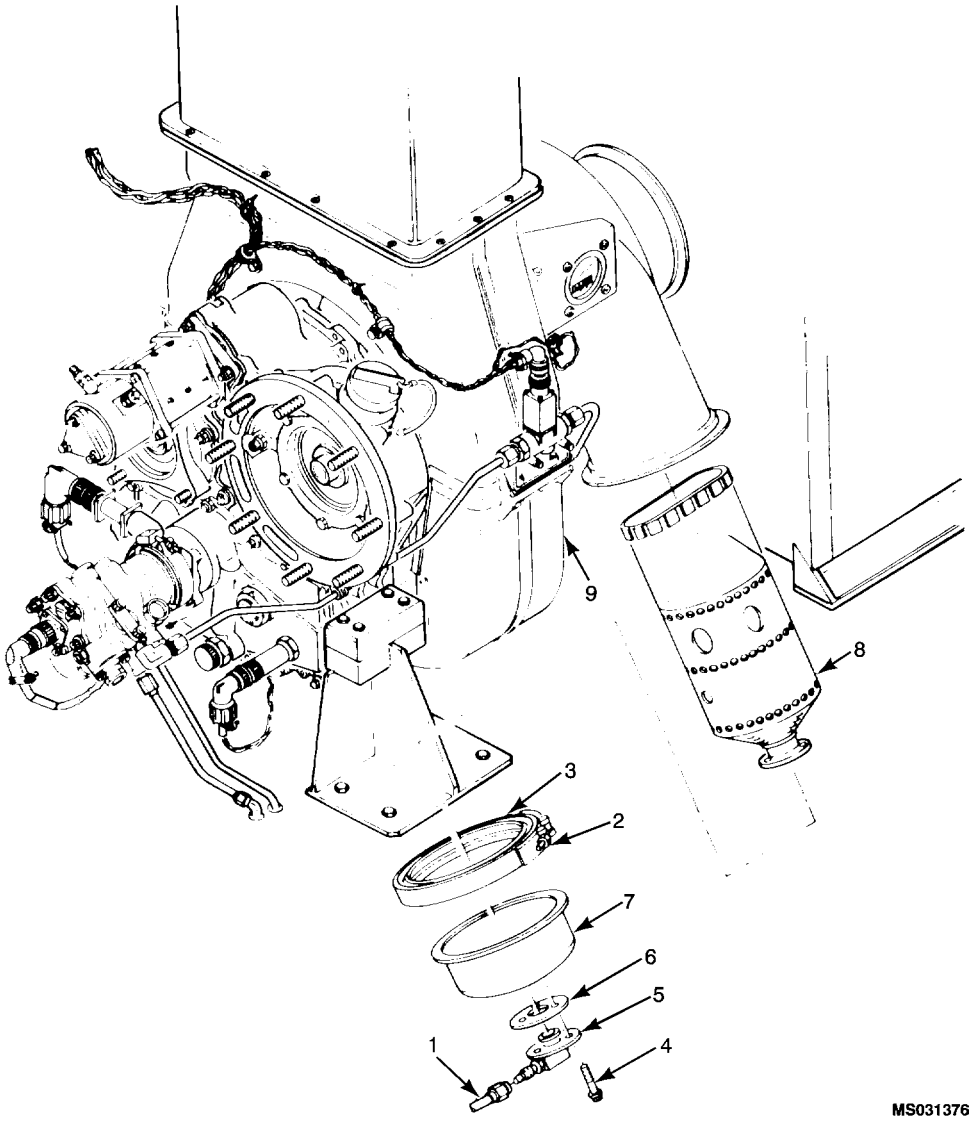
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

Materials/Parts

Anti-Seize Compound (WP 0154 00, Item 3)
Wire, Nonelectrical (WP 0154 00, Item 61)

References

WP 0002 00
WP 0043 00
WP 0044 00
WP 0091 00
WP 0107 00
WP 0096 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

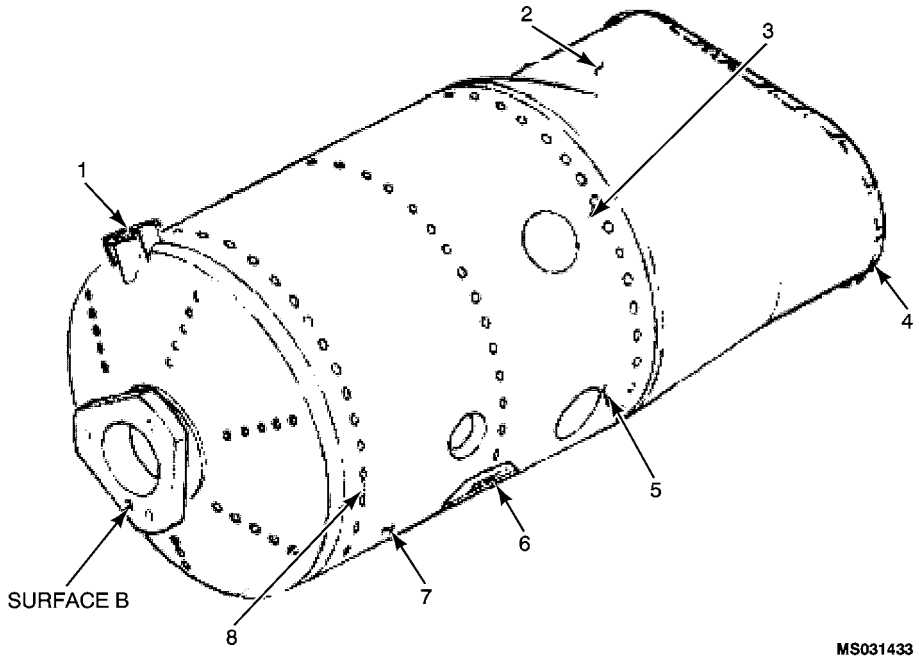
1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Turn off four way valve (fuel) (WP 0091 00, Figure 1, Item 1).
4. Open engine access door (WP 0002 00, Figure 1, Item 12).
5. Place suitable container under fuel line (Figure 1, Item 1) under fuel nozzle (Figure 1, Item 5).

REMOVAL – CONTINUED

6. Disconnect fuel line (Figure 1, Item 1) from fuel nozzle (Figure 1, Item 5).
7. Remove igniter plug (WP 0107 00, Figure 1, Item 2) and combustor check valve (Figure 1, Item 10).
8. Cut and remove nonelectrical wire, remove nut (Figure 1, Item 2) and clamp (Figure 1, Item 3), then remove combustor assembly from engine.
9. Cut and remove nonelectrical wire. 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).
10. Separate combustion chamber cap (Figure 1, Item 7) from combustion chamber (Figure 1, Item 8).

TEST AND INSPECTION

COMBUSTOR ASSEMBLY



1. Cracks
2. Metal Thinning
3. Cracks
4. Cracks
5. Cracks
6. Distortion
7. Deformation
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 is below 0.016 inch due to corrosion or erosion is indicated.
   c. Check for cracks (Figure 2, Item 3). Notify maintenance supervisor if cracks are separated by less than 0.25 inch are indicated.
   d. Check for cracks (Figure 2, Item 4) at tabs. No cracks allowed.

TEST AND INSPECTION – CONTINUED

COMBUSTOR ASSEMBLY – CONTINUED

e. Check for cracks (Figure 2, Item 5) which could cause material breakaway. Notify maintenance supervisor if cracks are detected.

f. Check for distortion (Figure 2, Item 6) of cooling ring. Cooling ring distortion greater than one-half of normal gap is not allowed.

g. Check for deformation (Figure 2, Item 7). Deformation greater than 0.125 inch is not allowed.

h. Check for cracks (Figure 2, Item 8) connecting any two holes. Notify maintenance supervisor if cracks are detected.

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 (Figure 1, Item 5) for carbon buildup. Remove carbon buildup or replace fuel nozzle (WP 0096 00).

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**. Use Nonelectrical Wire to 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 0107 00, Figure 1, Item 2) and combustor check valve (Figure 1, Item 10).
6. Reconnect fuel line (Figure 1, Item 1) to fuel nozzle (Figure 1, Item 5).
7. Close engine access door (WP 0002 00, Figure 1, Item 12).
8. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
9. Perform MOC and check for fuel, exhaust leaks. No leaks are allowed.

END OF WORK PACKAGE

FIELD MAINTENANCE

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 AND HOURMETER BRACKET

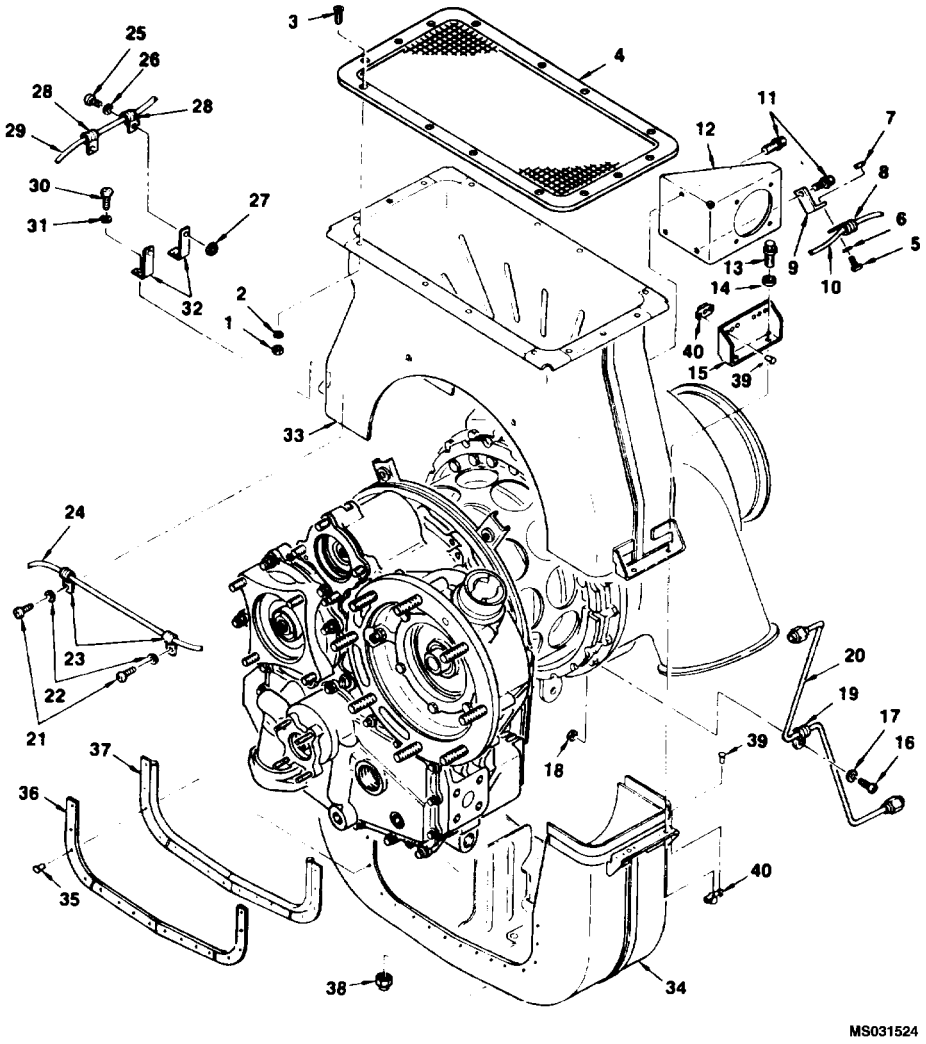
INITIAL SETUP:

Tools and Special Tools
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

Materials/Parts
RTV Red Gasket Maker (WP 0154 00, Item 47)
Wire, Nonelectrical (WP 0154 00, Item 60)

References
TM 1-1730-229-24P
MIL-STD-403

References (cont.)
WP 0002 00
WP 0032 00
WP 0033 00
WP 0043 00
WP 0044 00
WP 0095 00
WP 0096 00
WP 0112 00
WP 0147 00



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.

TEST AND INSPECTION

COMPRESSOR INLET DUCTS AND HOURMETER BRACKET

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

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.

3. Remove roof (WP 0033 00).
4. Open engine access door (WP 0002 00, Figure 1, Item 12).
5. Remove the AC/DC cables from storage compartments (WP 0002 00, Figure 4, Item 9 and 12).
6. Open pneumatic access door (WP 0002 00, Figure 12, Item 1) and remove pneumatic hose (WP 0002 00, Figure 12, Item 3).
7. Remove exhaust access cover, engine access cover and hydraulic access cover (WP 0032 00, Figure 2, Item 9, 12 and 15).
8. Tag and disconnect wires from bypass door switch (Figure 2, Item 1).
9. Remove two bolts (Figure 2, Item 2), flat washers (Figure 2, Item 3), spacers (Figure 2, Item 4), lock washers (Figure 2, Item 5) and nuts (Figure 2, Item 6) from each end of inner duct (Figure 2, Item 9) support.
10. Remove twenty screws (Figure 2, Item 7), flat washers (Figure 2, Item 8) securing to inner duct (Figure 2, Item 9) to rivets (Figure 2, Item 17) on outer duct (Figure 2, Item 16).
11. Ensure hydraulic pressure and return hoses are pulled away from inner duct support bracket.
12. Remove inner duct (Figure 2, Item 9).
13. Remove inner duct (Figure 2, Item 9) assembly so that inspection of inlet screen (Figure 2, Item 4) can be performed.
14. Inspect gaskets (Figure 2, Item 10 and 11), replace if split or torn.
15. Perform procedures in Table 1.

TEST AND INSPECTION – CONTINUED

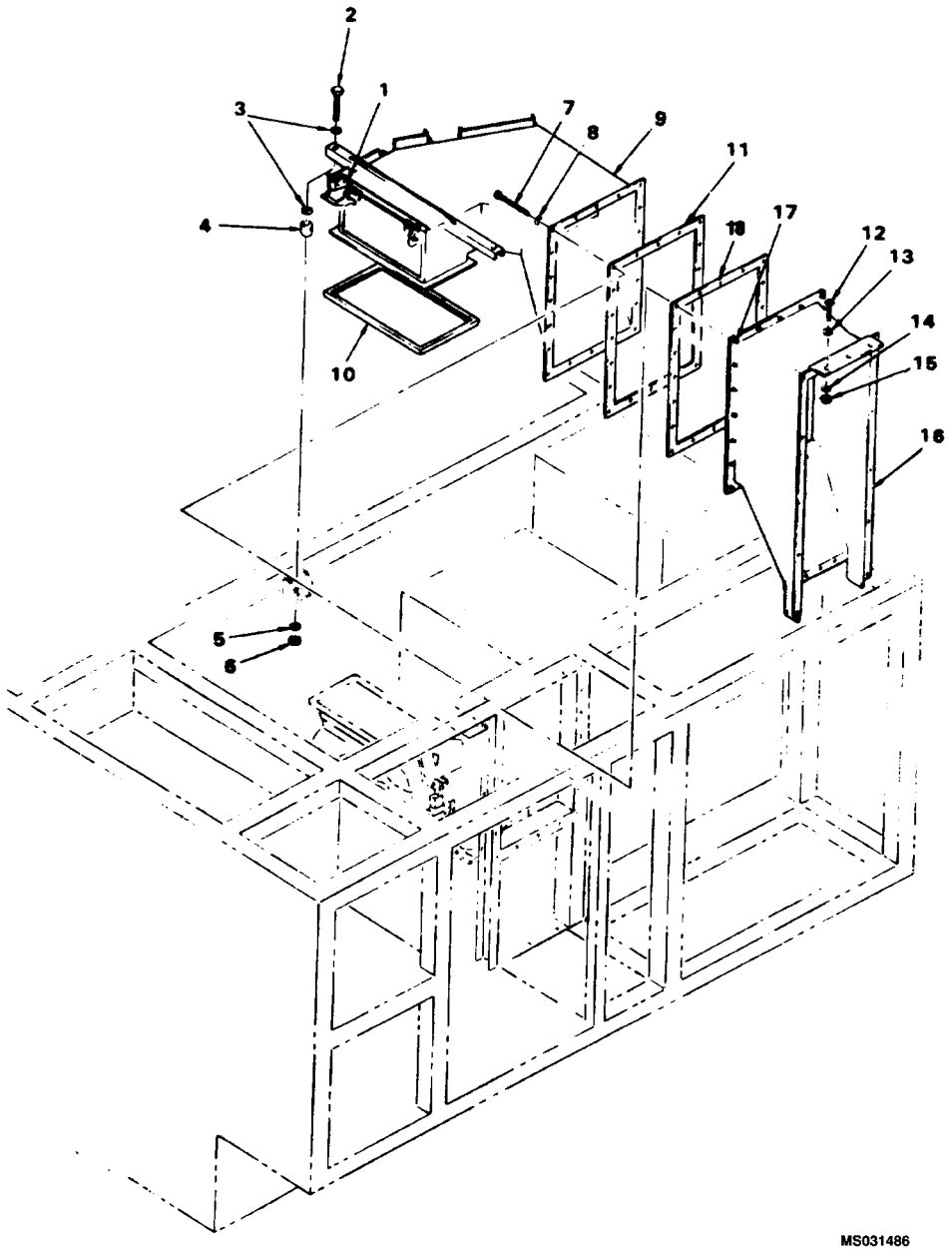
COMPRESSOR INLET DUCTS AND HOURMETER BRACKET – CONTINUED

Table 1. Compressor Inlet Ducts and Hourmeter Bracket Inspection/Check Procedures .

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 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.

TEST AND INSPECTION – CONTINUED

COMPRESSOR INLET DUCTS AND HOURMETER BRACKET – CONTINUED



1. Switch, Bypass Door	6. Nut	11. Gasket, Inner Duct	16. Duct, Outer
2. Bolt	7. Screw	12. Screw	17. Rivets
3. Washer, Flat	8. Washer, Flat	13. Washer, Flat	18. Gasket, Outer Duct
4. Spacer	9. Duct, Inner	14. Lock Washer	
5. Lockwaser	10. Gasket, Engine Intake	15. Nut	

Figure 2. Air Intake Duct Assembly.

DISASSEMBLY

COMPRESSOR INLET (UPPER) DUCT

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

NOTE

Before inlet duct can be disassembled perform all steps in INSPECTION OF COMPRESSOR INLET DUCTS AND HOURMETER BRACKET procedures.

1. 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).
2. Remove bolts (Figure 1, Item 11) and hourmeter bracket (Figure 1, Item 12), along with bracket (Figure 1, Item 9).
3. Remove bolts (Figure 1, Item 13), washers (Figure 1, Item 14) and bracket (Figure 1, Item 15).
4. 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.
5. Remove fuel line (Figure 1, Item 20) with clamp (Figure 1, Item 19) attached.
6. 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) for reinstallation.
7. 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) for reinstallation.
8. Support ducts and remove bolts (Figure 1, Item 30) and washers (Figure 1, Item 31) along with brackets (Figure 1, Item 32).
9. Move wiring harnesses (Figure 1, Item 10, 24 and 29) out away from upper duct (Figure 1, Item 33).
10. Separate upper duct (Figure 1, Item 33) from lower duct (Figure 1, Item 34) and remove from engine for repair or replacement.

NOTE

If lower duct (Figure 1, Item 34) moves or shifts during removal of upper duct (Figure 1, Item 33) ensure correct alignment of lower duct assembly prior to installation of upper duct assembly.

11. Remove nuts (Figure 1, Item 1), washers (Figure 1, Item 2), screws (Figure 1, Item 3) and inlet screen (Figure 1, Item 4).

REPAIR OR REPLACEMENT

COMPRESSOR INLET (LOWER) DUCT

Repair lower duct as follows:

REPAIR OR REPLACEMENT – CONTINUED

COMPRESSOR INLET (LOWER) DUCT – CONTINUED

NOTE

Do not disassemble lower air duct (Figure 1, Item 34) assembly unless required for repair. If lower air duct assembly is required to be removed the engine (GTE) must be removed from the AGPU (WP 0147 00).

1. 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).
2. Remove cap (Figure 1, Item 38) from lower duct (Figure 1, Item 34).
3. Replace loose rivets (Figure 1, Item 35) and damaged hardware in accordance with MIL-STD-403 and standard shop practices.
4. 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.
5. Replace with new seal using TM 1-1730-229-24P keep old seal as pattern to match with new seal.
6. Cement edges of new seal with RTV Red Gasket Maker, place seal on duct (Figure 1, Item 34) and secure with seal retainer (Figure 1, Item 36) and rivets (Figure 1, Item 35).
7. Ensure lower duct assembly (Figure 1, Item 34) is clean prior to reinstallation on engine.

ASSEMBLY

COMPRESSOR INLET DUCTS AND HOURMETER BRACKET

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

NOTE

If Engine (GTE) was removed from the AGPU (WP 0147 00) to remove the lower air duct (Figure 1, Item 34) assembly, install lower air duct assembly and upper air duct (Figure 1, Item 33) assembly onto engine prior to installation of engine into AGPU.

NOTE

Before inlet duct can be assembled perform TEST AND INSPECTION, Steps 1 through 7.

1. Install cap (Figure 1, Item 38) on lower duct (Figure 1, Item 34). Lockwire cap using nonelectrical wire.
2. If lower duct (Figure 1, Item 34) has been disassembled, assemble as follows. Position seal (Figure 1, Item 37) and seal retainer (Figure 1, Item 36) to lower duct and secure with rivets (Figure 1, Item 35).
3. Position the lower duct (Figure 1, Item 34) and upper duct (Figure 1, Item 33) onto engine. Position bracket (Figure 1, Item 15) to upper duct and secure to lower duct with bolts (Figure 1, Item 13) and washers (Figure 1, Item 14).
4. Ensure that ducts are located in slots on retainer and gearcase of GTE. Install screw (Figure 1, Item 30), washer (Figure 1, Item 31) and brackets (Figure 1, Item 32) to secure both upper (Figure 1, Item 33) and lower duct (Figure 1, Item 34) assemblies. Torque bolts to **35 inch-pounds**.
5. Install wiring harness (Figure 1, Item 29) and clamps (Figure 1, Item 28) on brackets (Figure 1, Item 32) using bolts (Figure 1, Item 25), washers (Figure 1, Item 26) and nuts (Figure 1, Item 27).

ASSEMBLY – CONTINUED

COMPRESSOR INLET DUCTS AND HOURMETER BRACKET – CONTINUED

6. Install inlet screen (Figure 1, Item 4) on upper duct and secure with screws (Figure 1, Item 3), washers (Figure 1, Item 2) and nuts (Figure 1, Item 1). Torque nuts to 25 inch-pounds.
7. Install wiring harness (Figure 1, Item 24) clamps (Figure 1, Item 23) on upper duct (Figure 1, Item 33) using screws (Figure 1, Item 21) and washers (Figure 1, Item 22). Tighten as required.
8. Install fuel line (Figure 1, Item 20) and clamp (Figure 1, Item 19) to bracket (Figure 1, Item 19) using screw (Figure 1, Item 16), washer (Figure 1, Item 17) and nut (Figure 1, Item 18). Tighten fuel line to fuel shut off solenoid (WP 0095 00, Figure 1, Item 8) and fuel nozzle (WP 0096 00, Figure 1, Item 4).
9. Install hour meter bracket (Figure 1, Item 12) and bracket (Figure 1, Item 9) using bolts (Figure 1, Item 11). Torque bolts to 35 inch-pounds.
10. Install wiring harness (Figure 1, Item 10) and clamp (Figure 1, Item 8) on bracket (Figure 1, Item 9) using screw (Figure 1, Item 5), washer (Figure 1, Item 6) and nut (Figure 1, Item 7).
11. Install inner duct (Figure 2, Item 9).
12. Install two bolts (Figure 2, Item 2), flat washers (Figure 2, Item 3), spacers (Figure 2, Item 4), lock washers (Figure 2, Item 5) and nuts (Figure 2, Item 6) to each end of inner duct (Figure 2, Item 9) support.
13. Install twenty screws (Figure 2, Item 7), flat washers (Figure 2, Item 8) securing to inner duct (Figure 2, Item 9) to rivets (Figure 2, Item 17) on outer duct (Figure 2, Item 16).
14. Ensure hydraulic pressure and return hoses are installed in inner duct support bracket.
15. Connect tagged wires to bypass door switch (Figure 2, Item 1).
16. Replace exhaust access cover, engine access cover and hydraulic access cover (WP 0032 00, Figure 2, Item 9, 12 and 15).
17. Replace pneumatic hose (WP 0002 00, Figure 12, Item 3) and close pneumatic access door (WP 0002 00, Figure 12, Item 1).
18. Replace the AC/DC cables from storage compartments (WP 0002 00, Figure 4, Item 9 and 12).
19. Close engine access door (WP 0002 00, Figure 1, Item 12).

CAUTION

During installation of the roof, one person should be stationed at each corner of the roof to prevent warping or damage to the roof.

20. Install roof (WP 0033 00).
21. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
22. Perform MOC. Check for fuel and pneumatic air leaks.

END OF WORK PACKAGE

FIELD MAINTENANCE

**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**

COMPRESSOR INLET DUCTS ASSEMBLY

INITIAL SETUP:

References

WP 0115 00

NOTE

Refer to WP 0115 00.

END OF WORK PACKAGE

FIELD MAINTENANCE

**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:

References	References (cont.)
WP 0002 00	WP 0005 00

GENERAL INFORMATION

Refer to WP 0002 00, for Equipment Characteristics, Capabilities and Features and WP 0005 00, Theory of Operation.

END OF WORK PACKAGE

FIELD MAINTENANCE

**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
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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**

HYDRAULIC SYSTEM SERVICING

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Fill Adapter, Return Port (WP 0152 00, Table 2, Item 14)
Fill Adapter, Vent (WP 0152 00, Table 2, Item 15)
Reservoir Servicing Unit (WP 0155 00, Item 32)
Tool Set, Aviation Unit (WP 0155 00, Item 41)
Reducer, Tube (WP 0155 00, Item 31)

Materials/Parts

Hydraulic Fluid, Fire Resistant (WP 0154 00, Item 26)

Materials/Parts (cont.)

Hydraulic Fluid, Petroleum Base (WP 0154 00, Item 27)

References

WP 0002 00
WP 0006 00
WP 0011 00
WP 0027 00
WP 0028 00
WP 0029 00

NOTE

For identification of hydraulic control panel components and air purging operations refer to WP 0011 00.

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 WP 0011 00.

SERVICE

CAUTION

Ensure reservoir servicing unit is filled with the correct hydraulic fluid (MIL-PRF-5606 or MIL-PRF-83282).

NOTE

When servicing the hydraulic reservoir choose any one of the following five methods. Step 1 is the preferred method.

1. Hydraulic fluid fill at return low pressure port (WP 0011 00, Figure 2, Item 33) quick disconnect:
   a. Remove duct cap and connect Reservoir Serving Unit (RSU) to return low pressure port (WP 0011 00, Figure 2, Item 33) using quick disconnect adapter.
   b. Set reservoir selector (WP 0011 00, Figure 2, Item 20) to AGPU, return bypass (WP 0011 00, Figure 2, Item 31) to bypass and remove plug from reservoir breather vent (WP 0002 00, Figure 11, Item 12).
   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 dust cap to return low pressure port (WP 0011 00, Figure 2, Item 33).
   f. Set reservoir selector (WP 0011 00, Figure 2, Item 20) to AGPU, return bypass to OFF and replace plug from reservoir breather vent (WP 0002 00, Figure 11, Item 12).
   g. Wipe up any fluid spillage.
2. Hydraulic fluid fill at reservoir breather 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 (WP 0002 00, Figure 11, Item 12).
   e. Wipe up any fluid spillage.
3. Hydraulic fluid fill using external fill tube:
   a. Remove cap from reservoir breather vent (WP 0002 00, Figure 11, Item 12) at top of reservoir.

SERVICE – CONTINUED

b. Remove cap from system drain port (WP 0011 00, Figure 2, Item 25).

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 (WP 0011 00, Figure 2, Item 25).

e. Open system drain valve (WP 0011 00, Figure 2, Item 26) by turning knob counterclockwise.

f. Using a funnel, slowly pour hydraulic fluid into extension tube until reservoir fluid level is 3/4 full.

g. Close system drain valve (WP 0011 00, Figure 2, Item 26) by turning knob clockwise.

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 (WP 0002 00, Figure 11, Item 12) 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.

CAUTION

Suction method of hydraulic reservoir servicing must be completed by trained and qualified personnel only, due to possibility of damaging the hydraulic pump.

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 (WP 0002 00, Figure 11, Item 12) at top of reservoir.

b. Remove cap from system fill port (WP 0011 00, Figure 2, Item 18).

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 (WP 0011 00, Figure 2, Item 18). 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) (WP 0011 00, Flush AIRCRAFT Flight Control System). Set pressure to between **1,800 and 2,000 psig** (WP 0011 00).

CAUTION

The source of hydraulic fluid must not be permitted to run dry during this procedure. This will cause pump cavitation and damage the hydraulic pump. The AGPU reservoir holds approximately 9 gallons of hydraulic fluid, 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.

NOTE

This setting is critical. Opening this valve too much will cause pump cavitation.

h. Open high pressure bleed relief valve (WP 0011 00, Figure 2, Item 34) 1/4 turn counterclockwise.

SERVICE – CONTINUED

CAUTION

Step 4i and Step 4j must be performed in the sequence stated and must be performed quickly. While performing these operations watch the output pressure gauge (WP 0011 00, Figure 2, Item 16). 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 (WP 0011 00, Figure 2, Item 20) from AGPU to AIRCRAFT positions. If output pressure gauge (WP 0011 00, Figure 2, Item 20) indication fluctuates excessively, immediately return the reservoir selector valve to the AGPU position and then release the push to fill valve (WP 0011 00, Figure 2, Item 19). Then close high pressure bleed valve (WP 0011 00, Figure 2, Item 34) 1/8 turn clockwise. If output pressure gauge (WP 0011 00, Figure 2, Item 16) indication is stable proceed to next step.

j. Hold push to fill valve (WP 0011 00, Figure 2, Item 19) in while watching the reservoir level gauge. When the reservoir is 3/4 full, set the reservoir selector (WP 0011 00, Figure 2, Item 20) 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.

m. Install reservoir breather vent (WP 0002 00, Figure 11, Item 12) and system fill port (WP 0011 00, Figure 2, Item 18) caps.

n. Close high pressure bleed valve (WP 0011 00, Figure 2, Item 34) counterclockwise.

o. Wipe up any fluid spillage.

p. Proceed to operations of the hydraulic system (WP 0011 00).

SERVICE – CONTINUED

5. Hydraulic fluid drain and refill:

CAUTION

Operation of AGPU with low fluid level of hydraulic reservoir will damage hydraulic pump. Install hydraulic pump spacer (WP 0027 00) if hydraulic reservoir is not refilled with oil prior to AGPU operation.

a. Remove cap from breather vent (WP 0002 00, Figure 11, Item 12) at top of reservoir.

NOTE

Container must be able to hold at least 9 gallons of hydraulic fluid.

b. Remove cap from system drain port (WP 0011 00, Figure 2, Item 25) and attach fill extension tube to port and place container below extension.

c. Open system drain valve (WP 0011 00, Figure 2, Item 26).

d. When reservoir fluid level gauge is empty of fluid and flow stops, remove and stow extension tube. Replace caps on system drain port (WP 0011 00, Figure 2, Item 25) and breather vent (WP 0002 00, Figure 11, Item 12).

e. Close system drain valve (WP 0011 00, Figure 2, Item 26).

f. Wipe up any fluid spillage.

NOTE

(Do not start AGPU unless hydraulic pump spacer plate is installed).

g. Place tag on master switch (WP 0006 00, Figure 1, Item 1) stating hydraulic reservoir is empty.

h. Refill system as required (WP 0028 00 and WP 0029 00).

END OF WORK PACKAGE

FIELD MAINTENANCE

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

Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References

WP 0002 00

References (cont.)

WP 0006 00
WP 0025 00
WP 0040 00
WP 0041 00
WP 0043 00
WP 0044 00

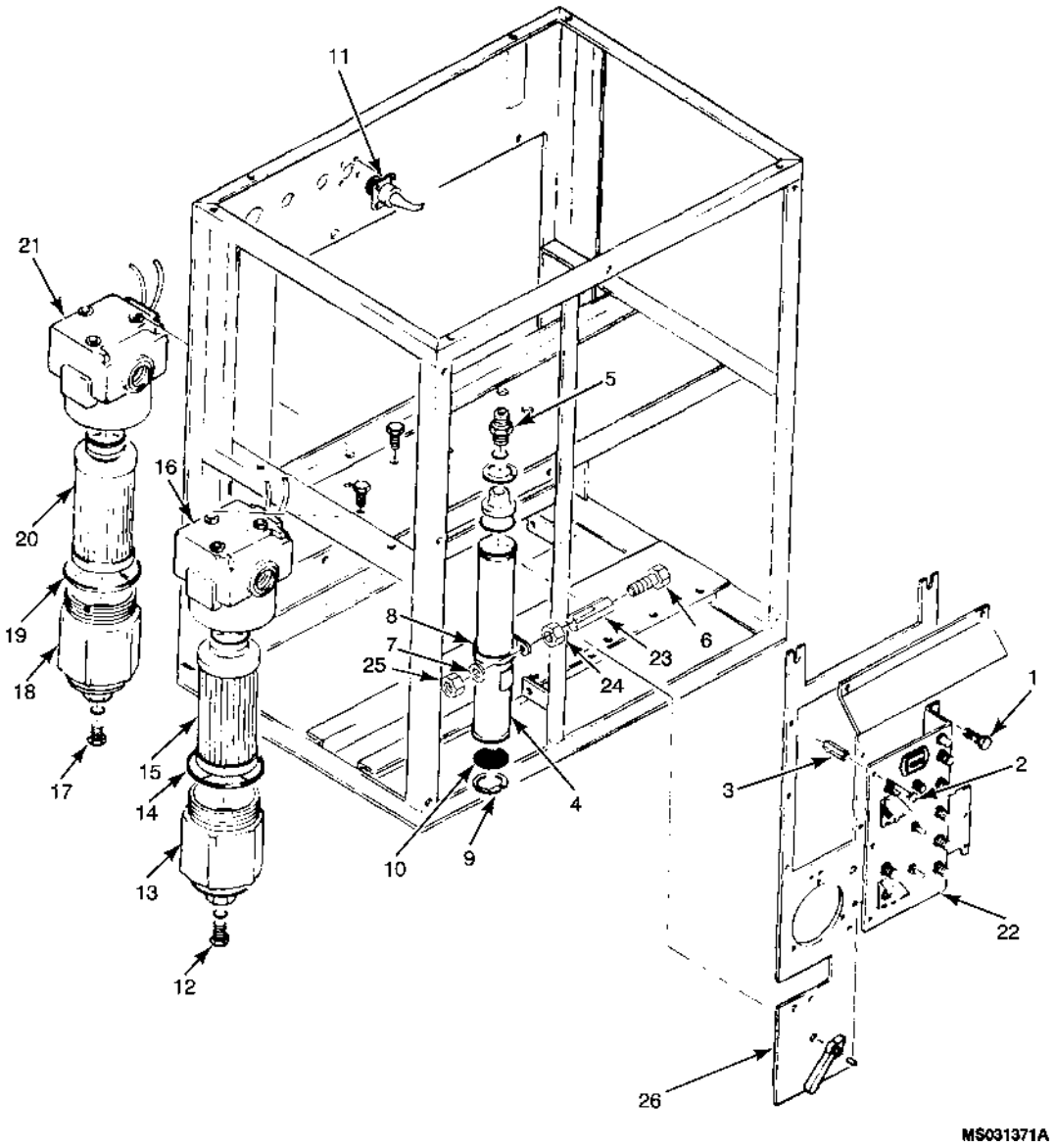
TEST AND INSPECTION

NOTE

For test refer to troubleshooting procedure WP 0025 00, 97. HYDRAULIC CONTROL PANEL SWITCH AND CIRCUIT BREAKER MALFUNCTIONS.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Open control panel access door (WP 0041 00, Figure 1, Item 1).
4. Open the hydraulic module access door (WP 0002 00, Figure 1, Item 18).
5. Turn on Master Power Switch on main control panel (WP 0006 00, Figure 1, Item 1).
6. Turn on Master Power Switch on hydraulic control panel (WP 0006 00, Figure 3, Item 1).
7. Press the Press to Test Switch (WP 0006 00, Figure 3, Item 11) on the hydraulic control panel and test all lamps to ensure they illuminate.
8. Test circuit breaker CB 1 (WP 0006 00, Figure 3, Item 5) by resetting the circuit breaker and testing that power is provided to the hydraulic control panel.

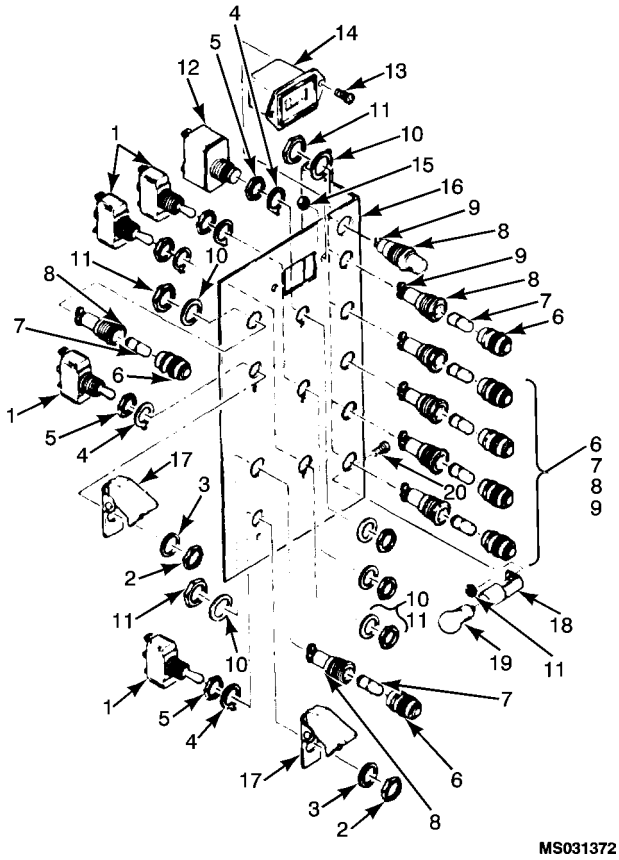
TEST AND INSPECTION – CONTINUED



1. Screw	10. Wafer Filter	19. Packing
2. Screw	11. Connector P-14	20. Filter Element, High Pressure
3. Standoff	12. Drain Plug, Low Pressure	21. Filter Head, High Pressure
4. Vent Dryer	13. Filter Bowl, Low Pressure	22. Hydraulic Electrical Panel
5. Fitting	14. Packing	23. Standoff
6. Bolt	15. Filter Element, Low Pressure	24. Nut
7. Washer	16. Filter Head, Low Pressure	25. Nut
8. Clamp	17. Drain Plug, High Pressure	26. Hydraulic Control Panel Frame
9. Filter Retaining Ring	18. Filter Bowl, High Pressure	

Figure 1. Hydraulic Module Subassemblies.

TEST AND INSPECTION – 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.

REMOVAL

1. Turn off Master Power Switch on hydraulic control panel (WP 0006 00, Figure 3, Item 1).
2. Turn off Master Power Switch on main control panel (WP 0006 00, Figure 1, Item 1).
3. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
4. Remove hydraulic control panel access door (WP 0040 00, Figure 1, Item 5).

NOTE

When removing three screws (Figure 1, Item 2) on left side of hydraulic electrical control panel ensure that standoffs (Figure 1, Item 3) do not fall away.

5. Remove six screws (Figure 1, Item 1 and 2) and standoffs (Figure 1, Item 3) securing hydraulic electrical panel (Figure 1, Item 22) to hydraulic control panel frame (Figure 1, Item 26).

REMOVAL – CONTINUED

6. Tilt hydraulic electrical panel (Figure 1, Item 22) to the left to gain access to the switches and circuit breaker terminals to be removed.
7. Tag and remove wires from switches (Figure 2, Item 1) or circuit breaker (Figure 2, Item 12) as necessary.
8. Remove retaining nut (Figure 2, Item 2) and positioning washers (Figure 2, Item 3) and remove the switches or circuit breaker from hydraulic control panel (Figure 2, Item 16).

INSTALLATION

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

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 height 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 hydraulic control panel. Ensure that positioning washer (Figure 2, Item 4) tab engages positioning hole in hydraulic control panel.
4. Install positioning washer (Figure 2, Item 3) and nut (Figure 2, Item 2) tighten as required.
5. Connect tagged wires to switch (Figure 2, Item 1) or circuit breaker (Figure 2, Item 12).
6. Position hydraulic electrical panel (Figure 1, Item 22) and install three screws (Figure 1, Item 2) and standoffs (Figure 1, Item 3) on left side of hydraulic electrical panel.
7. Install three screws (Figure 1, Item 1) to secure right side of hydraulic electrical panel (Figure 1, Item 22) to hydraulic control panel frame (Figure 1, Item 26).
8. Install hydraulic control panel access door (WP 0040 00, Figure 1, Item 5).
9. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
10. Perform MOC and check hydraulic operation and operation of switches or circuit breakers installed.

END OF WORK PACKAGE

FIELD MAINTENANCE

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
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References
WP 0002 00
WP 0006 00

References (cont.)
WP 0025 00
WP 0040 00
WP 0041 00
WP 0043 00
WP 0044 00
WP 0124 00

TEST AND INSPECTION

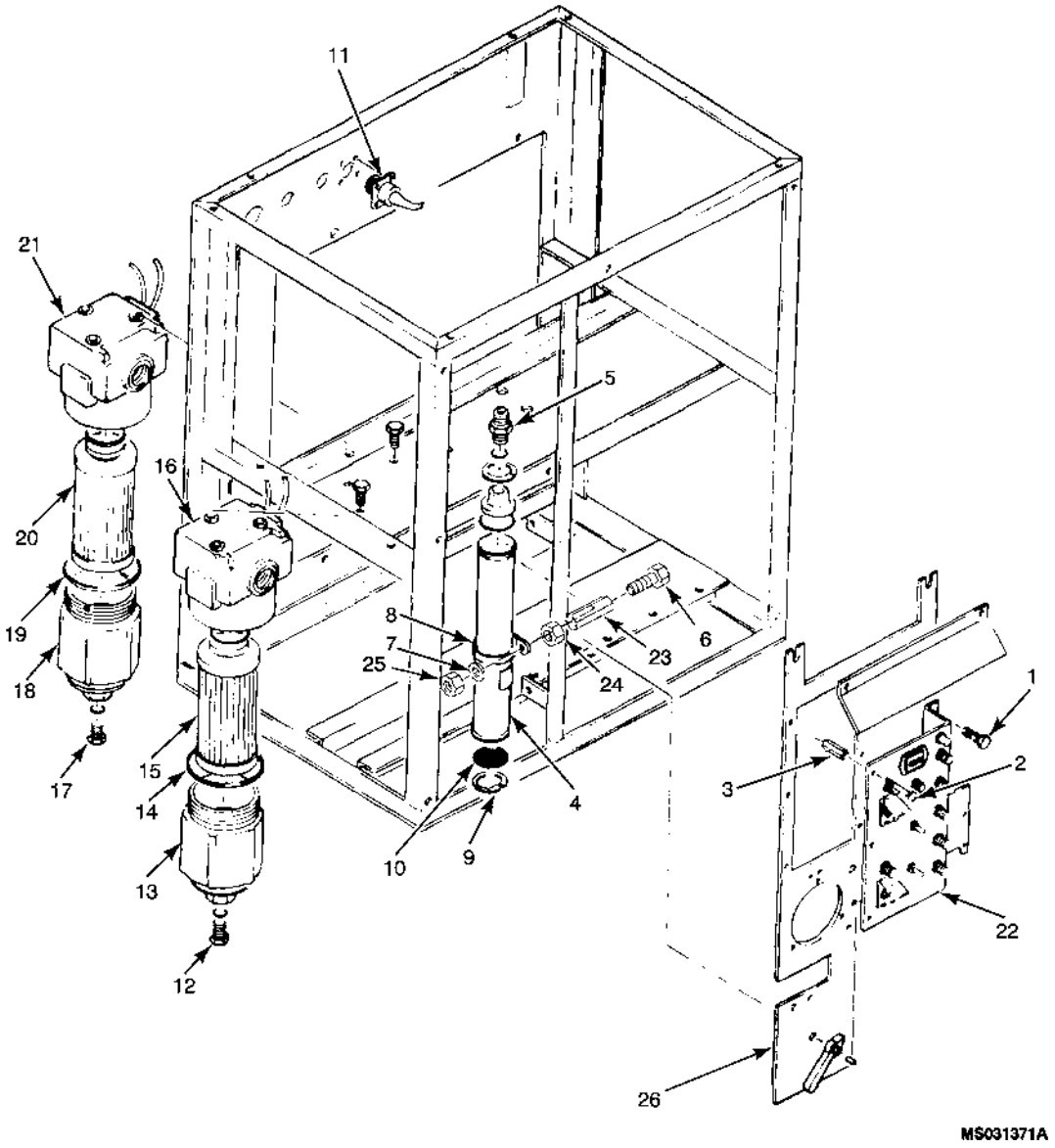
NOTE

Refer to troubleshooting procedures WP 0025 00, 53. HYDRAULIC CONTROL PANEL INDICATOR LIGHT TEST FAILS - ONE INDICATOR DOES NOT LIGHT and 54. HYDRAULIC 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. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
3. Open control panel access door (WP 0041 00, Figure 1, Item 1).
4. Open the hydraulic module access door (WP 0002 00, Figure 1, Item 18).
5. Turn on Master Power Switch on main control panel (WP 0006 00, Figure 1, Item 1).
6. Turn on Master Power Switch on hydraulic control panel (WP 0006 00, Figure 3, Item 1).
7. Press the Press to Test Switch (WP 0006 00, Figure 3, Item 11) on the hydraulic control panel and test all lamps to ensure they illuminate.
8. Inspect hydraulic control panel hour meter for operation.
9. Turn panel light switch (WP 0006 00, Figure 3, Item 8) to the bright and dim position to ensure lights illuminate.

REMOVAL

INDICATORS

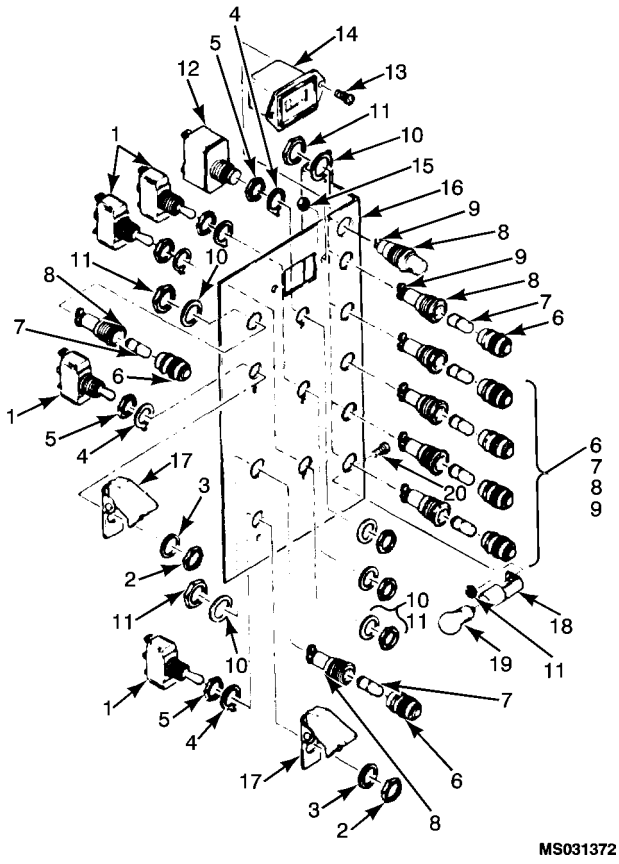


1. Screw	10. Wafer Filter	19. Packing
2. Screw	11. Connector	20. Filter Element, High Pressure
3. Standoff	12. Drain Plug, Low Pressure	21. Filter Head, High Pressure
4. Vent Dryer	13. Filter Bowl, Low Pressure	22. Hydraulic Electrical Panel
5. Fitting	14. Packing	23. Standoff
6. Bolt	15. Filter Element, Low Pressure	24. Nut
7. Washer	16. Filter Head, Low Pressure	25. Nut
8. Clamp	17. Drain Plug, High Pressure	26. Hydraulic Control Panel Frame
9. Filter Retaining Ring	18. Filter Bowl, High Pressure	

Figure 1. Hydraulic Module Subassemblies.

REMOVAL – CONTINUED

INDICATORS – 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 troubleshooting procedures (WP 0025 00) for test:

53. HYDRAULIC CONTROL PANEL INDICATOR LIGHT TEST FAILS - ONE INDICATOR DOES NOT LIGHT
54. HYDRAULIC CONTROL PANEL INDICATOR LIGHT TEST FAILS - NO INDICATORS LIGHT

1. Turn off Master Power Switch on hydraulic control panel (WP 0006 00, Figure 3, Item 1).
2. Turn off Master Power Switch on main control panel (WP 0006 00, Figure 1, Item 1).
3. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
4. Remove hydraulic control panel access (WP 0040 00, Figure 1, Item 5).

REMOVAL – CONTINUED

INDICATORS – CONTINUED

NOTE

When removing three screws (Figure 1, Item 1 and 2) from left side of hydraulic electrical control panel ensure that standoffs (Figure 1, Item 3) do not fall away.

5. Remove six screws (Figure 1, Item 1 and 2) securing hydraulic electrical control panel (Figure 1, Item 22) to hydraulic control panel frame (Figure 1, Item 26).
6. Tilt the hydraulic electrical panel (Figure 1, Item 22) to the left to gain to access to the indicator lights and lamps (Figure 2, Item 7 and 19) terminals.
7. Tag and remove wires from indicator lights (Figure 2, Item 7).
8. Remove retaining nut (Figure 2, Item 11) and washer (Figure 2, Item 10) and remove lamp socket (Figure 2, Item 8) from hydraulic electrical control panel (Figure 1, Item 22).

INSTALLATION

INDICATORS

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

1. Insert lamp socket (Figure 2, Item 8) through hole in hydraulic electrical control panel (Figure 2, Item 22).
2. Install washer (Figure 2, Item 10) and nut (Figure 2, Item 11) and tighten as required.
3. Connect tagged wires to lamp socket (Figure 2, Item 8).
4. Install lamp (Figure 2, Item 7) and lens (Figure 2, Item 6).
5. Position hydraulic electrical control panel (Figure 1, Item 22) and install three screws (Figure 1, Item 2) and standoffs (Figure 1, Item 3) on left side of hydraulic electrical control panel.
6. Install three screws (Figure 1, Item 1) to secure right side of hydraulic electrical control panel (Figure 1, Item 22) to hydraulic control panel frame (Figure 1, Item 26).
7. Install hydraulic control panel access door (WP 0040 00, Figure 1, Item 5).
8. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
9. Perform MOC and check operation of hydraulic electrical control panel lights.

REMOVAL

HOUR METER

1. Turn off Master Power Switch on hydraulic control panel (WP 0006 00, Figure 3, Item 1).
2. Turn off Master Power Switch on main control panel (WP 0006 00, Figure 1, Item 1).
3. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
4. Remove the hydraulic electrical control panel access door (WP 0124 00).
5. Remove three screws (Figure 1, Item 1) securing right side of hydraulic electrical control panel (Figure 1, Item 22) from the hydraulic control panel frame (Figure 1, Item 26).
6. Remove three screws (Figure 1, Item 2) and standoffs (Figure 1, Item 3) securing left side of hydraulic electrical control panel (Figure 1, Item 22).

REMOVAL – CONTINUED

HOUR METER – CONTINUED

7. Tilt electrical hydraulic electrical control panel (Figure 1, Item 22) to the right to gain access to the hour-meter (Figure 2, Item 14) terminals.
8. Tag and remove wires from hour meter (Figure 2, Item 14) terminals.
9. Remove two screws (Figure 2, Item 13) and remove hour meter (Figure 2, Item 14) from hydraulic electrical control panel (Figure 1, Item 22).

INSTALLATION

HOUR METER

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

1. Insert hour meter (Figure 2, Item 14) through hole in hydraulic electrical control panel (Figure 1, Item 22).
2. Secure hour meter to hydraulic electrical control panel (Figure 1, Item 22) with two screws (Figure 2, Item 13).
3. Connect tagged wires to hour meter (Figure 2, Item 14).
4. Position hydraulic electrical control panel (Figure 1, Item 22) and install three screws (Figure 1, Item 2) and standoffs (Figure 1, Item 3) on left side of hydraulic electrical control panel frame (Figure 1, Item 26).
5. Install three screws (Figure 1, Item 1) to secure right side of hydraulic electrical control panel (Figure 1, Item 22) to hydraulic electrical control panel frame (Figure 1, Item 26).
6. Install hydraulic control panel access door (WP 0124 00).
7. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
8. Perform MOC and check operation of hydraulic electrical control panel hour-meter (Figure 2, Item 14).

END OF WORK PACKAGE

FIELD MAINTENANCE

**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

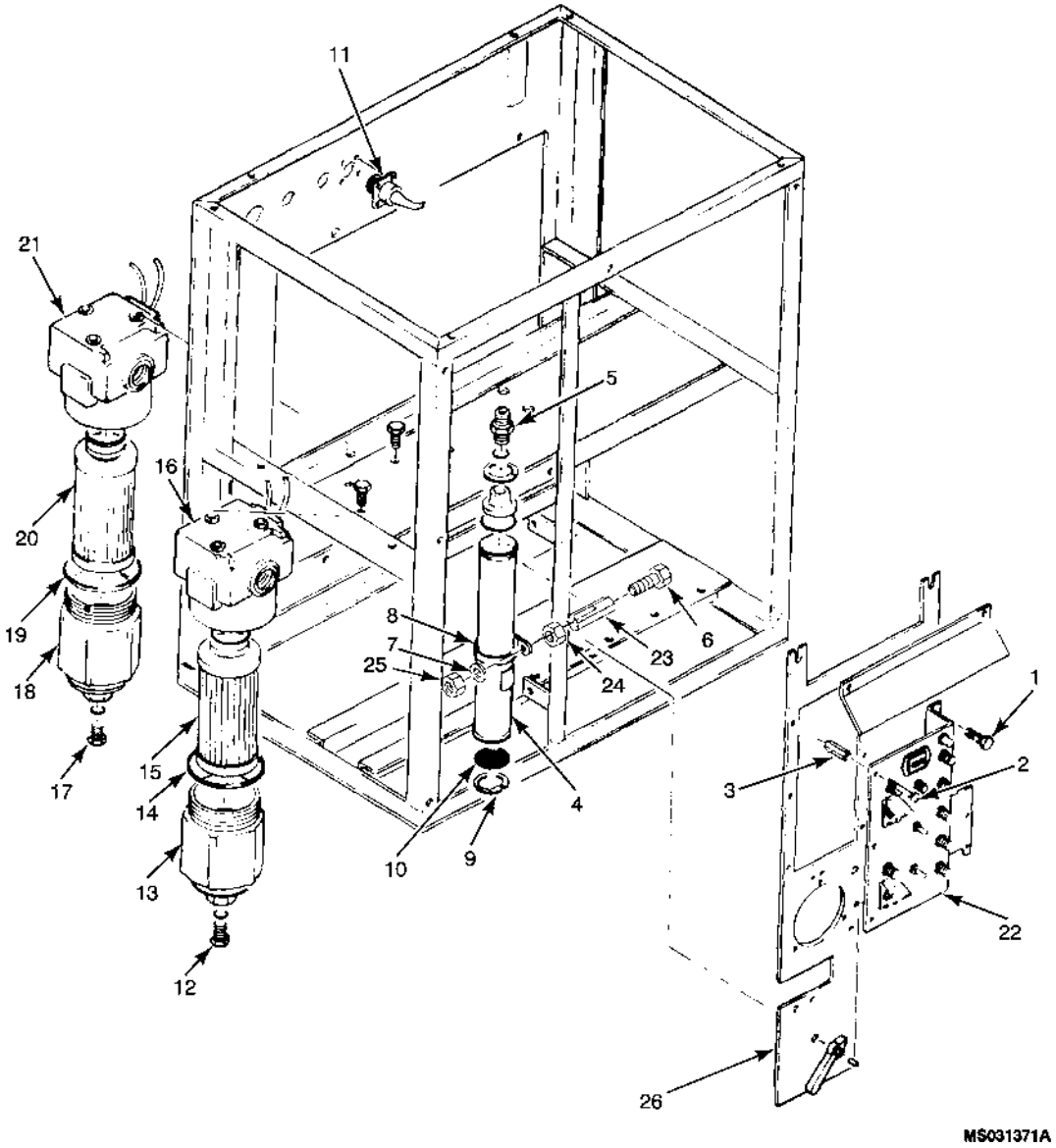
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

Materials/Parts

Desiccant, Activated (WP 0154 00, Item 15)

References

WP 0002 00
WP 0043 00
WP 0044 00



1. Screw	10. Wafer Filter	19. Packing
2. Screw	11. Connector	20. Filter Element, High Pressure
3. Standoff	12. Drain Plug, Low Pressure	21. Filter Head, High Pressure
4. Vent Dryer	13. Filter Bowl, Low Pressure	22. Electrical Panel
5. Fitting	14. Packing	23. Standoff
6. Bolt	15. Filter Element, Low Pressure	24. Nut
7. Washer	16. Filter Head, Low Pressure	25. Nut
8. Clamp	17. Drain Plug, High Pressure	26. Hydraulic Control Panel Frame
9. Filter Retaining Ring	18. Filter Bowl, High Pressure	

Figure 1. Hydraulic Module Subassemblies.

TEST AND INSPECTION

NOTE

If vent dryer housing is cracked or damaged replace vent dryer assembly.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Open hydraulic filter access door (WP 0002 00, Figure 1, Item 17).
4. Open the hydraulic module access door (WP 0002 00, Figure 1, Item 18).
5. Inspect vent dryer (Figure 1, Item 4) and inspect desiccant level. Vent dryer should be filled completely with desiccant granules.
6. Desiccant color should be blue at least 25 percent of the vent dryer (Figure 1, Item 4) length. If blue coloration of 25 percent is not present and desiccant is totally white in color, replace desiccant.
7. Check vent dryer (Figure 1, Item 4) for mounting security and that the wafer filter (Figure 1, Item 10) and filter retaining ring (Figure 1, Item 9) are present.
8. Inspect vent dryer (Figure 1, Item 4) for cracks or discoloration of canister. Replace if cracked or canister body is discolored.
9. Ensure vent line fitting (Figure 1, Item 5) is tight as required.
10. Close hydraulic filter access door (WP 0002 00, Figure 1, Item 17).
11. Close the hydraulic module access door (WP 0002 00, Figure 1, Item 18).

REMOVAL

1. Open hydraulic filter access door (WP 0002 00, Figure 1, Item 17).
2. 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 vent tube connector.
3. Remove nut (Figure 1, Item 25) and washer (Figure 1, Item 7), then remove clamp (Figure 1, Item 8) Safe-guard nut and washer for reinstallation.
4. Tilt vent dryer (Figure 1, Item 4) forward and lift up and out of clamp.

WARNING

When removing retaining ring (Figure 1, Item 9) it is recommended to wear eye protection during removal process.

5. Remove filter retaining ring (Figure 1, Item 9) and wafer filter (Figure 1, Item 10) from vent dryer (Figure 1, Item 4).
6. Pour out and discard used desiccant.

INSTALLATION

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

NOTE

If vent dryer housing is cracked replace vent dryer assembly.

1. If not done previously, completely fill vent dryer (Figure 1, Item 4) housing with fresh desiccant, MIL-D-3716.

WARNING

When installing retaining ring (Figure 1, Item 9) it is recommended to wear eye protection during removal process.

2. Install wafer filter (Figure 1, Item 10) and filter retaining rings (Figure 1, Item 9).
3. Place vent dryer (Figure 1, Item 4) in position inside hydraulic module.
4. Reinstall clamp (Figure 1, Item 8) washer (Figure 1, Item 7) and nut (Figure 1, Item 25). Tighten nut as required.
5. Install tube connector on fitting (Figure 1, Item 5) at top of vent dryer (Figure 1, Item 4). Use care not to cross thread fitting when installing vent dryer tube.
6. Close hydraulic filter access door.
7. Perform MOC.

END OF WORK PACKAGE

FIELD MAINTENANCE

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 0155 00, Item 3)
- General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
- Tool Set, Aviation Unit (WP 0155 00, Item 41)

Materials/Parts
- Cloth, Cleaning (WP 0154 00, Item 8)

References
- WP 0002 00
- WP 0006 00
- WP 0028 00
- WP 0029 00
- WP 0043 00
- WP 0044 00

TEST AND INSPECTION

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Open hydraulic filter access door (WP 0002 00, Figure 1, Item 17).
4. Inspect filter bowl assemblies both low and high pressure (Figure 1, Item 13 and 18) for cracks or leakage of hydraulic fluid. If leakage is present tighten bowl assembly as required. If cracks are present replace bowl assembly.
5. Inspect filter head assemblies both low and high pressure (Figure 1, Item 16 and 21) for cracks or leakage of hydraulic fluid. If leakage or cracks are present replace filter head assembly.
6. Inspect drain plug both low and high pressure (Figure 1, Item 12 and 17) for leakage of hydraulic fluid. If leakage is present tighten drain plug as required. If leakage is still present replace plug assembly.
7. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
8. Turn on Master Power Switch on hydraulic control panel (WP 0006 00, Figure 3, Item 1).
9. Turn on Master Power Switch on main control panel (WP 0006 00, Figure 1, Item 1).

NOTE

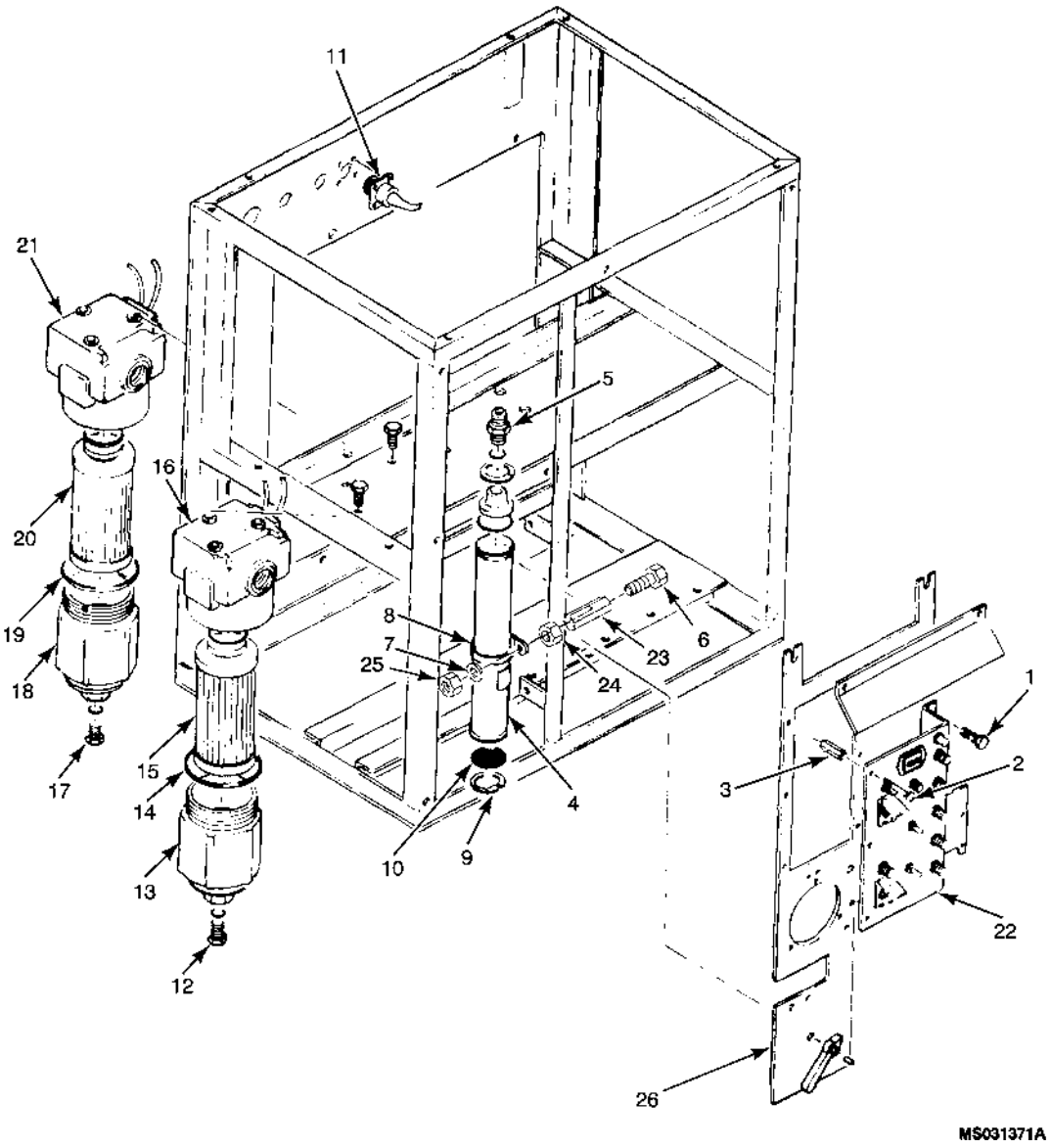
Hydraulic filters (HP/LP) (Figure 1, Item 15 and 20) must always be replaced at the same time, never replace one filter without replacing the other.

10. Verify the hydraulic replace filter indicator (WP 0006 00, Figure 3, Item 10) is extinguished. If illuminated replace hydraulic filters as required, both low and high pressure (Figure 1, Item 15 and 20).
11. Turn off Master Power Switch on hydraulic control panel (WP 0006 00, Figure 3, Item 1).

TEST AND INSPECTION – CONTINUED

12. Turn off Master Power Switch on main control panel (WP 0006 00, Figure 1, Item 1).
13. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
14. Close hydraulic filter access door (WP 0002 00, Figure 1, Item 17).

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

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

1. Set RESERVOIR SELECT valve (WP 0006 00, Figure 3, Item 20) to the AIRCRAFT position.
2. Drain oil from the low pressure filter bowl (Figure 1, Item 13) by removing low pressure drain plug (Figure 1, Item 12) into a suitable container. Discard old oil, never reuse.
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). Catch oil that will be draining from the filter element into a suitable container.
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. Catch oil that will be draining from the filter element and filter head into a suitable container.
5. Drain oil from the high pressure filter bowl (Figure 1, Item 18) by removing high pressure drain plug (Figure 1, Item 17) into a suitable container. Discard old oil, never reuse.
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). Catch oil that will be draining from the filter element into a suitable container.
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. Catch oil that will be draining from the filter element and filter head into a suitable container.
8. Clean filter bowls both low and high pressure (Figure 1, Item 13 and 18) and Inspect inside of bowls for cracks and/or flaking. If cracks or flaking is present replace filter bowl assemblies. Pay close attention to the threads on both filter bowls and clean rust or debris from thread area with wire brush prior to reinstallation. A light coat of oil should be applied to thread area after cleaning.
9. Clean and inspect filter head assemblies (Figure 1, Item 16 and 21) for debris, clean prior to installation of new filters.

INSTALLATION

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures. If not component damage will occur.

1. Open hydraulic filter access door (WP 0002 00, Figure 1, Item 17).
2. Flush and wipe inside of low and high pressure filter bowls (Figure 1, Item 13 and 18) with a clean lint free cloth.
3. Wipe bottom of both low and high pressure filter heads (Figure 1, Item 16 and 21) with a clean lint free cloth. Lubricate threads with a light coat of hydraulic fluid.

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 new packings.

4. Obtain new low and high pressure filter elements (Figure 1, Item 15 and 20).
5. Lubricate high pressure filter packing. (Figure 1, Item 19).

INSTALLATION – CONTINUED

6. Lubricate packing and install high pressure filter element (Figure 1, Item 20) in high pressure filter head (Figure 1, Item 21).
7. Lubricate packing and install high pressure filter packing (Figure 1, Item 19) and high pressure filter bowl (Figure 1, Item 18).
8. Install high pressure filter bowl (Figure 1, Item 18) by rotating filter bowl clockwise. Caution should be used not to cross thread the filter bowl to the filter head. Fine threads can be easily damaged if cross threaded. If cross threaded both filter bowl and head must be replaced.
9. Install high pressure drain plug (Figure 1, Item 17) by screwing clockwise. Tighten as required.
10. Lubricate low pressure filter packing (Figure 1, Item 14).
11. Lubricate packing and install low pressure filter element (Figure 1, Item 15) in low pressure filter head (Figure 1, Item 16).
12. Lubricate packing and install low pressure filter packing (Figure 1, Item 14) and low pressure filter bowl. (Figure 1, Item 13).
13. Install low pressure filter bowl (Figure 1, Item 13) by rotating filter bowl clockwise. Caution should be used not to cross thread the filter bowl to the filter head. Fine threads can be easily damaged if cross threaded. If cross threaded both filter bowl and head must be replaced.
14. Install low pressure drain plug (Figure 1, Item 12) and packing (Figure 1, Item 14) by screwing clockwise. Tighten as required.
15. Set the RESERVOIR SELECT valve (WP 0006 00, Figure 3, Item 20) to the AGPU position.
16. Perform MOC and check for hydraulic fluid leaks.
17. Allow AGPU to operate for at least 30 minutes and perform oil sampling as required (WP 0028 00, Lubrication and WP 0029 00).

END OF WORK PACKAGE

FIELD MAINTENANCE

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

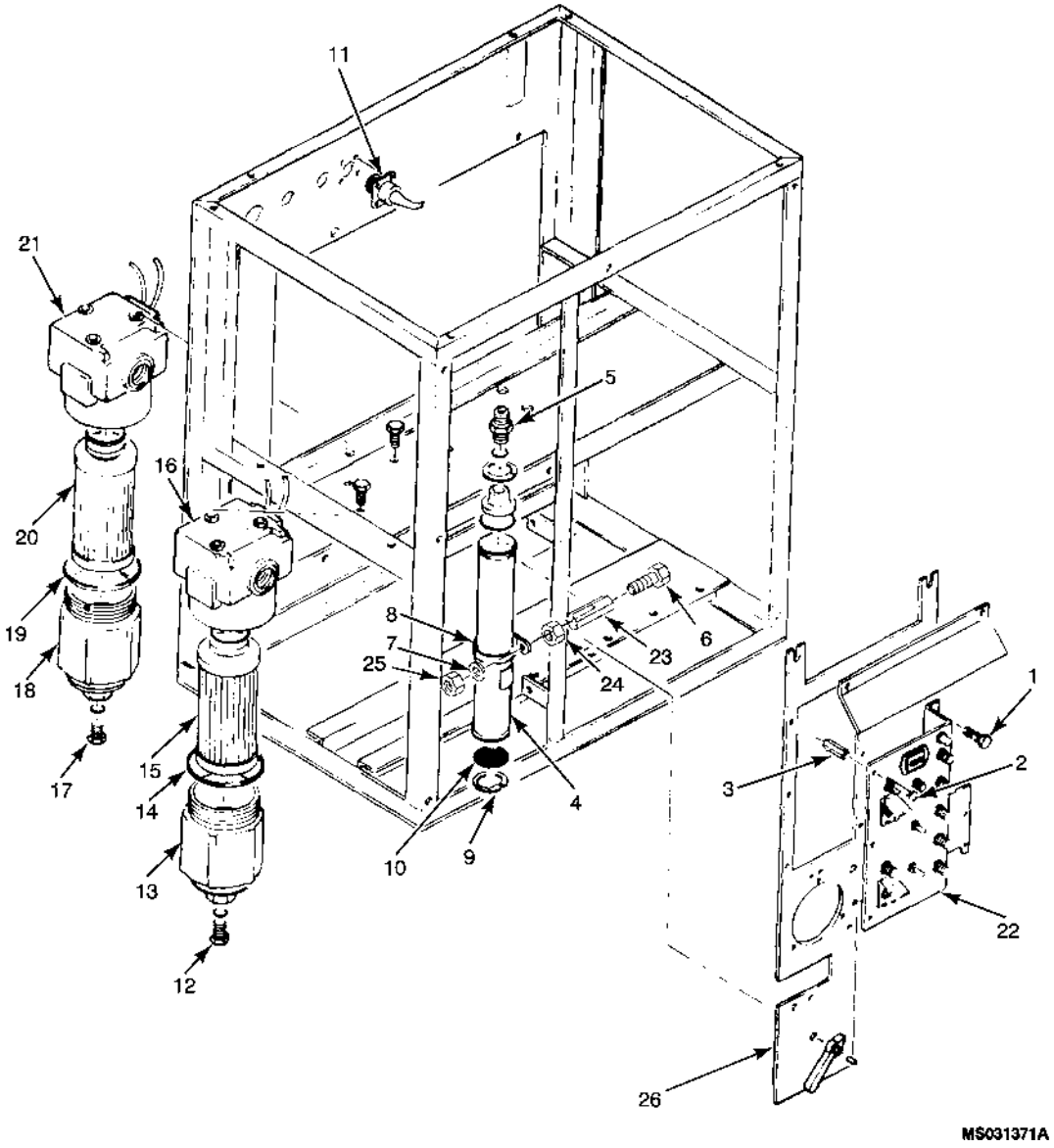
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References

TM 1-1500-323-24-1
WP 0006 00
WP 0008 00

References (cont.)

WP 0011 00
WP 0029 00
WP 0033 00
WP 0040 00
WP 0043 00
WP 0044 00
WP 0124 00



1. Screw	10. Wafer Filter	19. Packing
2. Screw	11. Connector	20. Filter Element, High Pressure
3. Standoff	12. Drain Plug, Low Pressure	21. Filter Head, High Pressure
4. Vent Dryer	13. Filter Bowl, Low Pressure	22. Electrical Panel
5. Fitting	14. Packing	23. Standoff
6. Bolt	15. Filter Element, Low Pressure	24. Nut
7. Washer	16. Filter Head, Low Pressure	25. Nut
8. Clamp	17. Drain Plug, High Pressure	26. Hydraulic Control Panel Frame
9. Filter Retaining Ring	18. Filter Bowl, High Pressure	

Figure 1. Hydraulic Module Subassemblies.

TEST AND INSPECTION

NOTE

Wiring connections between the hydraulic module and other system components are provided through the AGPU main wiring harness (P14) connector.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

CAUTION

During removal or installation of the roof, one person should be stationed at each corner of the roof to prevent warping or damage to the roof.

3. Remove AGPU roof (WP 0033 00) to gain access to hydraulic electrical harness module connector (Figure 1, Item 11).
4. Turn off Master Power Switch on main control panel (WP 0006 00, Figure 1, Item 1).
5. Turn off Master Power Switch on hydraulic control panel (WP 0006 00, Figure 3, Item 1).
6. Remove hydraulic module front panel (WP 0040 00, Figure 1, Item 5).
7. Inspect hydraulic module wiring harness for damaged insulation, broken wires and loose connections.
8. Inspect electrical harness connector (Figure 1, Item 11) at rear of hydraulic module for damage.
9. Install AGPU roof (WP 0033 00).
10. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
11. Turn on Master Power Switch on main control panel (WP 0006 00, Figure 1, Item 1).
12. Turn on Master Power Switch on hydraulic control panel (WP 0006 00, Figure 3, Item 1).
13. Place AGPU into operation (WP 0008 00).
14. Place hydraulics into operation (WP 0011 00).
15. Inspect hydraulic module wiring harness during operation and inspect for overheating of wiring or discoloration of insulation.
16. Check the operation of the hydraulic control panel (Figure 1, Item 26) and ensure all components, gauges and warning lights are operational. Repair as needed.
17. Remove hydraulics from operation (WP 0011 00).
18. Remove AGPU from operation (WP 0008 00).
19. Turn off Master Power Switch on hydraulic control panel (WP 0006 00, Figure 3, Item 1).
20. Turn off Master Power Switch on main control panel (WP 0006 00, Figure 1, Item 1).
21. Install the hydraulic module front panel (WP 0040 00, Figure 1, Item 5).
22. Perform PMCS (WP 0029 00). Ensure doors, panels and roof is secure.

REPAIR OR REPLACEMENT

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

REPAIR OR REPLACEMENT – CONTINUED

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.

3. Remove AGPU roof (WP 0033 00) to gain access to hydraulic electrical harness module connector (Figure 1, Item 11).
4. Ensure to turn off Master Power Switch on main control panel (WP 0006 00, Figure 1, Item 1).
5. Ensure to turn off Master Power Switch on hydraulic control panel (WP 0006 00, Figure 3, Item 1).
6. Remove hydraulic module front panel (WP 0040 00, Figure 1, Item 5).
7. Repair hydraulic module broken wires by splicing. Refer to TM 1-1500-323-24-1.
8. If hydraulic module harness repair cannot be accomplished by simple splicing it may be necessary to replace the complete harness, notify supervisor.
9. To remove hydraulic module harness the hydraulic module must be removed from the AGPU Reference (WP 0124 00).

INSTALLATION

CAUTION

Ensure that batteries are completely disconnected before attempting the following proce-duresSteps 2 through 3. If not component damage will occur.

1. If hydraulic module was removed, replace the hydraulic module (WP 0124 00).
2. Install the hydraulic module front panel (WP 0040 00, Figure 1, Item 5).

CAUTION

During installation of the roof, one person should be stationed at each corner of the roof to prevent warping or damage to the roof.

3. Install the AGPU roof (WP 0033 00).
4. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
5. Perform MOC and check hydraulic system for proper operation (WP 0011 00).

END OF WORK PACKAGE

FIELD MAINTENANCE

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

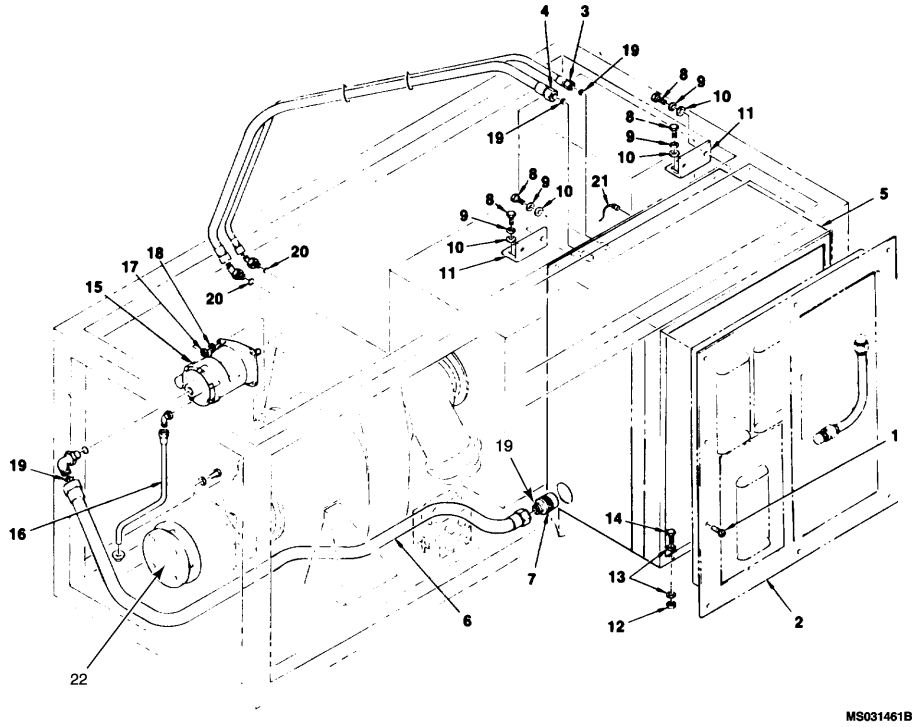
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References

WP 0006 00
WP 0008 00

References (cont.)

WP 0011 00
WP 0029 00
WP 0033 00
WP 0043 00
WP 0044 00
WP 0118 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. Washer, Lock	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. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Remove front panel (Figure 1, Item 2) by removing 10 screws (Figure 1, Item 1).

REMOVAL – CONTINUED

CAUTION

During installation of the roof, one person should be stationed at each corner of the roof to prevent warping or damage to the roof.

4. Remove AGPU roof (WP 0033 00).
5. At hydraulic module control panel:
   a. Set RESERVOIR selector to AGPU (WP 0006 00, Figure 3, Item 20).
   b. Open GAUGE SHUTOFF valve 1/4 turn (WP 0006 00, Figure 3, Item 29).
   c. Observe OUTPUT PRESSURE gauge (WP 0006 00, Figure 3, Item 16) for zero pressure. If any pressure is indicated on gauge, open HIGH PRESSURE BYPASS (WP 0006 00, Figure 3, Item 31) to relieve pressure in hydraulic system.

NOTE

When disconnecting hydraulic hoses both low and high pressure (AN-6) and (AN-12) (Figure 1, Item 3 and 4) some hydraulic fluid spillage will occur. Be prepared to catch fluid when hydraulic hoses are disconnected.

6. Disconnect hydraulic hose connectors (AN-6) and (AN-12) (Figure 1, Item 3 and 4) from hydraulic module (Figure 1, Item 5).
7. Remove and discard seals (Figure 1, Item 19). Cover ends of hydraulic hoses and hydraulic module connections (fittings) with plastic caps or material to prevent contamination.
8. Tie off hydraulic hoses to prevent damage during removal of module. Place away from hydraulic module to prevent hydraulic hoses from getting caught when removing hydraulic module.
9. 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. Cover with protective material to prevent contamination and secure to frame of AGPU.
10. Disconnect electrical connector (P14) (Figure 1, Item 21) from back of hydraulic module and cover connector with protective material to prevent contamination. Safeguard wiring harness P14 to prevent damage during removal of hydraulic module.
11. 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. Safeguard bolts, washers and brackets for re-use during installation.
12. 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. Safeguard bolts, washers and nuts for re-use during installation.

REMOVAL – CONTINUED

WARNING

When removing hydraulic module from AGPU frame this will require two personnel. The module can topple from side to side; therefore, resulting in personnel injury and/or equipment damage.

NOTE

The hydraulic fluid cooler is made of soft metal and can be punctured or damaged easily.

13. Slide hydraulic module forward onto lifting device. Protect hydraulic cooler on back of module from being damaged during the removal process. Lower module and place on blocks or tie down on transport device for movement 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.

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures, INSTALLATION, Steps 1 through 2. If not component damage will occur.

1. Remove front panel (Figure 1, Item 2) by removing 10 screws (Figure 1, Item 1). If not already removed.

CAUTION

During installation of the roof, one person should be stationed at each corner of the roof to prevent warping or damage to the roof.

2. Remove AGPU roof (WP 0033 00). If not already removed.
3. Position lifting device under hydraulic module and lift module up to level of AGPU frame and floor opening.
4. Slide hydraulic module into AGPU hydraulic module compartment floor opening.
5. 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. Do not fully tighten at this time, tightening of bolts will be performed in Step 6 below.

NOTE

If rev-nuts are used, lock washers are not required for mounting hardware.

6. Install four bolts (Figure 1, Item 8) flat washers and lock washers (Figure 1, Item 9 and 10) and two brackets (Figure 1, Item 11) that secure back of hydraulic module to AGPU frame. Adjust module in AGPU frame opening, once adjusted tighten all hardware as required.
7. Remove protective covers from hydraulic hoses and connectors on hydraulic module. Clean any residue of tape or other material used to protect connectors and fittings.

INSTALLATION – CONTINUED

8. Install new seals (Figure 1, Item 19) in end of hydraulic hoses (AN-6) (AN-12) (Figure 1, Item 3 and 4). Connect hydraulic hoses (AN-6) (AN-12) (Figure 1, Item 3 and 4) to hydraulic module (Figure 1, Item 5). Tighten hydraulic hoses (AN-6) (AN-12) (Figure 1, Item 3) coupling nut to **200 to 230 inch-pounds** of torque. Tighten hydraulic hoses (AN-6) (AN-12) (Figure 1, Item 4) coupling nut to **900 to 1,000 inch-pounds** of torque. Do not over tighten hose connections. Wipe off any residue of hydraulic fluid.
9. Connect hydraulic hose (AN-20) (Figure 1, Item 6) quick-disconnect fitting (Figure 1, Item 7) to hydraulic module (Figure 1, Item 5).
10. Connect electrical connector (P14) (Figure 1, Item 21) to rear of hydraulic module.
11. Service hydraulic module (WP 0118 00) and (WP 0029 00). Ensure hydraulic fluid level is filled to the appropriate operational level (3/4).
12. Re-install hydraulic module front panel (Figure 1, Item 2) and secure with ten screws (Figure 1, Item 1). Tighten screws as required.

CAUTION

During installation of the roof, one person should be stationed at each corner of the roof to prevent warping or damage to the roof.

13. Install AGPU roof (WP 0033 00).
14. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
15. Place AGPU into operation (WP 0008 00).
16. Place hydraulics into operation and operate for 30 minutes (WP 0011 00) and take required oil sampling
17. Perform MOC and check for leaks. No leaks allowed.

END OF WORK PACKAGE

FIELD MAINTENANCE

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

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

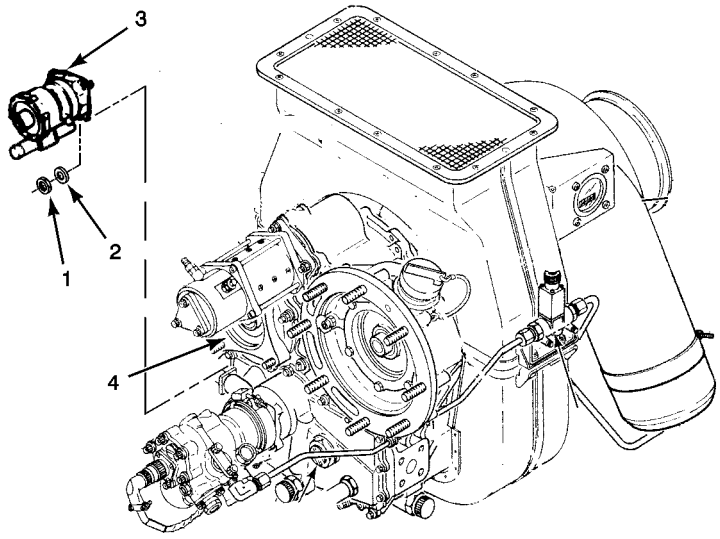
Materials/Parts

Grease, Molybdenum Disulfide (WP 0154 00, Item 25)

References

WP 0008 00
WP 0011 00
WP 0032 00
WP 0043 00
WP 0044 00
WP 0124 00

TEST AND INSPECTION



MS031497

1. Nut
2. Washer
3. Hydraulic Pump with connector P16/J16
4. Engine Gearcase Drive Pad

Figure 1. Hydraulic Pump Removal/Installation.

TEST AND INSPECTION – CONTINUED

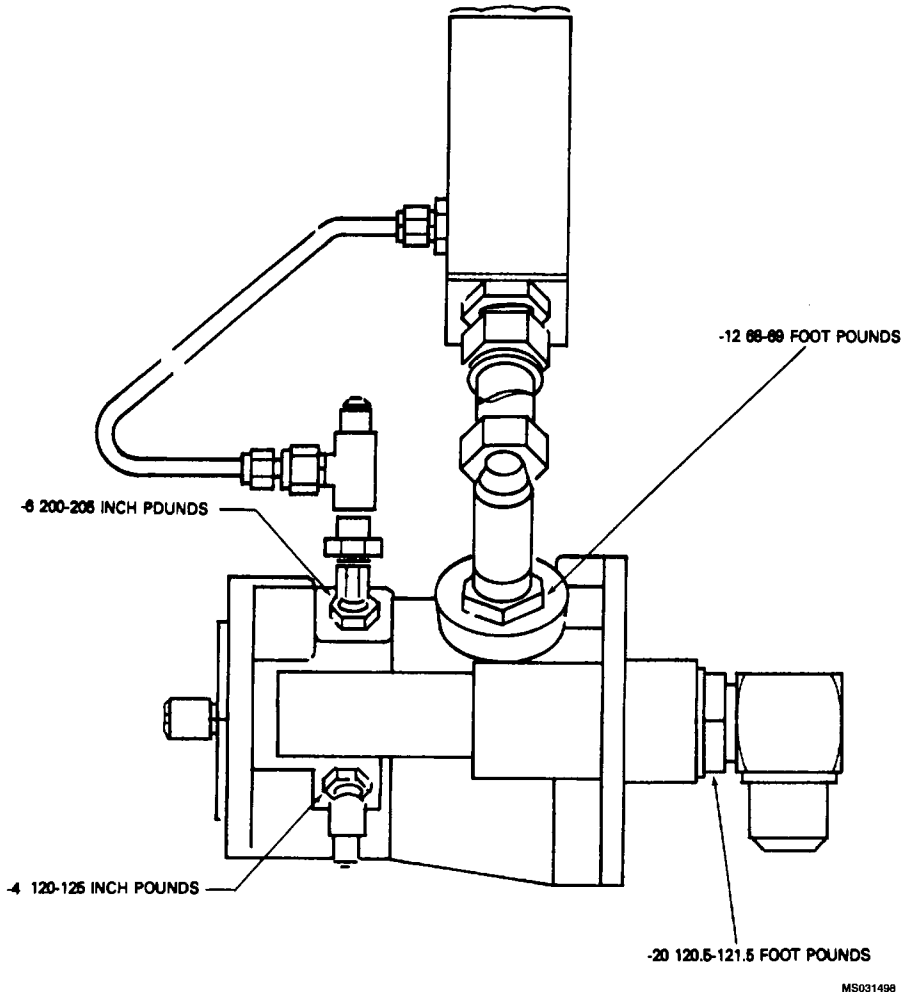


Figure 2. Hydraulic Pump Torque Values.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Start AGPU (WP 0008 00)
3. Place hydraulic system into operation (WP 0011 00).
4. Increase and decrease hydraulic pressure from lowest setting to highest setting and verify pressure on hydraulic pressure gauge (WP 0011 00). Ensure pressure reading before determining pump malfunction.
5. Shutdown hydraulic system from operation (WP 0011 00).
6. Shutdown AGPU (WP 0008 00).

REMOVAL

CAUTION

Ensure hydraulic system is not under pressure prior to 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 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Disconnect hydraulic pump hoses and lines (Figure 1).
   a. Remove hydraulic access cover (WP 0032 00, Figure 2, Item 15).
   b. Disconnect hoses (AN-6) (AN-12) (AN-20) and seals (WP 0124 00, Figure 1, Item 3, 4, 6, 19 and 20) from elbows installed on hydraulic pump. Cap hoses and elbows with plastic caps or material to prevent contamination.
   c. Disconnect drain tube (WP 0124 00, Figure 1, Item 16) from elbow on hydraulic pump (WP 0124 00, Figure 1, Item 15).
   d. Disconnect wiring harness connector (P16) from hydraulic pump electrical connector (J16) (Figure 1, Item 3).
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). Ensure suitable container is present to catch hydraulic fluid as pump is removed.
6. Cover gearcase drive pad (Figure 1, Item 4) after removal of hydraulic pump (Figure 1, Item 3) until hydraulic pump is reinstalled. This will prevent contamination to engine and engine oil.

INSTALLATION

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures, Steps 1 and 2. If not component damage will occur.

1. Remove hydraulic access cover (WP 0032 00, Figure 2, Item 15), if not already removed.
2. Remove and discard protective covering on engine drive pad (Figure 1, Item 4). Lubricate splines on hydraulic pump (Figure 1, Item 3) shaft and internal splines on engine gearcase drive pad with a coat of grease MIL-G-21164C.
3. Carefully install hydraulic pump (Figure 1, Item 3) on studs on engine gearcase drive pad (Figure 1, Item 4). Turn pump shaft slightly, if required, to engage splines into engine gearcase drive pad.
4. Install washers (Figure 1, Item 2) and nuts (Figure 1, Item 1) and tighten to between **180 and 200 inch-pounds** of torque.
5. Perform Hydraulic Pump Installation as follows:
   a. Connect drain tube (WP 0124 00, Figure 1, Item 16) to elbow on hydraulic pump (WP 0124 00, Figure 1, Item 15). Tighten drain tube as required
   b. Connect hoses (AN-6) (AN-12) (AN-20) and seals (WP 0124 00, Figure 1, Item 3, 4, 6, 19 and 20) to elbows installed on hydraulic pump. Un-cap hoses and elbows with plastic caps or material to

INSTALLATION – CONTINUED

prevent contamination. Tighten as required. (AN-6, **200 to 230 inch-pounds**) (AN-12, **900 to 1000 inch-pounds**) (AN-20, **1520 to 1680 inch-pounds**)

c. Connect wiring harness connector (P16) to hydraulic pump electrical connector (J16) (Figure 1, Item 3).

CAUTION

It is necessary to perform an air purging operation of the hydraulic system prior to starting of the GTE (WP 0011 00).

6. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
7. Perform hydraulic purge operation in WP 0011 00 and check for hydraulic leaks.
8. Perform MOC and check for hydraulic leaks. No leaks are allowed.
9. Install hydraulic access cover (WP 0032 00, Figure 2, Item 15).

END OF WORK PACKAGE

FIELD MAINTENANCE

**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

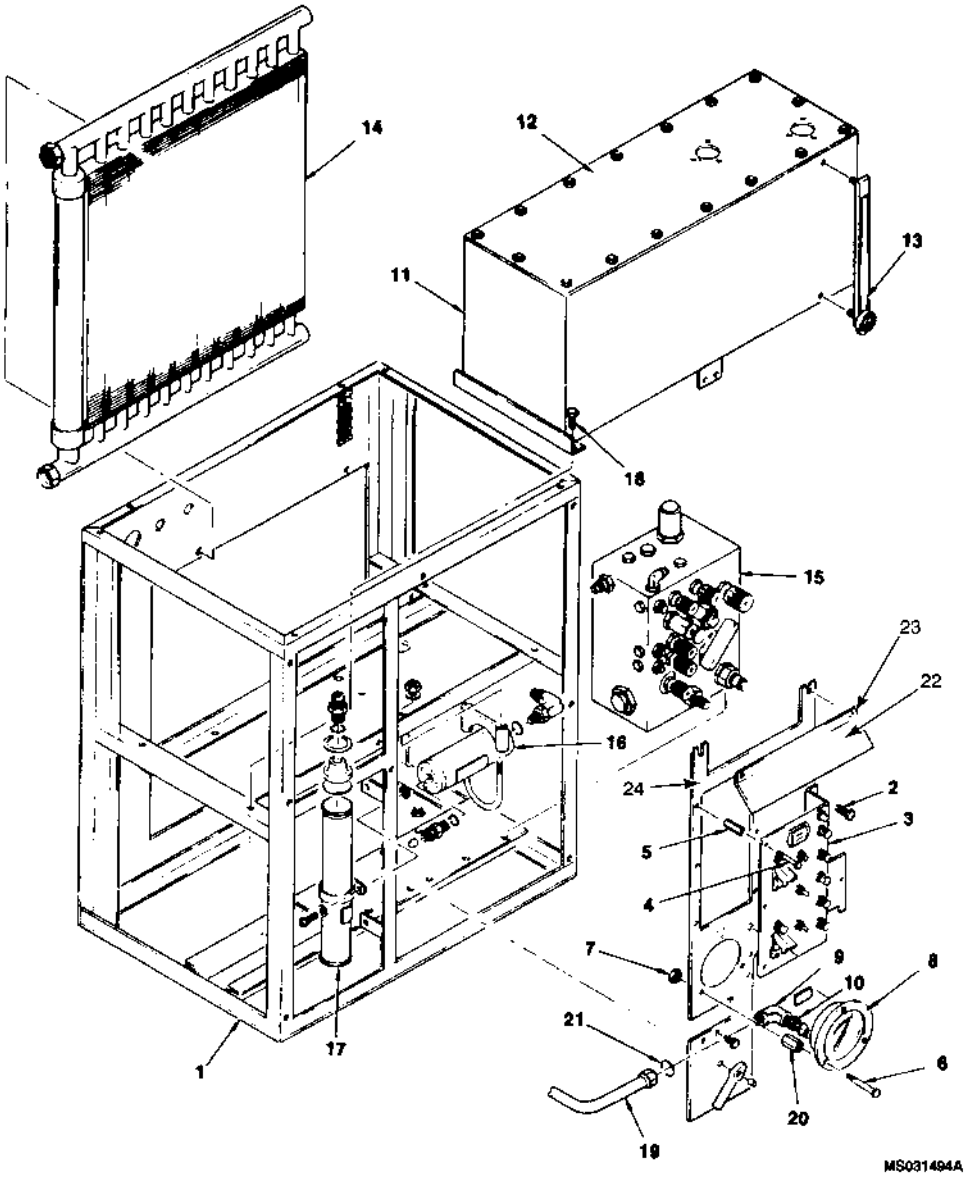
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

Materials/Parts

Hydraulic Fluid, Fire Resistant (WP 0154 00, Item 26)
Hydraulic Fluid, Petroleum Base (WP 0154 00, Item 27)

References

WP 0008 00
WP 0011 00
WP 0043 00
WP 0044 00
WP 0121 00



1. Frame	7. Nut	13. Temp/Level Gauge	19. Hydraulic Gauge Tube Assembly
2. Screw	8. Output Pressure 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. Faceplate

Figure 1. Hydraulic Module Major Components.

TEST AND INSPECTION

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
3. Start AGPU (WP 0008 00).
4. Start hydraulic system operation (WP 0011 00).
5. Open GAUGE SHUTOFF valve 1/4 turn. This valve is on main control manifold (Figure 1, Item 15).
6. Inspect and observe pressure indication on OUTPUT PRESSURE gauge (Figure 1, Item 8). It should read **450 -500 psig**. If no reading is indicated then proceed to removal of OUTPUT PRESSURE gauge.
7. Shutdown hydraulic system operation (WP 0011 00).
8. Shutdown AGPU (WP 0008 00).

REMOVAL

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 prior to applying hydraulic power. Wear gloves and eye protection (goggles or face shield) when operating hydraulic systems.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Open GAUGE SHUTOFF valve 1/4 turn. This valve is on main control manifold (Figure 1, Item 15).
4. 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.
5. Close HIGH PRESSURE BYPASS and GAUGE SHUTOFF valves on manifold (Figure 1, Item 15).
6. Remove vent dryer (WP 0121 00).
7. Remove rain shield (Figure 1, Item 22) from faceplate (Figure 1, Item 24).
8. Remove screws (Figure 1, Item 2 and 4) and standoffs (Figure 1, Item 5) from electrical control panel (Figure 1, Item 3).
9. Remove bolts (Figure 1, Item 23) from rain shield (Figure 1, Item 22).
10. 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).
11. Remove bolts (Figure 1, Item 6), nuts (Figure 1, Item 7) and standoffs (Figure 1, Item 20).
12. Remove OUTPUT PRESSURE gauge (Figure 1, Item 8).
13. Note elbow (Figure 1, Item 9) position on back of OUTPUT PRESSURE gauge (Figure 1, Item 8) for reinstallation.
14. Loosen jam nut (Figure 1, Item 10) and remove elbow (Figure 1, Item 9) from back of pressure gauge.

REMOVAL – CONTINUED

15. Clean excess oil from inside of module frame and cap hydraulic gauge tube assembly (Figure 1, Item 19) until new gauge is installed.

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 prior to applying hydraulic power. Wear gloves and eye protection (goggles or face shield) when operating hydraulic systems.

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures Steps 1 through 2. If not component damage will occur.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Apply hydraulic fluid (MIL-PRF-5606 or MIL-PRF-83282) to both sets of threads of elbow (Figure 1, Item 9).
3. Install jam nut (Figure 1, Item 10) on fitting on back of gauge (Figure 1, Item 8) if taken off during removal.
4. Screw elbow (Figure 1, Item 9) onto OUTPUT PRESSURE gauge (Figure 1, Item 8). Ensure that match marks are lined up when elbow is within one turn of being tight.
5. After tightening of elbow (Figure 1, Item 9) secure jam nut (Figure 1, Item 10).
6. Insert OUTPUT PRESSURE gauge into hole in hydraulic control panel and secure with screws (Figure 1, Item 6), nuts (Figure 1, Item 7) and standoffs (Figure 1, Item 20).
7. Install faceplate (Figure 1, Item 24) with bolts (Figure 1, Item 23).
8. Install electrical control panel (Figure 1, Item 3) to faceplate (Figure 1, Item 24) with screws (Figure 1, Item 2 and 4) and standoffs (Figure 1, Item 5).
9. Install rain shield (Figure 1, Item 22) to faceplate (Figure 1, Item 24).
10. Install a new 7C-4 copper seal on elbow (Figure 1, Item 9).
11. Install hydraulic gauge tube assembly (Figure 1, Item 19) to elbow (Figure 1, Item 9). Torque to between **135 and 150 inch-pounds**.
12. Reinstall vent dryer (WP 0121 00).
13. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.

INSTALLATION – CONTINUED

14. Start AGPU (WP 0008 00).
15. Start hydraulic system operation (WP 0011 00).
16. Open GAUGE SHUTOFF valve 1/4 turn. This valve is on main control manifold (Figure 1, Item 15).
17. Inspect and observe pressure indication on OUTPUT PRESSURE gauge (Figure 1, Item 8). It should read **450 -500 psig**.
18. Perform MOC and operate system for 30 minutes, check for hydraulic fluid leaks. No leakage is allowed.
19. Shutdown hydraulic system operation (WP 0011 00).
20. Shutdown AGPU (WP 0008 00).

END OF WORK PACKAGE

FIELD MAINTENANCE

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

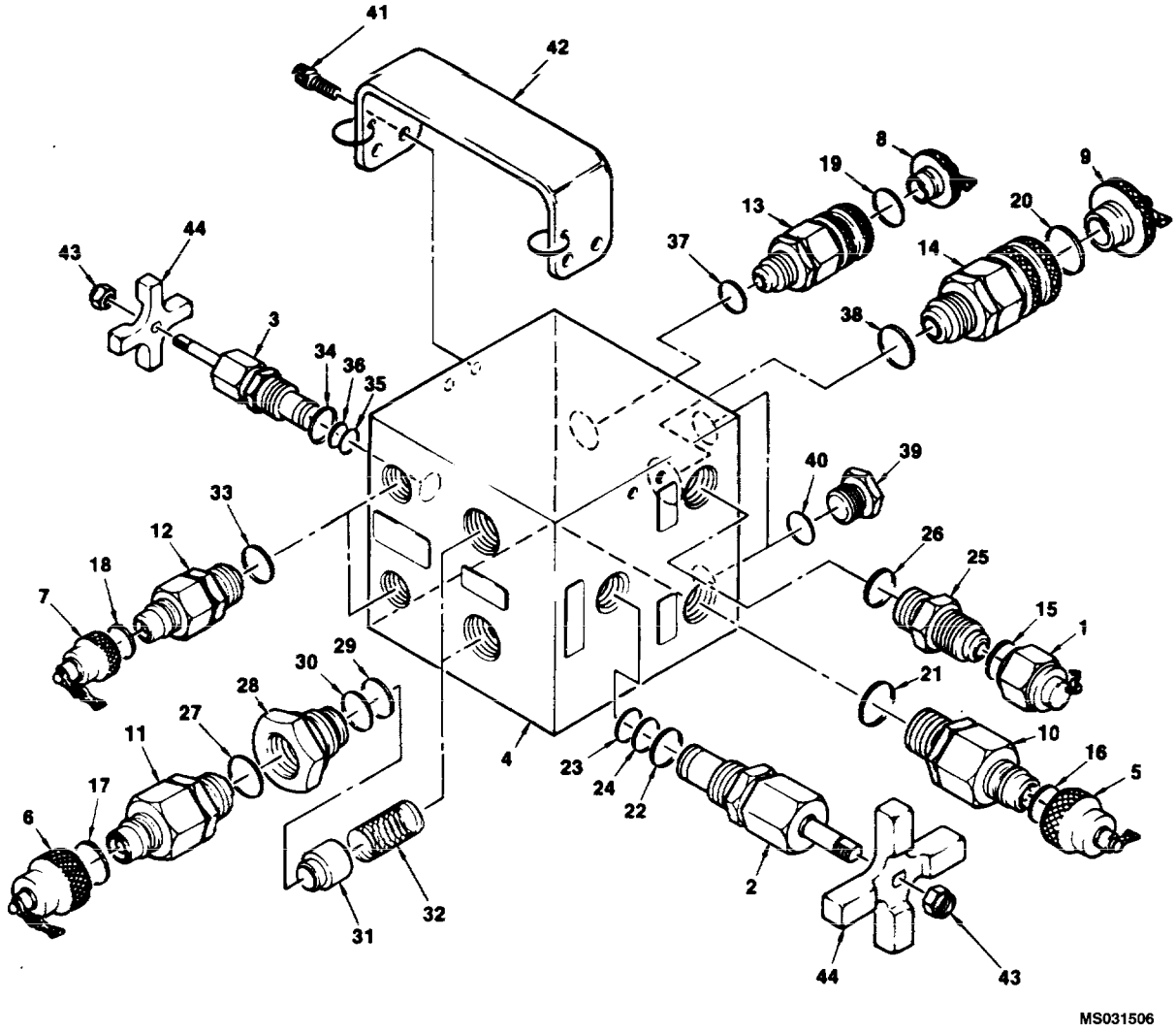
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
Gauge, Hydraulic, 0-5000 PSIG (WP 0155 00, Item 15)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Hand Pump, Hydraulic, 5000 PSI max (WP 0155 00, Item 17)

Tools and Special Tools (cont.)

Hydraulic Repairer Tool Kit, HYTK (WP 0155 00, Item 19)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References

WP 0002 00



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 (Old Type Only)	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 Valves (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 Service Manifold (Old Type Shown).

TEST AND INSPECTION

1. Inspect valve bodies (Figure 1, Item 2 and 3), quick disconnect fittings (Figure 1, Item 10, 11, 12, 13 and 14), threaded fitting (Figure 1, Item 25) and fitting (Figure 1, Item 28) for nicks, scratches or cracks. If damage is found, replace items as necessary.

NOTE

New style dual service manifold will not have bypass valve (Figure 1, Item 3).

2. Inspect threaded holes in dual service manifold (Figure 1, Item 4) for damage and contamination if valve bodies (Figure 1, Item 2 and 3) and quick disconnects (Figure 1, Item 10, 11, 12, 13 and 14) are removed.

WARNING

EYE AND HAND PROTECTION must be worn during dual service manifold hydraulic testing operations. Hydraulic fluid will be under extreme pressure and can causes serious bodily injury or death.

WARNING

If dual service manifold dust cap (Figure 1, Item 1) is not tightened prior to testing operation it may cause bodily injury and high pressure fluid leakage.

3. Pressure test assembled dual service manifold (Figure 1) in accordance with the following steps under TESTING.

TESTING

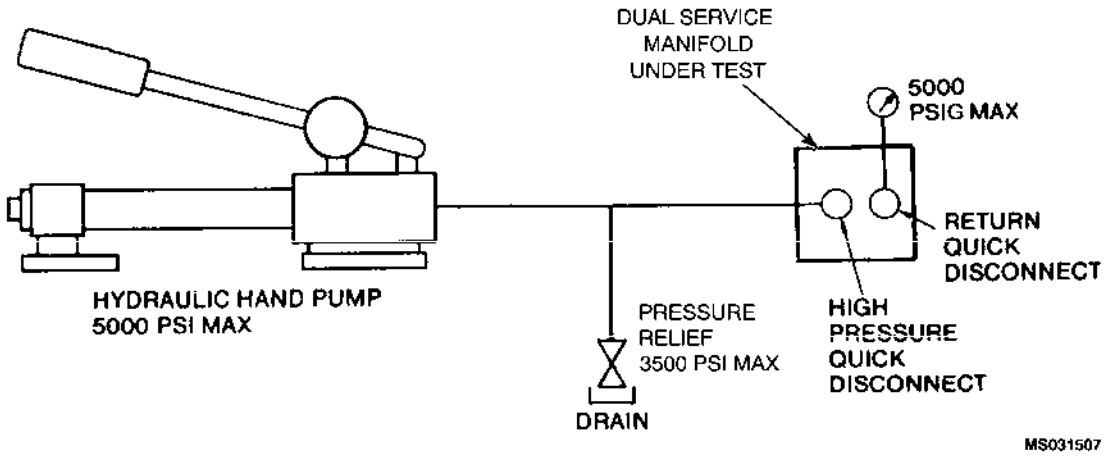


Figure 2. Dual Service Manifold Test Set-Up.

TESTING – CONTINUED

WARNING

EYE AND HAND PROTECTION must be worn during dual service manifold hydraulic testing operations. Hydraulic fluid will be under extreme pressure and can causes serious bodily injury or death.

WARNING

If dual service manifold dust cap (Figure 1, Item 1) is not tightened prior to testing operation it may cause bodily injury and high pressure fluid leakage.

NOTE

The single input to the dual service manifold from the AGPU is branched to two equal output lines and two returns lines are combined into a single return path. Valves and fluid ports are provided for filling and draining hoses as required.

1. Connect hydraulic dual service manifold to test setup (Figure 2).

WARNING

During test procedures of the dual service manifold the dual service manifold should be placed in a hydraulic test box (protective environment for testing).

2. Pressurize dual service manifold (Figure 1, Item 4) with hydraulic hand pump to **4,500 psig** and let the dual service manifold set under pressure for 1/2 hour with no change noted on gauge.
3. Look for external leaks. If no leaks, remove drain port cap. Open drain/fill valve. Release pressure and disconnect dual service manifold from test setup.
4. During test if hydraulic leaks are observed from the dual service manifold or sub components, proceed to disassembly and repair.

DISASSEMBLY

1. Place dual service manifold (Figure 1, Item 4) on a drain plan or a work bench area.
2. Remove dust cap (Figure 1, Item 1), open valves (Figure 1, Item 2 and 3) and drain all hydraulic fluid from dual service manifold (Figure 1, Item 4) in a suitable container.
3. Remove all dust caps (Figure 1, Item 5, 6, 7, 8 and 9) from quick disconnect fittings (Figure 1, Item 10, 11, 12, 13, 14). Remove and discard O-Ring and packing (Figure 1, Item 16, 17, 18, 19 and 20) from inside dust caps.
4. Remove quick disconnect fitting (Figure 1, Item 10).
5. Remove and discard O-Ring (Figure 1, Item 21).
6. Remove valve (Figure 1, Item 2).
7. Remove and discard O-Ring (Figure 1, Item 22 and 23). Remove backup ring (Figure 1, Item 24).

DISASSEMBLY – CONTINUED

8. Remove threaded fitting (Figure 1, Item 25).
9. Remove and discard O-Ring (Figure 1, Item 26).
10. Remove two quick disconnect fittings (Figure 1, Item 11).
11. Remove and discard two O-Rings (Figure 1, Item 27).
12. Remove two fittings (Figure 1, Item 28).
13. Remove and discard two O-Rings (Figure 1, Item 29). Remove two backup rings (Figure 1, Item 30).
14. Remove two poppet valves (Figure 1, Item 31) and springs (Figure 1, Item 32).
15. Remove two quick disconnect fittings (Figure 1, Item 12).
16. Remove and discard two Packing (Figure 1, Item 33).

NOTE

If dual service manifold is new style proceed to Step 19.

17. Remove valve (Figure 1, Item 3) from old style dual service manifold.
18. Remove and discard O-Rings (Figure 1, Item 34 and 35). Remove backup ring (Figure 1, Item 36).
19. Remove quick disconnect fittings (Figure 1, Item 13).
20. Remove and discard O-Ring (Figure 1, Item 37).
21. Remove quick disconnect fitting (Figure 1, Item 14).
22. Remove and discard O-Ring (Figure 1, Item 38).
23. Remove two plugs (Figure 1, Item 39).
24. Remove and discard two O-Rings (Figure 1, Item 40).

ASSEMBLY

NOTE

During assembly of components for the dual service manifold it will be necessary to lubricate o-rings and packings with hydraulic fluid (MIL-PRF-5606 or MIL-PRF-83282).

1. Install a new O-Ring (Figure 1, Item 40) on each of two plugs (Figure 1, Item 39).
2. Install two plugs (Figure 1, Item 39) into dual manifold (Figure 1, Item 4) and tighten as required.
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 service manifold (Figure 1, Item 4) and tighten as required.
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 service manifold (Figure 1, Item 4) and tighten as required.

NOTE

If dual service manifold is new type proceed to Step 9.

7. Install new O-Rings (Figure 1, Item 34 and 35) and backup ring (Figure 1, Item 36) on valve (Figure 1, Item 3) for old style dual service manifold.
8. Install valve (Figure 1, Item 3) into old style dual service manifold (Figure 1, Item 4) and tighten as required.

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 service manifold (Figure 1, Item 4) and tighten as required.
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), poppet valves (Figure 1, Item 31), fittings (Figure 1, Item 28) and quick disconnect fittings (Figure 1, Item 11) into dual service manifold (Figure 1, Item 4) and tighten as required.
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 service manifold (Figure 1, Item 4) and tighten as required.
16. Install new O-Ring (Figure 1, Item 22 and 23) and backup ring (Figure 1, Item 24) on valve (Figure 1, Item 2).
17. Install valve (Figure 1, Item 2) into dual service manifold (Figure 1, Item 4) and tighten as required.
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 service manifold (Figure 1, Item 4) and tighten as required.
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) on dual service manifold.
22. Test dual service manifold in accordance with TESTING procedure (Figure 2).
23. During testing of dual service manifold inspect for leaks. No leakage allowed
24. Place dual service manifold back in storage location in AGPU (WP 0002 00, Figure 9, Item 7).

END OF WORK PACKAGE

FIELD MAINTENANCE

**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

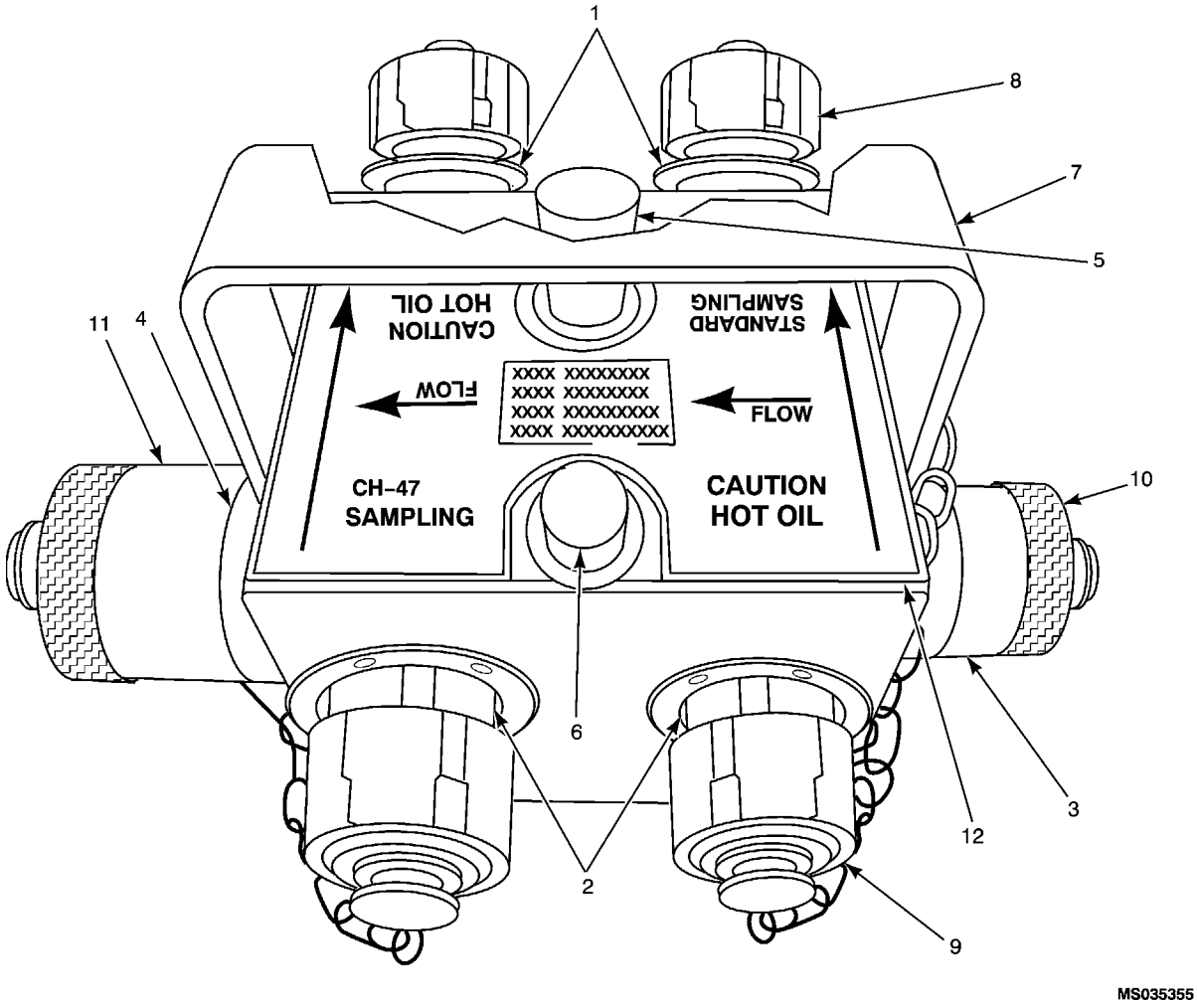
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)
Hydraulic Repairer Tool Kit, HYTK (WP 0155 00, Item 19)

Materials/Parts

Cleaning Compound, Solvent (WP 0154 00, Item 5)

References

WP 0002 00
WP 0008 00
WP 0011 00



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
12. Purge Oil Sampling Adapter Body

Figure 1. Hydraulic Oil Sampling/Purge Adapter.

TEST AND INSPECTION

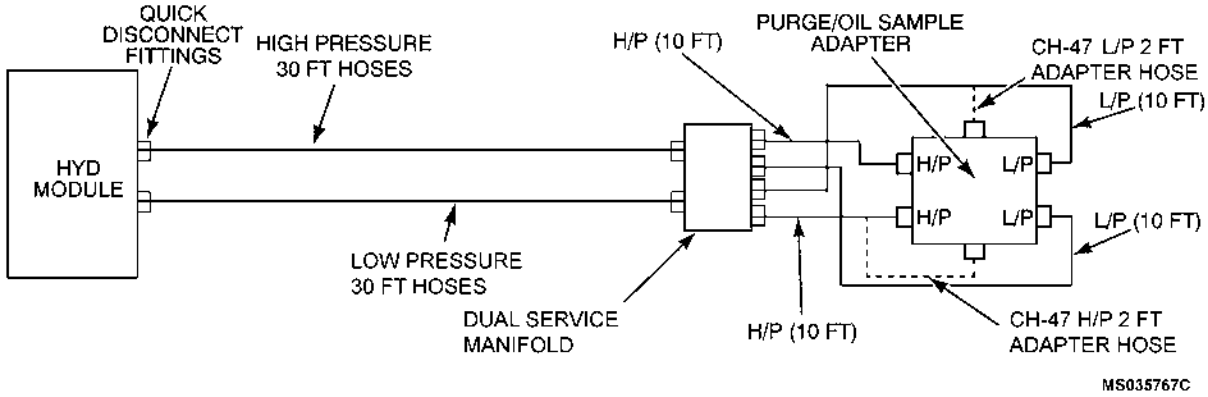


Figure 2. Hydraulic Oil Sampling/Purge Adapter Testing Setup.

1. Remove hydraulic oil sampling/purge adapter from engine compartment (WP 0002 00, Figure 10) storage location and position on suitable inspection work area.
2. Inspect oil sampling/purge adapter body (Figure 1, Item 12) for nicks or cracks in threaded fitting ports. If damage is found, replace oil sampling/purge adapter body.
3. Inspect threaded bodies of dust caps (Figure 1, Item 8, 9, 10 and 11) and couplings, half quick disconnects (Figure 1, Item 1, 2, 3 and 4) for damage and contamination. If damage is found replace, do not reuse. Clean contamination from all caps and couplings.
4. Inspect both port (mister) threaded bodies (Figure 1, Item 5) for damage and contamination. If damage is found replace port (mister), do not reuse. Clean contamination from port (mister) threaded bodies for reuse in oil sampling/purge adapter.
5. Inspect retaining rings and chains (not shown) (Figure 1, Item 8, 9, 10 and 11) on oil sampling/purge adapter and replace retaining rings and chains (not shown) if damaged.

WARNING

EYE, HEARING AND HAND PROTECTION must be worn during oil sampling/purge adapter hydraulic testing operations. Hydraulic fluid will be under extreme pressure and can cause serious bodily injury or death. Ensure AGPU GTE is in the STOP position and the MASTER switch is in the OFF position prior to connecting all hoses and quick disconnects to the oil sampling/purge adapter, if the AGPU is to be used for testing.

TESTING

1. Connect the oil sampling/purge adapter to test setup (Figure 2) in accordance with AGPU Hydraulic instructions for setting up oil sampling (WP 0011 00).

NOTE

The single input to the dual service manifold from the AGPU is branched to two equal output lines and two returns lines to the oil sampling/purge adapter. When fluid is returned from the oil sampling/purge adapter to the dual service manifold the fluid is combined into a single return

TESTING – CONTINUED

path to the AGPU. Valves for oil sampling are located at the top of the oil sampling/purge adapter body for all Aircraft hose configurations.

2. Place oil sampling/purge adapter on a suitable oil drip pan and hook up all lines and connectors (Figure 2 , Hydraulic Oil Sampling /Purge Adapter Testing Setup).
3. Start up AGPU (WP 0008 00, Engine Start Procedures).
4. Pressurize oil sampling/purge adapter body (WP 0011 00, Engine Start Procedures) with the AGPU hydraulics system to **700 psi** and let hydraulic fluid flow for 1/2 hour with no change of pressure reading on AGPU hydraulics gauge.
5. Check for external leaks. If no leaks, remove pressure and disconnect oil sampling/purge adapter and stow into AGPU storage bracket, located in engine access compartment.
6. Close RETURN BLEED valve (Figure 2, Item 22) and HIGH PRESSURE BLEED relief valve (Figure 2, Item 34) by turning valves clockwise.

NOTE

If the Hydraulic pressure will not decrease as the pressure switch (Figure 2, Item 17) is pressed to the decrease position, open the HIGH PRESSURE BYPASS valve (Figure 2, Item 30) 1/4 turn counter clockwise at the same time. This will allow pressure to decrease to **450 to 500 psig**. Close the HIGH PRESSURE BYPASS valve (Figure 2, Item 30) after pressure is decreased and release the pressure switch (Figure 2, Item 17).

7. Decrease hydraulic oil pressure to **450-500 psig** by using INCREASE/DECREASE PRESSURE switch (Figure 2, Item 17), if sight glasses (Figure 2, Item 21 and 27) are clear.
8. Turn off hydraulic OUTPUT switch (Figure 2, Item 12) and ensure hydraulic pressure output lamp (Figure 2, Item 13) goes out.
9. Turn off hydraulic POWER master switch (Figure 2, Item 1).

CAUTION

After performing purge/oil sampling operations and prior to disconnecting and connecting to AIRCRAFT, AGPU and Hydraulic module operations must be shut down. DO NOT attempt to connect hydraulic hoses to AIRCRAFT while AGPU is in operation or hydraulic system is operational under pressure.

10. Shut down AGPU (WP 0008 00, AGPU Shutdown Procedure).
11. Stow the oil sampling/purge adapter into AGPU storage bracket, located in AGPU engine access compartment (WP 0002 00, Figure 10).
12. Stow hydraulic hoses into engine access door (WP 0002 00, Figure 10).

DISASSEMBLY

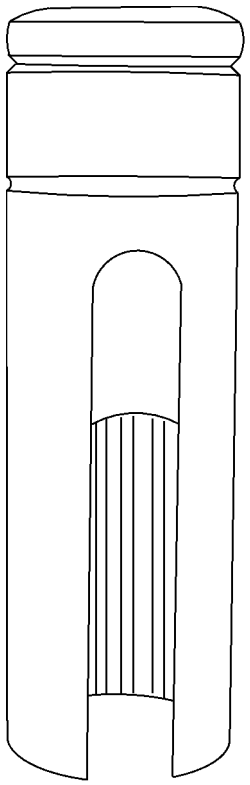


Figure 3. Bleed Valve Removal Tool (Special Socket).

1. Remove all dust caps (Figure 1, Item 8, 9, 10, and 11) and couplings, half quick disconnects (Figure 1, Item 1, 2, 3, and 4) 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 port (mister) threaded bodies (Figure 1, Item 5 and 6) from oil sampling/purge adapter with special socket (Figure 3) and safeguard for reuse.
3. Remove and discard O-ring and packings (Figure 1 (not shown)) from all 6 dust caps (Figure 1, Item 8, 9, 10 and 11), couplings, half quick disconnects (Figure 1, Item 1, 2, 3, and 4) from inside dust caps. Do not reuse old O-rings and packings.
4. Do not remove retaining rings and chains (Figure 1 (not shown) from oil sampling/purge adapter (Figure 1, Item 12) 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 12) inside and out with MIL-PRF-680 and let air dry.
6. Recheck all threaded areas for cracks, dents and burrs. Replace sampling/purge adapter (Figure 1, Item 12) if defects are found.

ASSEMBLY

1. Install new O-rings and packing's (not shown) on to all 6 dust caps (Figure 1, Item 8, 9, 10 and 11), couplings, half quick disconnects (Figure 1, Item 8, 9, 10 and 11).
2. Install couplings, half quick disconnects (Figure 1, Item 1, 2, 3, and 4) with O-rings and packing (not shown) into oil sampling/purge adapter body (Figure 1, Item 12). Tighten couplings, half quick disconnects to **1200 in/lbs of torque**.
3. Install both port (mister) threaded bodies (Figure 1, Item 5 and 6) using tool shown in Figure 3 into oil sampling/purge adapter body. Tighten to **480 in/lbs. of torque** or until bleed valve threaded bodies bottom to oil sampling/purge adapter body. Do not over tighten.
4. Install 6 dust caps (Figure 1, Item 8, 9, 10 and 11), onto couplings and half quick disconnects (Figure 1, Item 8, 9, 10 and 11).
5. Test oil sampling/purge adapter (Figure 1, Item 12) as outlined in test procedures above.
6. Check all ports and couplings of the oil sampling/purge adapter (Figure 1, Item 12) to ensure there is no fluid leakage (no leakage is allowed).
7. Stow the oil sampling/purge adapter into AGPU storage bracket, located in AGPU engine access compartment (WP 0002 00, Figure 10).

END OF WORK PACKAGE

FIELD MAINTENANCE

**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

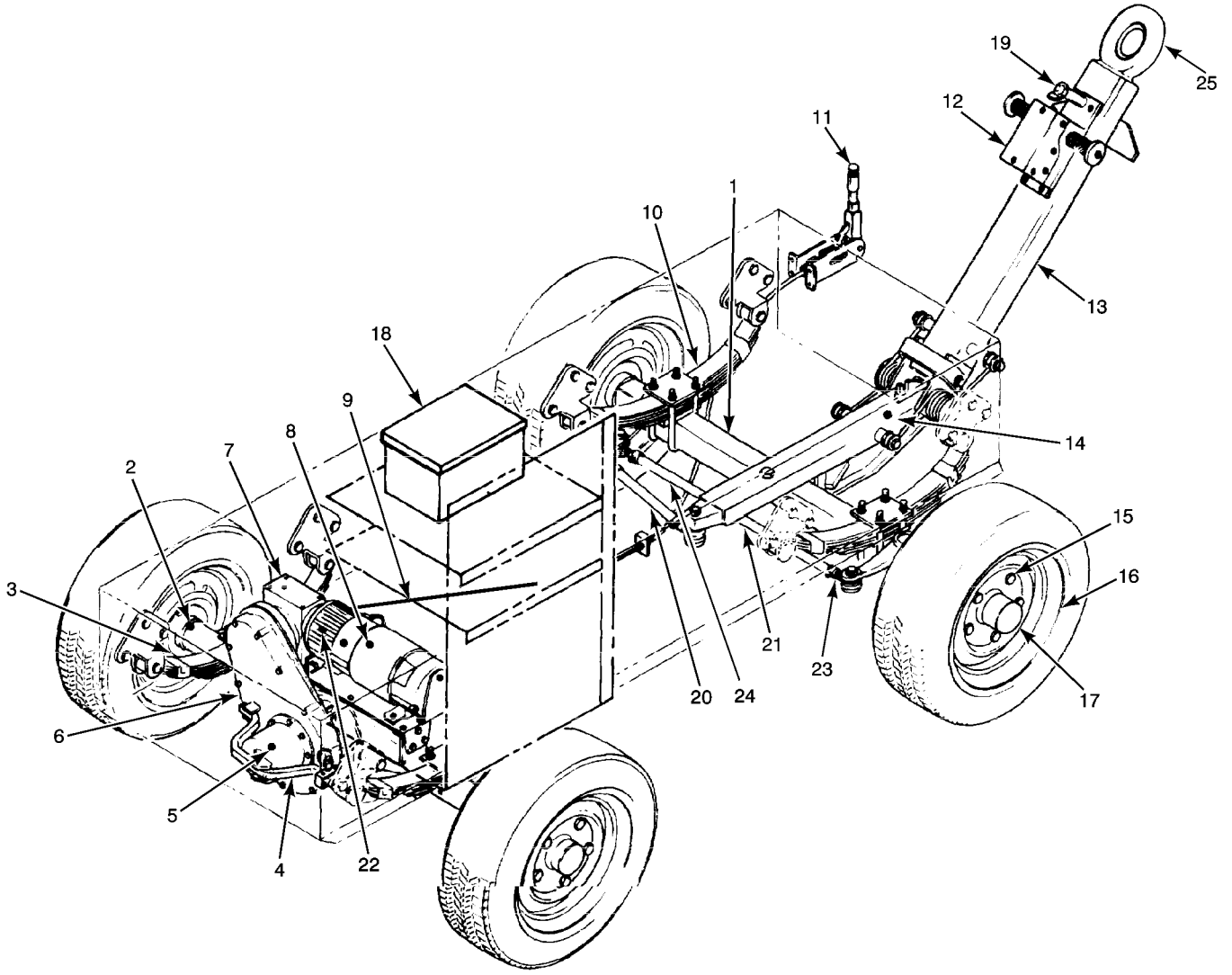
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References

WP 0043 00
WP 0044 00



MS031317A

1. Front Axle	9. Brake Cable	17. Hub
2. Rear Axle	10. Front Leaf Spring	18. Motor 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
		25. Lunette Eye

Figure 1. Propulsion System.

ADJUSTMENT

NOTE

Perform tow in adjustment after steering rod has been adjusted. Steering Rod Adjustment and Toe-in Adjustment can affect the measurements of both the steering rod and tow bar lunette eye (Figure 1, Item 25) center adjustment. Prior to toe-in adjustment, it may be necessary to adjust the steering rod to center the AGPU steering system.

Toe In, Toe Out and Tow Bar (Lunette) Center Adjustment

1. Ensure parking brake is set and rear wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Release and lower tow bar (Figure 1, Item 13) and lower tow bar to floor and hold in place. Center the tow bar lunette eye (Figure 1, Item 25) on the AGPU body (center).
4. Measure from left and right outside corners of AGPU chassis (body) wheel wells and mark center of body with chalk as a center reference point. The tow bar lunette eye (Figure 1, Item 25) should be aligned with the center line of the AGPU body.
5. If not aligned move tow bar left or right until tow bar lunette eye (Figure 1, Item 25) is aligned with the center (chalk) line of the AGPU body. Secure tow bar so that it does not move during all adjustments once aligned.
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.
9. 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. Record measurement.
10. Measure and record the same measurement between the rear center beads of the tires. If the front measurement is longer, the long tie-rod (Figure 1, Item 21) connecting the two front wheels must be lengthened. If the measurement of the front center beads is shorter, then the tie rod must be shortened to achieve equal measurements.
11. Loosen two clamps and bolts (Figure 1, Item 23), adjust the tie-rod ends with the rotation of the steering rod barrel (Figure 1, Item 24) to obtain proper toe-in/toe-out measurements.
12. If the front measurement is shorter, the tie-rod (Figure 1, Item 21) and steering rod barrel (Figure 1, Item 24) must be shortened by screwing the steering rod barrel a few turns either out or in and measuring the toe-in distances again. Several adjustments may be necessary to the steering rod barrel in order to equalize the front and rear measurement distance of the wheels.
13. 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 barrel (Figure 1, Item 24) by tightening two clamps (Figure 1, Item 23).
14. Adjustment of the tow bar center lunette eye (Figure 1, Item 25) (Figure 1, Item 13) to the center of the AGPU is performed by adjusting the steering rod (Figure 1, Item 20).

NOTE

Prior to performing the following steps the front wheels of the AGPU must be kept stationary. Movement of the wheels will cause a miss alignment and measurement of the centering procedures for the tow bar (Figure 1, Item 13) lunette eye (Figure 1, Item 25).

15. Loosen the clamps and bolts that are securing the steering rod (Figure 1, Item 20).

ADJUSTMENT – CONTINUED

16. If the front measurement of the center of the tow bar lunette eye (Figure 1, Item 25) and center of AGPU front is not obtained, adjust steering rod (Figure 1, Item 20) barrel by screwing the steering rod barrel a few turns either out or in and measuring the center distances again. Several adjustments may be necessary to the steering rod barrel in order to equalize the front center measurement distance to center of AGPU.
17. Tighten the clamps and bolts that are securing the steering rod (Figure 1, Item 20).
18. Re-measure center of tow bar (Figure 1, Item 13) lunette eye (Figure 1, Item 25) to center of AGPU to ensure tow bar and wheels are straight with center alignment of AGPU.
19. Ensure drive gear is disengaged from propulsion.
20. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E). Do not disconnect J-1 and P-1 connector on MEP 83-360E only.

WARNING

When towing the AGPU to check for proper tracking, speeds should be slowly graduated to no greater than 10 mph. Damage to the equipment and injury to personnel can result.

21. Tow AGPU with vehicle on level surface at a speed no greater than 10 mph. Have someone watch to see if AGPU tracks (and does not wonder from side to side) with tow vehicle.
22. When towing of AGPU, if AGPU wonders from side to side and does not track tow vehicle, the toe in and tow bar lunette eye (Figure 1, Item 25) measurements and adjustments must be performed again Steps 3 through 18.

NOTE

The AGPU suspension will not allow a camber or caster adjustment. The camber and caster adjustment to the AGPU steering system can only be performed when manufacturing the front axle assembly.

23. After completion of road test with tow vehicle, park AGPU and set hand brake.

END OF WORK PACKAGE

FIELD MAINTENANCE

**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

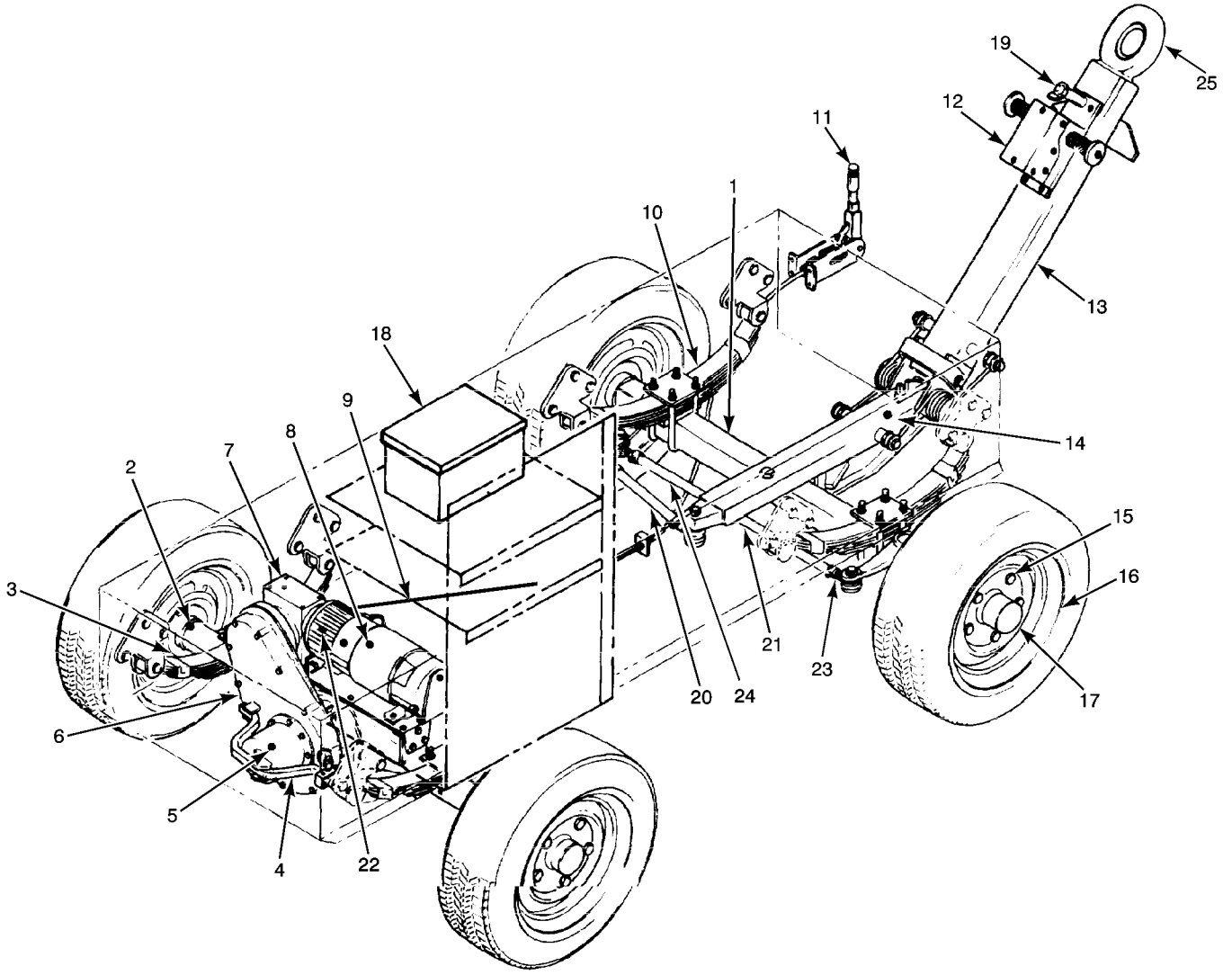
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References

WP 0043 00
WP 0044 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
		25. Lunette Eye

Figure 1. Propulsion System (MEP 83-360A and MEP 83-360D/E).

TEST AND INSPECTION

1. Ensure parking brake is set and rear wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Inspect tire tread and side walls of tires for cuts, cracks and abrasions.
4. Check air pressure in each tire for proper inflation (35 psi).

NOTE

Tread design and height of each tire should be looked at to ensure same tread design and height of tire is configured on same axle. Never miss match tread design or height of tire on same axle. Different manufacturers will have different tread design and a slight difference in height of tire. Ensure to match each tire on same axle.

5. Check tire tread depth to ensure no less than 2/32 “, if less replace tire.
6. Inspect rim for cracks and abrasions both inside and outside of rim. Inspect lug nut stud holes for cracks and distortion. If any cracks or distortions of mounting holes are found replace rim.
7. Inspect security of lug nuts, ensure that all lug nuts are present (5 each per wheel).
8. Torque each lug nut to **45-50 foot-pounds**. Do not over tighten.

WARNING

When performing Step 9 AGPU will be raised off the ground and hand brake released. Ensure precautions are made to ensure AGPU will not roll and jack stands are used to prevent damage to the equipment and injury to personnel.

NOTE

It is necessary to ensure drive clutch for rear axle is disengaged and hand brake is released prior to performing Step 9.

9. Raise wheel and tire off of the ground to a height that will allow the tire not to come in contact with ground surface. Rotate wheel and tire and check for out of roundness of rim and tire. Replace tire or rim if necessary.
10. After inspection, lower AGPU if raised and ensure parking brake is set.

REMOVAL

NOTE

If all four wheels are to be removed, support the AGPU with jack stands at each corner prior to removing wheels.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Loosen lug nuts (Figure 1, Item 15) on wheels (Figure 1, Item 16) to be removed. Nuts should only be loosened one full turn before AGPU is raised off the ground.

REMOVAL – CONTINUED

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 clear of the ground.
5. Support the AGPU with jack stands. If all four wheels are to be removed support all four corners of AGPU with jack stands.
6. Remove the five lug nuts (Figure 1, Item 15) per wheel. Remove the tire and wheel assembly (Figure 1, Item 16).

INSTALLATION

1. Ensure parking brake is set.
2. Position the tire and wheel assembly (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 until contact with wheel.
3. Raise the AGPU with floor jack. Remove jack stands and lower AGPU.
4. Ensure parking brake is set and wheels are chocked. Torque each lug nut to **45-50 foot-pounds**.
5. Perform MOC.

END OF WORK PACKAGE

FIELD MAINTENANCE

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
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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

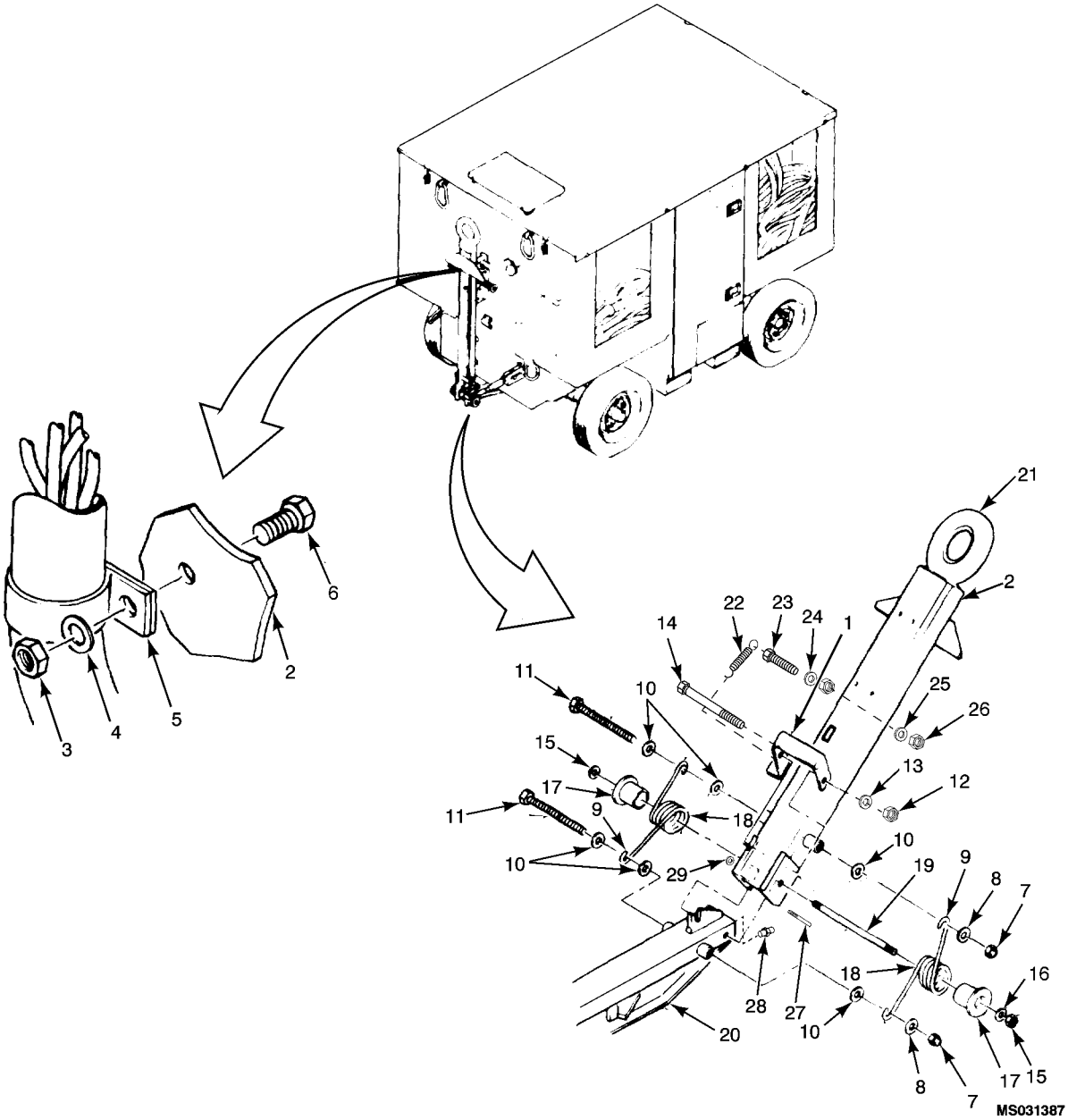
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References

WP 0001 00

References (cont.)

WP 0028 00
WP 0029 00
WP 0031 00
WP 0043 00
WP 0044 00
WP 0134 00



1. Latch Assembly	8. Flat Washer	15. Lock Nut	22. Spring
2. Tow Bar Beam	9. Spring Loops	16. Washer	23. Eye Bolt
3. Nut	10. Flat Washer	17. Sleeve	24. Washer
4. Flat Washer	11. Bolt	18. Spring	25. Lock Washer
5. Clamp, Rubber	12. Nut	19. Shaft	26. Nut
6. Bolt	13. Washer	20. Tongue	27. Locking Pin
7. Lock Nut	14. Bolt	21. Lunette Eye	28. Lube Fitting
			29. Lock Nut

Figure 1. Tow Bar.

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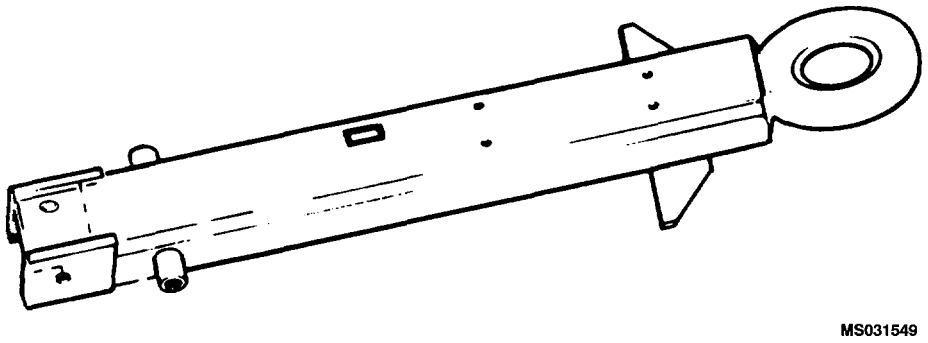


Figure 2. Tow Bar Beam.

TEST AND INSPECTION

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Check the tow bar beam (Figure 1, Item 2) for physical damage. Dents, bends or twists may be repaired using a hydraulic arbor press or heavy clamps.
4. Inspect tow bar beam (Figure 1, Item 2) lunette eye (Figure 1, Item 21) 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.

NOTE

When heating tow bar beam (Figure 1, Item 2) to correct misalignment do not over heat metal. Metal fatigue or over tempering of metal will result in tow bar beam breaking.

5. Major misalignment may require heating of the entire lunette eye (Figure 1, Item 21). Reweld the tube joints if broken during realignment.
6. Inspect the tow bar beam (Figure 1, Item 2) shaft (Figure 1, Item 19) (pivot pin) alignment and repair as necessary.
7. Correct misalignment by bending the tow bar (Figure 1, Item 2) beam in a hydraulic press. Excessive wear of the shaft (Figure 1, Item 19) (pivot pin) mounting holes require replacement of the tow bar beam.
8. Spot paint tow bar beam (Figure 1, Item 2) and lunette eye (Figure 1, Item 21) as necessary after heating for alignment corrections (WP 0001 00, CORROSION PREVENTION AND CONTROL (CPC)).
9. If major misalignment of tow bar beam (Figure 1, Item 2) cannot be corrected replace tow bar beam.

WARNING

Eye protection should be worn prior to performing the following steps.

REMOVAL

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

REMOVAL – CONTINUED

3. Depress tow bar beam (Figure 1, Item 2) release latch assembly (Figure 1, Item 1) while supporting tow bar beam. Lower the tow bar.
4. Remove speed/directional control assembly (WP 0134 00).
5. Raise tow bar beam (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 speed direction control wiring harness to underside of tow bar beam (Figure 1, Item 2).
7. On tow bar beam (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).

WARNING

The tow beam will be free falling once tension from springs (Figure 1, Item 18) is released. Exercise care when releasing latch.

NOTE

Ensure tension is off springs (Figure 1, Item 18) prior to removing bolts (Figure 1, Item 11). Ensure to mark the springs that are removed from the left or the right side of the tow bar with tags. This will assist during reinstallation to ensure both springs are under the right tension.

8. Remove latch spring (Figure 1, Item 22) from eye bolt (Figure 1, Item 23).
9. Remove bolts (Figure 1, Item 11) and flat washers (Figure 1, Item 10) to release spring loops (Figure 1, Item 9).
10. Remove nut (Figure 1, Item 12), washer (Figure 1, Item 13) and bolt (Figure 1, Item 14) that locks the latch (Figure 1, Item 1) in place.
11. 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).
12. Remove locking pin (Figure 1, Item 27) by removing lock nut (Figure 1, Item 29)

NOTE

It may be necessary to use a drive pin in order to remove the shaft (Figure 1, Item 19) from the tow bar.

13. Support tow bar beam (Figure 1, Item 2) and remove shaft (Figure 1, Item 19).
14. Remove tow bar beam (Figure 1, Item 2).

INSTALLATION

NOTE

It may be necessary to use a drive pin in order to install and align the shaft (Figure 1, Item 19) into the tow bar.

NOTE

Pre lubricate shaft (Figure 1, Item 19) with GAA (MIL-L-10924) (WP 0028 00 and WP 0029 00).

1. Raise tow bar beam (Figure 1, Item 2) and install shaft (Figure 1, Item 19) through holes in tow bar beam aligning with holes in tongue (Figure 1, Item 20). Lock shaft in place with locking pin (Figure 1, Item 27), lock nut (Figure 1, Item 29).
2. Slide shaft completely through tongue (Figure 1, Item 20) and tow bar. Ensure threads of shaft (Figure 1, Item 19) are equal on both sides of tow bar.
3. If not installed, install locking pin (Figure 1, Item 27) and lock nut (Figure 1, Item 29) and tighten as required.
4. 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). Tighten as required.

NOTE

Ensure to install marked springs that were removed back to the original location to the left or right side of tow bar.

5. On tow bar beam (Figure 1, Item 2) and tongue (Figure 1, Item 20) install bolts (Figure 1, Item 11) and flat washers (Figure 1, Item 10) to retain springs to tow bar and tongue.
6. Install washers (Figure 1, Item 8) and lock nuts (Figure 1, Item 7) on bolts (Figure 1, Item 11), securing spring loops (Figure 1, Item 9). Tighten nuts (Figure 1, Item 7) as required.
7. Install latch (Figure 1, Item 1) by replacing the bolt (Figure 1, Item 14) through latch (Figure 1, Item 1) and tow bar beam (Figure 1, Item 2) and place washer (Figure 1, Item 13) and nut (Figure 1, Item 12). Tighten as required.
8. Install spring (Figure 1, Item 22) to eyebolt (Figure 1, Item 23).
9. Secure speed direction control wire harness with clamps (Figure 1, Item 5) to tow bar beam (Figure 1, Item 2) with two bolts (Figure 1, Item 6), two washers (Figure 1, Item 4) and two nuts (Figure 1, Item 3). Tighten as required.
10. Install speed/direction control assembly (WP 0134 00).
11. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
12. Perform MOC and ensure tow bar beam (Figure 1, Item 2) moves without binding.

END OF WORK PACKAGE

FIELD MAINTENANCE

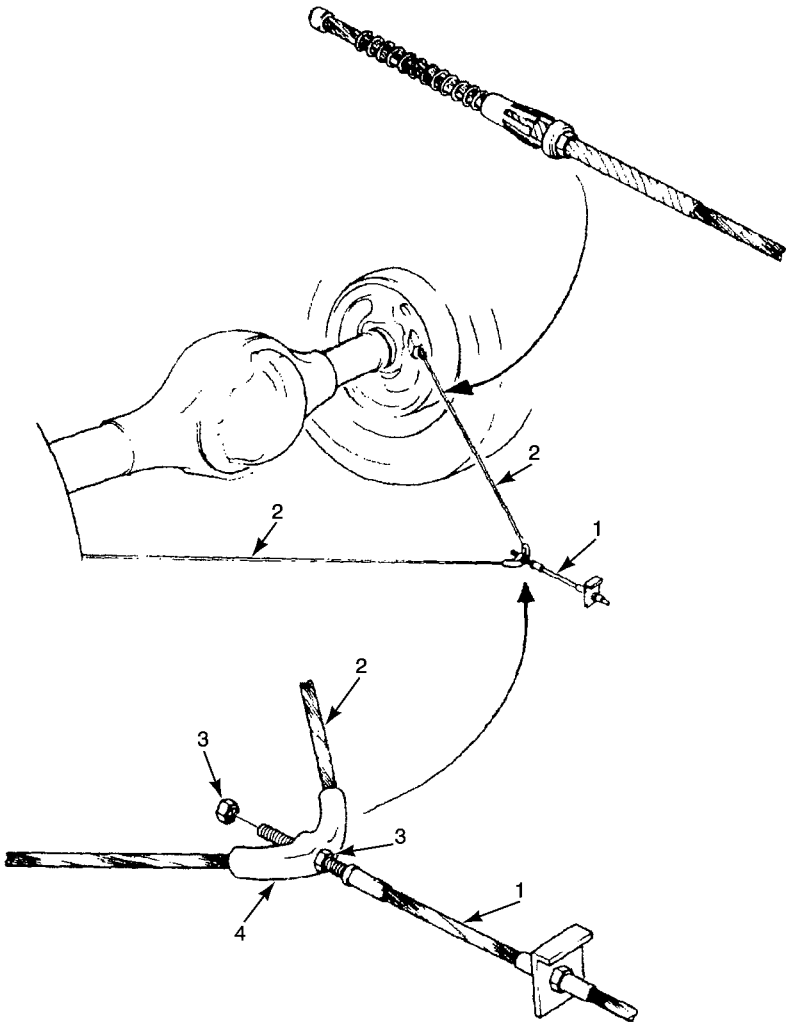
**POWER UNIT, AVIATION, MULTI-OUTPUT GTED ELECTRICAL,
HYDRAULIC, PNEUMATIC (AGPU)
WHEEL MOUNTED, SELF-PROPELLED, TOWABLE
AC - 400 HZ, 3 PH, 0.8 PF, 115/200 V
DC - 28 VOLT
PNEUMATIC - 60 LBS/MIN. AT 40 PSIG
HYDRAULIC - 15 GPM AT 3300 PSIG
LIN: P44627
PART NO. 83-360A NSN 1730-01-144-1897 (MEP 83-360A) 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**

BRAKE CABLE ASSEMBLY

INITIAL SETUP:

Tools and Special Tools	References
Tool Set, Aviation Unit (WP 0155 00, Item 41)	WP 0014 00
Aviation Foot Locker, AFL (WP 0155 00, Item 3)	WP 0043 00
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)	WP 0044 00
	WP 0130 00
	WP 0133 00

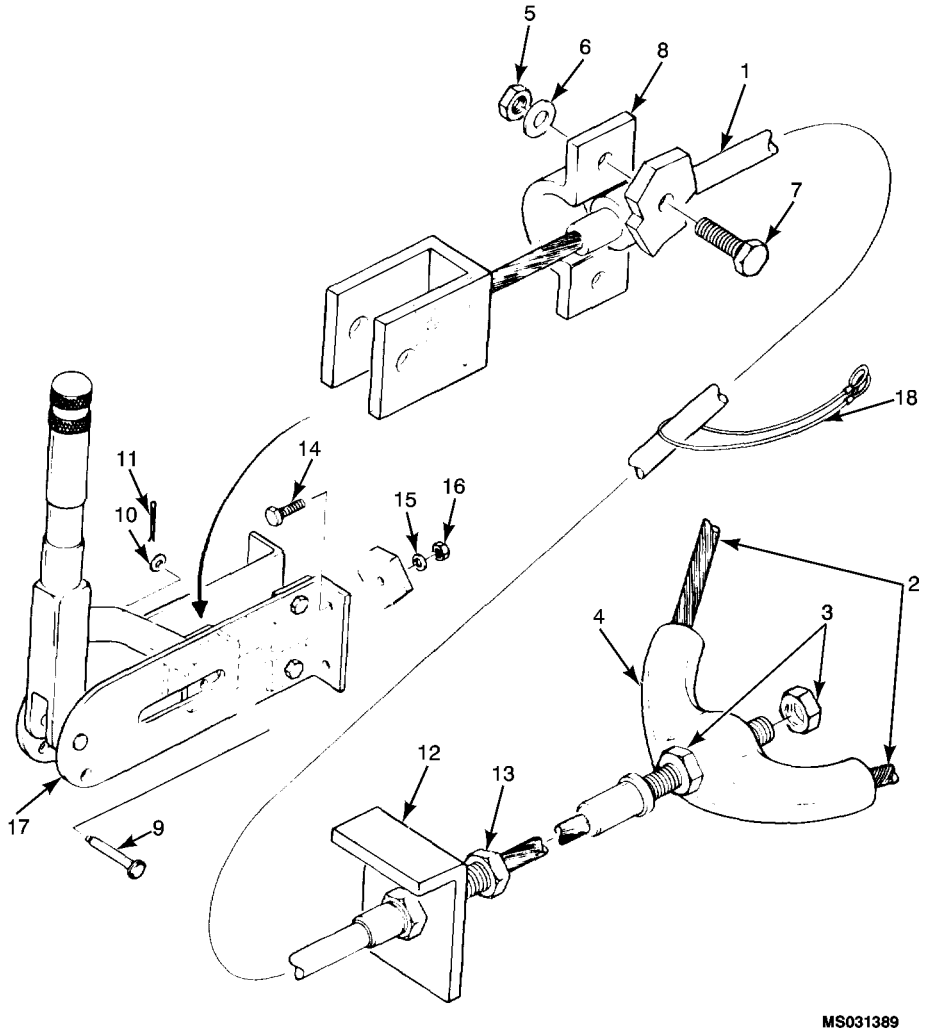
TEST AND INSPECTION



1. Front Brake Cable
2. Rear Brake Cable
3. Adjustment Nut
4. Cable Fixture

Figure 1. Brake Cables.

TEST AND INSPECTION – CONTINUED



1. Cable, Front	7. Bolt	13. Nut
2. Cable Rear	8. Clamp	14. Bolt
3. Nut	9. Pin	15. Washer, Lock
4. Cable Fixture	10. Washer, Flat	16. Nut
5. Nut	11. Cotter Pin	17. Brake Lever Assembly
6. Washer, Lock	12. L-Bracket	18. Lanyard

Figure 2. Brake Lever Assembly.

1. Ensure that front and rear wheels are chocked.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. 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. Apply parking brake and check for proper operation.
4. Inspect parking brake lever assembly (Figure 2, Item 17) for bent or broken components, loose or missing fasteners. Grasp the top portion of the parking brake lever and rotate clockwise or counter clockwise to

TEST AND INSPECTION – CONTINUED

ensure minor adjustment to brake cable tension can be adjusted. Ensure proper operation of brake lever and remove corrosion from all moving parts and coat with a light film of lubricant GAA (MIL-L-10924).

5. Apply parking brake lever (Figure 2, Item 17) and ensure propulsion is disengaged (WP 0014 00).
6. Remove chocked blocks from both front and rear wheels and apply force to AGPU both forward and reverse to ensure AGPU does not move with parking brake applied.
7. If malfunction is noted during test and inspect procedures proceed to removal steps.
8. Ensure all wheels are chocked and parking brake is applied.

REMOVAL

NOTE

Support all four corners of the AGPU with jack stands prior to removing rear wheels and tires.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Remove rear wheels and tires (WP 0130 00).
3. Release brake lever assembly (Figure 2, Item 17). Remove cotter pin (Figure 2, Item 11), flat washer (Figure 2, Item 10), pin (Figure 2, Item 9) and remove front brake cable (Figure 2, Item 1) from cable fixture (Figure 2, Item 4).

NOTE

If rear brake cable (Figure 2, Item 2) and cable fixture (Figure 2, Item 4) must be replaced during the removal of the front brake cable (Figure 2, Item 1), do not discard nut (Figure 2, Item 3 and 13).

4. Remove nut (Figure 2, Item 3) from rear brake cable fixture (Figure 2, Item 4) and remove nut (Figure 2, Item 13) from front cable (Figure 2, Item 1). Slide front cable from L-Bracket (Figure 2, Item 12). Cable fixture and rear cable will remain hooked to rear brakes during this process.
5. To remove brake lever assembly (Figure 2, Item 17), remove nut (Figure 2, Item 16), lock washer (Figure 2, Item 15) and bolt (Figure 2, Item 14).
6. Disconnect rear brake cables (Figure 1, Item 2) from brake assembly on each rear wheel.
7. 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) and bolt (Figure 2, Item 7).
8. Remove and inspect rear wheels brake assembly (WP 0133 00) for missing or loose fasteners, broken components, worn shoes and corrosion.

INSTALLATION

CAUTION

Ensure that batteries are completely disconnected before attempting the following procedures.

NOTE

Support all four corners of the AGPU with jack stands prior to the following steps.

1. Position front brake cable (Figure 2, Item 1) through the bulk head on front of AGPU and attach cable end to brake lever assembly (Figure 2, Item 17). Install pin (Figure 2, Item 9), flat washer (Figure 2, Item 10) and cotter pin (Figure 2, Item 11).

INSTALLATION – CONTINUED

2. Position brake lever assembly (Figure 2, Item 17) to bulk head of AGPU and install bolt (Figure 2, Item 14), lock washer (Figure 2, Item 15) and nut (Figure 2, Item 16).
3. Install clamp (Figure 2, Item 8), bolts (Figure 2, Item 7), lock washers (Figure 2, Item 6) and nuts (Figure 2, Item 5). Tighten as required.
4. Position front brake cable (Figure 2, Item 1) through hole in L-bracket (Figure 2, Item 12) and install nut (Figure 2, Item 13).
5. Secure front cable (Figure 2, Item 1) to frame with lanyard (Figure 2, Item 18) if not already installed.
6. Position front brake cable (Figure 1, Item 1) through cable fixture (Figure 1, Item 4) and install nuts (Figure 1, Item 3).

NOTE

Ensure brake lever assembly (Figure 2, Item 17) is in the off position prior to proceeding to Step 7 for adjustment of brake cables (Figure 2, Item 1 and 2).

7. Tighten nuts (Figure 2, Item 3) along with cable fixture (Figure 2, Item 4) to remove slack from front and rear brake cables (Figure 2, Item 1 and 2). Do not secure nuts at this time.
8. Install rear wheel brake assembly (WP 0133 00) if removed.
9. Install rear wheels and tires (WP 0130 00).
10. 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.
11. Remove jack stands and lower AGPU.
12. Perform MOC on brake system by applying the hand brake lever (Figure 2, Item 17). Adjust front and rear brake cables (Figure 1, Item 1 and 2) and nut (Figure 2, Item 3) as needed to secure AGPU.

END OF WORK PACKAGE

FIELD MAINTENANCE

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

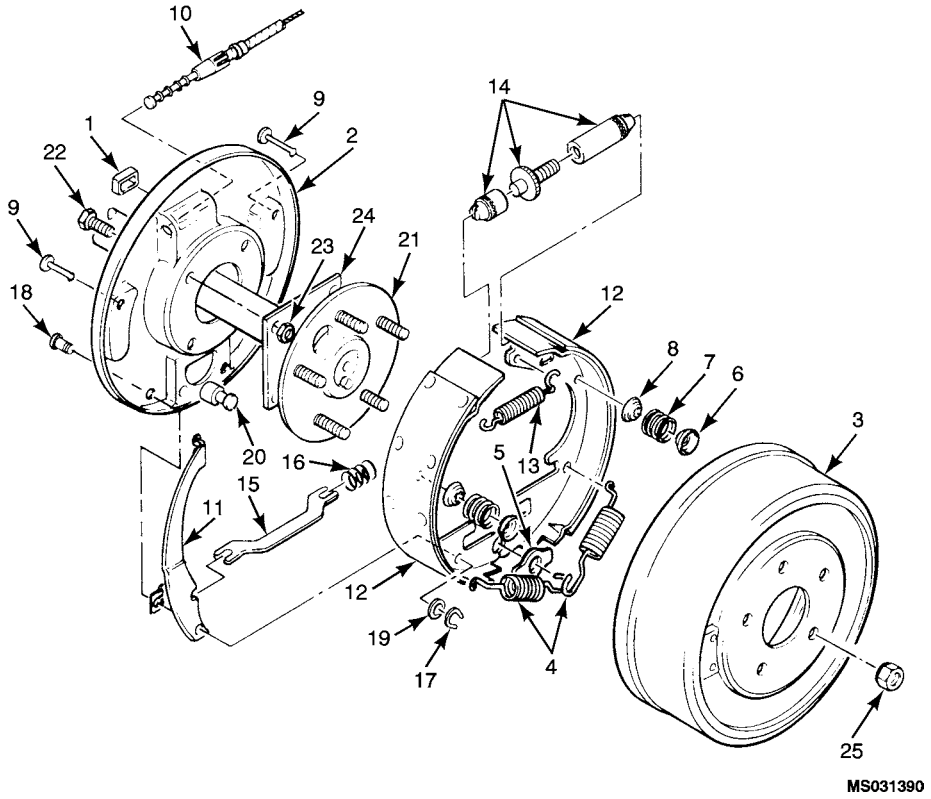
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

Materials/Parts

Cleaning Compound, Solvent (WP 0154 00, Item 5)

References

WP 0043 00
WP 0044 00
WP 0130 00
WP 0132 00
WP 0140 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).

TEST AND INSPECTION

NOTE

Support rear corners of the AGPU with jack stands and chock front tires prior to the following steps.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Remove wheels and tires (WP 0130 00).
3. Release hand brake (WP 0132 00, Figure 2, Item 17). During inspection and removal of brake drum assemblies do not apply hand brake until drum assemblies are re-installed.

TEST AND INSPECTION – CONTINUED

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 (Figure 1, Item 3) by placing adjusting spoon in the slot located on backing plate. Move adjusting spoon in an upward motion until adjusting assembly (Figure 1, Item 14) will no longer turn.
5. Prior to removal of drums (Figure 1, Item 3) mark the drums so they are placed on the same axle (Figure 1, Item 21) side as removed. Remove brake drum by tapping the side of the drum with a mallet until drum is loose. If drum will not break loose by tapping with a mallet, use a wheel puller to remove drum.
6. Inspect brake components for physical damage. Check brake surface of drum (Figure 1, Item 3) for scoring, cracks and being out-of-round. If drum scoring is minor, the drums may be turned on a brake lathe to remove scoring. If scoring is deep, the drum must be replaced. If brake shoes (Figure 1, Item 12) are excessively worn, cracked or breaking surface is missing the brake shoes must be replaced. Never replace just one brake shoe. All brake shoes should be replaced in sets.
7. Check brake springs (Figure 1, Item 4, 7, 13 and 16) for cracks or other physical damage. If springs are weak or worn, they should be replaced. Check brake lever (Figure 1, Item 11) and brake link (Figure 1, Item 15) for cracks or other damage. Inspect adjustment assembly (Figure 1, Item 14) components for damaged threads. Replace if damaged.
8. Inspect brake lever (Figure 1, Item 11) and brake cable (Figure 1, Item 10) for security of retainer clip (Figure 1, Item 17) and washer (Figure 1, Item 19), if any component is loose or missing replace as needed.
9. Inspect axle (Figure 1, Item 21), retainer plate (Figure 1, Item 24) and retainer plate nuts (Figure 1, Item 23) for security. Also, inspect for leakage of oil seeping from axle flange behind retainer plate. If leakage of oil is seen the axle seal must be replaced (WP 0140 00).
10. If during inspection of brake system and no faults are found, proceed to installation steps.

DISASSEMBLY

WARNING

During this procedure, face/eye protection is required.

NOTE

Support rear corners of the AGPU with jack stands and chock front tires prior to the following steps.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Remove rear wheels and tires (WP 0130 00).
3. Release hand brake (WP 0132 00, Figure 2, Item 17). During the removal of brake drum assemblies do not apply hand brake until drum assemblies are re-installed.
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 (Figure 1, Item 14) will no longer turn.
5. Mark the drums so they are replaced on the same axle (Figure 1, Item 21) side as removed. Remove brake drum (Figure 1, Item 3) by tapping with a mallet on the side of the drum, until drum is loose. If drum will not break loose by tapping with mallet, use a wheel puller to remove drum.

DISASSEMBLY – CONTINUED

6. Inspect brake components for physical damage. Check brake surface of drum (Figure 1, Item 3) for scoring, cracks and being out-of-round. If drum scoring is minor, the drums may be turned on a brake lathe to remove scoring. If scoring is deep, the drum must be replaced.
7. Remove brake springs (Figure 1, Item 4, 13 and 16). If springs are weak or worn, they should be replaced. Remove brake lever (Figure 1, Item 11) and brake link (Figure 1, Item 15) by removing the retainer clip (Figure 1, Item 17), washer (Figure 1, Item 19) and pin (Figure 1, Item 18). Remove adjustment assembly (Figure 1, Item 14) and attaching components.

NOTE

Not all AGPUs are equipped with spring retainers (Figure 1, Item 8).

8. Remove spring retainer (Figure 1, Item 6), spring (Figure 1, Item 7), spring retainer (Figure 1, Item 8) and pin (Figure 1, Item 9) from both the left and right side of brake shoe (Figure 1, Item 12).
9. Spread brake shoes (Figure 1, Item 12) and remove brake shoes.
10. If brake shoes (Figure 1, Item 12) are excessively worn, cracked or breaking surface is missing the brake shoes must be replaced. Never replace just on brake shoe. All brake shoes should be replaced in sets.

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 psig** air pressure. Use cleaning compound solvent, MIL-PRF-680 and a stiff bristle brush to clean the backing plates and brake components of grease, oil and dirt.
2. Prior to installing new or old parts, remove any preservative materials such as rust-prevention compound or protective grease.
3. Remove glaze from the faces of brake shoe linings with a coarse sandpaper or file. If brake shoes are replaced, slightly bevel the edges of the linings both bottom and top (heel and toe) with a fine file prior to the shoes are installed.

ASSEMBLY

1. 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.
2. Position brake lever (Figure 1, Item 11) on brake shoe (Figure 1, Item 12) and install pin (Figure 1, Item 18), washer (Figure 1, Item 19) and retainer clip (Figure 1, Item 17).

ASSEMBLY – CONTINUED

3. Pull brake cable (Figure 1, Item 10) through hole in backing plate (Figure 1, Item 2) until spring fingers are released on outer side off backing plate and lock cable in place.
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 (Figure 1, Item 12). Connect parking brake cable (Figure 1, Item 10) to brake lever (Figure 1, Item 11). It may be necessary to push back the brake cable spring to allow brake cable to connect to brake lever.

NOTE

Not all AGPUs are equipped with spring retainers (Figure 1, Item 8).

5. Install brake shoe pins (Figure 1, Item 9) through backing plate (Figure 1, Item 2) and brake shoes (Figure 1, Item 12) both left and right shoes. Secure with spring retainers (Figure 1, Item 8), springs (Figure 1, Item 7) and spring retainers (Figure 1, Item 6).
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. With a downward motion on the adjustment assembly (Figure 1, Item 14) adjust brake shoes until shoes start to spread outward. Fit drum over axles (Figure 1, Item 21) and align drum stud holes with studs on axle. Adjust shoes until drum seats to backing plate (Figure 1, Item 2). It may be necessary to perform several adjustments until drum slides easily into place. Ensure drum will rotate both counter clockwise and clockwise, if not re-adjust shoe adjustment assembly.
8. Rotate the brake drum by hand until the brake shoes drag lightly on the brake drum both clockwise and counter clockwise. Once drag on the brake drum is felt during full rotation of the brake drum back off three clicks on adjustment assembly.
9. Install dust cap (Figure 1, Item 1) into backing plate (Figure 1, Item 2).
10. Install wheel and tires (WP 0130 00).
11. Raise AGPU, remove jack stands and lower AGPU.
12. Perform MOC on brake system. Adjust brakes and parking brake as needed.

END OF WORK PACKAGE

FIELD MAINTENANCE

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

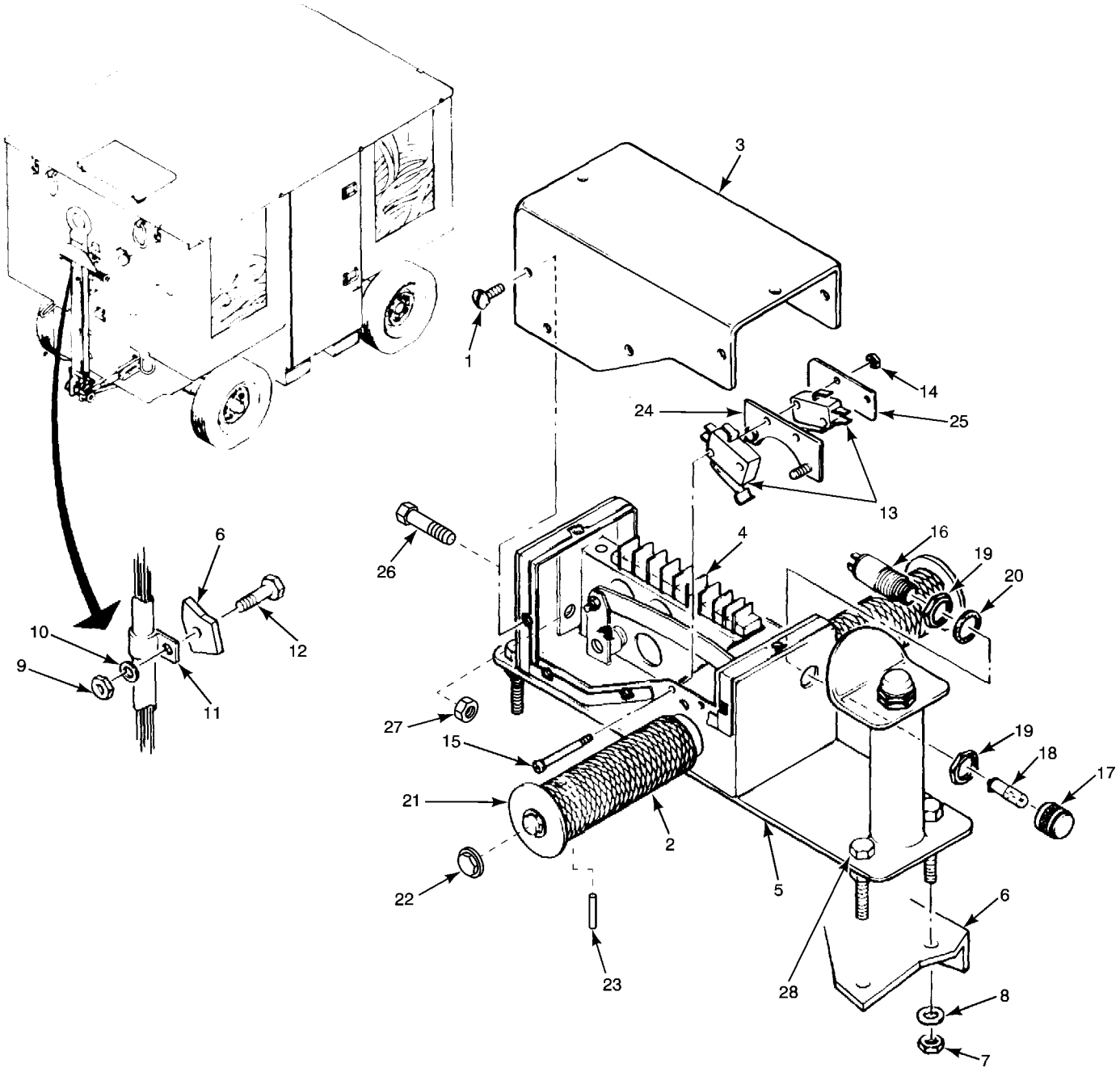
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

Materials/Parts

RTV Red Gasket Maker (WP 0154 00, Item 47)

References

WP 0014 00
WP 0043 00
WP 0044 00
WP 0055 00



1. Screw	7. Nut	13. Micro Switch	19. Nut	25. Spring Guard
2. Twist Grip	8. Washer, Lock	14. Nut, Lock	20. Washer	26. Bolt
3. Cover	9. Nut	15. Screw	21. End Washer	27. Nut, Lock
4. Terminal Board	10. Washer	16. Light Assembly	22. E-Clip	28. Bolt
5. Speed/Direction Control Assembly	11. Clamp	17. Lens	23. Roll Pin	
6. Tow Bar	12. Screw	18. Bulb	24. Spring Stopper	

Figure 1. Speed/Direction Control Assembly.

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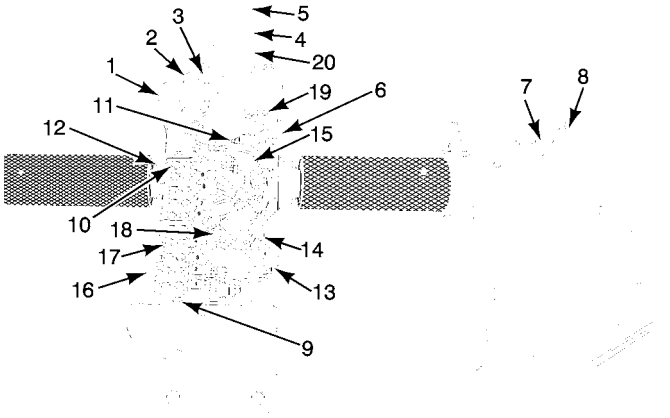
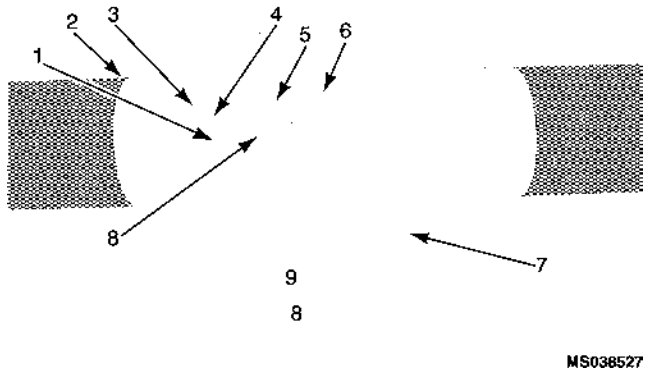


MS038526

1. Controller	6. Screw	11. Nut, Lock	16. Grommet
2. Socket, Light Amber	7. Cover	12. Spacer	17. Lug, Terminal
3. Bulb 28Volt	8. Gasket Cover	13. Alarm	18. Tubing, Heat Shrink
4. Switch, Boot Push Button.	9. Screw	14. Diode	19. Resistor, Variable
5. Switch, Push Button Brake	10. Screw	15. Micro Switch	20.Housing, Push Button Brake Switch

Figure 2. Control Propulsion System Handle.



MS038527

1. Shaft	5. Shaft Collar
2. Twist Grip	6. Linkage
3. Fiber Washer	7. Tension Spring
4. Shaft Bushing	8. Key

Figure 3. Speed Directional Control Shaft Assembly.

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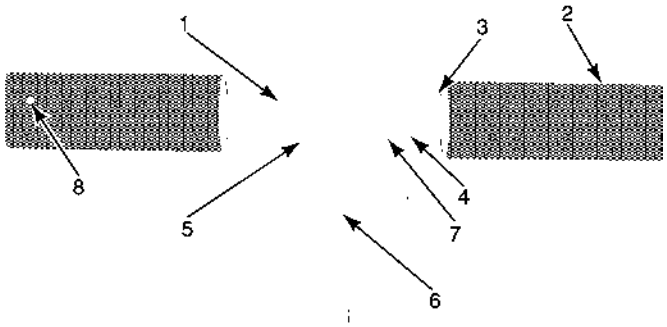
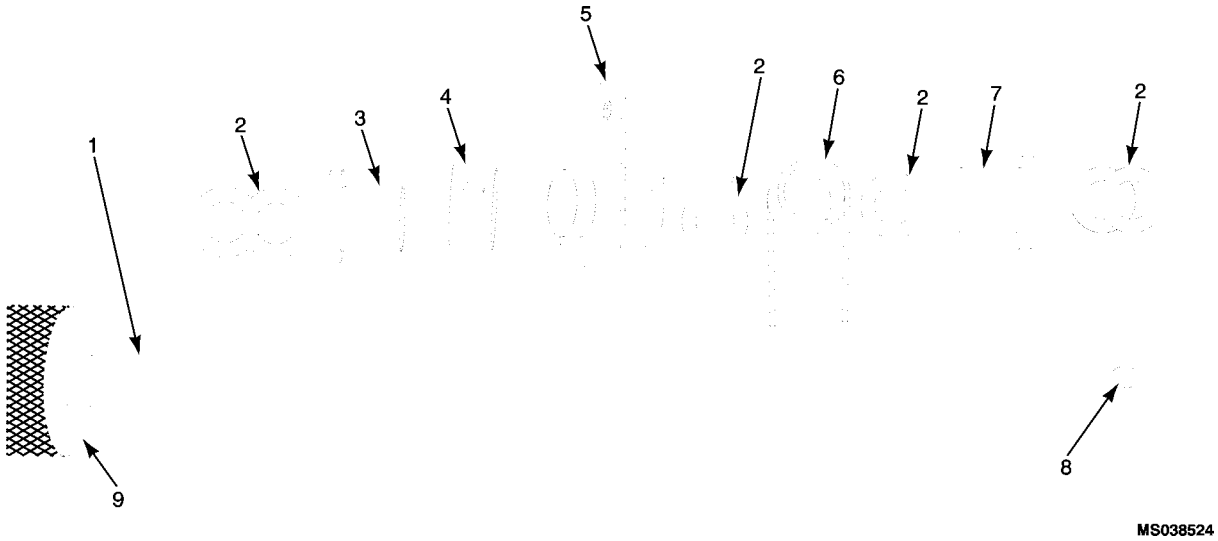


1. Shaft
2. Twist Grip
3. Fiber Washer
4. Shaft Bushing
5. Shaft Collar
6. Linkage
7. Tension Spring
8. Roll Pin

Figure 4. Speed Directional Shaft assembly (Mounted View).



1. Shaft
2. Fiber Washers
3. Shaft Bushing (left)
4. Shaft Collar
5. Linkage
6. Tension Spring
7. Shaft Bushing (right)
8. Roll Pin Drill
9. Twist Grip

Figure 5. Speed Directional Shaft Assembly (Exploded View).

TEST AND INSPECTION

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

TEST AND INSPECTION – CONTINUED

3. Inspect speed/direction control assembly (Figure 1, Item 5) housing for damaged welds, dents in cover (Figure 1, Item 3) rust and serviceability.
4. Remove cover (Figure 1, Item 3) by removing four screws (Figure 1, Item 1).
5. Inspect terminal board (Figure 1, Item 4) and terminal board mounting bracket for corrosion or rust. Repair or replace mounting bracket or terminal board as required.
6. Inspect speed direction control (Figure 1, Item 5) wiring harness and terminal connectors for serviceability. Clean, repair or replace wiring harness and connectors as required.
7. Inspect all hardware (Figure 1, Item 1, 7, 8, 9, 10, 11, 12, 14, 15, 19, 20, 21, 22, 26 and 27) for rust and corrosion. Clean or replace hardware as required.
8. Inspect cover (Figure 2, Item 7) and cover gasket (Figure 2, Item 8) for serviceability. Repair or replace cover or gasket as required.
9. Inspect lamp assembly (Figure 1, Item 16, 19 and 20), micro switches (Figure 2, Item 13), variable resistor (Figure 2, Item 19), tow alarm (Figure 2, Item 13) and push button brake switch (deadman switch) (Figure 2, Item 5) for serviceability. Clean or repair components as required.
10. Inspect and clean twist grip (Figure 3, Item 2), tension spring (Figure 3, Item 7), spring stoppers (Figure 1, Item 24), shaft (Figure 3, Item 1), shaft collar (Figure 3, Item 5) and linkage (Figure 3, Item 6). Repair or replace components as required.
11. Inspect and rotate twist grip (Figure 3, Item 2) both clockwise and counter clockwise and check for binding or sticking operation. Repair or replace twist grip and shaft assembly (Figure 3, Item 1) as required.
12. Replace cover and gasket (Figure 3, Item 7 and 8) and ensure all hardware is secure.
13. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
14. Perform an operational check of the propulsion system in the alternate mode (battery power only) (WP 0014 00).
15. Remove propulsion system from operation (WP 0014 00) and note any discrepancies found with the operation of the speed directional control assembly.

REMOVAL

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Remove screws (Figure 1, Item 1) and cover (Figure 1, Item 3) from speed/direction control assembly.
4. Remove side wiring harness by tagging and disconnecting wires from left and right sides of terminal board (Figure 1, Item 4).

NOTE

Do not lose two jumper wires located on terminal board (Figure 1, Item 4).

5. 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).

REMOVAL – CONTINUED

NOTE

Do not attempt to disassemble speed/direction control assembly (Figure 1, Item 5) on tow bar. The disassembly of the speed/direction control should always be performed in a controlled work bench environment.

6. Remove speed/direction control assembly (Figure 1, Item 5) by removing nuts (Figure 1, Item 7), lock washers (Figure 1, Item 8) and bolts (Figure 1, Item 26).

NOTE

For MEP 83–360E models, it may be necessary to cut black, white and brown labeled wire.

7. Tag and remove black, white and brown (KWN) wire at splice on resistor, variable (Figure 2, Item 19).

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. Place speed/direction control assembly (Figure 1, Item 5) on work bench for further disassembly.
2. Remove alarm (Figure 2, Item 13) with screw (Figure 2, Item 9), lock nut (Figure 2, Item 11) and spacer (Figure 2, Item 12) at right side of mounting hole.

NOTE

During removal of wiring connections, all wires must be tagged with wire numbers or location for re-assembly.

3. 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).
4. Remove light lens (Figure 1, Item 17) and bulb (Figure 1, Item 18) by unscrewing light lens counter clockwise from light assembly and removing bulb.
5. With a 1/4” wrench remove nut (Figure 1, Item 19) and washer (Figure 1, Item 20).
6. From top loosen set screw on twist grip linkage at variable resistor (Figure 2, Item 19) using a 3/32” allen wrench.
7. Remove the remaining bolts (Figure 1, Item 26) and lock nuts (Figure 1, Item 27) in the rear of the speed/direction control assembly (Figure 1, Item 5) using a 7/16” wrench or ratchet.
8. Remove bracket by moving bracket assembly forward and up of speed/direction control assembly (Figure 1, Item 5), slide variable resistor (Figure 2, Item 19) off the shaft and collar (Figure 3, Item 1 and 5) remove terminal board (Figure 1, Item 4) with mounting bracket and remaining tagged wiring.
9. Remove push button brake switch (Figure 2, Item 5) and push button boot switch (Figure 2, Item 4) with 3/4” wrench. Remove by pulling up on the push button brake switch and route wiring up through base of push button brake switch housing (Figure 2, Item 20).
10. Remove end E-clips (Figure 1, Item 22) and end washers (Figure 1, Item 21) from twist grip (Figure 1, Item 2).
11. Remove roll pin (Figure 1, Item 23) on right hand twist grip (Figure 1, Item 2) using 1/4” punch. Drive roll pin completely out of twist grips.

DISASSEMBLY – CONTINUED

12. Remove right side hand twist grip (Figure 1, Item 2).
13. Loosen set screw on shaft collar (Figure 3, Item 5) with 1/8” allen wrench.
14. Slide left side twist grip (Figure 3, Item 2) and shaft (Figure 3, Item 1) to the left while holding linkage (Figure 3, Item 6) so the linkage key is released.
15. Remove key (Figure 3, Item 8) from shaft (Figure 3, Item 1).
16. 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 remain (fall) into controller.
17. 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).
18. Remove twist grip shaft bushings (Figure 3, Item 4).
19. Remove wiring harness grommet (Figure 2, Item 16) from bottom or base of speed direction control assembly (Figure 1, Item 5).
20. Clean and remove any oil or corrosion from speed direction control assembly (Figure 1, Item 5).

ASSEMBLY

NOTE

Instructions on assembly are given with the speed/direction control assembly (Figure 1, Item 5) 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 (Figure 3, Item 1) 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, if fiber washers need to be added.
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-hand side and one fiber washer (Figure 3, Item 3), tension spring (Figure 3, Item 7) with both spring legs pointed toward the front and a fiber washer (Figure 3, Item 3). Slide the remaining shaft through the right side of shaft bushing (Figure 3, Item 4).
4. Position shaft (Figure 3, Item 1) and inner parts so the keyway (Figure 3, Item 8) is exposed, facing up, between the shaft collar (Figure 3, Item 5) and linkage (Figure 3, Item 6). Insert key into keyway, slide linkage over key, 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 clearance should be minimal.

ASSEMBLY – CONTINUED

NOTE

When installing set screws (Figure 2, Item 10) on shaft collars (Figure 3, Item 5) it will be necessary to coat set screw threads with lock tight prior to installing.

5. Slide shaft collar (Figure 3, Item 5) beside linkage (Figure 3, Item 6), tighten set screw on shaft collar (Figure 3, Item 5).
6. Slide shaft assembly to the left side. Sit tension spring (Figure 3, Item 7) on linkage (Figure 3, Item 6) by picking up right spring leg and rotating it behind linkage stopper.
7. Slide shaft assembly to the right side, install fiber washers (determined in Step 2) and right side twist grip (Figure 3, Item 2).
8. 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).
9. Rotate twist grips (Figure 3, Item 2) both clockwise and counter clockwise to ensure there is no binding of the shaft (Figure 3, Item 1) and there is spring tension in both directions.
10. Install micro switches (Figure 1, Item 13), spring stopper (Figure 1, Item 24) and spring guard (Figure 1, Item 25) with screws (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 (rotating) twist grip controller forward and reverse. Listen for micro switches (Figure 1, Item 13) to click (open and close).
11. Install alarm (Figure 2, Item 13) with screw (Figure 2, Item 9), lock nut (Figure 2, Item 11) and spacer (Figure 2, Item 12) at right side of mounting hole. Position the alarm wiring to top and angle alarm to provide room to adjust and set the variable resistor (Figure 2, Item 19) on the terminal board (Figure 1, Item 4) mounting bracket.
12. Stand shaft linkage (Figure 3, Item 6) up, slide dial of variable resistor (Figure 2, Item 19) into linkage mount. Lower terminal board (Figure 1, Item 4) 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 27) to ensure that lower right bolt hole is aligned. Tighten bolt and nut as required.
13. 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** (scale reading). Tighten linkage set screw (Figure 2, Item 10) with a 3/32" allen wrench. Remove tools and check reading on variable resistor (Figure 2, Item 19). Variable resistor (Figure 2, Item 19) should read (closed) at the neutral position of the twist grips (Figure 1, Item 2). Turning the twist grip 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 to the neutral position.
14. Install terminal board (Figure 1, Item 4) with bolt (Figure 1, Item 26) and lock nut (Figure 1, Item 27).
15. Install light assembly (Figure 1, Item 16) and nut (Figure 1, Item 19) using 3/4" wrench to tighten nut. Insert new bulb (Figure 1, Item 18) and lens cap(Figure 1, Item 17).
16. Install harness grommet (Figure 2, Item 16) to base of speed direction control assembly (Figure 1, Item 5).
17. Install push button brake switch (deadman switch) (Figure 2, Item 5) and route wire through housing for brake switch. Using a 3/4" wrench tighten nut as required. Install push button switch boot (Figure 2, Item 4) and tighten retaining nut.
18. Install all tagged wiring (Figure 4) to include both jumper wires on terminal board (Figure 1, Item 4). Ensure that all wires are properly labeled and located in appropriate positions. Tighten wire terminals as required.
19. Perform bench test to ensure all components are properly wired and operational as follows:

ASSEMBLY – CONTINUED

NOTE

Power supply with 24-32 VDC output needed to perform test. Internal wiring harness must be connected to include both jumper wires on terminal board (Figure 1, Item 4). Ensure wiring harness is inspected prior to performing the following testing.

a. 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 (Figure 4).

b. Hold speed/direction control assembly (Figure 1, Item 5) in upright (vertical) position and apply 24 VDC from power supply to positive terminal (6) and negative to terminal (4) (Figure 1, Item 4). There should be a noticeable change in voltage reading (0 volts).

c. Press lens (Figure 1, Item 17) to test and verify operation of light assembly (Figure 1, Item 16). If light assembly does not illuminate then replace bulb (Figure 1, Item 18). If new bulb does not illuminate check that light assembly has DC voltage present on terminal lugs. 24 volts should be present at terminal lugs when speed/direction control assembly (Figure 1, Item 5) is at the horizontal position (laying on test bench). During this test the speed directional control assembly should be turned in a vertical position and the press to test lamp lens should be pressed and the bulb should illuminate.

d. Tilt speed/direction control assembly (Figure 1, Item 5) down (horizontal) so it lays flat on the work bench. Verify power to the tow bar alarm (Figure 2, Item 13) and light assembly (Figure 1, Item 16), indicating the mercury switch (Figure 4) is operational. At this time the alarm should be ringing and the light assembly illuminated.

e. Test the forward and reverse micro switches (Figure 1, Item 13) by placing a multimeter in the VDC position with the positive lead on terminal (8) and negative on terminal (4) of the terminal board (Figure 1, Item 4). Twist grip (Figure 1, Item 2) forward and reverse direction, DC voltage should only be present in the forward position at this time. Place multimeter positive lead on terminal (7) and the negative lead on terminal (4), twist grip forward and reverse, DC voltage should only be present in the reverse position.

f. Return the speed/direction control assembly (Figure 1, Item 5) to the upright (vertical) position and turn off the power supply. Disconnect 24-32 volt power supply.

g. Set multimeter on OHMS and place leads on terminal (2) and (3) of the terminal board (Figure 1, Item 4) to test the variable resister (Figure 2, Item 19). With the twist grip (Figure 1, Item 2) in the neutral position the multimeter should read full continuity (closed). 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.

h. Ensure all wire connections are secure on the terminal board (Figure 1, Item 4) and perform final re-assembly of speed/direction controller (Figure 1, Item 5).

i. Speed direction controller (Figure 1, Item 5) may need final adjustment after installation back on tow (Figure 1, Item 6). This can be confirmed during MOC after installation on AGPU.

20. Secure wiring harness and any lose wiring with tie straps within the speed direction controller.

21. Reconnect propulsion wiring harness through grommet (Figure 2, Item 16) into base of speed/direction controller (Figure 1, Item 5) and onto terminal board (Figure 1, Item 4) wire tagged locations.

22. Mount speed/direction controller back onto tow bar assembly (Figure 1, Item 6) using bolts (Figure 1, Item 28), lock washer (Figure 1, Item 8) and nut (Figure 1, Item 7).

23. Secure cover and gasket (Figure 2, Item 7 and 8) on speed/direction control assembly (Figure 1, Item 5) with 10 screws (Figure 1, Item 12). If gasket needs to be re-glued to cover used a gasket adhesive (WP 0154 00, Item 47).

24. Verify twist grip (Figure 1, Item 2) still works and rotates freely after cover (Figure 1, Item 3) installation.

ASSEMBLY – CONTINUED

25. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
26. Perform an operational check of the propulsion system in the (alternate mode) (battery power only) (WP 0014 00).
27. Perform propulsion controller adjustments as required (WP 0055 00).

END OF WORK PACKAGE

FIELD MAINTENANCE

**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:

References

WP 0002 00

GENERAL INFORMATION

Refer to WP 0002 00 for Equipment Characteristics, Capabilities and Features.

END OF WORK PACKAGE

FIELD MAINTENANCE

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
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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

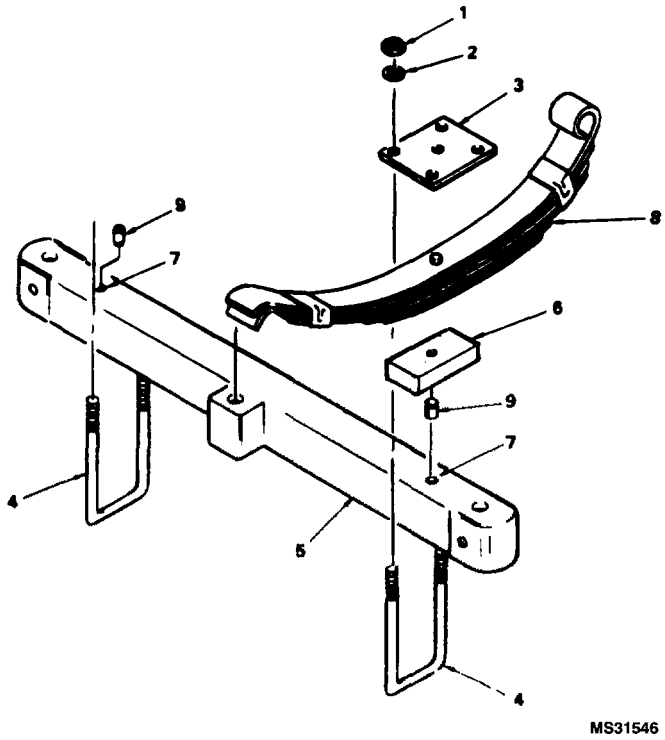
FRONT AXLE ASSEMBLY

INITIAL SETUP:

Tools and Special Tools
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

Materials/Parts
Cleaning Compound, Solvent (WP 0154 00, Item 5)
Grease, Automotive and Artillery, GAA (WP 0154 00, Item 22)

References
WP 0028 00
WP 0029 00
WP 0043 00
WP 0044 00
WP 0130 00
WP 0131 00
WP 0134 00
WP 0129 00



1. Mounting Nut	4. U-Bolt	7. Alignment Hole
2. Washer, Lock	5. Front Axle (Beam)	8. Spring, leaf
3. Plate, Upper	6. Spacer	9. Alignment Pin

Figure 1. Front Spring Assembly.

TEST AND INSPECTION

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Jack up the front end of AGPU and support with jack stands on two front corners.

NOTE

WP 0029 00, Table 2. Field Preventive Maintenance Checks and Services (PMCS), Steps 15 through 17 are found in the monthly and semi-annual servicing checklist.

4. Inspect front axle assembly (WP 0008 00) and (WP 0029 00, Table 2. Field Preventive Maintenance Checks and Services (PMCS), Steps 15 through 17) and LO.
5. If any deficiencies with the front axle assembly are found follow the steps in disassembly, removal and assembly as required.

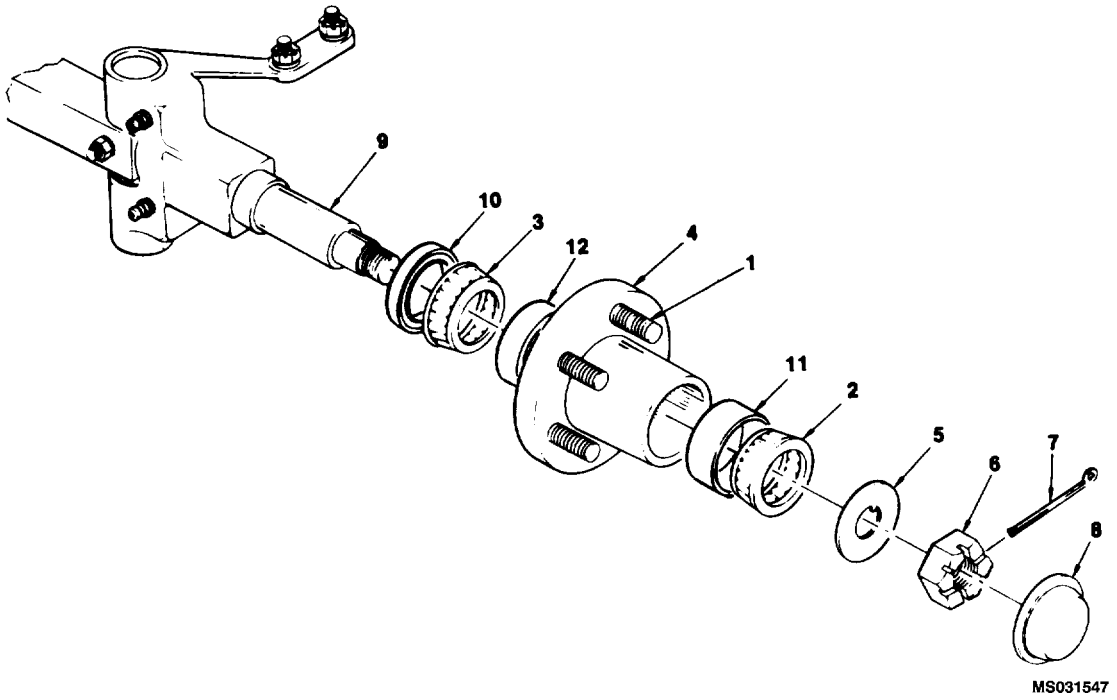
REMOVAL

WARNING

When front spring assembly is removed from underneath AGPU, the AGPU can become unstable. Injury to personnel and or damage to equipment if care is not taken to ensure AGPU is placed on a level surface.

1. Position AGPU on level surface. Place chocks against rear wheels and apply parking brake.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Remove two wire clamps (Figure 3, Item 32) that retain propulsion wiring harness from tongue assembly (Figure 3, Item 12).
4. Remove speed/direction control (WP 0134 00).
5. Remove tow bar assembly (WP 0131 00).
6. 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 front corners with jack stands.
7. Remove front wheels (WP 0130 00).
8. Place two jack stands under front axle beam (Figure 1, Item 5) to support axle when U-bolts (Figure 1, Item 4) are removed.
9. Remove mounting nuts (Figure 1, Item 1), lock washers (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).
10. Lower and remove front axle (beam) (Figure 1, Item 5) and place on a suitable work surface.

REMOVAL – 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.

DISASSEMBLY

Disassembly of Spindle and Hub Assembly

NOTE

Safeguard and keep all small parts removed during disassembly of front axle assembly for re-installation.

1. Remove dust cap (Figure 2, Item 8) both left and right side of axle.
2. Remove cotter pin (Figure 2, Item 7), nut (Figure 2, Item 6) by turning nut counter clockwise, flat washer (Figure 2, Item 5) and removing outer wheel bearing (Figure 2, Item 2).
3. Slide hub assembly (Figure 2, Item 4) off of spindle (Figure 2, Item 9).
4. Remove inner wheel bearing (Figure 2, Item 3) and grease seal (Figure 2, Item 10) from spidle (Figure 2, Item 9).

NOTE

Eye and hand protection should be worn during removal of bearing races.

5. Place hub (Figure 2, Item 4) on suitable work bench and remove outer bearing race (Figure 2, Item 11) and inner bearing race (Figure 2, Item 12) with a brass punch.

DISASSEMBLY – CONTINUED

6. If lug bolts are damaged perform the following steps:
   a. Removal. Press lug bolts (Figure 2, Item 1) from hub assembly (Figure 2, Item 4).
   b. Installation. Press new lug bolts (Figure 2, Item 1) into hub assembly (Figure 2, Item 4). When pressing lug bolts into hub assembly it is recommended to protect threads of lug bolt from damage.
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 re-installed.
9. Remove tie rods (Figure 3, Item 8 and 9) from spindle (L/H) and (R/H) (Figure 3, Item 10 and 11).
10. Remove tie rod (Figure 3, Item 8 and 9) from tongue (Figure 3, Item 12).

NOTE

During removal of bolt (Figure 3, Item 16) it should be noted that the head of the bolt is mounted from the top of the tongue (Figure 3, Item 12) down. Never replace bolt in reverse position from removal.

11. 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), lock washer (Figure 3, Item 18) and bolt (Figure 3, Item 16).
12. Remove tie (rod ends) (Figure 3, Item 2, 3, 4 and 5) by removing nut (Figure 3, Item 17), lock washer (Figure 3, Item 18) and bolts (Figure 3, Item 19) from clamps (Figure 3, Item 20). Unscrew tie (rod ends) from tie rods (Figure 3, Item 8 and 9).
13. Remove grease fittings (Figure 3, Item 21) from spindles (Figure 3, Item 10 and 11).
14. Remove tapered pins (locking) (Figure 3, Item 22) from axle (Figure 3, Item 13) by removing nuts (Figure 3, Item 24) and flat washers (Figure 3, Item 23) Leave nut partially on tapered pins and tap tapered pin to remove. After tapered pin starts to move stop and remove nut and flat washer.
15. 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 with roller head pry bar. Plugs must be replaced after drilling, do not reuse.
16. 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).
17. Prior to removing two shims (Figure 3, Item 28) and bearings (Figure 3, Item 29) from each spindle (Figure 3, Item 10 and 11), note how many shims are on each side of the axle for re-installation alignment.
18. Press top and bottom bushings (Figure 3, Item 30) from spindle (Figure 3, Item 10 and 11) with hydraulic shop press.
19. Remove guide pins (leaf) (Figure 3, Item 31) from axle (Figure 3, Item 13). Safeguard guide pins (leaf) if removed for installation.

CLEANING

WARNING

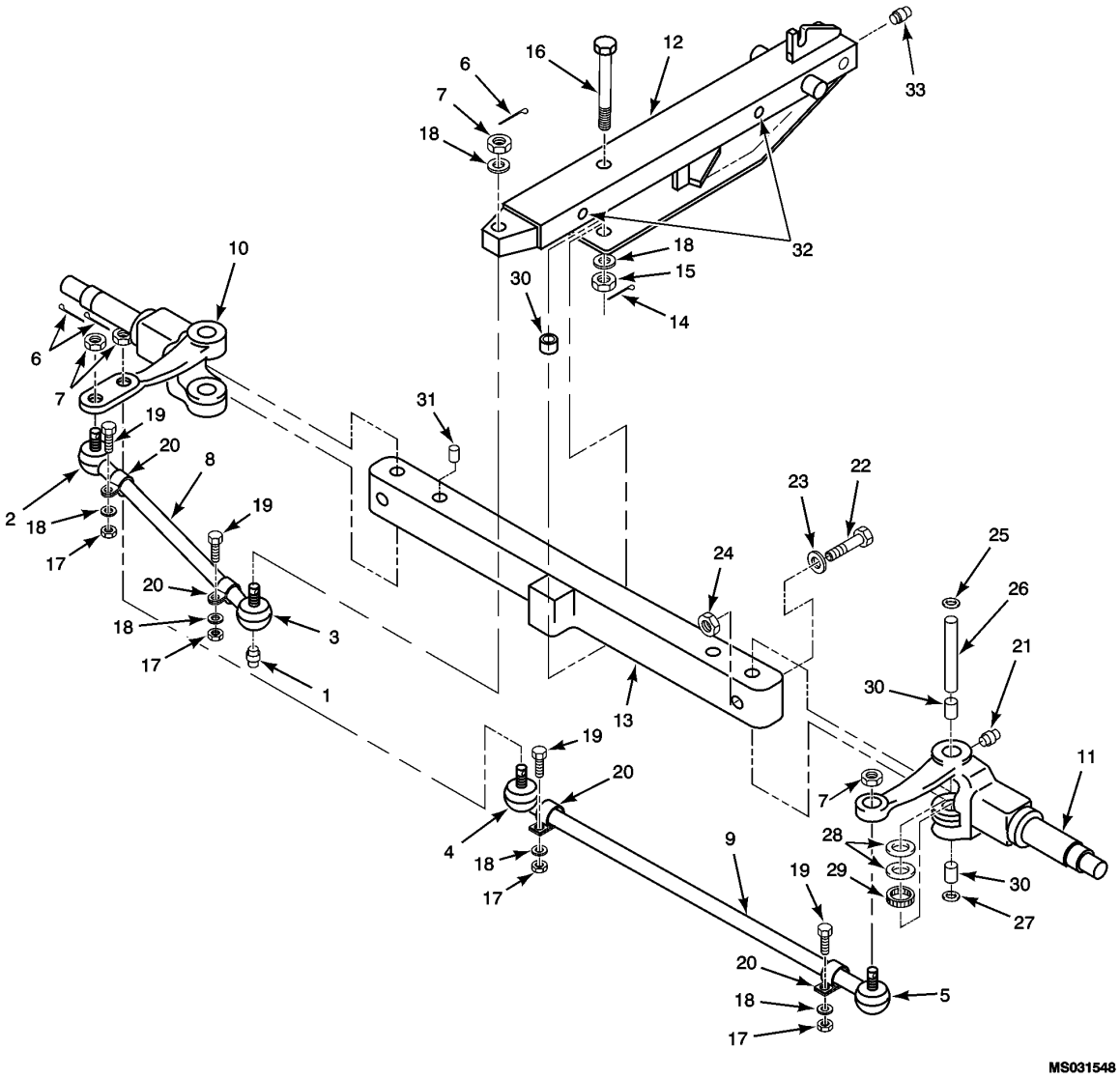
Degreasing Solvent, MIL-PRF-680, is combustible and toxic to eyes, skin and respiratory tract. Wear protective gloves and goggles/face shield. Avoid repeated or prolonged contact. Use

CLEANING – CONTINUED

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 prior to assembly.

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
32. Wire Clamp
33. Grease Fitting

Figure 3. Front Axle Assembly.

CLEANING – CONTINUED

3. Prior to installing new parts, remove any preservative materials such as rust-preventive compound or protective grease.
4. Refer to lubrication order (WP 0028 00 and WP 0029 00) for lubricating of all parts of the front axle assembly. Lubricate as required before and after assembly.

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 or 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 through the old threads. Ensure die is of same thread type.
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 through 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 chisel 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. 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 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 (WP 0028 00 and WP 0029 00).

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 0028 00, Lubrication and WP 0029 00) 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 (Figure 3, Item 10 and 11) and axle beam (Figure 3, Item 13) king pin holes. Replace the number of shims that were removed during disassembly if axle beam spindle and king pins are the same as removed.
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).

ASSEMBLY – CONTINUED

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 a top expansion plug (Figure 3, Item 25) over both spindle (Figure 3, Item 10 and 11) king pin holes and tap into place with a brass drift and hammer.
9. Install two grease fittings (Figure 3, Item 21). Lubricate spindle grease fittings in accordance with Lubrication Order (WP 0028 00, Lubrication and WP 0029 00).
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), lock washer (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), lock washer (Figure 3, Item 18), 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), lock washer (Figure 3, Item 18) 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). Lube as required in accordance with instructions contained in the Lubrication Order (WP 0028 00, Lubrication and WP 0029 00).
16. Place hub (Figure 2, Item 4) on suitable work bench and install outer bearing race (Figure 2, Item 11) and inner bearing race (Figure 2, Item 12) with a brass punch or drift.
17. Lubricate wheel bearings (Figure 2, Item 2 and 3) and hubs (Figure 2, Item 4) in accordance with instructions contained in the Lubrication Order (WP 0028 00, Lubrication and WP 0029 00).
18. Pre-lubricate inner wheel bearing (Figure 2, Item 3) and install wheel bearing in hub assembly (Figure 2, Item 4).
19. Install grease seal (Figure 2, Item 10) into hub assembly (Figure 2, Item 4). Slide the hub assembly onto the spindle (Figure 2, Item 9) until the grease seal seats against the back of the spindle. Spindle should have a light coat of grease applied to shaft to ease the fit of the bearing and hub seal.
20. Pre-pack outer bearings with grease and 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 to rest. Spindle should have a light coat of grease applied to shaft to ease the fit of the bearing.
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 (rotating) 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. Check for in play and up and down slack as the nut is being tightened. This will allow bearings and seals to seat in hub assembly.
22. Back off the nut (Figure 2, Item 6) to the next slot, 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.

ASSEMBLY – CONTINUED

23. Place dust cap (Figure 2, Item 8) on end of hub assembly (Figure 2, Item 4). Lightly tap into place, do not dent outside of dust cap, as this could interfere with rotation of hub assembly.

INSTALLATION

NOTE

It will be necessary to utilize four jack stands when installing axle beam assembly. AGPU should be jacked up and supported by jack stands on both front left and right corners prior to installation of axle assembly.

1. Position front axle beam (Figure 1, Item 5) under AGPU body with floor jack. Ensure tongue is facing outward toward the front of the AGPU.
2. Raise front axle beam (Figure 1, Item 5) within two inches (2") of spring (Figure 1, Item 8). Support axle beam with two jack stands, leaving floor jack in position under axle beam.
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 alignment 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) and alignment hole.
6. Position upper plate (Figure 1, Item 3) on top of spring (Figure 1, Item 8) both left and right assemblies.
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 lock washers (Figure 1, Item 2) and nuts (Figure 1, Item 1) on U-bolts. Torque U-bolts to **60 foot-pounds** in a X pattern.
8. Install wheels (WP 0130 00).
9. Raise AGPU and then remove all jack stands.
10. Lower AGPU and ensure hand brake is set.
11. Install tow bar (WP 0131 00).
12. Install two wire clamps (Figure 3, Item 32) that retain propulsion control wiring harness to tongue assembly (Figure 3, Item 12).
13. Install speed/direction control assembly (WP 0134 00).
14. Perform toe in, toe out adjustment (WP 0129 00) and perform final check of steering to ensure no binding or looseness in steering linkage.
15. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
16. Perform MOC.

END OF WORK PACKAGE

FIELD MAINTENANCE

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

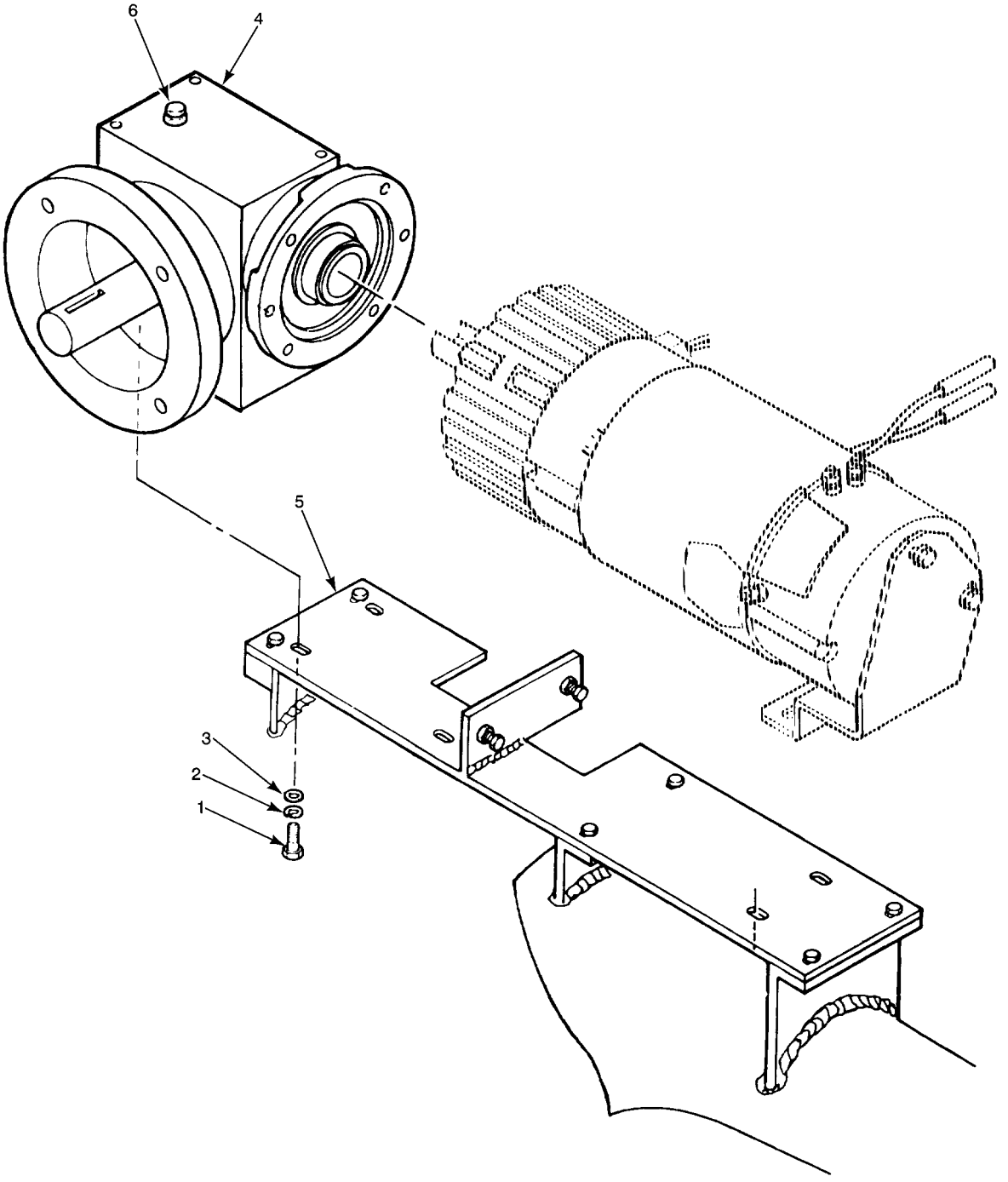
PROPULSION GEAR DRIVE ASSEMBLY

INITIAL SETUP:

Tools and Special Tools
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References
WP 0014 00
WP 0028 00

References (cont.)
WP 0029 00
WP 0043 00
WP 0044 00
WP 0138 00
WP 0140 00
WP 0142 00



1. Bolt
2. Lock Washer
3. Washer
4. Gear Drive Assembly
5. Motor Mounting Plate
6. Breather

Figure 1. Gear Drive Mounting.

TEST AND INSPECTION

1. Operate propulsion system (WP 0014 00).
2. If grinding or binding noise is heard from gear drive assembly (Figure 1, Item 4) proceed to removal steps.

REMOVAL

NOTE

It will be necessary to utilize two jack stands when removing rear axle assembly. AGPU should be jacked up and supported by jack stands on two rear corners both left and right. This should be accomplished during the removal of the rear axle assembly.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Remove rear axle assembly (WP 0140 00).
4. Remove traction motor (WP 0142 00).
5. Remove chain drive assembly (WP 0138 00).
6. Remove bolt (Figure 1, Item 1), lock washers (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

NOTE

It will be necessary to utilize two jack stands when installing rear axle assembly. AGPU should be jacked up and supported by jack stands on two rear corners both left and right.

1. Ensure front wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Mount gear drive assembly (Figure 1, Item 4) on motor mounting plate (Figure 1, Item 5). Secure with washers (Figure 1, Item 3), lock washers (Figure 1, Item 2) and bolts (Figure 1, Item 1).
4. Install traction motor (WP 0142 00).
5. Install chain drive assembly (WP 0138 00).
6. Install rear axle assembly (WP 0140 00).
7. Lower AGPU from jack stands and perform PMCS (WP 0028 00 and WP 0029 00).
8. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
9. Perform MOC and operate propulsion system (WP 0014 00).

END OF WORK PACKAGE

FIELD MAINTENANCE

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

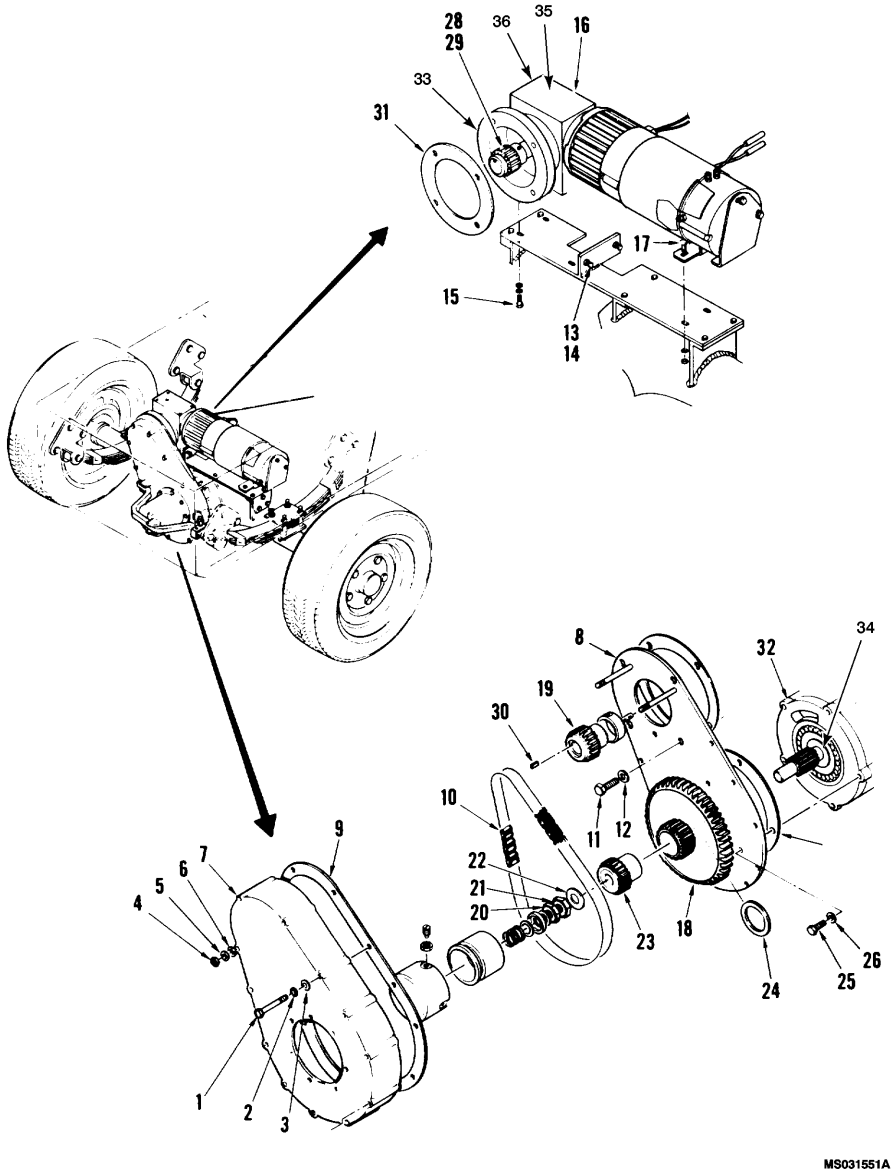
PROPULSION CHAIN DRIVE ASSEMBLY

INITIAL SETUP:

Tools and Special Tools
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

Materials/Parts
Cleaning Compound, Solvent (WP 0154 00, Item 5)
Sealing Compound (WP 0154 00, Item 49)

References
WP 0014 00
WP 0028 00
WP 0029 00
WP 0043 00
WP 0044 00
WP 0139 00
WP 0140 00



1. Bolt	10. Drive Chain	19. Gear, 20 Tooth	28. Allen Set Screw
2. Washer, Lock	11. Bolt	20. Nut, Jam	29. Collar, Front/Rear
3. Washer, Flat	12. Washer, Flat	21. Nut	30. Key, Woodruff
4. Nut	13. Nut, Jam	22. Washer, Flat	31. Gasket
5. Washer, Lock	14. Bolt	23. Drive Sleeve	32. Pinion Drive
6. Washer, Flat	15. Bolt	24. Spacer	33. Output Shaft Cap
7. Chain Case	16. Gear drive Case	25. Bolt	34. Bearing
8. Gear Box Support	17. Bolt	26. Washer	35. Vent Plug
9. Gasket	18. Gear, 81 Tooth	27. Gasket	36. Full Level Opening

Figure 1. Traction Motor, Gear Drive and Chain Drive Assembly.

TEST AND INSPECTION

1. Operate propulsion system (WP 0014 00).
2. If grinding or binding noise is heard from gear drive assembly (Figure 1, Item 4) proceed to removal steps.
3. Inspection of internal components will be performed once unit is disassembled under (Inspection of Installed Items).

REMOVAL

1. Remove rear axle assembly (WP 0140 00).
2. Remove clutch drive assembly (WP 0139 00).
3. Drain oil from chain case oil reservoir (WP 0028 00 and WP 0029 00).
4. Remove nine mounting bolts (Figure 1, Item 1), lock washers (Figure 1, Item 2), flat washers (Figure 1, Item 3), three mounting nuts (Figure 1, Item 4) and lock washers (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 at this time.
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 and remove drive case and motor assembly.
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. Dry all components thoroughly prior to re-assembly.
2. Prior to 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. 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 or emery paper.
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 through 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 at this time (Figure 1, Item 11). Install five lower mount bolts (Figure 1, Item 25) and lock washers (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 chain drive assembly and lube oil is refilled (WP 0028 00 and WP 0029 00). If new chain (Figure 1, Item 10) 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 (Figure 1, Item 19 and 20). After run-in of chain, tighten the chain as outlined above in Step 15.

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), lock washers (Figure 1, Item 5), nuts (Figure 1, Item 4) and flat washers (Figure 1, Item 3), lock washers (Figure 1, Item 2) and bolts (Figure 1, Item 1). Do not over tighten gear box or case bolts, if over tightened gear box or case will be damaged.
18. Install clutch drive assembly (WP 0139 00).
19. Install safety wire on four gear box support mount bolts (Figure 1, Item 11).
20. Fill chain case oil reservoir in accordance with lubrication order (WP 0028 00 and WP 0029 00).
21. Fill differential oil reservoir in accordance with lubrication order (WP 0028 00 and WP 0029 00).
22. Fill Gear drive case in accordance with lubrication order (WP 0028 00 and WP 0029 00).
23. Install rear axle assembly into AGPU (WP 0140 00).
24. Lower AGPU from jack stands and perform PMCS (WP 0028 00 and WP 0029 00).
25. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
26. Perform MOC and operate propulsion system (WP 0014 00).

END OF WORK PACKAGE

FIELD MAINTENANCE

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

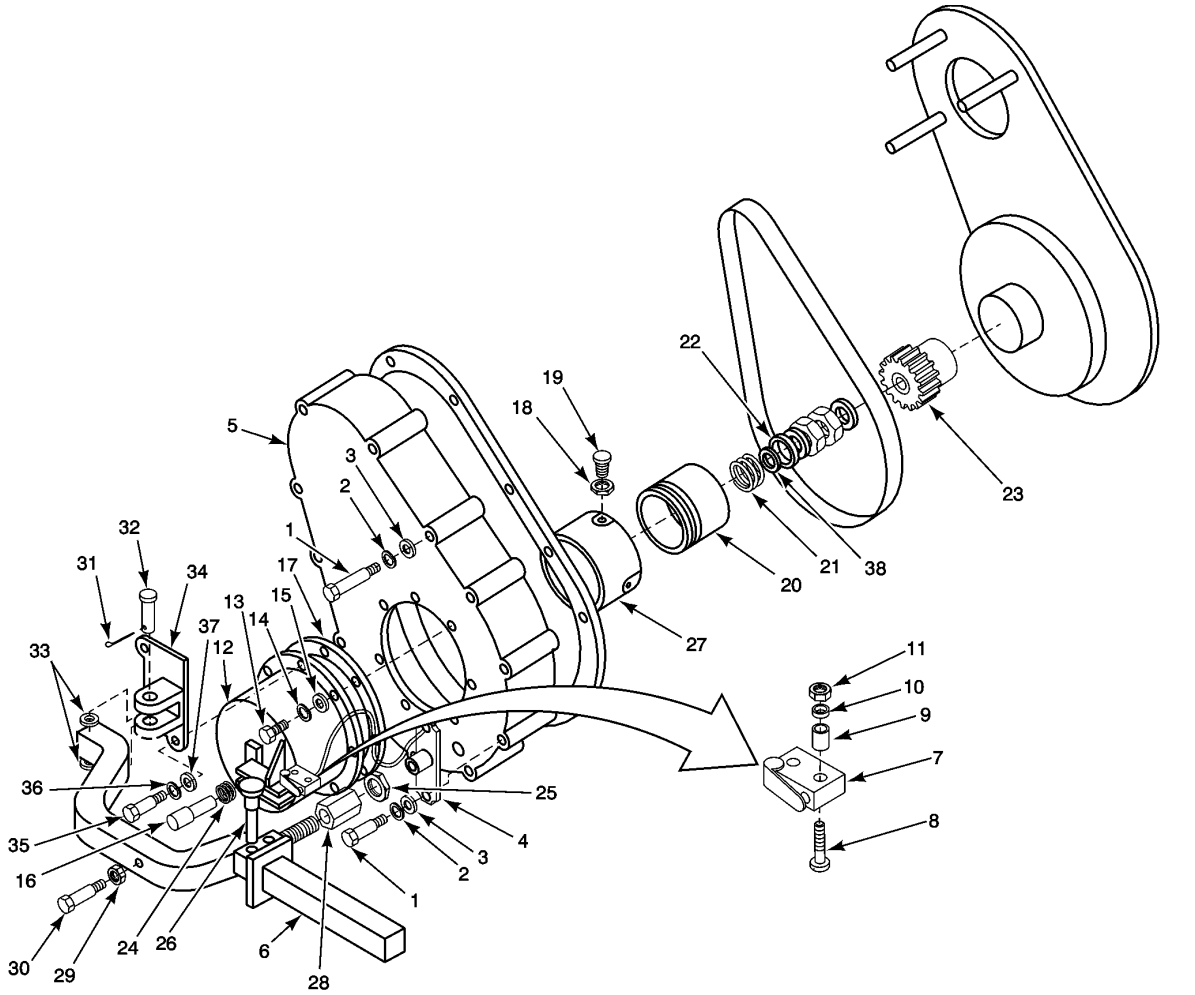
CLUTCH ASSEMBLY

INITIAL SETUP:

Tools and Special Tools
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

Materials/Parts
Cleaning Compound, Solvent (WP 0154 00, Item 5)

References
WP 0014 00
WP 0028 00
WP 0029 00
WP 0043 00
WP 0044 00
WP 0138 00



1. Bolt	11. Nut	21. Spring	31. Pin, Cotter
2. Washer, Flat	12. Clutch Housing	22. Bushing, Spring	32. Pin
3. Washer, Lock	13. Bolt	23. Gear Drive Sleeve	33. Washer
4. Mounting Bracket	14. Washer, Flat	24. Packing, Spring	34. Bracket
5. Chain Drive Housing	15. Washer, Lock	25. Nut Jam	35. Bolt
6. Clutch Lever, Push/Pull	16. Push Rod	26. Turnbuckle	36. Washer, Lock
7. Micro Switch	17. Gasket	27. Shifter Cup	37. Washer, Flat
8. Screw	18. Nut, Jam	28. Pin, Locking	38. Shaft Hex Nut
9. Spacer	19. Screw, Set	29. Nut, Jam	
10. Washer, Flat	20. Hub Shifter	30. Bolt	

Figure 1. Clutch Assembly.

TEST AND INSPECTION

1. Operate propulsion system (WP 0014 00).
2. If grinding or binding noise is heard from gear drive assembly (WP 0138 00, Figure 1, Item 4). Refer to the work package for further inspection.
3. Inspection of internal components will be performed once unit is disassembled under (Inspection of Installed Items).
4. Engage and disengage clutch lever assembly (Figure 1, Item 6) and inspect for binding lack of movement both engaged and disengaged positions and misalignment of locking pin (Figure 1, Item 32).

REMOVAL

NOTE

It will be necessary to utilize two jack stands when removing clutch assembly. AGPU should be jacked up and supported by jack stands on two rear corners both left and right.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Remove bolt (Figure 1, Item 30) and jam nut (Figure 1, Item 29).
4. Remove two bolts (Figure 1, Item 1), flat washers (Figure 1, Item 2) and lock washers (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, 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 micro switch lead (Figure 1, Item 7).

NOTE

When removing two phillips head screws (Figure 1, Item 8) from micro switch (Figure 1, Item 7) ensure same retaining screws are used in re-installation of micro switch. Length of screws should be matched in size and length. The micro switch mounting plate screws should not be used to mount the micro switch these screws will be too short to mount the micro switch properly. Early model micro switch used screws, washers (Figure 1, Item 10) and nuts (Figure 1, Item 11) to secure the micro switch. Later models only use the screw and washer and do not utilize the nuts. This allows the screws to be secured in the pre threaded micro switch mounting plate.

5. 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 micro switch (Figure 1, Item 7). Remove the micro switch (Figure 1, Item 7) and pull the wiring harness carefully away from the clutch housing (Figure 1, Item 12) area.
6. Remove the seven bolts (Figure 1, Item 13), flat washers (Figure 1, Item 14) and lock washers (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.
7. 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).
8. 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 and oil from all parts of the clutch assembly. Dry all components thoroughly prior to re-assembly.
2. Prior to installing new parts, remove any preservative materials such as rust-preventive compound or protective grease.

INSPECTION OF INSTALLED ITEMS

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 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, hub shifter (Figure 1, Item 20) mating surface must be smooth and free of distortion. The threaded set screw (Figure 1, Item 19) holes must be clean and undamaged. Minor thread damage may be repaired by running the proper size tap down through the threads. Check for cracks in the cup housing. Use a fine file 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, nicks or deformity of springs. 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. Major damage will require housing replacement. Check push rod (Figure 1, Item 16) operation. Rod should slide easily through the push rod hole. The packing groove should be clean and undamaged. Replace push rod if damaged. Scratches or 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 (Figure 1, Item 26) 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 in the locking pin should operate smoothly and release the pin retainers completely. Replace the pin if defective. Check micro switch (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.
6. Check micro switch (Figure 1, Item 7) operation with a multi-meter in the ohms setting. Check for continuity of the micro switch by depressing the switch and releasing the switch both in the open and closed positions. Replace the switch if faulty. Inspect switch housing for cracks and other damage. Replace switch if damaged.

INSTALLATION

NOTE

When installing two phillips head screws (Figure 1, Item 8) to micro switch (Figure 1, Item 7) ensure same retaining screws are used in re-installation of micro switch. Length of screws should be matched in size and length. The micro switch mounting plate screws should not be used to mount the micro switch. These screws will be too long to mount the micro switch properly. The early model micro switches used screws, washers (Figure 1, Item 10) and nuts (Figure 1, Item 11) to secure the micro switch to hub. Later models only use the screws and washers and do not utilize the nuts. This allows the screws to be secured in the pre threaded micro switch mounting plate. Do not over tighten these screws.

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 (Figure 1, Item 38).
2. Position the drive engage spring (Figure 1, Item 21) inside the shifter cup (Figure 1, Item 27) and carefully install the shifter cup over the shifter hub (Figure 1, Item 20). Make certain that the drive spring is centered inside the shifter cup during the assembly. Maintain pressure on the shifter cup with one hand while inserting the set screws (Figure 1, Item 19) through the shifter cup with the other hand. Turn the set screws in until hand-tight. Place the jam nut (Figure 1, Item 18) on each set screw and tighten as required.
3. Lightly lubricate a new or used 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 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 lock washers (Figure 1, Item 15). Do not over tighten chain case housing and clutch housing mounting bolts. If over tighten damage will occur to the case housing and clutch housing mounting bolts.

WARNING

Using too long length of a screw for mounting micro switch to hub will cause wiring to short and possible fire.

4. Install the engaged/disengaged micro switch (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 micro switch lead by installing loop clamp. Refer to note at beginning of installation.
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 lock washers (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 and clutch housing (Figure 1, Item 12). Tighten jam nut by turning clockwise and torque to 10 foot pounds. If a clicking noise is heard during testing of the drive system, loosen jam nut and adjust clutch turnbuckle counterclockwise until there is no clicking noise. Tighten and torque jam nut 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 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. With tow bar about half way down, adjust bolt inward or clockwise until tow bar DO NOT TOW light goes out. Remove locking pin, pull clutch outward and install

INSTALLATION – CONTINUED

locking pin. With tow bar about half way down, check tow bar DO NOT TOW light is on. Tighten jam nut and torque to 160-190 inch pounds.

8. Fill Gear drive case in accordance with lubrication order (WP 0028 00 and WP 0029 00).
9. Lower AGPU from jack stands and perform PMCS (WP 0028 00 and WP 0029 00).
10. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
11. Perform MOC and operate propulsion system (WP 0014 00).

END OF WORK PACKAGE

FIELD MAINTENANCE

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

Tool Set, Aviation Unit (WP 0155 00, Item 41)
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)

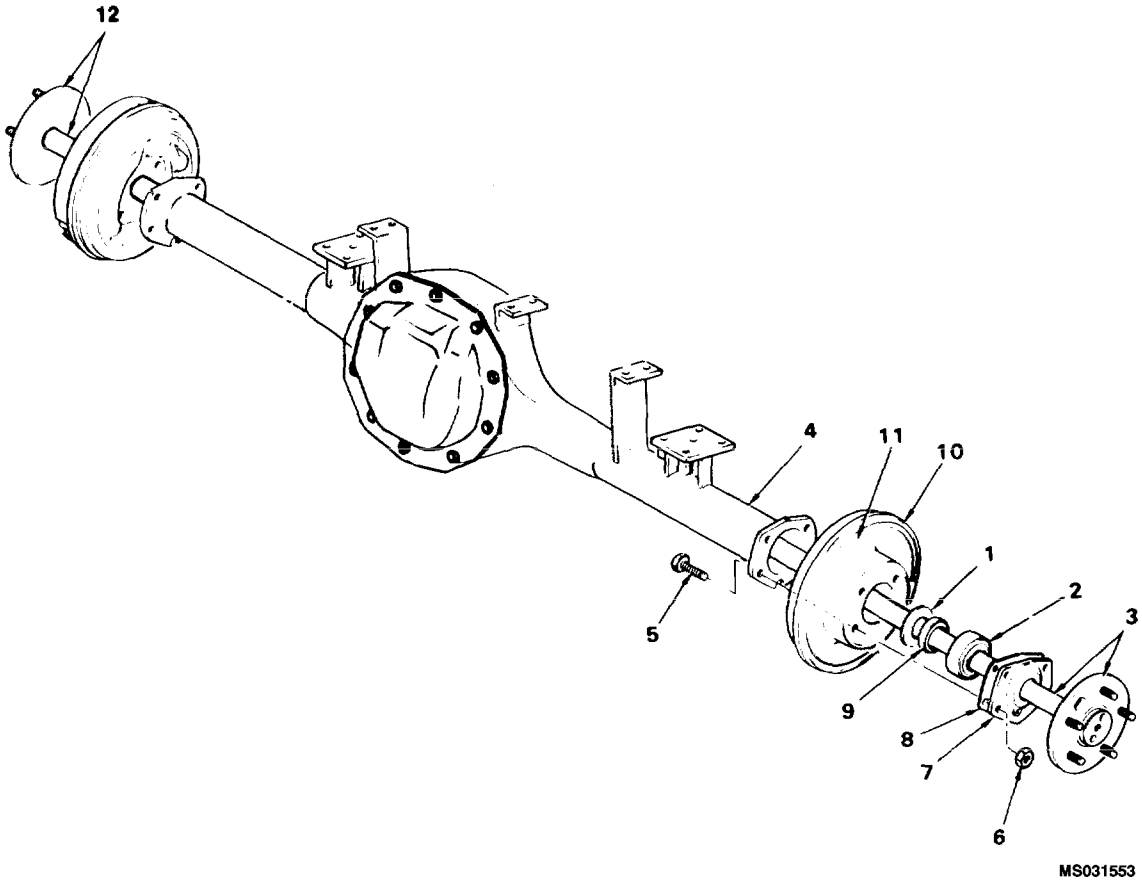
Materials/Parts

Grease, Ball and Roller Bearing (WP 0154 00, Item 23)

References

WP 0014 00
WP 0028 00
WP 0029 00
WP 0043 00
WP 0044 00
WP 0130 00
WP 0132 00
WP 0133 00
WP 0139 00

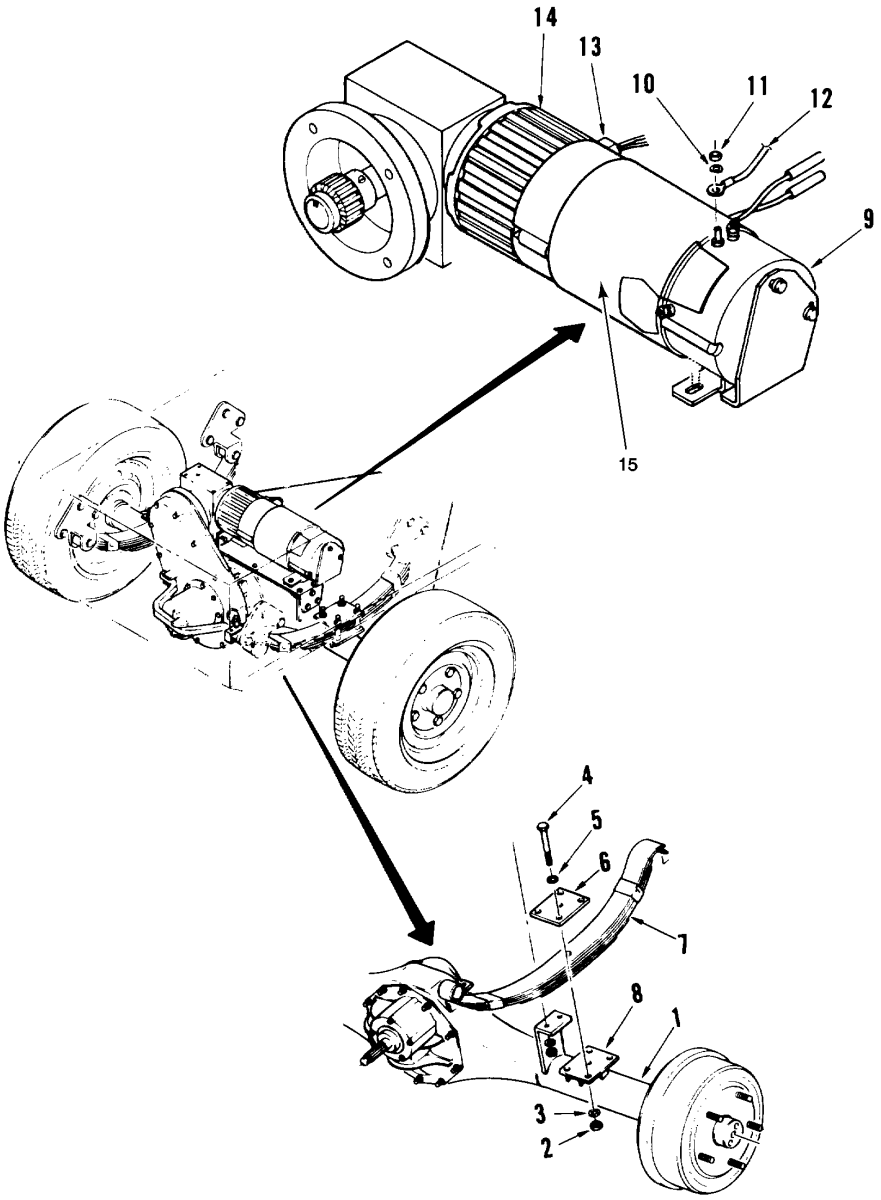
TEST AND INSPECTION



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.

TEST AND INSPECTION – CONTINUED



1. Rear Axle Assembly	6. Plate	11. Nut
2. Nut	7. Spring	12. Hardwires
3. Washer	8. Pad, Mounting	13. Electric Brake Hardwires
4. Bolt	9. Traction Motor	14. Electric Brake
5. Washer	10. Washer, Lock	15. Thermal Overload

Figure 2. Rear Axle Assembly.

1. Operate propulsion system (WP 0014 00).
2. If grinding or binding noise is heard from rear axle housing (Figure 1, Item 4) or axle both left or right hand sides (Figure 1, Item 3 and 12) proceed to removal steps.

TEST AND INSPECTION – CONTINUED

3. Inspection of the internal components of the axle will be performed once unit is disassembled under (Inspection of Installed Items).

REMOVAL

REAR AXLE

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Jack up the rear end of AGPU and support with jack stands on two rear corners.
4. Support the weight of the AGPU using a suitable hoist and sling attached to rear lifting eyes. **Do not** raise rear wheels off ground.

NOTE

After AGPU has been raised release parking brake.

5. Disconnect parking brake (WP 0132 00).
6. Remove clutch assembly engage/disengage micro switch (WP 0139 00). Reinstall clutch lever.
7. Disconnect and tag four hardwires (Figure 2, Item 12) from traction motor (Figure 2, Item 9) by removing nuts (Figure 2, Item 11) and lock washers (Figure 2, Item 10). Remove two thermal overload hardwires at butt splices.

NOTE

If AGPU is equipped with a TB 5 it is not necessary to remove wires from the electrical brake and drive motor. Disconnect wires from TB 5 to rear axle assembly.

8. Remove the electric brake hardwires (Figure 2, Item 13).

WARNING

The rear axle assembly is top heavy and can 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.

9. Remove nuts (Figure 2, Item 2) and washers (Figure 2, Item 3).
10. Remove bolts (Figure 2, Item 4) and plate (Figure 2, Item 6).
11. Place a suitable length of 2 x 4 between motor mounting plate and rear axle assembly. Ensure load is not applied to clutch lever.

NOTE

When AGPU is being raised remove jack stands from under each corner of AGPU prior to proceeding to Step 13.

12. Ensuring that rear axle assembly (Figure 2, Item 1) is fully supported and not obstructed, slowly raise rear of AGPU until sufficient clearance is obtained for removal of rear axle assembly.

REMOVAL – CONTINUED

REAR AXLE – CONTINUED

13. While continuing to support rear axle assembly (Figure 2, Item 1), remove rear axle assembly and support, balance axle with a 2 x 4 that is positioned between the drive motor support and rear axle housing (Figure 3, Item 3). Ensure the clutch lever (WP 0139 00, Figure 1, Item 6) is kept level to the ground as rear axle assembly is being rolled from underneath AGPU.
14. Position jack stands under left and right side of AGPU fork lift beams this will support AGPU during removal of rear axle assembly (Figure 2, Item 1).

REPAIR OR REPLACEMENT

REAR AXLE

NOTE

The rear axle assembly (Figure 2, Item 1) must be supported with jack stands or a differential dolly during the following steps.

1. Remove wheels and tires (WP 0130 00).
2. Remove brake drums and brakes (WP 0133 00).
3. Remove four lock nuts (Figure 1, Item 6) securing axle retainer plate (Figure 1, Item 7).
4. Remove both axles (R/H) and (L/H) (Figure 1, Item 3 and 12) from housing (Figure 1, Item 4).
5. Remove gaskets (Figure 1, Item 8) from axle (R/H) and (L/H) (Figure 1, Item 3 and 12).
6. Remove seals (Figure 1, Item 1) from housing (Figure 1, Item 4) both from the (R/H) and (L/H) axles (Figure 1, Item 3 and 12).
7. Remove backing plates (Figure 1, Item 10) and bolts (Figure 1, Item 5) from (R/H) and (L/H) side of housing (Figure 1, Item 4).

REPAIR OR REPLACEMENT

BEARING

1. Using arbor press, press bearings (Figure 1, Item 2) and bearing retainers (Figure 1, Item 9) free from axles both (R/H) and (L/H) (Figure 1, Item 3 and 12).
2. Remove axle retainer plate (Figure 1, Item 7) from axle both (R/H) and (L/H) (Figure 1, Item 3 and 12).
3. Inspect both axle shafts for damage, warping, cracks or spline damage. Replace with new axle as required.

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.

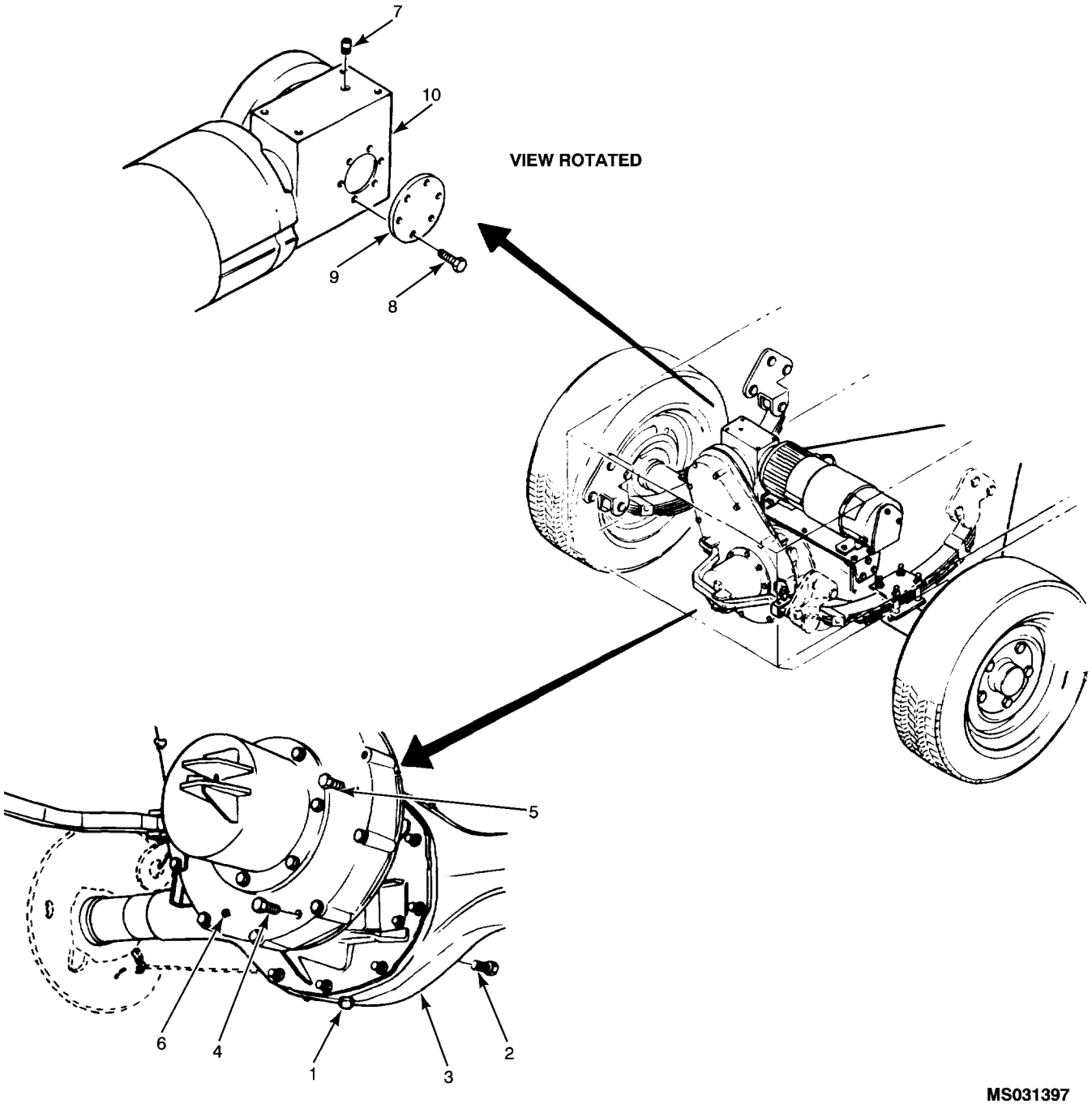
1. Use cleaning solvent to clean or wash grease and oil from all parts of the axles and bearing assemblies. Dry all components thoroughly prior to re-assembly.
2. Prior to installing new parts, remove any preservative materials such as rust-preventive compound or protective grease.

INSPECTION OF INSTALLED ITEMS

1. Inspect wheel bearings (Figure 1, Item 2), bearing retainers (Figure 1, Item 9), both axles (R/H) and (L/H) side (Figure 1, Item 3 and 12), backing plates studs (Figure 1, Item 11) for damage, warping, cracking and or scolding. Replace any component as required.
2. Inspect gaskets (Figure 1, Item 8) and replace as required.

INSTALLATION

AXLE BEARING



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

AXLE BEARING – CONTINUED

1. Install both axle retainer plates (Figure 1, Item 7) with concave side toward axle spline.
2. Using arbor press, press and install bearing (Figure 1, Item 2) and retainers (Figure 1, Item 9) onto both (R/H) and (L/H) axles (Figure 1, Item 3 and 12).
3. Install seal (Figure 1, Item 1) into housing (Figure 1, Item 4).
4. Lubricate bearings (Figure 1, Item 2) (WP 0028 00 and WP 0029 00, Lubrication Order).
5. Install gasket (Figure 1, Item 8) onto both axles (R/H) and (L/H) (Figure 1, Item 3 and 12).
6. Install backing plates (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 mounted in the 12 o'clock (top) position.
7. Install both axles (R/H) and (L/H) (Figure 1, Item 3 and 12) with bearings (Figure 1, Item 2) and axle retaining plates (Figure 1, Item 7) into housing (Figure 1, Item 4).
8. Slide axle retaining plates (Figure 1, Item 7) over bolts (Figure 1, Item 5). Install lock nuts (Figure 1, Item 6) to both sides. Tighten bolts and lock nuts as required.
9. Install the brake drums and brakes (WP 0133 00).
10. Install wheels and tires (WP 0130 00).
11. Remove rear axle assembly (Figure 2, Item 1) from jack stands or a differential dolly.

REAR AXLE ASSEMBLY TO AGPU

WARNING

The rear axle assembly is top heavy and will rotate on wheel bearings when being installed. To prevent injury to personnel or damage to equipment, ensure rear axle assembly is fully supported during the following procedures.

1. While continuing to support rear axle assembly (Figure 2, Item 1), install rear axle assembly and support, balance axle with a 2 x 4 that is positioned between the drive motor support and rear axle housing (Figure 3, Item 3). Ensure the clutch lever (WP 0139 00, Figure 1, Item 6) is kept level to the ground as rear axle assembly is being rolled underneath AGPU.
2. Ensuring there is no obstruction, position rear axle assembly under AGPU aligning mounting pad (Figure 2, Item 8) with rear springs.
3. Remove supports and slowly lower AGPU and ensure spring center bolts engage center hole in mounting pad (Figure 2, Item 8).
4. 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).
5. Remove support 2 x 4 fitted in Installation, Step 1
6. If AGPU is equipped with a TB 5 it is not necessary to install wires to the electrical brake and drive motor. Connect wires from rear axle assembly to TB 5.
7. Connect two hardwires to electric brake (Figure 2, Item 14) with butt splices if not equipped with TB 5.
8. Connect four hardwires (Figure 2, Item 12) to traction motor (Figure 2, Item 9) by installing lock washers (Figure 2, Item 10) and nuts (Figure 2, Item 11). Remove tags from wires. Connect two thermal overload hardwires with butt splices to traction motor (Figure 1, Item 9).
9. Install clutch assembly engage/disengage micro switch (WP 0139 00) and wiring.
10. Connect rear parking brake cable (WP 0132 00).

INSTALLATION – CONTINUED

REAR AXLE ASSEMBLY TO AGPU – CONTINUED

NOTE

Propulsion system lubricating will be necessary to fill or change rear axle housing (Figure 3, Item 3) lubricant if not performed during disassembly from AGPU or during axle and bearing replacement.

11. 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 of oil into suitable container.
    c. Install drain plug (Figure 3, Item 1) and add lubricant per L.O. (WP 0028 00 and WP 0029 00).
    d. Install fill plug (Figure 3, Item 2).
12. 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 of oil into suitable container.
    c. Install drain plug (Figure 3, Item 4) and add lubricant per L.O. (WP 0028 00 and WP 0029 00).
    d. Install fill plug (Figure 3, Item 5).
13. 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 open at bottom to drain lubricant.
    b. Tighten six bolts (Figure 3, Item 8) and add lubricant per L.O. (WP 0028 00 and WP 0029 00).
    c. Install fill plug (Figure 3, Item 7).
14. Wipe up any spilled lubricant and check for leaks.
15. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
16. Jack up the rear end of AGPU and remove jack stands.
17. Apply power to the drive system in the alternate propulsion mode (WP 0014 00). Functionally check electric brake by pressing dead-man switch and listening for an audible click from electric brake.
18. Perform MOC and check for any oil leaks and proper operation of propulsion system.

END OF WORK PACKAGE

FIELD MAINTENANCE

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

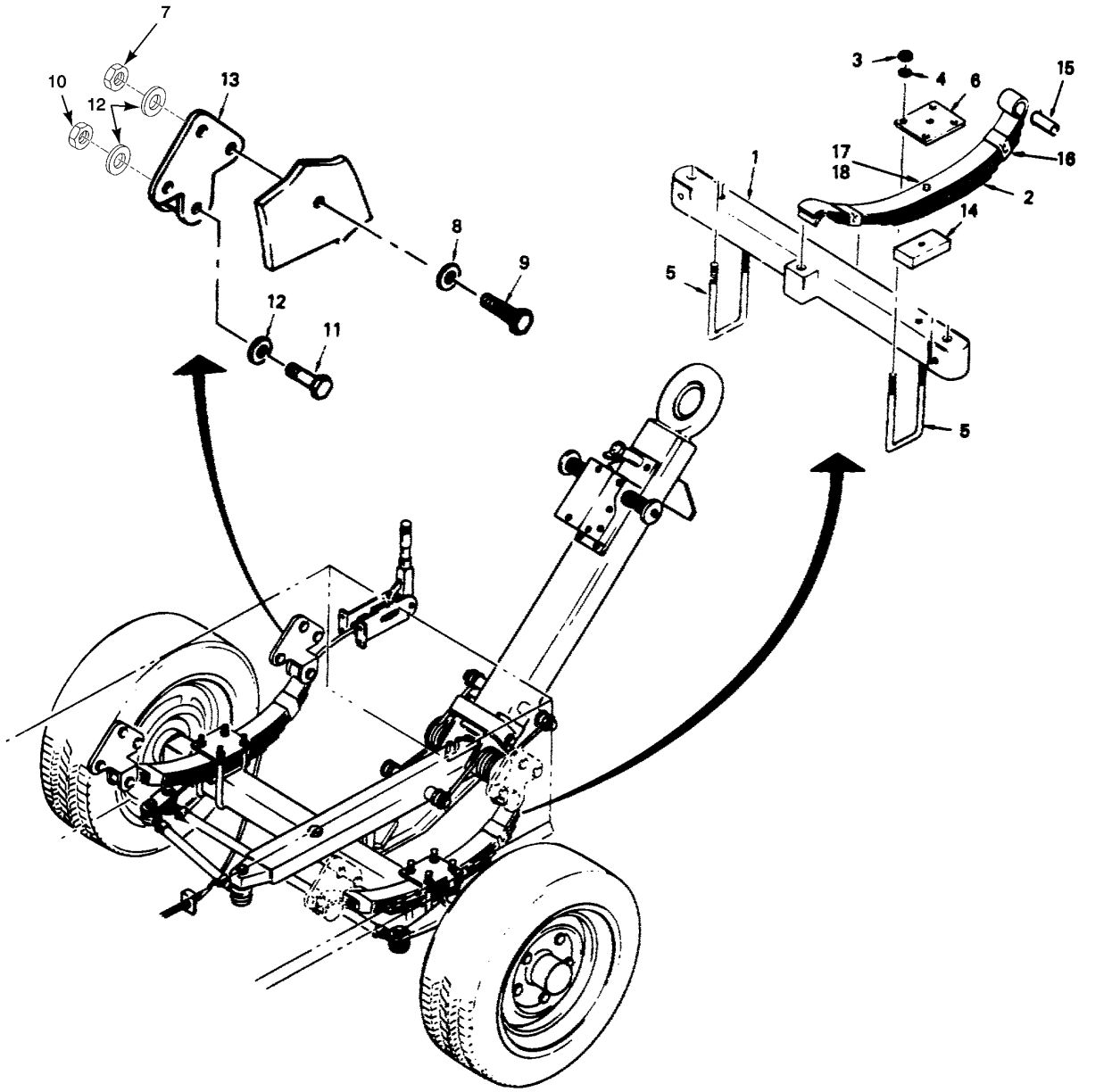
INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References

WP 0043 00
WP 0044 00
WP 0140 00

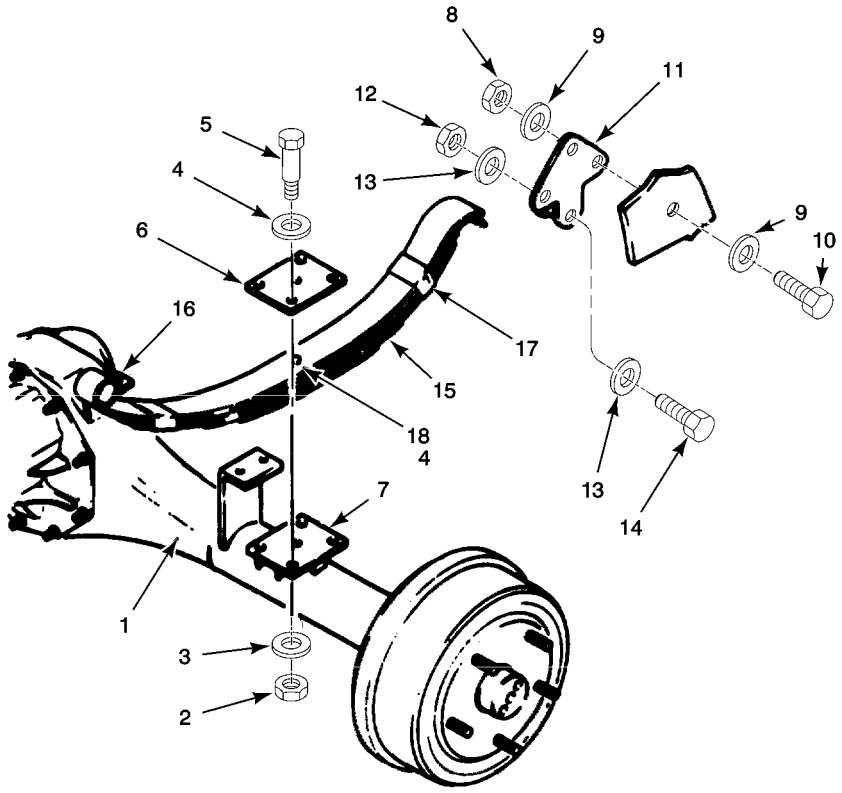


MS031555A

1. Front Axle	6. Plate, Upper	11. Bolt	16. Retainer Clip
2. Spring, Front	7. Nut, Lock	12. Washer, Flat	17. Nut
3. Nut	8. Washer, Flat	13. Hanger	18. Bolt
4. Washer, Lock	9. Bolt	14. Spacer	
5. U-Bolt	10. Nut, Lock	15. Bushing	

Figure 1. Front Axle and Spring Assembly.

– Continued



1. Rear Axle Assembly	6. Plate, Upper	11. Hanger	16. Bushing
2. Nut, Lock	7. Axle Mounting Pad	12. Locknut	17. Retainer Clip
3. Washer	8. Nut, Lock	13. Washer, Flat	18. Nut
4. Washer, Flat	9. Washer, Flat	14. Bolt	
5. Bolt	10. Bolt	15. Spring, leaf	

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. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

NOTE

Support front of AGPU with two jack stands and place a floor jack under front axle to relieve pressure from springs. If front springs are removed with two bar installed, then tow bar must be secured in the down position.

3. Remove six lock nuts (Figure 1, Item 7), flat washers (Figure 1, Item 8) and bolts (Figure 1, Item 9) from hangers (Figure 1, Item 13).
4. Lower front axle (Figure 1, Item 1) and remove from underneath AGPU.
5. Remove four nuts (Figure 1, Item 3) and lock washers (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).
6. 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).
7. 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 upper plates (Figure 1, Item 6) on top of front springs (Figure 1, Item 2). Install U-bolts (Figure 1, Item 5), four lock washers (Figure 1, Item 4) and four nuts (Figure 1, Item 3). Securing springs to axle.
4. Position front axle (Figure 1, Item 1) under AGPU body. Install six flat washers (Figure 1, Item 8) and bolts (Figure 1, Item 9) through AGPU housing and hangers. Install six flat washers (Figure 1, Item 12), six lock nuts (Figure 1, Item 7). Tighten as required.
5. Remove AGPU from jack stands.
6. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
7. Perform MOC.

REMOVAL

REAR AXLE

1. Position AGPU on level surface. Chock front wheels.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Remove rear axle (WP 0140 00).

REMOVAL – CONTINUED

REAR AXLE – CONTINUED

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).
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, pry retainer clips (Figure 2, Item 17) off springs and then remove center nuts (Figure 2, Item 18) and bolts (Figure 2, Item 5).

INSTALLATION

1. Install bolts (Figure 2, Item 5) through leaf springs (Figure 2, Item 15) and secure with flat washers (Figure 2, Item 4), 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 flat washers (Figure 2, Item 13) and six locknuts (Figure 2, Item 8). Tighten as required.
4. Install rear axle assembly (WP 0140 00).
5. Remove AGPU from jack stands.
6. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
7. Perform MOC.

END OF WORK PACKAGE

FIELD MAINTENANCE

**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

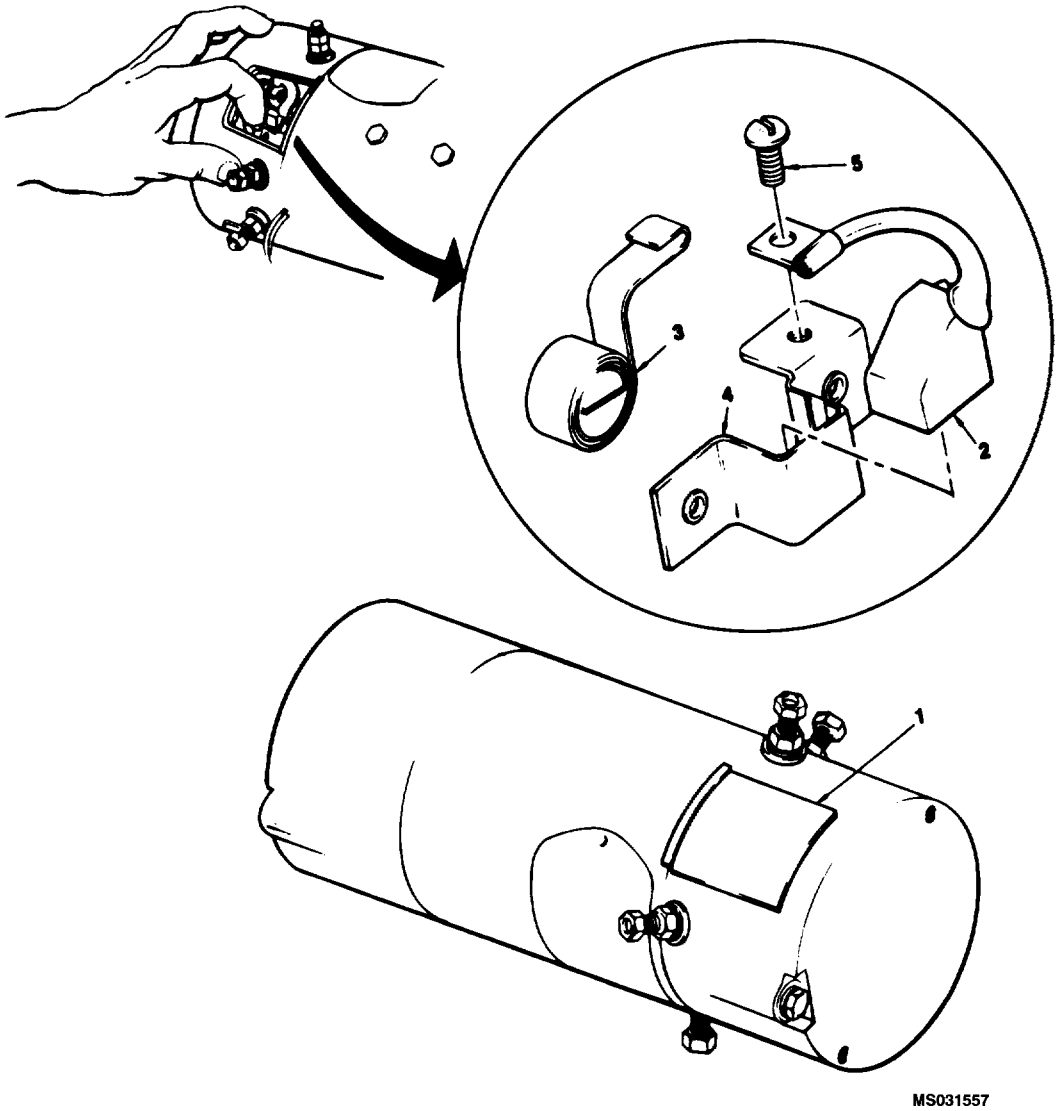
Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References

WP 0014 00
WP 0043 00
WP 0044 00
WP 0140 00

Materials/Parts

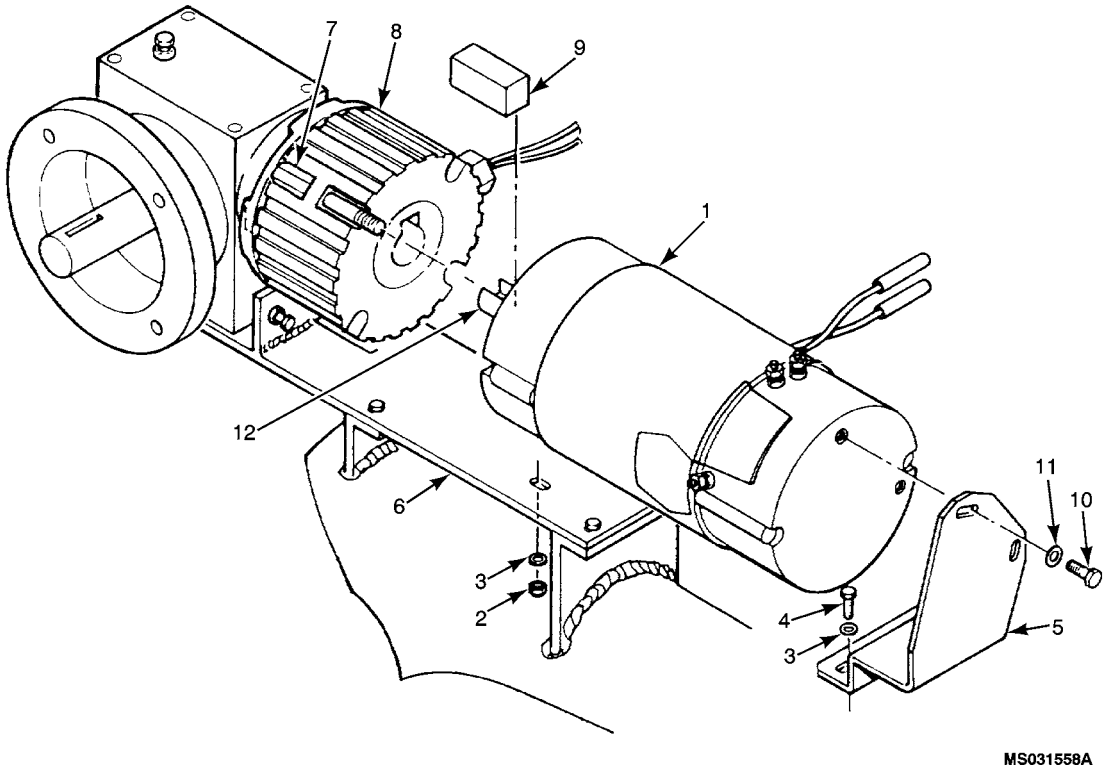
Lockwire (WP 0154 00, Item 30)



1. Brush Cover
2. Armature Brush
3. Pressure Spring
4. Brush Holder
5. Screw

Figure 1. Traction Motor Brush Replacement.

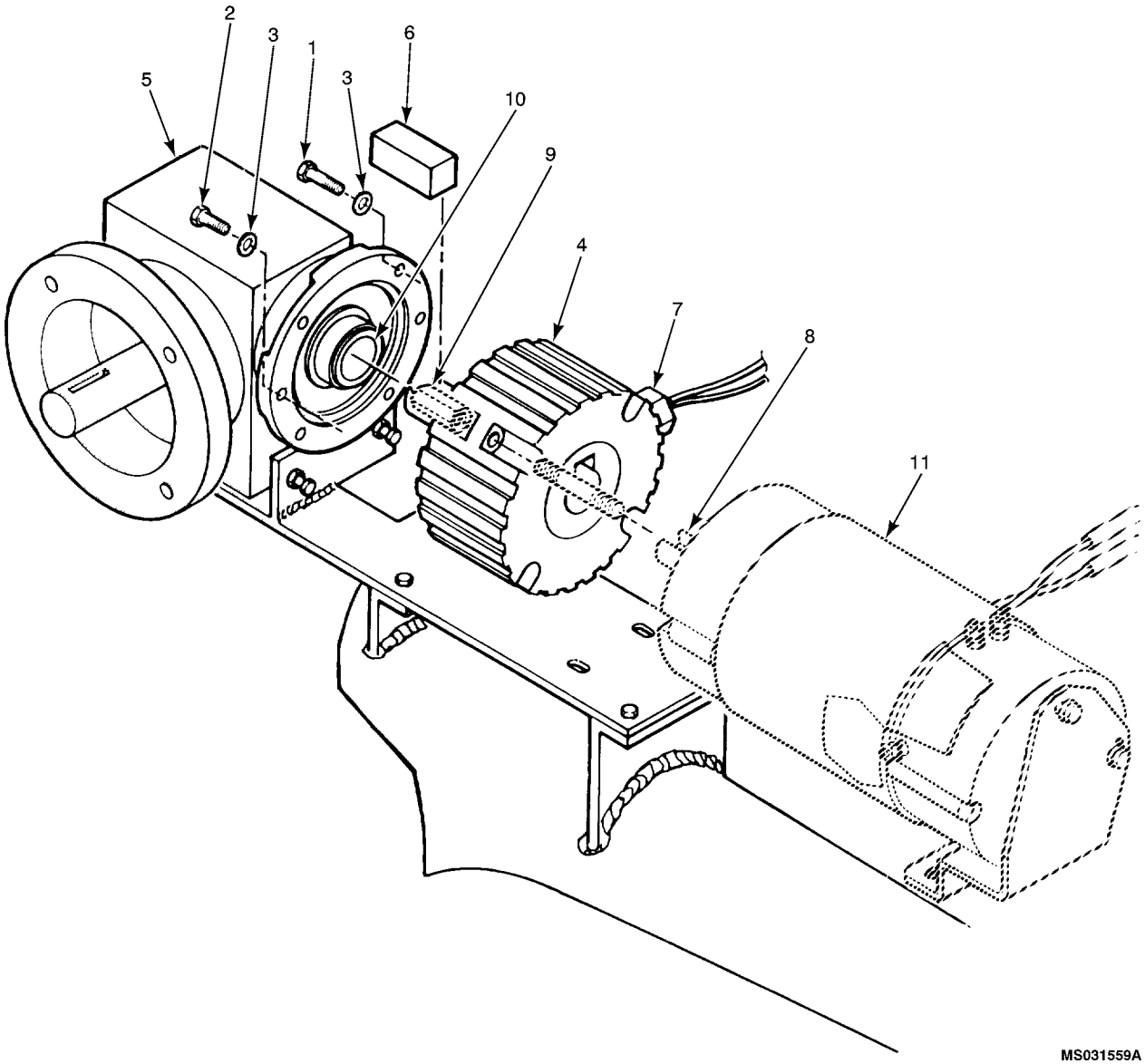
– Continued



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 Drive Shaft

Figure 2. Traction Motor Mounting.

– Continued



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
11. Traction Motor

Figure 3. Electric Brake - Removal and Installation.

REPAIR OR REPLACEMENT

1. Remove rear axle assembly (WP 0140 00).
2. Remove brush cover (Figure 1, Item 1) and inspect the traction motor armature brushes (Figure 1, Item 2).
3. If brushes are broken or excessively worn, replace armature brushes (Figure 1, Item 2).
4. Loosen the screw (Figure 1, Item 5) that connects the brush wire to the brush holder (Figure 1, Item 4) by lifting pressure spring (Figure 1, Item 3) and remove the armature brush (Figure 1, Item 2) out of the brush holder.
5. Install new armature brushes (Figure 1, Item 2) by lifting the pressure spring (Figure 1, Item 3) and inserting the armature brush into the brush holder (Figure 1, Item 4).
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 0140 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 cap screws (Figure 3, Item 1 and 2), washers (Figure 3, Item 3) and drive key (Figure 3, Item 6) securing electrical brake (Figure 3, Item 4) to worm gear reducer gear box (Figure 3, Item 5).
4. 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).
5. Remove cap screws (Figure 2, Item 10) and washers (Figure 2, Item 11) securing traction motor (Figure 2, Item 1) to motor support bracket (Figure 2, Item 5). Remove motor support bracket.

INSTALLATION

1. 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.
2. Locate square key (Figure 2, Item 9) in keyway of traction motor driveshaft (Figure 2, Item 12).
3. Position electric brake (Figure 2, Item 8) on traction motor (Figure 2, Item 1). 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.
4. Install cap screws (Figure 3, Item 1 and 2), washers (Figure 3, Item 3) and tighten as required.
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). Tighten as required.
6. Install rear axle assembly (WP 0140 00).
7. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
8. Apply power to the drive system in the alternate propulsion mode (WP 0014 00). Functionally check electric brake (Figure 2, Item 8) by pressing dead-man switch and listening for an audible click from electric brake.
9. Remove AGPU from jack stands.
10. Perform MOC.

END OF WORK PACKAGE

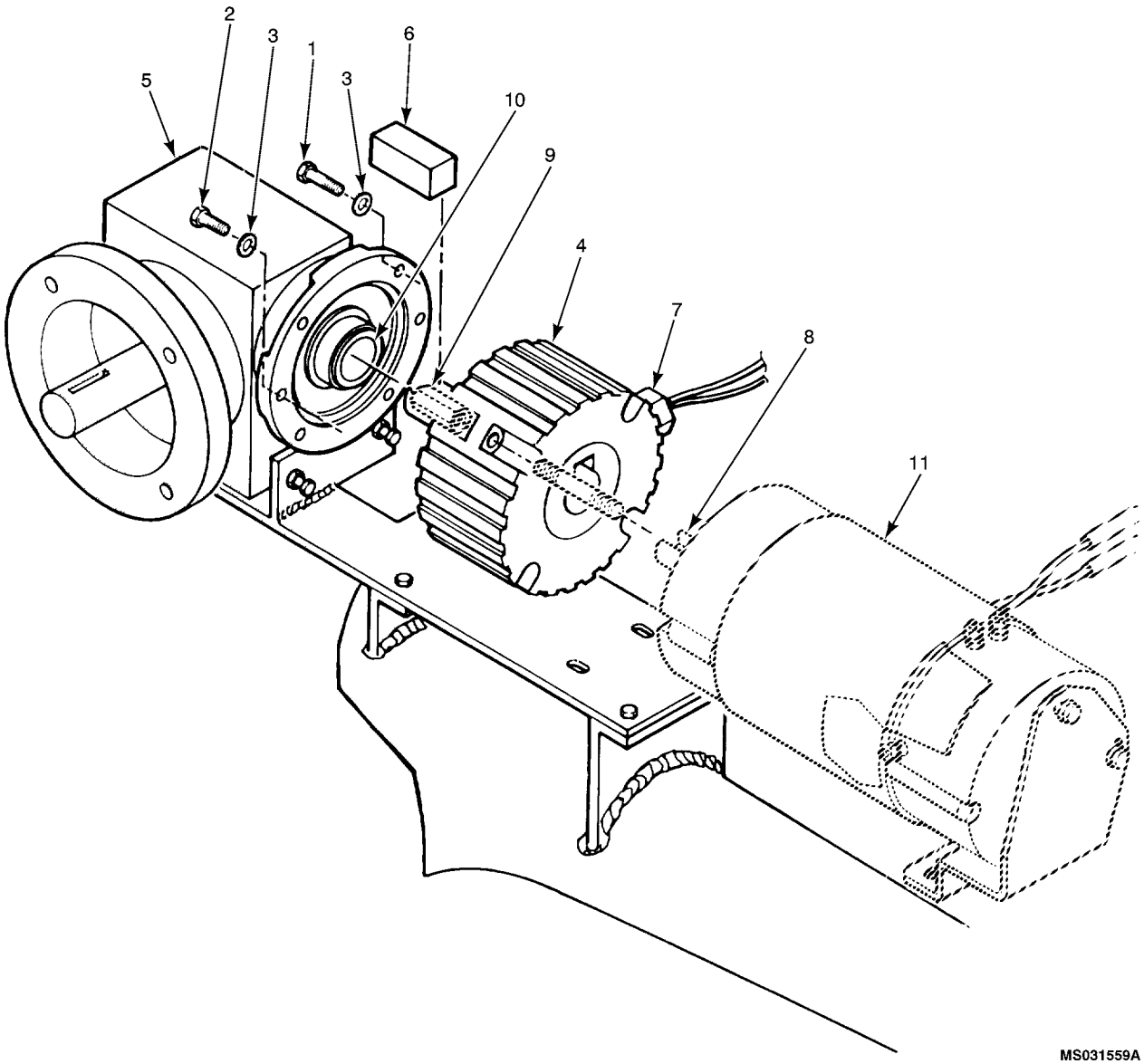
FIELD MAINTENANCE

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	References
Aviation Foot Locker, AFL (WP 0155 00, Item 3)	WP 0014 00
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)	WP 0043 00
Tool Set, Aviation Unit (WP 0155 00, Item 41)	WP 0140 00
	WP 0142 00



1. Cap Screw	5. Worm Gear Reducer Gearbox	9. Drive Input
2. Cap Screw	6. Drive Key	10. Drive Flange
3. Washer	7. Strain Relief	11. Traction Motor
4. Electric Brake	8. Drive Shaft	

Figure 1. Electric Brake - Removal and Installation.

TEST AND INSPECTION

1. Position AGPU on level surface.
2. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
3. Place propulsion into the alternate mode (battery power) WP 0014 00.
4. During propulsion operation, press down and hold the DEADMAN switch located on the speed directional control assembly. Listen for audible click from electrical brake (Figure 1, Item 4) to ensure electrical brake is

TEST AND INSPECTION – CONTINUED

released. If audible click is not heard or AGPU fails to stop immediately during propulsion operations replace electric brake.

5. Remove propulsion from alternate mode (battery power) operation (WP 0014 00).
6. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
7. Ensure parking brake is set and wheels are chocked with AGPU on level ground.

REMOVAL

NOTE

Raise and support rear of AGPU with two jack stands located under rear fork lift channels.

NOTE

In the following step it is not necessary to remove the motor support bracket from the traction motor.

1. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
2. Remove rear axle assembly (WP 0140 00).
3. Remove traction motor (WP 0142 00).
4. Separate electric brake (Figure 1, Item 4) from traction motor (Figure 1, Item 11) and worm gear reducer gearbox (Figure 1, Item 5) by loosening six cap screws (Figure 1, Item 1 and 2) and six washers (Figure 1, Item 3).
5. Remove and tag the two electric wires that are connected to the electric brake (Figure 1, Item 4).
6. Separate brake from traction motor (Figure 1, Item 11) and worm gear reducer gearbox (Figure 1, Item 5). Ensure to safeguard the drive key (Figure 1, Item 6) for re-use.

INSTALLATION

1. Locate and install square drive key (Figure 1, Item 6) in keyway of traction motor (Figure 1, Item 11) driveshaft (Figure 1, Item 8).
2. Install electric brake (Figure 1, Item 4) onto traction motor (Figure 1, Item 11) and worm gear reducer gearbox (Figure 1, Item 5) by installing six cap screws (Figure 1, Item 1 and 2) and six washers (Figure 1, Item 3). Tighten as required.
3. Install tagged wires to electric brake (Figure 1, Item 4).
4. Install traction motor (WP 0142 00 , Installation).
5. Install rear axle assembly (WP 0140 00).
6. Raise and remove AGPU from jack stands.
7. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.
8. Perform MOC. Place propulsion into the alternate mode (battery power) WP 0014 00. Press down and hold the DEADMAN switch located on the speed directional control assembly. Listen for audible click from electrical brake (Figure 1, Item 4) to ensure electrical brake is released.

END OF WORK PACKAGE

FIELD MAINTENANCE

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 (OLD TYPE)

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

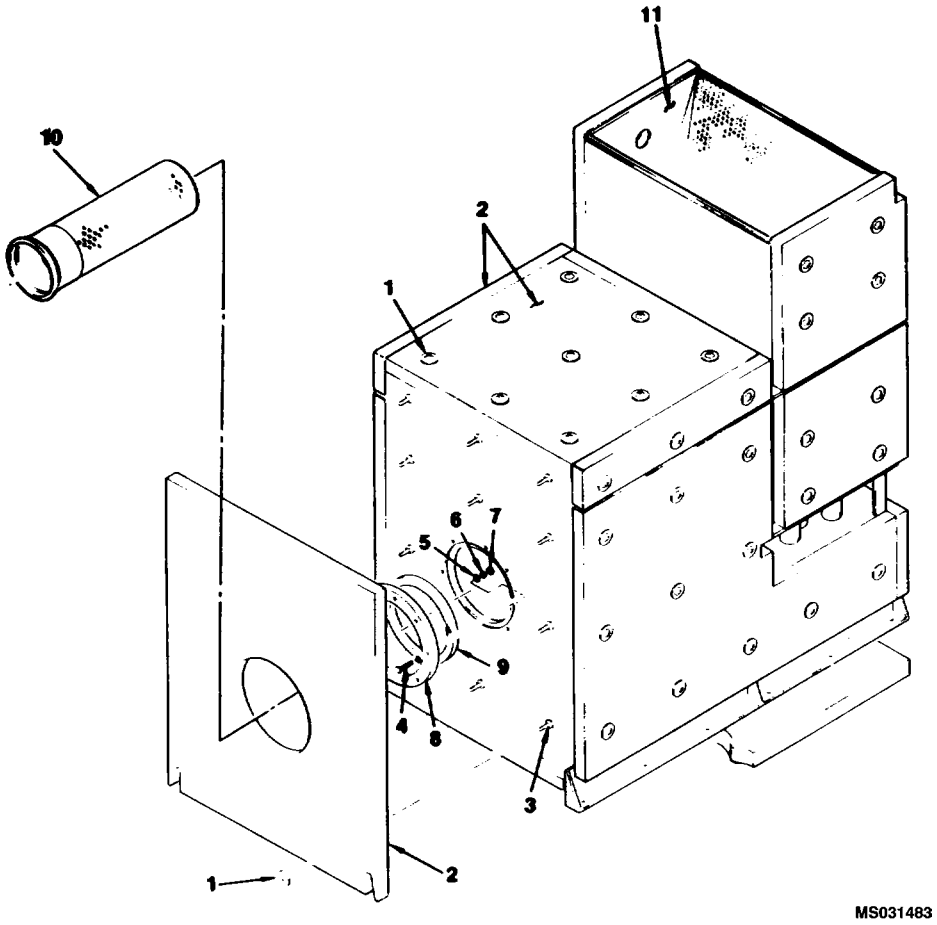
References

WP 0002 00

References (cont.)

WP 0033 00
WP 0043 00
WP 0044 00
WP 0124 00
WP 0145 00
TB 1-1730-229-30

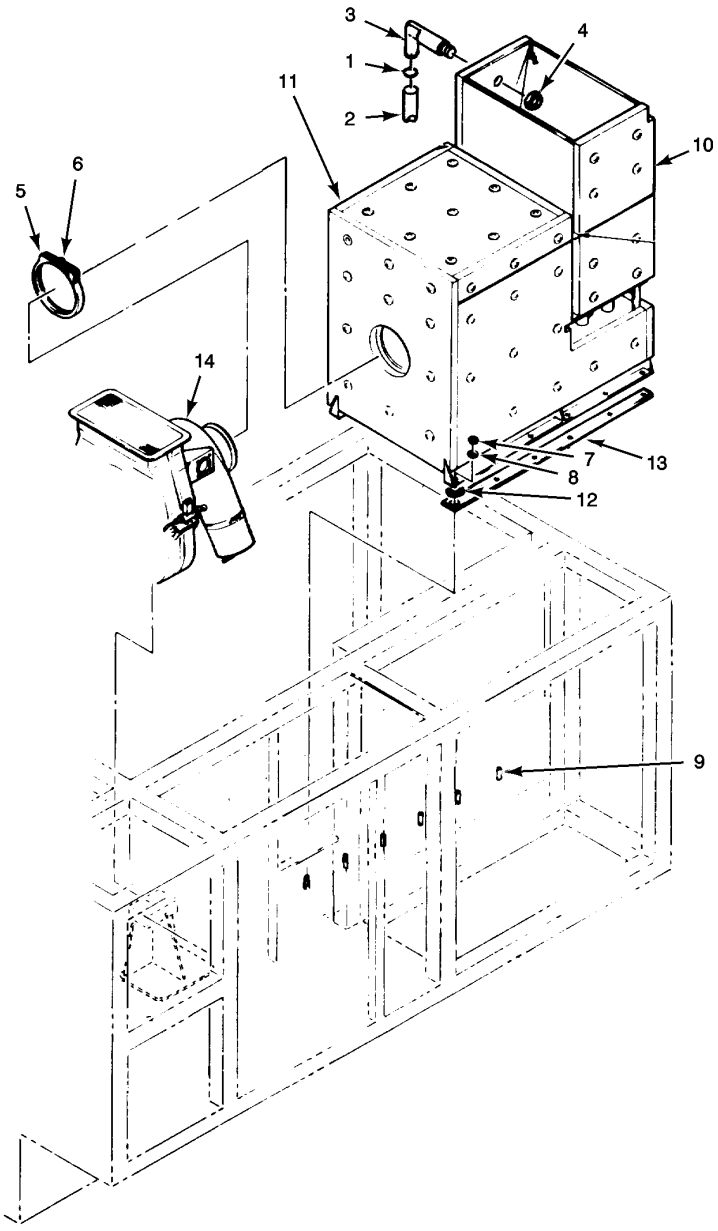
TEST AND INSPECTION



1. Washer, Self-locking	5. Washer, Flat	9. Spacer
2. Insulation, Thermal	6. Washer, Lock	10. Exhaust Ejector Inlet Tube
3. Weld Pin	7. Nut	11. Outlet
4. Bolt	8. Cover Plate	

Figure 1. Exhaust Ejector Assembly (MEP 83-360A/D only).

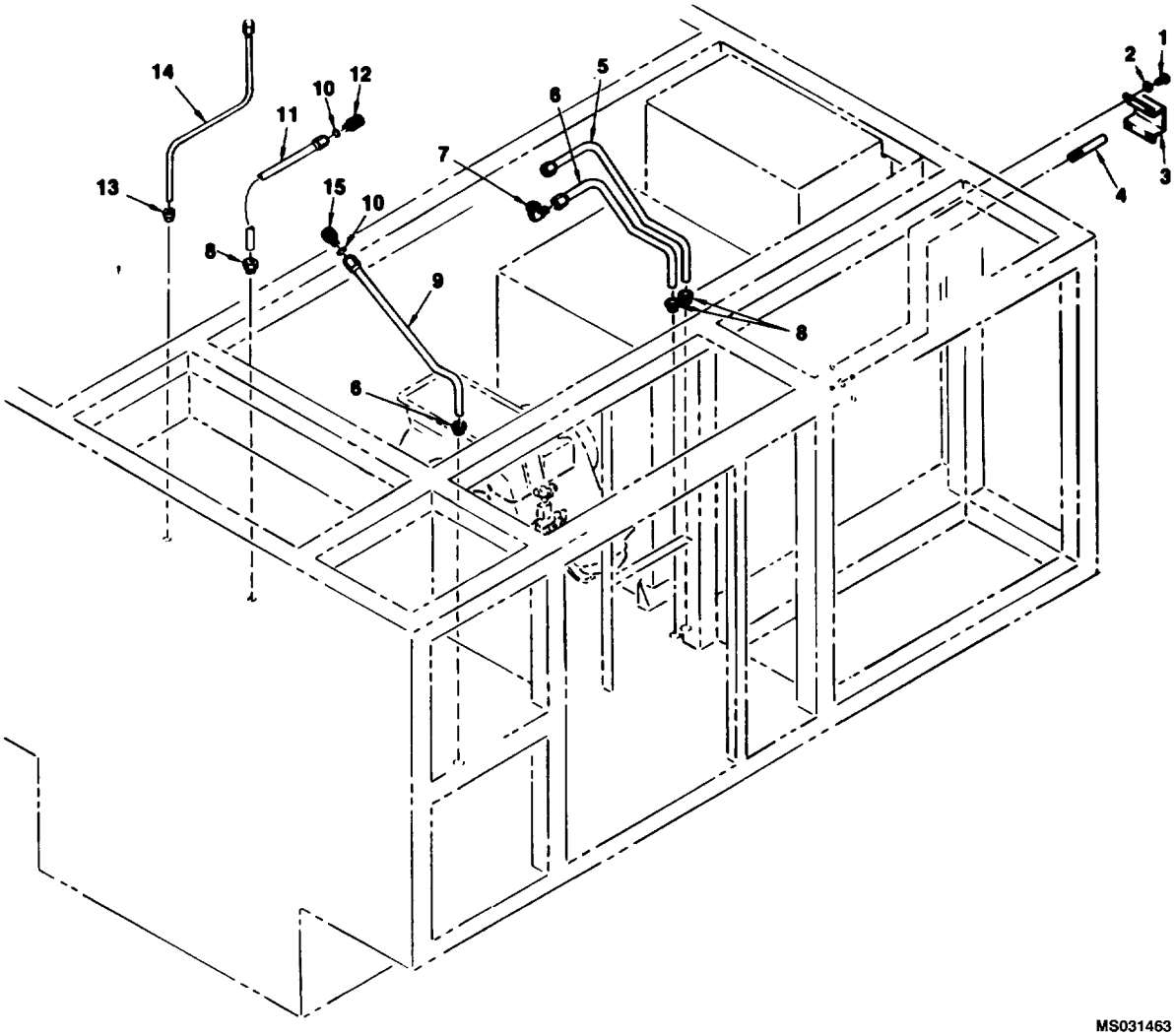
TEST AND INSPECTION – CONTINUED



1. Clamp, Hose
2. Pneumatic Hose
3. Elbow
4. Nut
5. Clamp, V-Band Coupling
6. Nut, V-Band Coupling
7. Nut
8. Washer, Lock Star
9. Stud
10. Exhaust Ejector
11. Exhaust Plenum
12. Washer, Flat Body
13. Strip, Rubber Insulation
14. Engine Output

Figure 2. Exhaust Ejector Assembly (MEP 83-360A/D only).

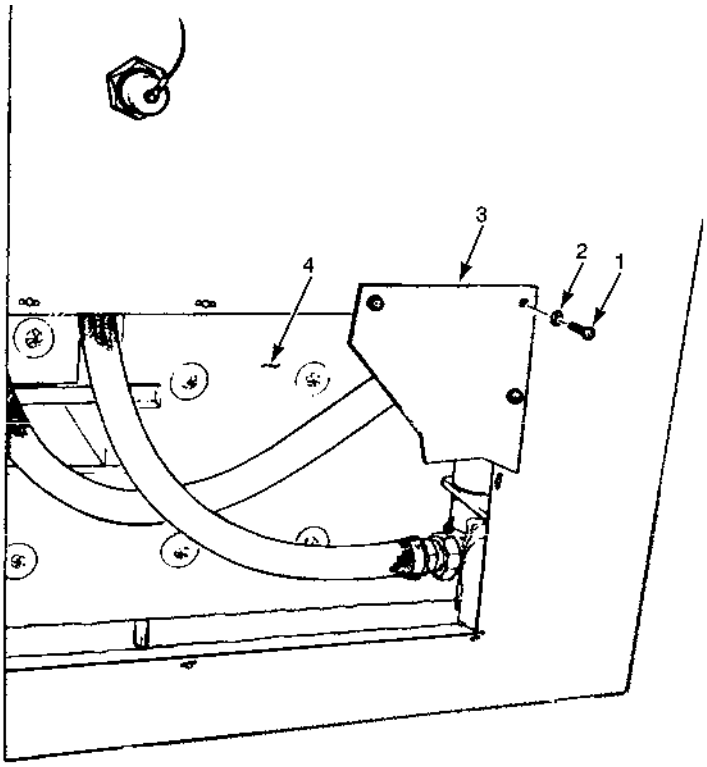
TEST AND INSPECTION – CONTINUED



1. Screw	6. Drain Tube, Combustor Cap	11. Drain Tube, Gearcase
2. Washer	7. Swivel Cap (Install on Combustor Cap)	12. Hose Fitting
3. Cover, Drain Tube	8. Grommet, Rubber	13. Grommet, Rubber
4. Drain Tube, Exhaust Ejector	9. Drain Tube, FCU	14. Drain Tube, Hydraulic Pump
5. Drain Tube, Turbine Housing	10. O-Ring	15. Nipple

Figure 3. Exhaust Ejector, Engine/Gearcase Drain Tubes Removal/Installation.

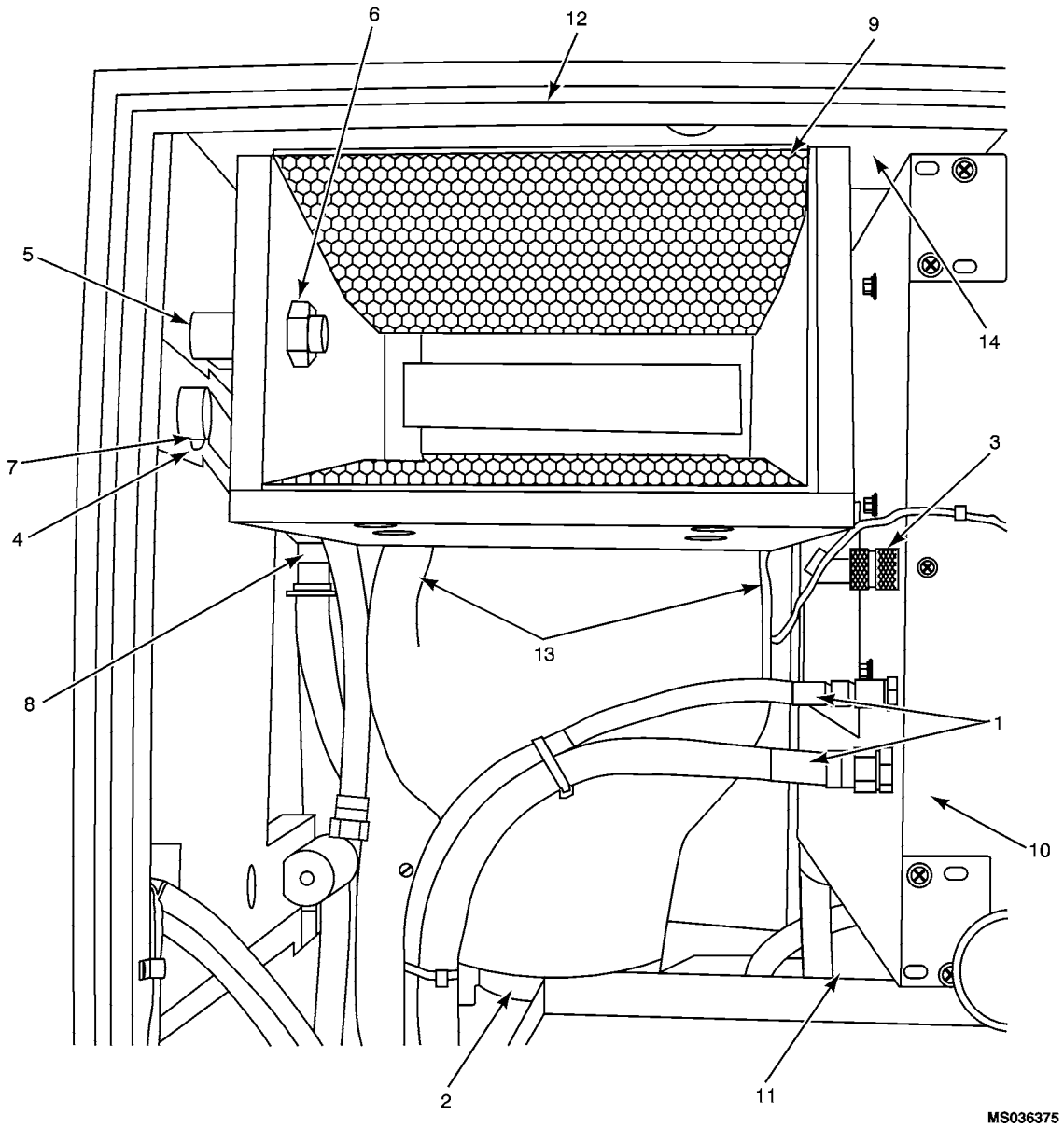
TEST AND INSPECTION – CONTINUED



1. Screw
2. Washer
3. Access Cover, Exhaust
4. Exhaust ejector

Figure 4. Exhaust Ejector Access.

TEST AND INSPECTION – CONTINUED



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 5. Exhaust Installed into AGPU.

TEST AND INSPECTION – CONTINUED

WARNING

Do not perform the following steps with AGPU running. Do not attempt to touch the exhaust flapper if AGPU has been operated within 1 hour of cool down. Serious injury will occur from hot exhaust and parts.

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. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Open engine access door (WP 0002 00, Figure 2, Item 12).
4. Inspect insulation (Figure 1, Item 2) for missing or loose insulation self-locking washers (Figure 1, Item 1) or weld pins broken (Figure 1, Item 3). Weld pins broken or missing, self-locking washers missing, small cracks, dents and cuts in insulation are not acceptable.

WARNING

Do not perform Step 5 with AGPU running. Do not attempt to touch the exhaust flapper if AGPU has been operated within 1 hour of cool down. Serious injury will occur from hot exhaust and parts.

5. Open exhaust flapper located on roof of AGPU. Using a flashlight, inspect the interior of the ejector assembly for damage, cracks and eroded housing. If defective parts are found replace exhaust system with new type.
6. Inspect exhaust ejector assembly (Figure 2, Item 10) for security of installation.
7. Inspect ejector inlet tube (Figure 1, Item 10) for cracks or severe erosion (part of body worn away). Replace with new type exhaust assembly if damaged.
8. Inspect exhaust cover plate (Figure 1, Item 8) for severe damage. Replace if part of interior surface is severely worn (holes in surface) with new type exhaust assembly.
9. 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 with new type exhaust assembly.
10. Inspect V-band clamp coupling (Figure 2, Item 5) for signs of exhaust gas leakage. If exhaust gas leakage is detected tighten the V-band clamp coupling and re-check for exhaust leakage. If exhaust leakage cannot be stopped by tightening the V-band clamp coupling replace exhaust system with new type exhaust assembly.

REMOVAL

WARNING

Do not perform the following steps with AGPU running. Do not attempt to touch the exhaust flapper if AGPU has been operated within 1 hour of cool down. Serious injury will occur from hot exhaust and parts.

CAUTION

Ensure that exhaust ejector clears AGPU frame and insulation when removing or installing. Insulation weld pins on exhaust ejector can shred housing insulation.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

NOTE

During removal of the roof, one person should be stationed at each corner of the roof to prevent warping or damage to the roof.

3. Remove roof (WP 0033 00).
4. Remove hydraulic module (WP 0124 00).
5. Remove exhaust access cover (Figure 4, Item 3) by first removing the AC cable from its storage bin.
6. Remove screws (Figure 4, Item 1) and washers (Figure 4, Item 2) from exhaust access cover (Figure 4, Item 3). Place exhaust access cover in a secure area.
7. Loosen hose clamp (Figure 2, Item 1) and disconnect pneumatic hose (Figure 2, Item 2) from elbow (Figure 2, Item 3).
8. Remove nut (Figure 2, Item 4) and elbow (Figure 2, Item 3).

NOTE

The drain tube cover may be fastened by rivets instead of screws and washers. If so, do not remove drain tube cover.

9. 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).
10. 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).
11. Slide ejector inlet tube into exhaust ejector (Figure 2, Item 10).
12. Remove twelve nuts (Figure 2, Item 7) and lock washers (Figure 2, Item 8) from studs (Figure 2, Item 9).
13. Remove elbow (Figure 2, Item 3) from exhaust ejector by removing nut (Figure 2, Item 4) from inside of the ejector. Safeguard nut for use in re-installation.

REMOVAL – CONTINUED

CAUTION

Ensure that exhaust ejector clears AGPU frame and insulation when removing or installing. Insulation weld pins on exhaust ejector can shred housing insulation.

14. Attach a rope or sling to lift points. Remove exhaust ejector by carefully lifting straight up and out of AGPU.
15. Cover engine exhaust outlet port (Figure 2, Item 14) to prevent FOD.
16. Ensure that rubber insulation strip (Figure 2, Item 13) stays in bed of AGPU.
17. Clean mounting area that exhaust ejector mounts to after removal.

INSTALLATION

NOTE

Old Type Exhaust System. During inspection if exhaust system is defective and removed, replace with New Type exhaust system (NSN 2990-01-325-1868) IAW TB 1-1730-229-30. Refer to WP 0145 00 for Installation of new exhaust.

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 (NEW TYPE)

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

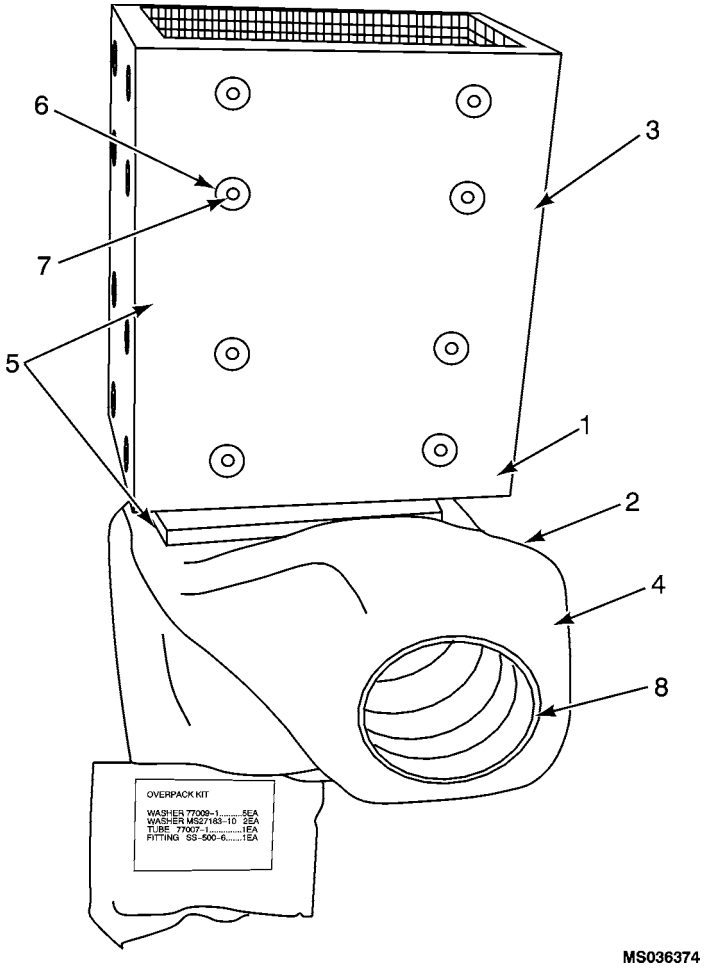
Materials/Parts

Wire, Nonelectrical (WP 0154 00, Item 61)

References

WP 0002 00
WP 0011 00
WP 0029 00
WP 0033 00
WP 0043 00
WP 0044 00
WP 0124 00

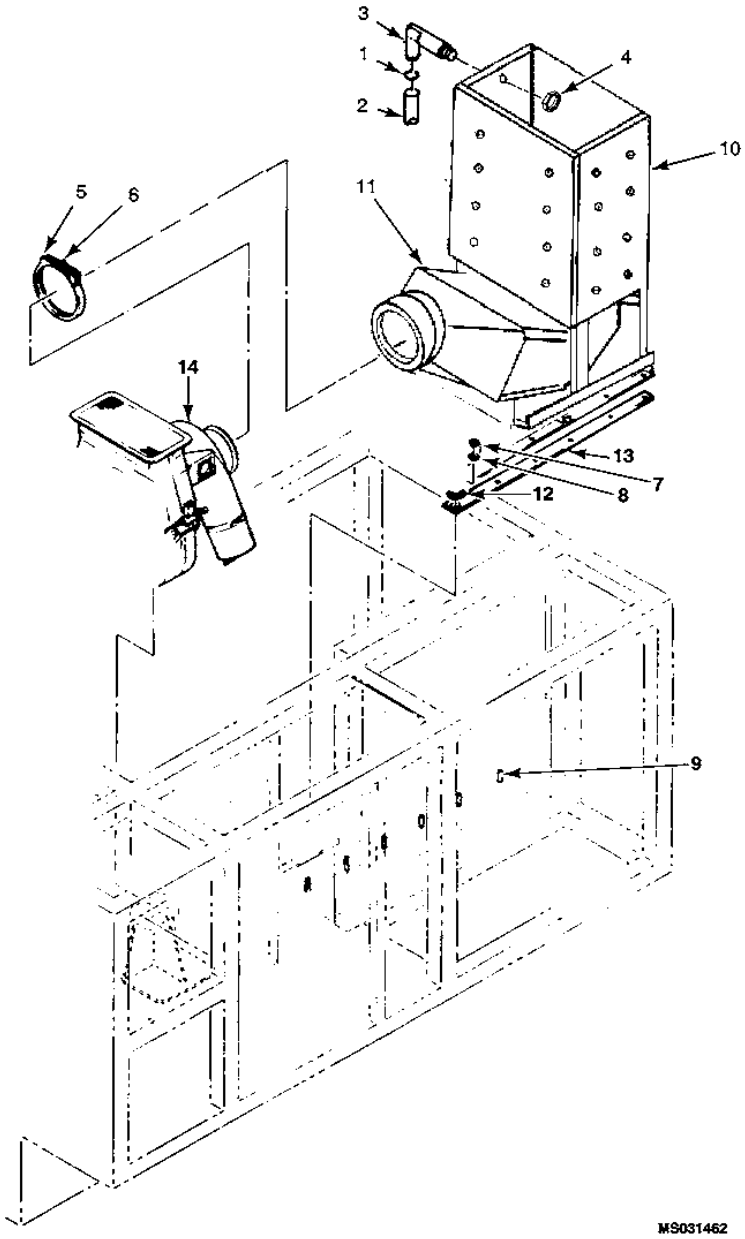
TEST AND INSPECTION



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 1. New Exhaust Un-Installed.

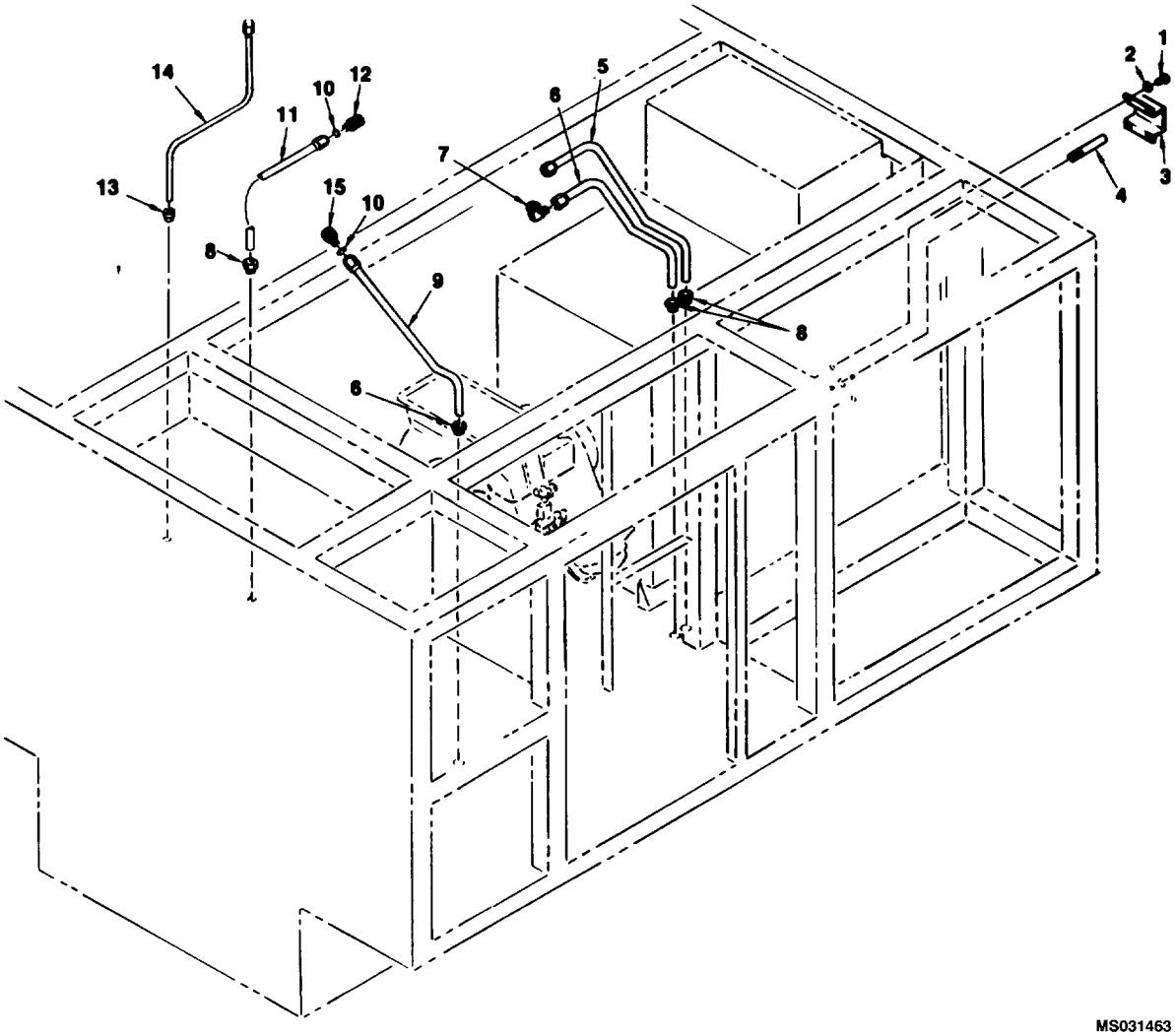
TEST AND INSPECTION – CONTINUED



1. Clamp, Hose
2. Pneumatic Hose
3. Elbow
4. Nut
5. Clamp, V-Band Coupling
6. Nut, V-Band Coupling
7. Nut
8. Washer, Lock Star
9. Stud
10. Exhaust Ejector
11. Exhaust Plenum
12. Washer, Flat Body
13. Strip, Rubber Insulation
14. Engine Output

Figure 2. Exhaust Ejector Assembly (New Type).

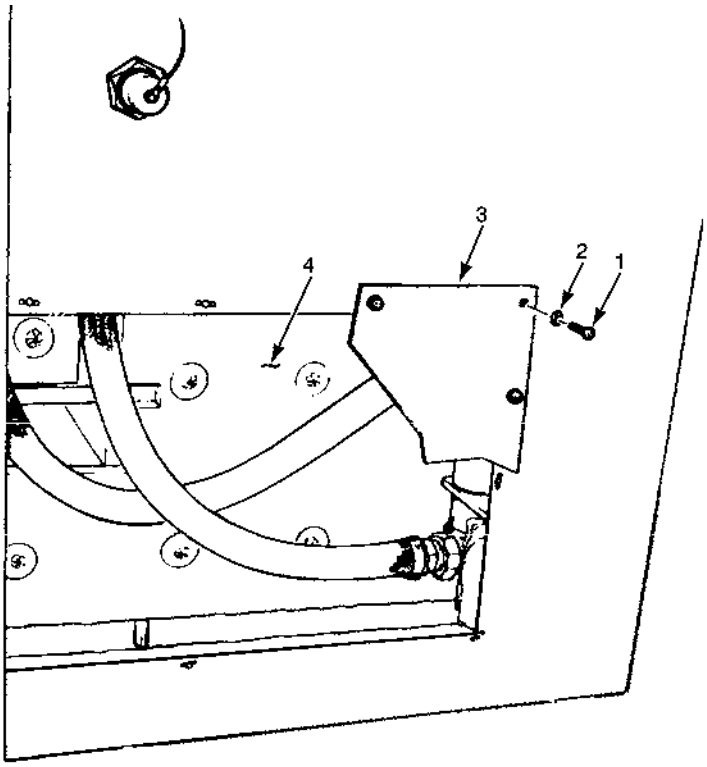
TEST AND INSPECTION – CONTINUED



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 (Install 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, Hydraulic Pump
15. Nipple

Figure 3. Exhaust Ejector, Engine/Gearcase Drain Tubes (New Type).

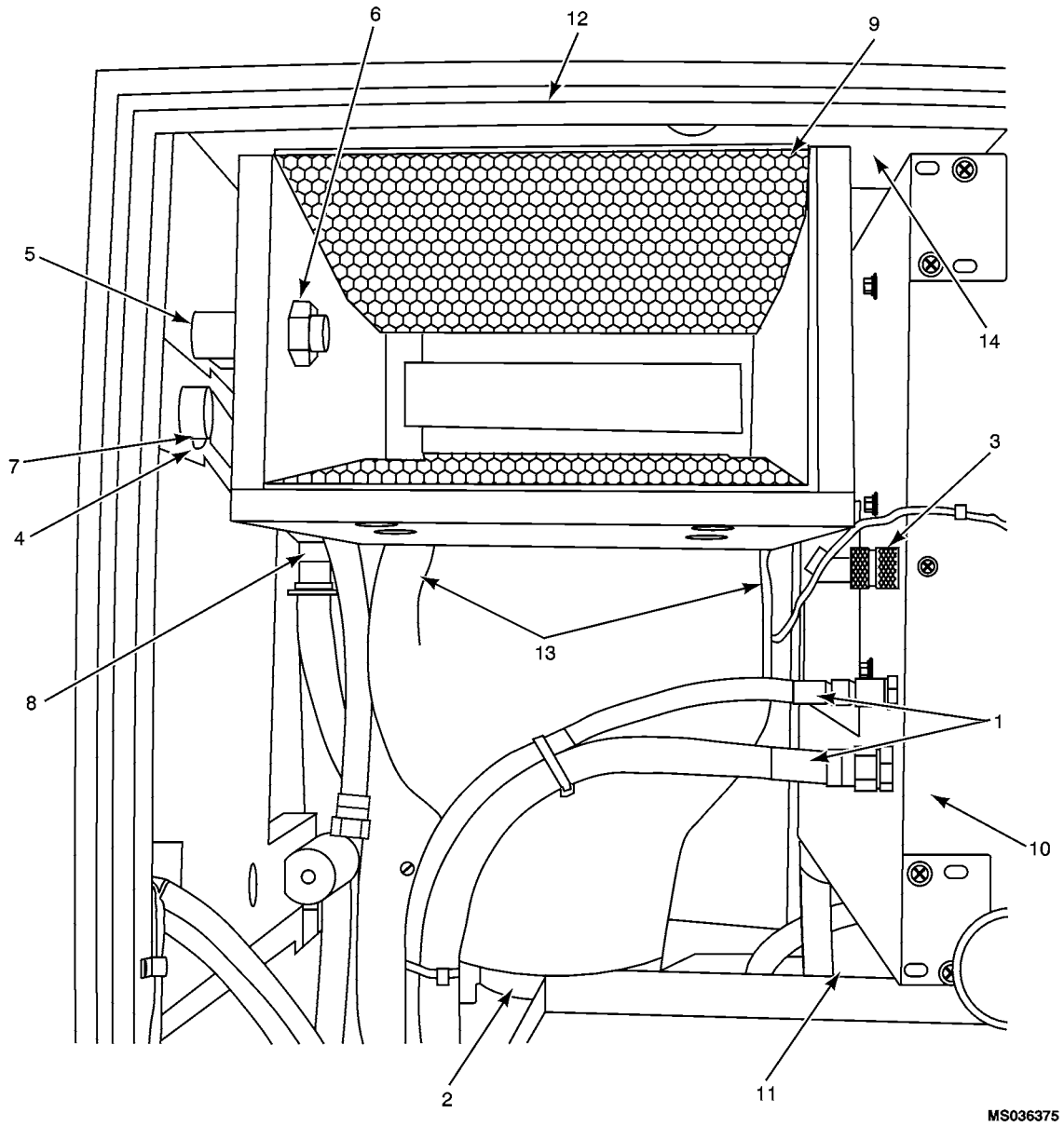
TEST AND INSPECTION – CONTINUED



1. Screw
2. Washer
3. Access Cover, Exhaust
4. Exhaust Ejector

Figure 4. Exhaust Ejector Access.

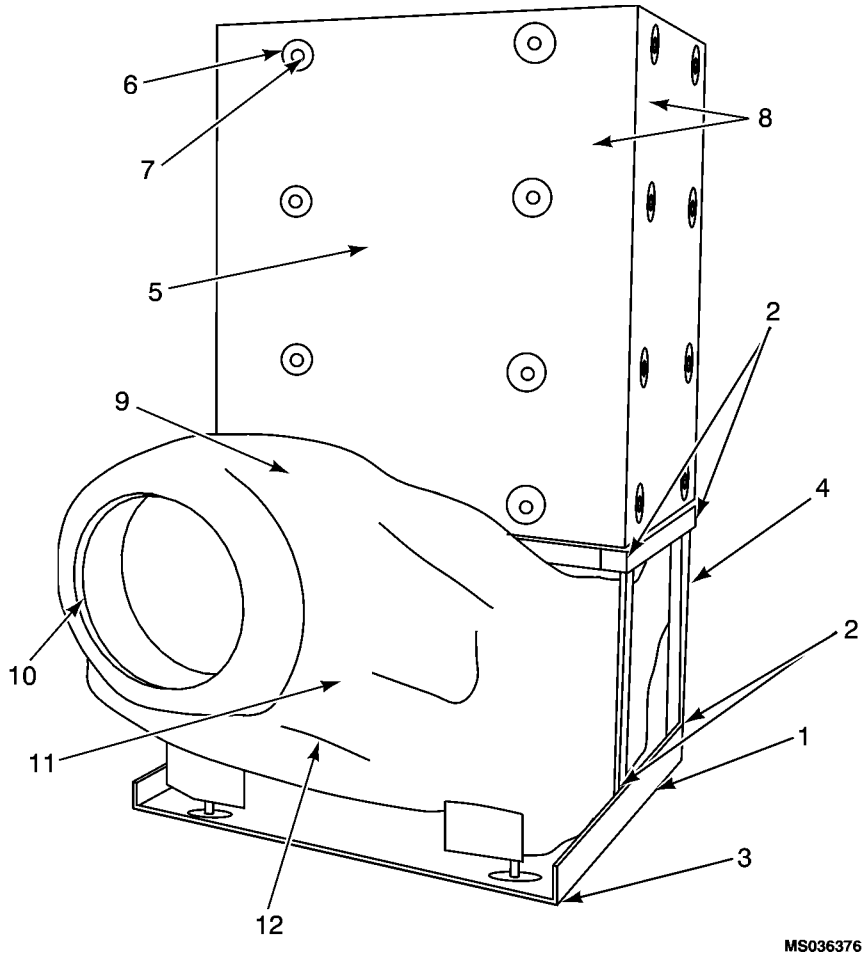
TEST AND INSPECTION – CONTINUED



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 5. New Exhaust Installed into AGPU.

TEST AND INSPECTION – CONTINUED



1. Mounts	5. Exhaust Ejector (Flue) Assembly	9. Plenum Assembly
2. Exhaust Frame	6. Retainer Washer	10. Plenu, Inlet From GTE
3. Frame Welds	7. Weld Pin	11. Insulation Fiberglass
4. Support Struts	8. Insulation Dura Board	12 Tape

Figure 6. New Exhaust Frame (Un-Installed).

WARNING

Do not perform the following steps with AGPU running. Do not attempt to touch the exhaust flapper if AGPU has been operated within 1 hour of cool down. Serious injury will occur from hot exhaust and parts.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.
3. Open engine access door (WP 0002 00, Figure 2, Item 12).

TEST AND INSPECTION – CONTINUED

4. Inspect insulation (Figure 1, Item 5) for missing or loose insulation retainers (Figure 1, Item 6) or weld pins broken (Figure 1, Item 7). Weld pins broken or missing, retainers missing, small cracks, dents and cuts in insulation or tape (Figure 1, Item 4) are not acceptable.

WARNING

Do not perform Step 5 with AGPU running. Do not attempt to touch the exhaust flapper if AGPU has been operated within 1 hour of cool down. Serious injury will occur from hot exhaust and parts.

5. Open exhaust flapper located on roof of AGPU. Using a flashlight, inspect the interior of the ejector assembly (top of flue) (Figure 6, Item 9) for damage, cracks and eroded housing. If defective parts are found replace exhaust system.
6. Inspect exhaust ejector assembly (Figure 2, Item 10) for security of installation.
7. Inspect exhaust plenum (Figure 2, Item 11) for cracks, missing tape, missing insulation or burned insulation. Replace exhaust (completely) as necessary.
8. Inspect frame and frame welds (Figure 6, Item 3), exhaust support struts (Figure 6, Item 4). Broken welds or support struts that are broken or cracked must be replaced.

NOTE

The drain tube cover may be fastened by rivets instead of screws and washers. If so do not remove drain tube.

9. Inspect security of the ring coupling clamp (c-clamp) (Figure 2, Item 5). If there is black soot by clamp try to tighten clamp to prevent exhaust leakage or replace c-clamp if needed.
10. Inspect exhaust ejector and exhaust plenum and mounting hardware studs (Figure 2, Item 9) for security.
11. Inspect drain tube exhaust ejector (Figure 3, Item 4) for security.
12. Inspect drain tube cover (Figure 3, Item 3) for security of all mounting hardware.

REMOVAL

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.
2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

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.

3. For the removal of the exhaust system, it is necessary to remove the roof (WP 0033 00).
4. Remove exhaust access panel (Figure 4, Item 3) by first removing the A/C cable from storage area.
5. Remove screws (Figure 4, Item 1) and washers (Figure 4, Item 2) from exhaust access cover (Figure 4, Item 3). Place exhaust access cover in a secure area.
6. Remove hydraulic module (WP 0124 00).
7. Loosen hose clamp (Figure 2, Item 1) and disconnect pneumatic hose (Figure 2, Item 2) from elbow (Figure 2, Item 3) from exhaust flue (top of ejector) (Figure 5, Item 9).

REMOVAL – CONTINUED

8. Remove nut (Figure 2, Item 4) and elbow (Figure 2, Item 3) from exhaust flue (top of ejector) (Figure 2, Item 3).

NOTE

The drain tube cover may be fastened by rivets instead of screws and washers. If so, do not remove drain tube cover.

9. 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).
10. Remove V-band clamp coupling (Figure 2, Item 5) from engine (GTE) output and slide V-band coupling clamp back toward exhaust plenum (Figure 2, Item 11). Discard V-band clamp, do not reuse clamp.
11. Remove the exhaust mounting hardware (Figure 2, Item 7, 8 and 12) fom mounting studs (Figure 2, Item 9). There should be 8 each 7/16” nuts (Figure 2, Item 7), 8 each star washers (Figure 2, Item 8) and 8 each flat body washers (Figure 2, Item 12), placed on AGPU floor above rubber insulator strip (Figure 2, Item 13).
12. Secure and cap high pressure and low pressure hydraulic lines (Figure 5, Item 1) to side frame (Figure 5, Item 12) of AGPU engine (GTE) compartment.
13. Cap hydraulic ports for high pressure and low pressure lines (Figure 5, Item 1) on hydraulic module (Figure 5, Item 10).
14. Disconnect the pump suction hydraulic quick disconnect (QD) located behind the filter access door at lower left base of hydraulic module and place (QD) out of the way of the hydraulic module and frame.
15. Remove electrical cannon plug P-14 (Figure 5, Item 3) from hydraulic module and secure to side of AGPU engine (GTE) compartment (Figure 5, Item 11).

CAUTION

Ensure that exhaust ejector clears AGPU frame (Figure 5, Item 12) and insulation (Figure 5, Item 14) when removing or installing. Insulation weld pins (Figure 1, Item 7) on exhaust ejector can shred engine (GTE) housing insulation.

16. Attach a rope or sling to lift points (Figure 5, Item 13). Remove exhaust plenum and ejector (flue) (Figure 1, Item 5 and 9) by carefully lifting exhaust assembly (Figure 1, Item 1) straight up and out of AGPU.

INSTALLATION

1. Attach a rope or sling to lift points (Figure 5, Item 13). Install exhaust plenum and ejector (flue) assemblies (Figure 1, Item 5 and 9) by carefully lowering exhaust plenum and exhaust ejector (flue) straight down into AGPU engine (GTE) compartment (Figure 5, Item 11) floor.
2. Align the exhaust plenum (Figure 2, Item 11) with the engine (GTE) exhaust output (Figure 2, Item 14) and install the exhaust ejector (flue) (Figure 2, Item 10). The exhaust assembly should be sitting on the floor of the AGPU engine compartment with the exhaust ejector (flue) frame aligned with eight studs (Figure 2, Item 9) that are mounted to the floor of the AGPU.
3. Install mounting hardware, that consists of 8 each 7/16 “ nuts (Figure 2, Item 7), 8 each star washers (Figure 2, Item 8) and 8 each flat body washers (Figure 2, Item 12) placed on AGPU floor above rubber insulator strip (Figure 2, Item 13) onto mounting stud (Figure 2, Item 9). Do not tighten nuts until new V-Band clamp coupling (Figure 2, Item 5) is mounted between the exhaust plenum (Figure 2, Item 11) and engine (GTE) output (Figure 2, Item 14). Tighten the V-band clamp as required and ensure there is no air gap between the plenum face and the engine (GTE) output flange. Safety wire V-band clamp with .020 safety wire.
4. Install and tighten drain tube to plenum (Figure 3, Item 4).
5. Install screws (Figure 3, Item 1) and washers (Figure 3, Item 2) and install drain tube cover (Figure 3, Item 3).

INSTALLATION – CONTINUED

NOTE

If exhaust plenum and exhaust ejector (flue) (Figure 2, Item 11 and 10) are not aligned in the following Step 6 properly this will cause over heating of the electrical component, gas turbine engine (GTE) and the hydraulic system.

6. Alignment of exhaust plenum (Figure 2, Item 11) and exhaust ejector (Figure 2, Item 10) must be performed prior to tighten mounting hardware in Step 3. The alignment of the plenum in the exhaust ejector is performed by moving the plenum side to side and forward and aft. This will allow equal spacing of the plenum and exhaust ejector opening to be equal when viewed from the top of the ejector to the plenum output.
7. Tighten mounting hardware, that consists of 8 each 7/16 " nuts (Figure 2, Item 7), 8 each star washers (Figure 2, Item 8) and 8 each flat body washers (Figure 2, Item 12), tighten as required after alignment of exhaust plenum and exhaust ejector (Figure 2, Item 9 and 10).
8. Install elbow (Figure 2, Item 3) and nut (Figure 2, Item 4) from pneumatic system to exhaust flue (Figure 2, Item 10). Tighten nut as required to prevent elbow from moving. Elbow input should be located downward or in the 6 o'clock position.
9. Connect pneumatic air hose (Figure 2, Item 2) to elbow (Figure 2, Item 3) at exhaust flue (top of flue) (Figure 2, Item 10) and tighten hose clamp (Figure 2, Item 1).
10. Install hydraulic module (WP 0124 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.

11. Install high pressure and low pressure hydraulic lines (Figure 5, Item 1) with new 37 degree flare seals to hydraulic module (Figure 5, Item 10).
12. Connect the pump suction hydraulic quick disconnect (QD) located behind the filter access door at lower left base of hydraulic module. Ensure QD snaps into place, securing the suction to the module.
13. Install electrical cannon plug P-14 (Figure 5, Item 3) to hydraulic module.
14. Inspect all components installed and verify their security.
15. Install exhaust access cover (Figure 4, Item 3) by installing screws (Figure 4, Item 1) and washers (Figure 4, Item 2). Tighten as required.
16. Install the A/C cable into storage area.

CAUTION

During installation of the roof, one person should be stationed at each corner of the roof to prevent warping or damage to the roof.

17. Install the roof (WP 0033 00) back onto AGPU.
18. Connect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), connect J-1 and P-1 connector on MEP 83-360E only.

INSTALLATION – CONTINUED

NOTE

After installing the exhaust system, the hydraulics module must be re-installed from where it was removed, this allowed the air to be in-duced into the hydraulic system. The air in the hydraulic system must be removed prior to putting hydraulic system back into operation, by performing a hydraulic purge operation (WP 0011 00).

19. Perform hydraulic purge operation (WP 0011 00).
20. Perform MOC and PMCS (WP 0028 00 and WP 0029 00). Check for exhaust and fluid leakage, no exhaust or fluid leakage is allowed.

END OF WORK PACKAGE

FIELD MAINTENANCE

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

EXHAUST EJECTOR AND PLENUM REPAIR

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

References

WP 0145 00

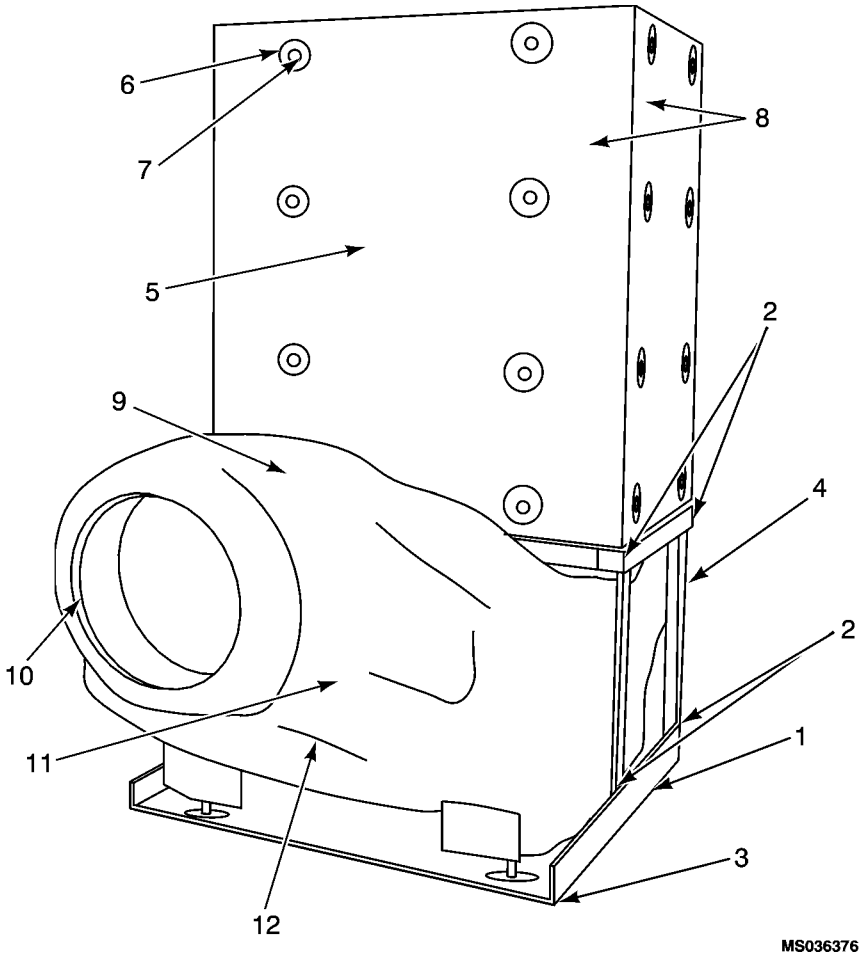
TEST AND INSPECTION

NOTE

Inspection of new exhaust frame assembly can be performed after the removal of the exhaust (WP 0145 00).

1. Inspect exhaust frame assembly (Figure 1, Item 1, 2, 3 and 4) for broken welds, supports and missing tape and/or insulation. Repair as needed.
2. Inspect ejector assembly for missing installation, weld pins and retainer washer (Figure 1, Item 6 through 8). Repair as needed.
3. Inspect exhaust plenum (Figure 1, Item 9 through 12) for dents, cracks, missing tape and/or missing insulation. Repair as needed.

TEST AND INSPECTION – CONTINUED



1. Mounts	5. Exhaust Ejector (Flue) Assembly	9. Plenum Assembly
2. Exhaust Frame	6. Retainer Washer	10. Plenum Inlet From GTE
3. Frame Welds	7. Weld Pin	11. Insulation Fiberglass
4. Support Struts	8. Insulation Dura Board	12 Tape

Figure 1. New Exhaust Frame Un-installed.

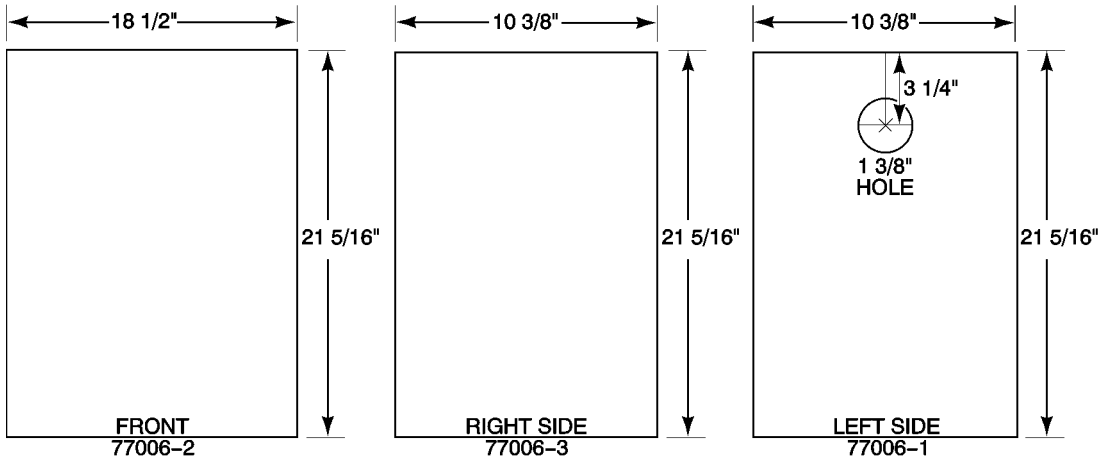
REPAIR OR REPLACEMENT

INSULATION FOR EXHAUST EJECTOR AND PLENUM (NEW TYPE EXHAUST ONLY)

1. Remove new type exhaust system from AGPU (WP 0145 00, REMOVAL, Steps 1 through 16).
2. Remove old insulation from all three sides of Exhaust Ejector by removing retainers (Figure 3), (Figure 4), and (Figure 5) and clean metal surface of exhaust ejector as needed.
3. To replace insulation board, cut new pieces from Dura Board insulation (part number 739741102, NSN 5640-01-441-0284) per dimensions listed in (Figure 2). Install per Figure 3, Figure 4, and Figure 5.
4. For plenum repair follow the steps outlined in Figure 3 through Figure 40.
5. Re-install the exhaust assembly back into AGPU after repair refer to (WP 0145 00).

REPAIR OR REPLACEMENT – CONTINUED

INSULATION FOR EXHAUST EJECTOR AND PLENUM (NEW TYPE EXHAUST ONLY) – CONTINUED



PN 739741102 DURA BOARD INSULATION
NSN 5640–01–441–0284

MS037778

Figure 2. Dura Board Insulation.

REPAIR OR REPLACEMENT – CONTINUED

INSULATION FOR EXHAUST EJECTOR AND PLENUM (NEW TYPE EXHAUST ONLY) – CONTINUED

Figure 3. Front.

REPAIR OR REPLACEMENT – CONTINUED

INSULATION FOR EXHAUST EJECTOR AND PLENUM (NEW TYPE EXHAUST ONLY) – CONTINUED

Figure 4. Left Side.

REPAIR OR REPLACEMENT – CONTINUED

INSULATION FOR EXHAUST EJECTOR AND PLENUM (NEW TYPE EXHAUST ONLY) – CONTINUED

Figure 5. Back.

REPAIR OR REPLACEMENT

PLENUM INSULATION WRAPPING INSTRUCTIONS

Figure 6. Plenum Insulation Wrapping Instructions.

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

1. Snap-Blade Utility Knife
2. Tape Measure
3. Black Marker Indelible
4. Pressure Sensitive Adhesive
5. Pressure Sensitive Adhesive
6. Glass Cleaner
7. Paper Towels

Figure 7. 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.

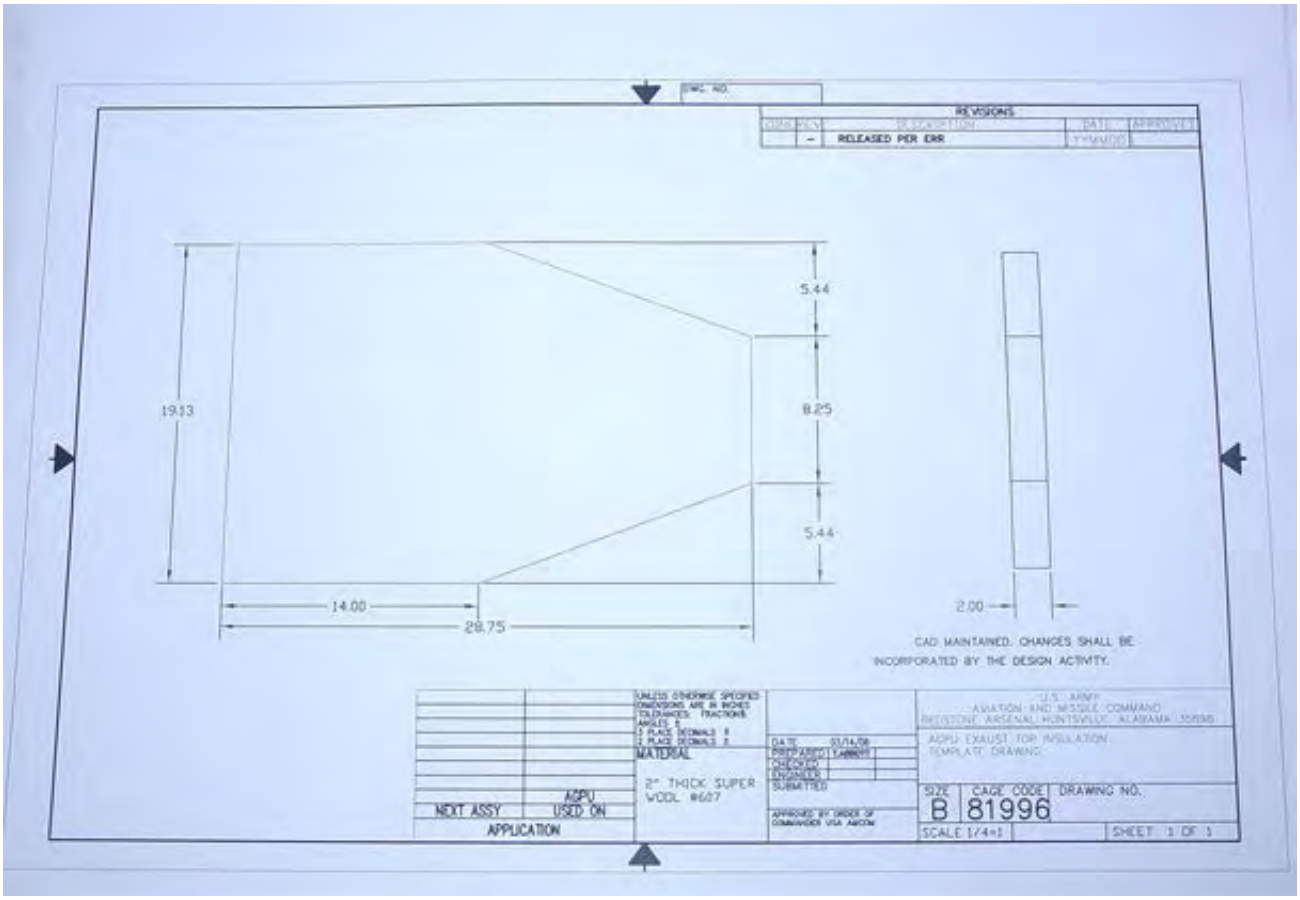


Figure 8. Template Drawing for Top Insulation .

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

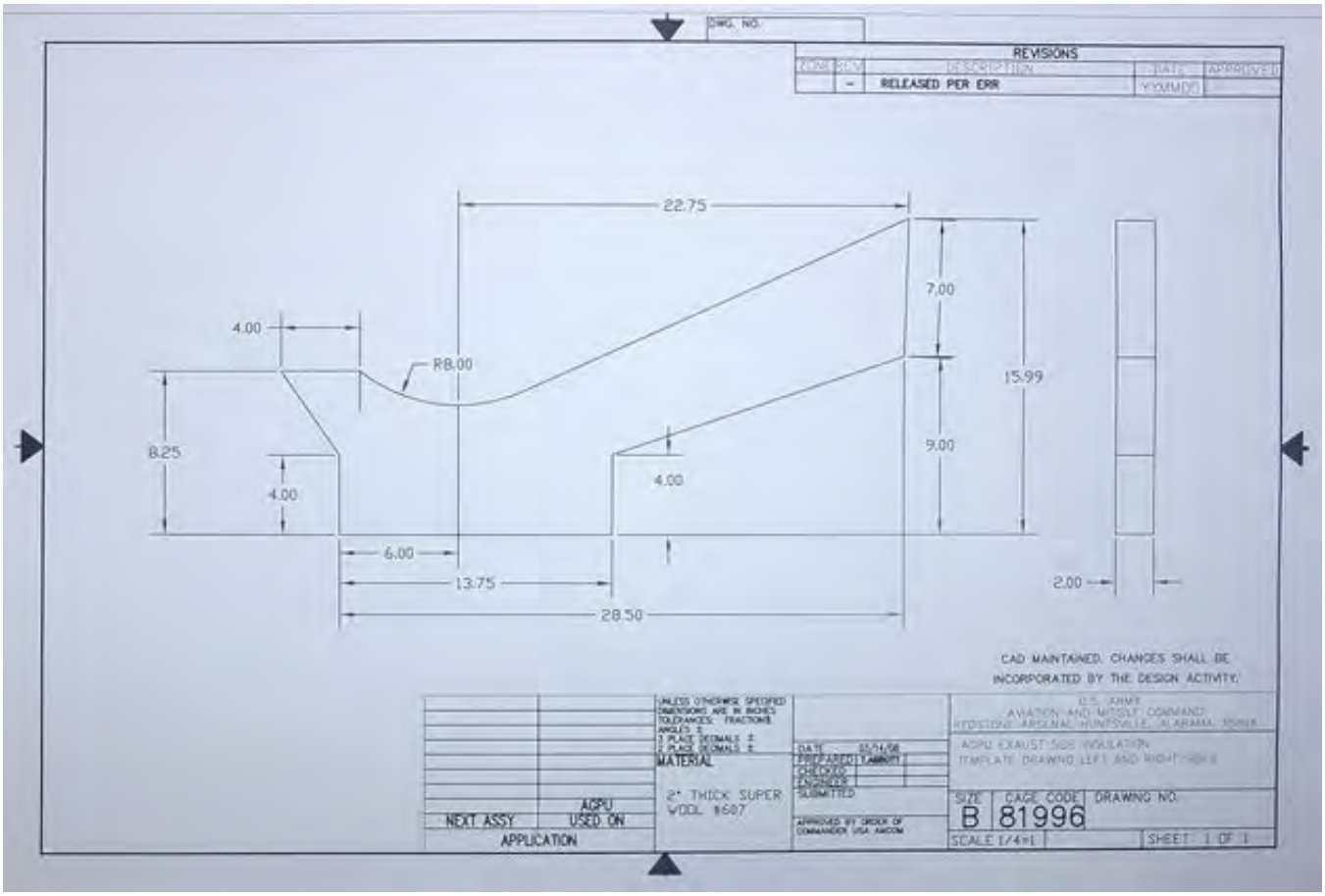


Figure 9. Template Drawing for Left and Right Side Insulation. .

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

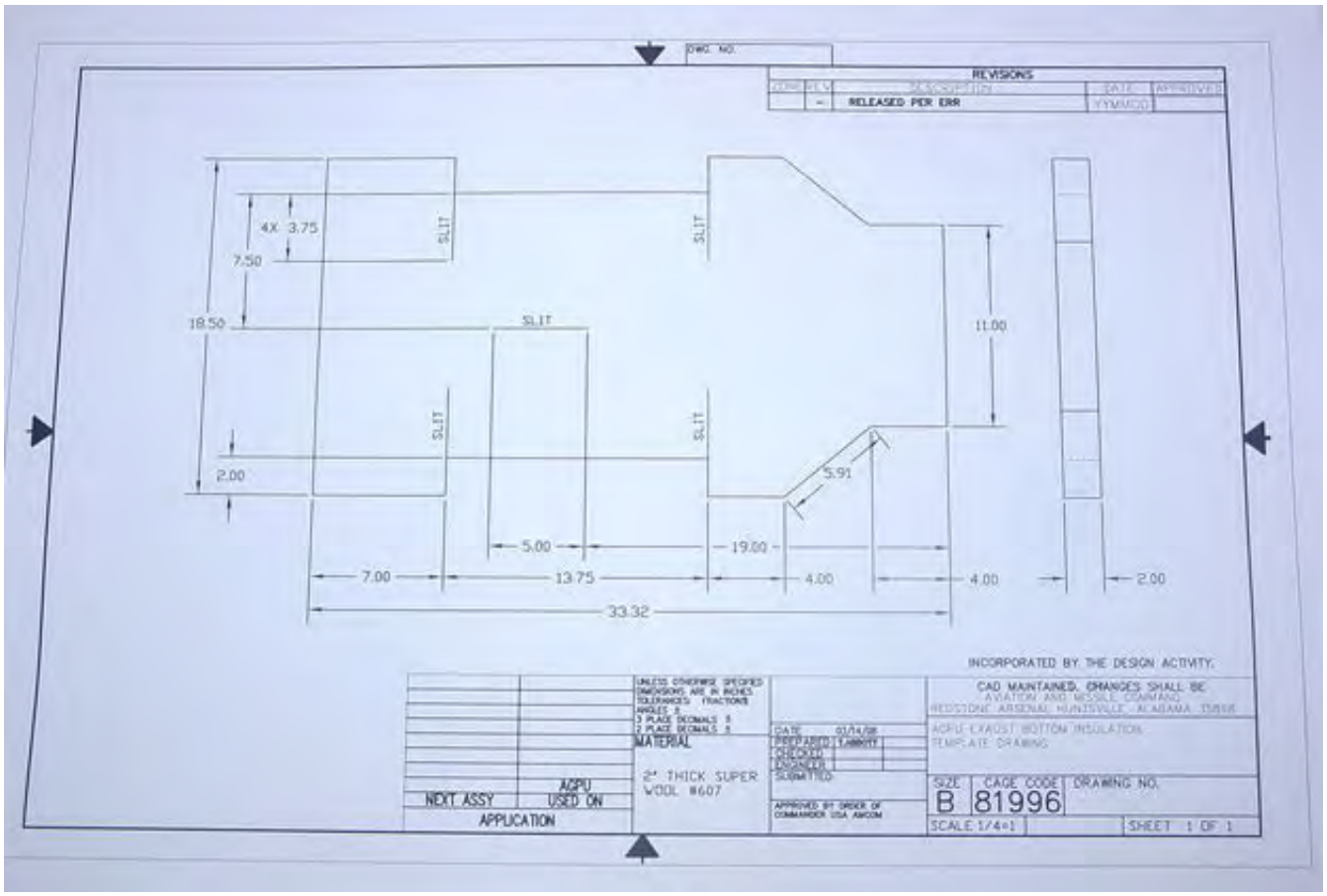


Figure 10. Template Drawing for Bottom Insulation.

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 11. Plenum Template (Sheet 1 of 3).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 11. Plenum Template (Sheet 2 of 3).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 11. Plenum Template (Sheet 3 of 3).

After creating a template from the schematics (Figure 8 through Figure 10) provided , cut the insulation (2” thick super wool, #607) to the template size.

Remember you will need to cut two pieces of insulation for the left and right sides.

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

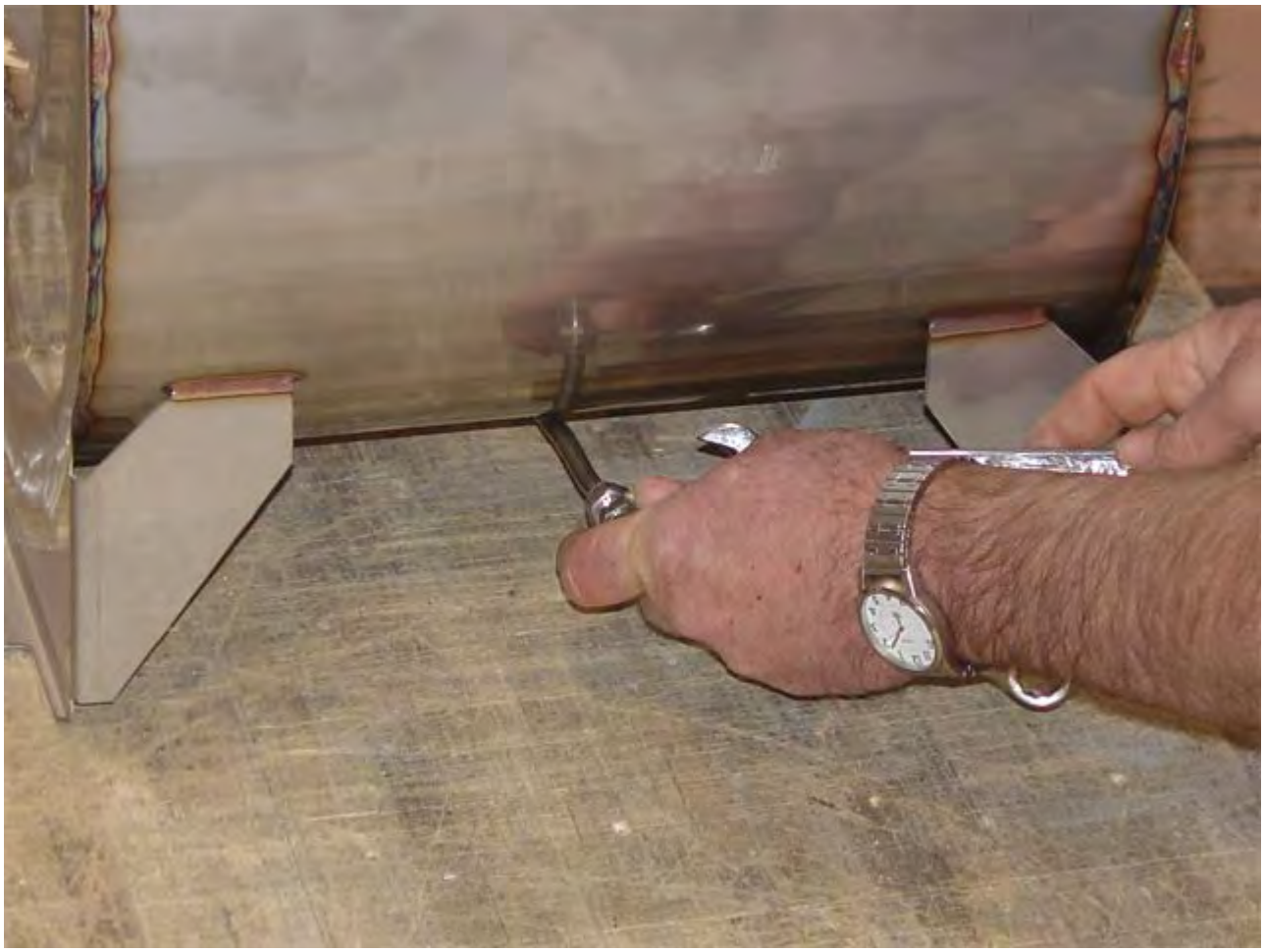


Figure 12. Moisture Ejector Drain Tube.

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 13. Measuring the Plenum.

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 1/2" down from the opening, this will give you a good reference guide for later.

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 14. Exhaust Measurements.

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 safe-guard for future use.

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 15. Measuring Tape (Sheet 1 of 2).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 15. Measuring Tape (Sheet 2 of 2).

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 16. Inlet Taping.

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 17. Insulation (Sheet 1 of 2).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 17. Insulation (Sheet 2 of 2).

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 18. Wrapping of the Plenum.

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 19. Taping of the Plenum (Bottom).

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 20. Preparing Insulation for Taping (Sheet 1 of 2).

Figure 20. Preparing Insulation for Taping (Sheet 2 of 2).

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 21. Placing Insulation on Bottom of the Plenum.

The sides now have the base taped up and installed. The next step is to put the insulation on the bottom of the plenum.

Figure 22. Placing Insulation on the Bottom of the Plenum Showing the Extension Tube.

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.

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 23. Trimming Insulation on the Plenum (Sheet 1 of 2).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 23. Trimming Insulation on the Plenum (Sheet 2 of 2).

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 24. Taping Down the Insulation (Sheet 1 of 2).

Figure 24. Taping Down the Insulation (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 25. Taping Down the Insulation Around the Extension Tube (Sheet 1 of 3).

Figure 25. Taping Down the Insulation Around the Extension Tube (Sheet 2 of 3).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 25. Taping Down the Insulation Around the Extension Tube (Sheet 3 of 3).

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.

Figure 26. Trimming Insulation from Plenum (Sheet 1 of 2).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 26. Trimming Insulation from Plenum (Sheet 2 of 2).

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.

Figure 27. Trimming Insulation Around the Inlet (Sheet 1 of 2).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 27. Trimming Insulation Around the Inlet (Sheet 2 of 2).

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.

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 28. Inlet Tape Cut into Small Slices (Sheet 1 of 2).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 28. Inlet Tape Cut into Small Slices (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 29. Insulating the Top Snug (Sheet 1 of 2).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 29. Insulating the Top Snug (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 30. Snugging Insulation into the Bend (Sheet 1 of 2).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 30. Snugging Insulation into the Bend (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 31. Taping Bend to Keep it in Place (Sheet 1 of 2).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

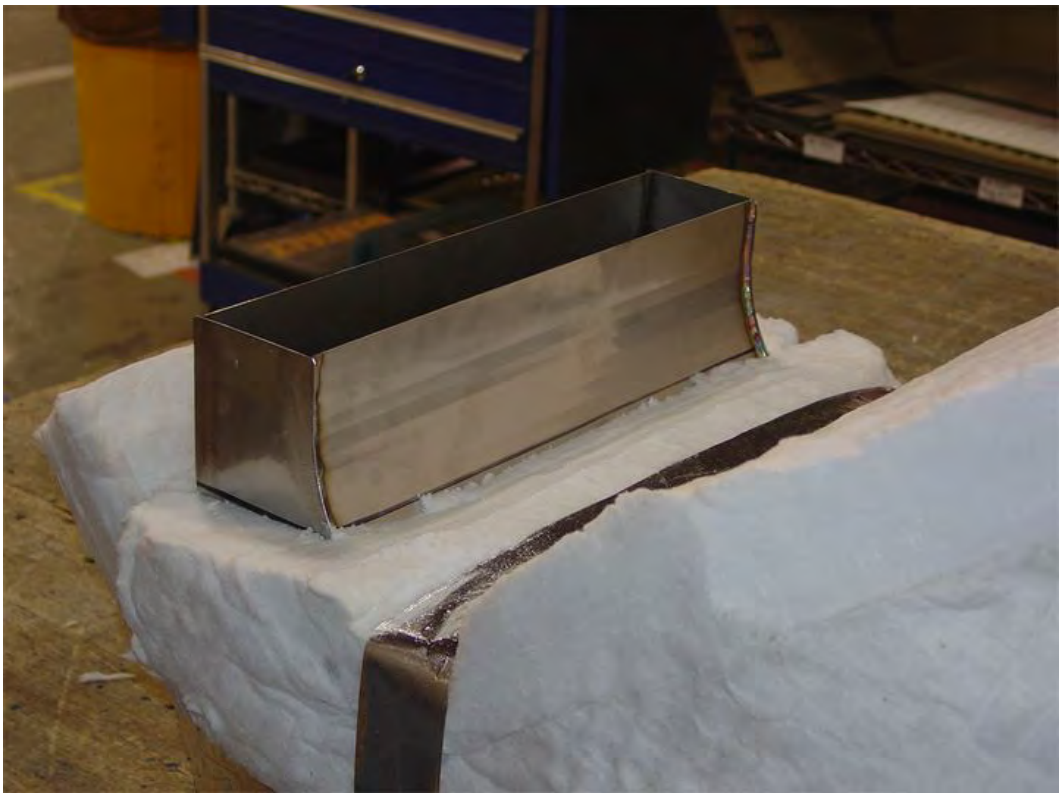


Figure 31. Taping Bend to Keep it in Place (Sheet 2 of 2).

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 32. Attaching Top Piece of Insulation to the Rest of the Insulation (Sheet 1 of 2).

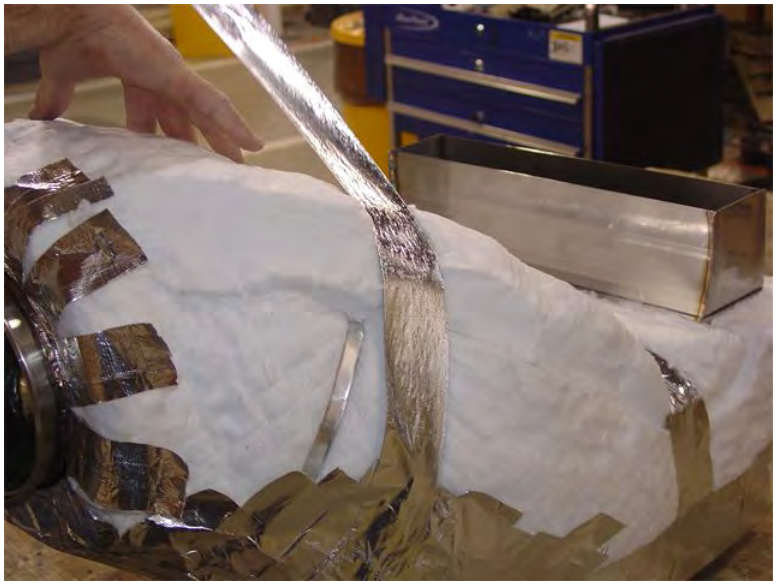


Figure 32. Attaching Top Piece of Insulation to the Rest of the Insulation (Sheet 2 of 2).

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 33. Taping the Top of the Unit (Sheet 1 of 2).

Figure 33. Taping the Top of the Unit (Sheet 2 of 2).

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.

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

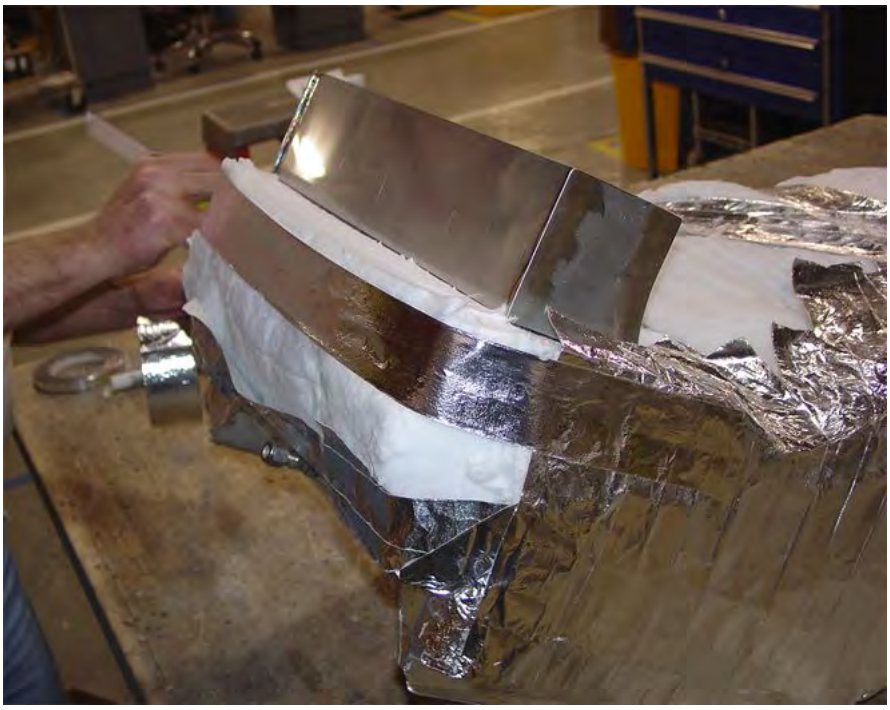


Figure 34. Final Taping of the Plenum (Sheet 1 of 2).

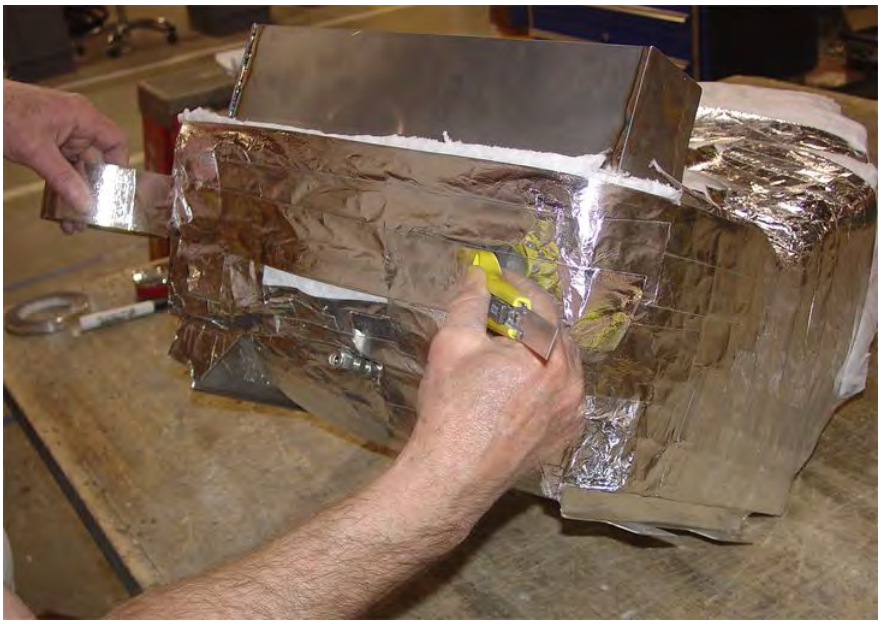


Figure 34. Final Taping of the Plenum (Sheet 2 of 2).

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 35. Building the Nonstick Side Around the Plenum Outlet.

The plenum insulation on the top is in its final taping stages but you must build the non stick sides around the plenum outlet.

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 36. Folding of Tape to Form the Two Sided Tape (Sheet 1 of 4).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 36. Folding of Tape to Form the Two Sided Tape (Sheet 2 of 4).

Figure 36. Folding of Tape to Form the Two Sided Tape (Sheet 3 of 4).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 36. Folding of Tape to Form the Two Sided Tape (Sheet 4 of 4).

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 37. Utilizing the Folded Pieces of Tape.

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 38. Taping the Top Portion of the Plenum.

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.

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 39. View of Finished Product. (Sheet 1 of 3).

Figure 39. View of Finished Product. (Sheet 2 of 3).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 39. View of Finished Product. (Sheet 3 of 3).

Figure 40. Bottom and Top View of Completed Insulation Wrap (Sheet 1 of 2).

REPAIR OR REPLACEMENT – CONTINUED

PLENUM INSULATION WRAPPING INSTRUCTIONS – CONTINUED

Figure 40. Bottom and Top View of Completed Insulation Wrap (Sheet 2 of 2).

Bottom and Top view of completed insulation wrap. Note: the overlap procedure of the taping process.

INSTALLATION

Refer to WP 0145 00 for installation procedures.

END OF WORK PACKAGE

FIELD MAINTENANCE

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/HYDRAULIC PUMP

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

Materials/Parts

Wire, Nonelectrical (WP 0154 00, Item 60)
Adhesive, Pressure Sensitive (WP 0154 00, Item 64)

References

WP 0002 00
WP 0008 00
WP 0011 00
WP 0027 00
WP 0029 00
WP 0032 00

References (cont.)

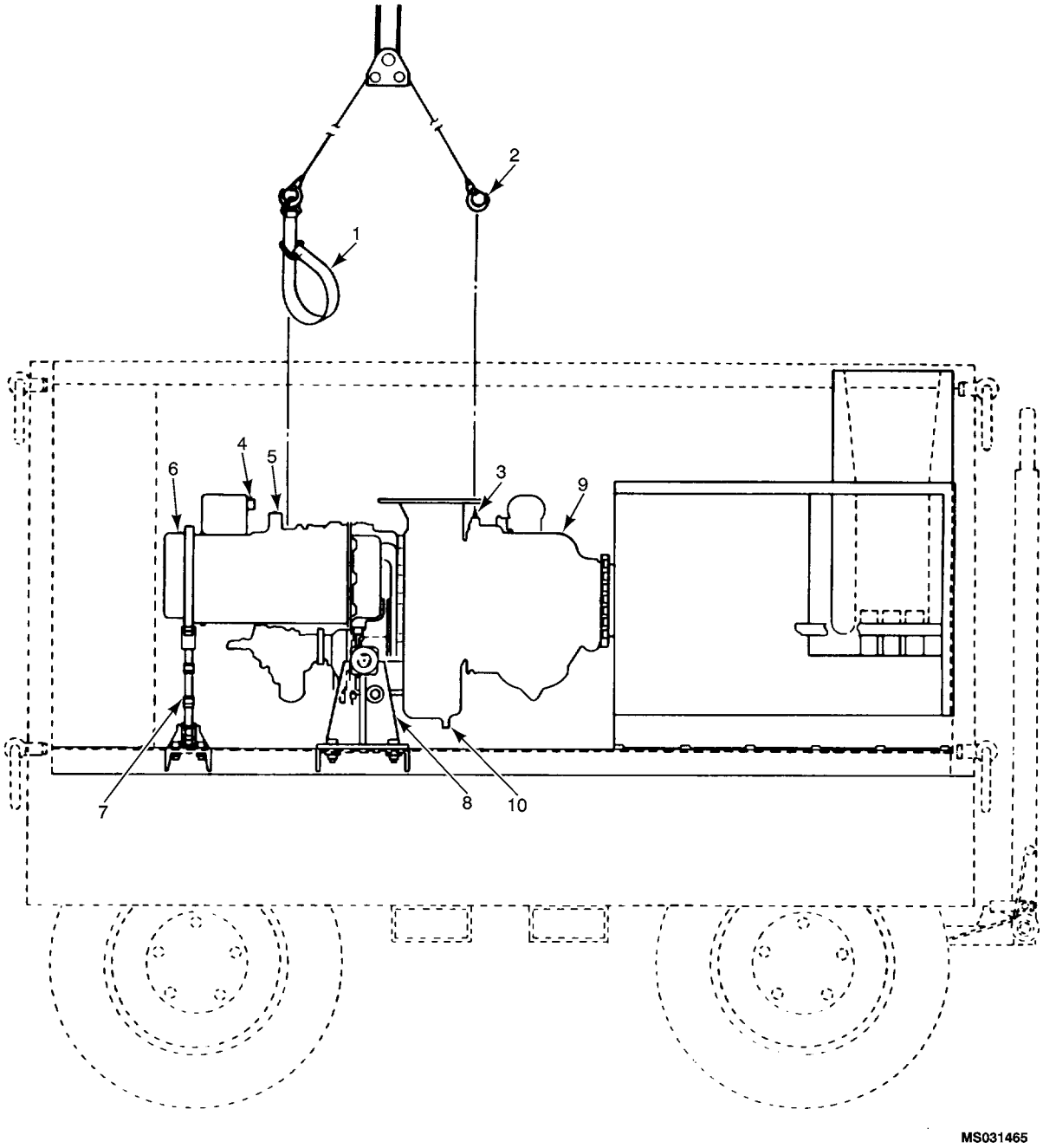
WP 0033 00
WP 0034 00
WP 0041 00
WP 0043 00
WP 0044 00
WP 0057 00
WP 0079 00
WP 0091 00
WP 0115 00
WP 0124 00
WP 0125 00
WP 0144 00
WP 0145 00
WP 0148 00

In this Work Package Figure 1 shows an outline view of the engine and generator (alternator) from the right side of the AGPU as facing the control panel. 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 motor mounts can be loosened to allow the engine to move forward enough (towards tow bar end) to allow the alternator to be removed. However, it is required for the hydraulic module to be removed (WP 0124 00) and the exhaust assembly to be removed (WP 0144 00 and WP 0145 00) during this process.

The engine is supported at two points by right and left engine mounts (Figure 1, Item 8). The generator (alternator) 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 (Figure 1). Care must be taken when removing the engine/generator (alternator), since the lifting cable on the engine is forward (center) of the combined engine/generator (alternator) center of gravity. When lifting with a hoist, the rear of the generator must be supported since the generator will tip down causing the engine assembly to be unstable.

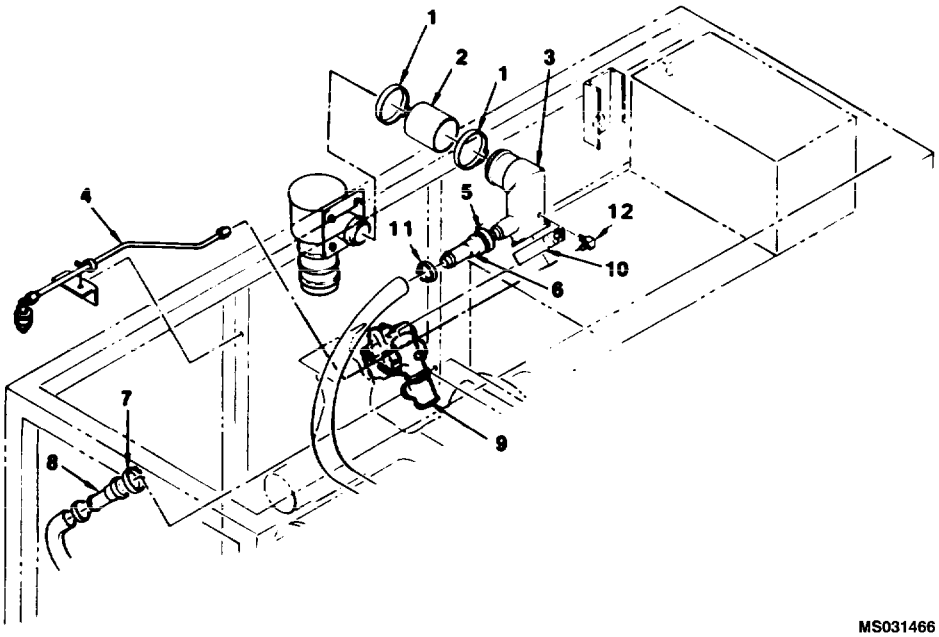
TEST AND INSPECTION



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).

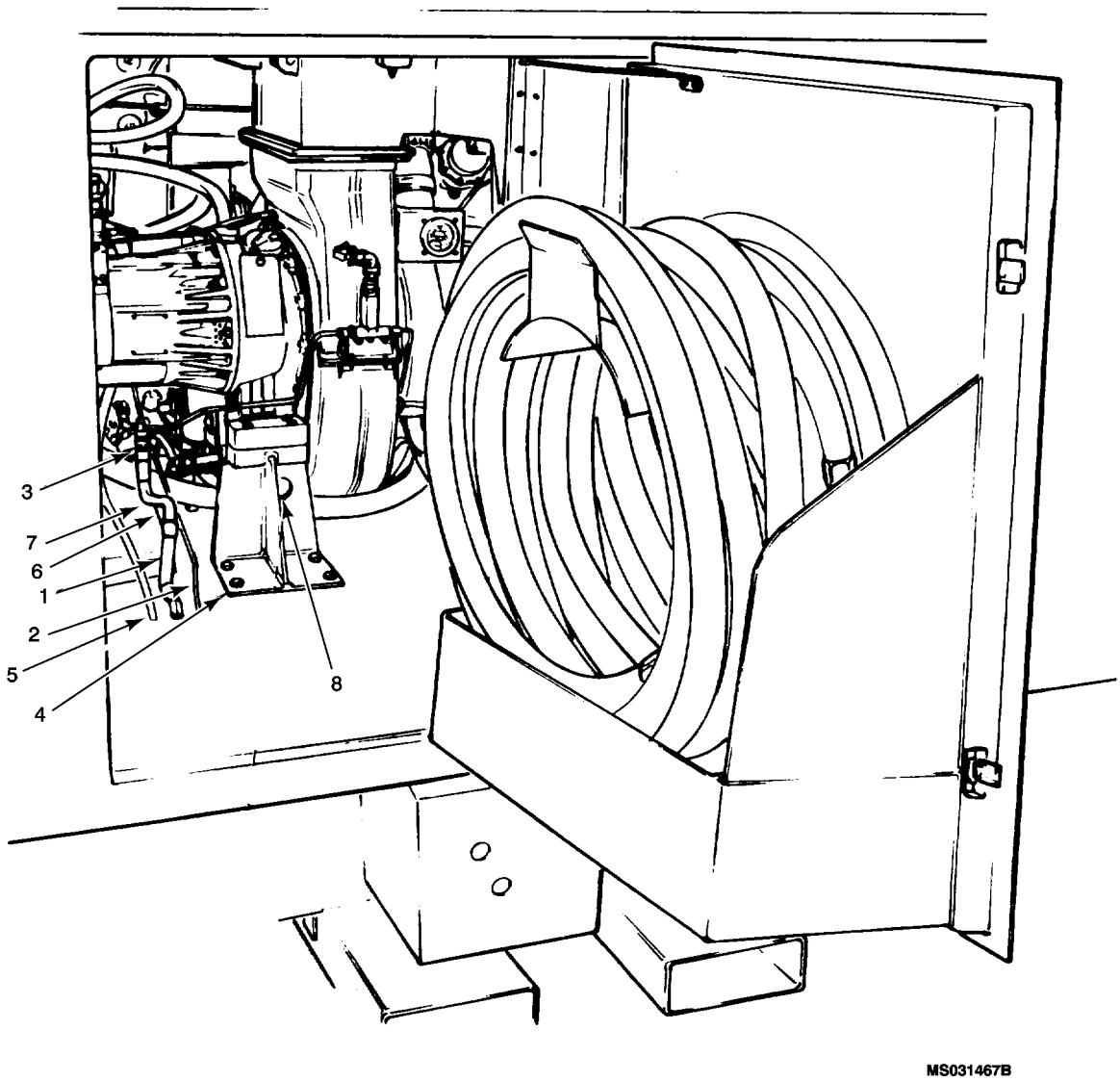
TEST AND INSPECTION – CONTINUED



1. Clamp	5. Marmon Clamp	9. LCV Adapter
2. Hose	6. Adapter	10. Marmon Clamp
3. Manifold, LCV Adapter	7. Marmon Clamp	11. Clamp
4. Tube Assembly	8. Adapter	12. Elbow

Figure 2. Pneumatic Hoses/Lines Removal/Installation.

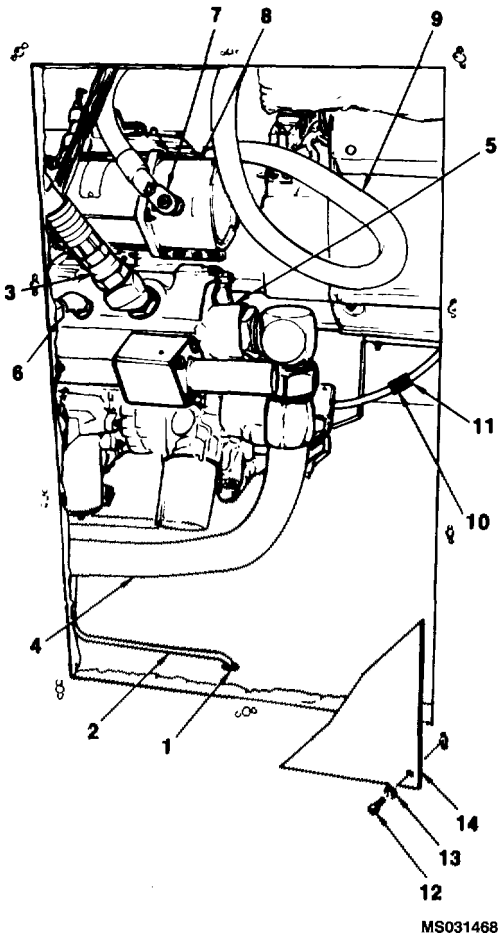
TEST AND INSPECTION – CONTINUED



1. Fuel Hose (FCU)
2. Turbin Housing Drain Tube
3. Nipple
4. Right Engine Mount
5. FCU Drain Tube
6. Gear Case Drain Tube
7. Fuel Extension Tube
8. Oil Drain Extension Tube

Figure 3. Fuel Line and Extension Tube Removal/Installation.

TEST AND INSPECTION – CONTINUED



1. Grommet	6. Flex Hose, Case Drain (AN-6)	11. Connector, Wiring Harness
2. Drain Tube, Hydraulic	7. Starter Positive (+) Cable	12. Screw
3. Flex Hose, Pressure (AN-12)	8. Starter Assembly	13. Washer
4. Flex Hose, Suction (AN-20)	9. Starter Ground (-) Cable	14. Access Cover, Hydraulic
5. Hydraulic Pump	10. Connector, Hydraulic Pump Electrical (P-16)	

Figure 4. Hydraulic Pump and Engine Access.

1. Operate AGPU per (WP 0008 00) if abnormal noises or low power during operation of any power output this is a good indication that a problem has developed with the GTE, pneumatic air, hydraulic pump or AC/DC operations.
2. During Testing of engine (GTE) if it is determined to remove the engine (GTE) refer to the following steps for removal and installation.

REMOVAL

NOTE

The hydraulic pump may be removed attached to engine or it may be removed as a unit without removal of engine.

1. Ensure parking brake is set and wheels are chocked with AGPU on level ground.

REMOVAL – CONTINUED

2. Disconnect battery (WP 0044 00, MEP 83-360A/D) and (WP 0043 00, MEP 83-360E), disconnect J-1 and P-1 connector on MEP 83-360E only.

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.

3. Remove the roof (WP 0033 00) from the AGPU.
4. Remove hydraulic module (WP 0124 00).
5. Remove the exhaust ejector assembly (WP 0144 00 and WP 0145 00).
6. Remove the exhaust access cover (WP 0032 00, Figure 2, Item 12).
7. Remove the hydraulic pump access cover (WP 0032 00, Figure 2, Item 15).
8. Remove the engine access cover (WP 0032 00, Figure 2, Item 12).
9. Open and secure engine access door (WP 0002 00, Figure 13, Item 1).
10. Rotate fuel four way valve to the OFF position (WP 0091 00, Figure 1, Item 1).
11. Open control panel access door (WP 0002 00, Figure 9, Item 3).
12. Remove control panel (WP 0041 00, Figure 1, Item 4).
13. Disconnect the ECU P–2 connector (WP 0057 00, Figure 1, Item 5) (engine harness) and route from electrical bay to engine compartment and secure to engine for removal with engine.
14. Remove inner air intake duct (WP 0115 00). Cover engine air intake with paper and tape.
15. Disconnect pneumatic hoses/fittings (Figure 2) as follows:
    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 (Figure 2, Item 9).
    c. Loosen marmon clamp (Figure 2, Item 5) and disconnect LCV adapter (Figure 2, Item 6) with hose attached from fitting on LCV manifold (Figure 2, Item 3).
    d. Remove cannon plug (P-5) from LCV (Figure 2, Item 9).
    e. Loosen marmon clamp (Figure 2, Item 7) and disconnect LCV adapter (Figure 2, Item 8) with hose attached from LCV adapter (Figure 2, Item 9).

NOTE

The manifold (Figure 2, Item 3) must be removed from the load control valve (LCV) prior to lifting and removing engine. If manifold is not removed it can be caught and broken during engine removal.

    f. 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).
    g. Cover LCV port on GTE and cover all openings on LCV with tape.
    h. Remove P-16 cannon plug from hydraulic pump (Figure 4, Item 5).
16. Disconnect gearcase drain tubes (Figure 1 and Figure 3) as follows:
    a. Disconnect turbine housing drain tube (Figure 3, Item 2) and remove tube from AGPU floor grommet.
    b. Disconnect combustor cap drain tube (Figure 1, Item 10) and remove tube from AGPU floor grommet.

REMOVAL – CONTINUED

c. Disconnect fuel control unit (FCU) drain tube (Figure 3, Item 5) and nipple (Figure 3, Item 3) and remove tube from AGPU floor grommet.

d. Disconnect gearcase drain tube (Figure 3, Item 6) and remove tube from AGPU floor grommet.

17. Disconnect fuel hose and fuel extension tube (Figure 3, Item 7). 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 and fuel leakage.

18. Disconnect hydraulic pump hoses and lines (Figure 4) as follows:

a. If not already performed, remove hydraulic access cover (Figure 4, Item 14) by removing ten screws (Figure 4, Item 12) and washers (Figure 4, Item 13).

NOTE

Step 18b is only required if engine is to be exchanged.

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 and oil leakage.

c. Disconnect drain tube (Figure 4, Item 2) from elbow on hydraulic pump.

d. Disconnect wiring harness connector (P-16) (Figure 4, Item 11) from hydraulic pump electrical connector (Figure 4, Item 10).

19. If not already performed, 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.

20. If not already performed, disconnect engine electrical connector from ECU as follows:

a. Disconnect engine electrical connector P-2 (Figure 5, Item 1) from ECU connector J-2 (Figure 5, Item 2).

b. Free engine wiring harness (Figure 5, Item 3) between ECU (Figure 5, Item 2) and electrical 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 for re-installation.

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 bulkhead hole.

c. Carefully pull engine wiring harness (Figure 5, Item 3) and connector P-2 (Figure 5, Item 1) through bulkhead hole (Figure 5, Item 4).

d. Free engine wiring harness (Figure 5, Item 3) between electrical 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.

21. Disconnect generator/alternator electrical connections as follows:

REMOVAL – CONTINUED

NOTE

In the following steps all wires and connections removed must be tagged with their locations and wire numbers for re-installation.

a. Disconnect generator/alternator wiring harness (Figure 6, Item 2) and cannon plug connector (P-13) (Figure 6, Item 1) from generator connector (Figure 6, Item 3).

NOTE

For MEP 83-360D/E model AGPUs, Steps 21b through 21d are not required to be removed. The D/E model AGPUs have an alternator and not a generator. These terminals in Steps 21b through 21d have been omitted.

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), lock washer (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), lock washer (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 lock washer (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), lock washers (Figure 6, Item 21) and flat washers (Figure 6, Item 22). Leave jumper (Figure 6, Item 19) on terminal block.

22. Tag and disconnect starter ground cable (Figure 4, Item 9) and starter positive (+) cable (Figure 4, Item 7). Tie off both negative and positive cables to the AGPU engine compartment frame. This will allow the cables to be secure during engine removal.

NOTE

Record all lockwiring methods for later installation.

NOTE

Do not remove engine mounts both left and right (Figure 7, Item 18 and 19) from AGPU engine while engine is still installed in AGPU. Engine mounts will be used as an engine stand once engine is removed from AGPU frame.

23. Remove engine (GTE).

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/alternator.

REMOVAL – CONTINUED

NOTE

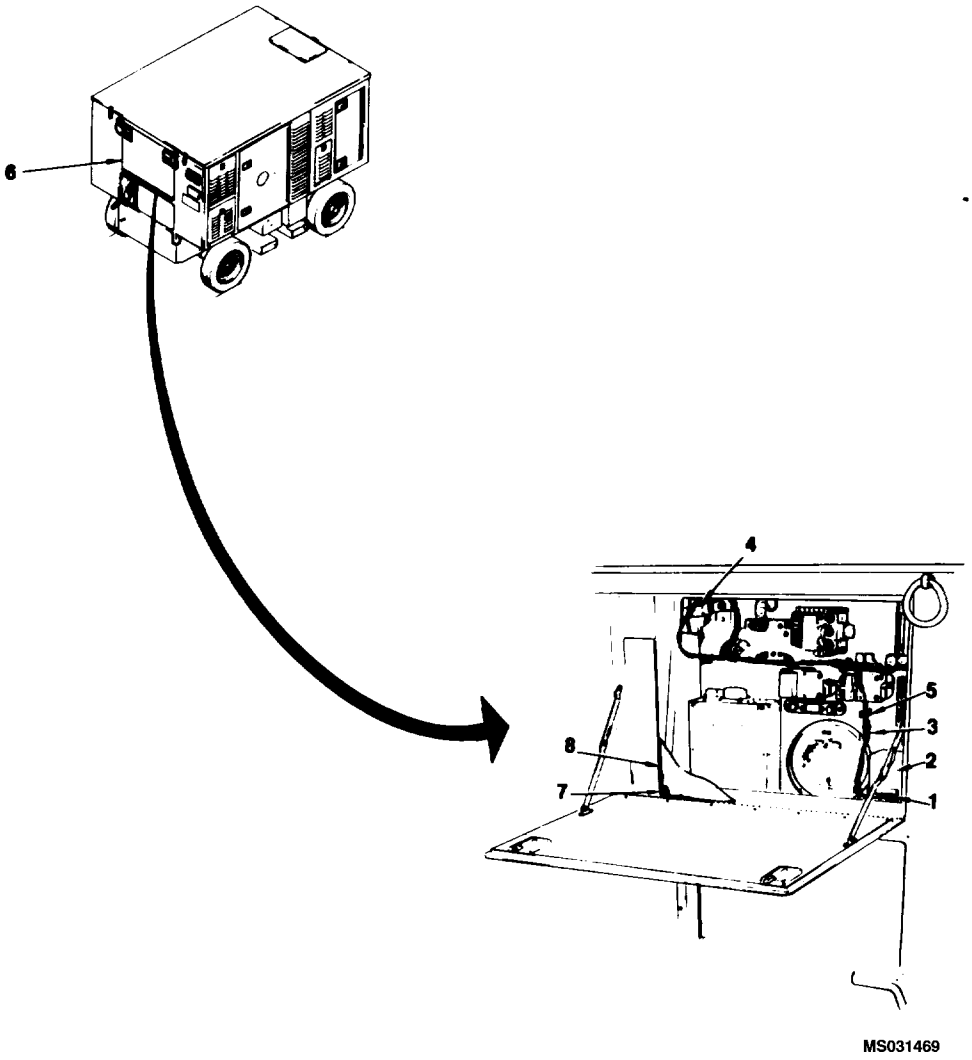
Re-check that all lines both fuel and hydraulic, wiring harnesses and connectors are tagged with their respective locations prior to final removal of engine.

b. Check that all lines, hoses and cables have been disconnected from engine/generator/alternator/hydraulic pump and that they are not in the way of engine removal. Tie back lines, hoses and cables as required for removal.

c. Remove eight bolts (Figure 8, Item 1) and eight washers (Figure 8, Item 2) from both left and right engine mounts (base) (Figure 8, Item 3 and 4).

d. Remove four bolts (Figure 8, Item 1) and four washers (Figure 8, Item 2) from generator support (base) (Figure 8, Item 5).

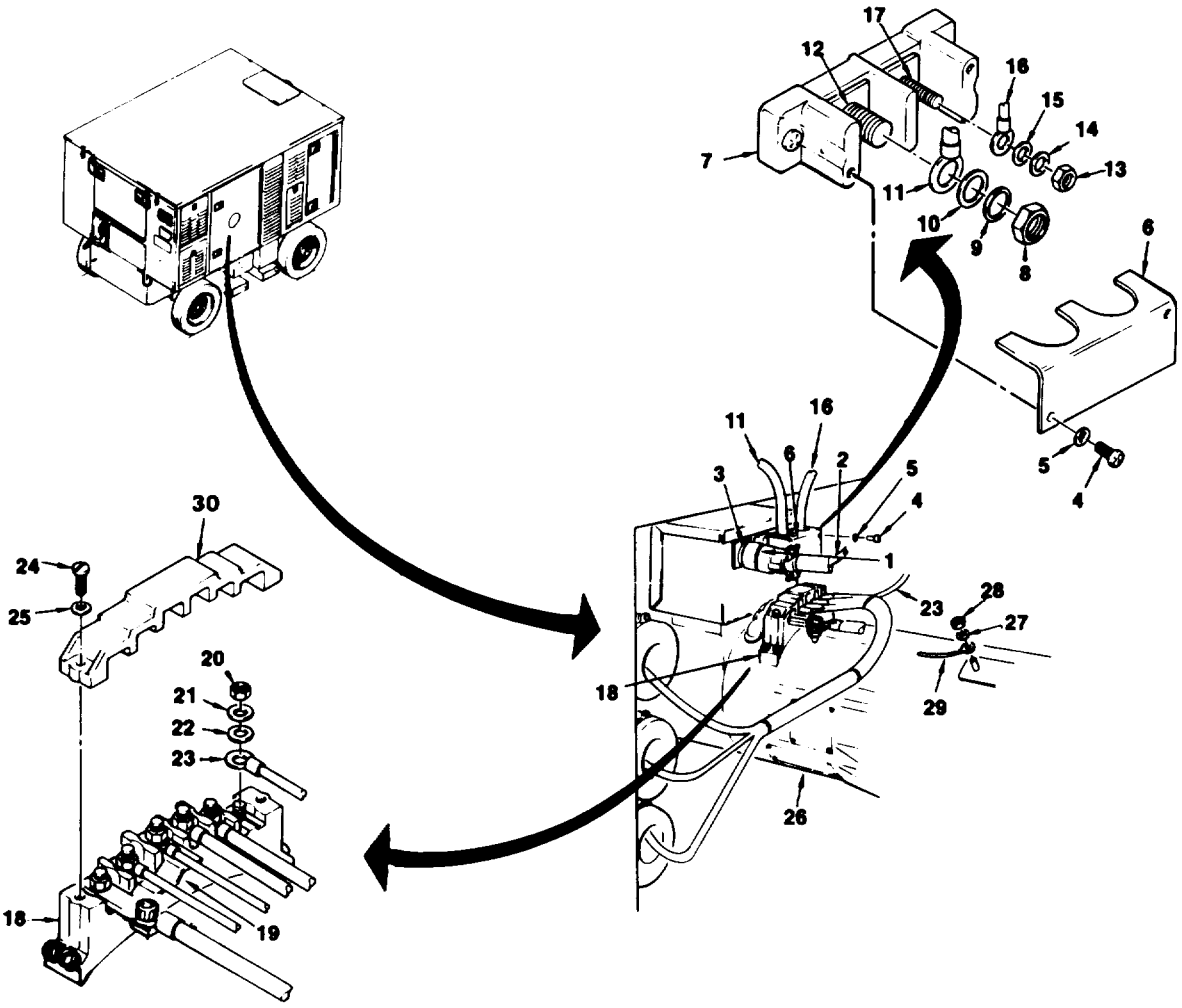
REMOVAL – CONTINUED



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.

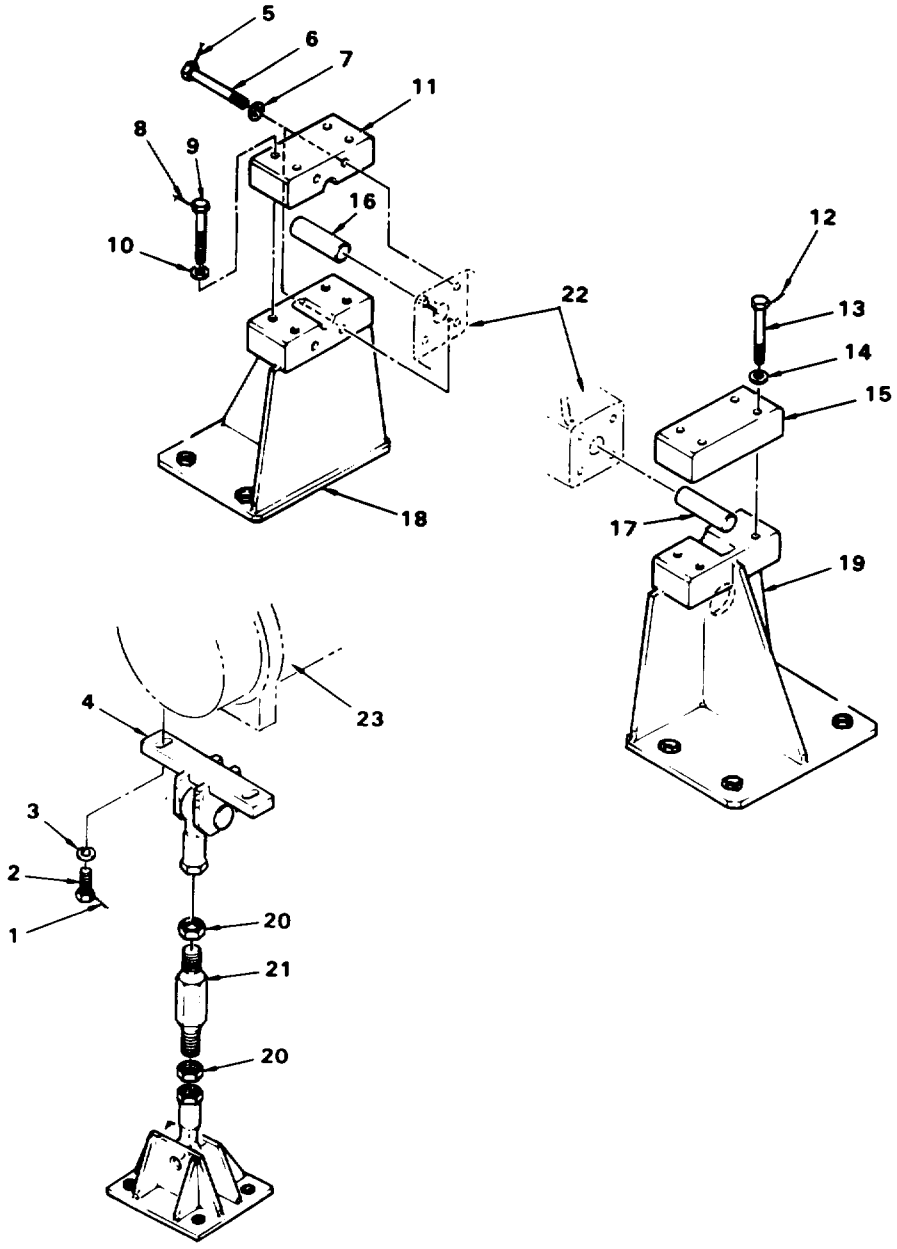
REMOVAL – CONTINUED



1. Connector, Generator	9. Washer, Lock	17. Terminal Stud (-)	25. Washer
2. Wiring Harness	10. Washer, Flat	18. Terminal Block, AC	26. Generator
3. Connector, Generator (P-13)	11. Cable, DC (+)	19. Jumper	27. Washer, Lock
4. Screw	12. Terminal Stud (+)	20. Nut	28. Nut
5. Washer	13. Nut	21. Washer, Lock	29. Ground Wire and Lug
6. Cover	14. Washer, Lock	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.

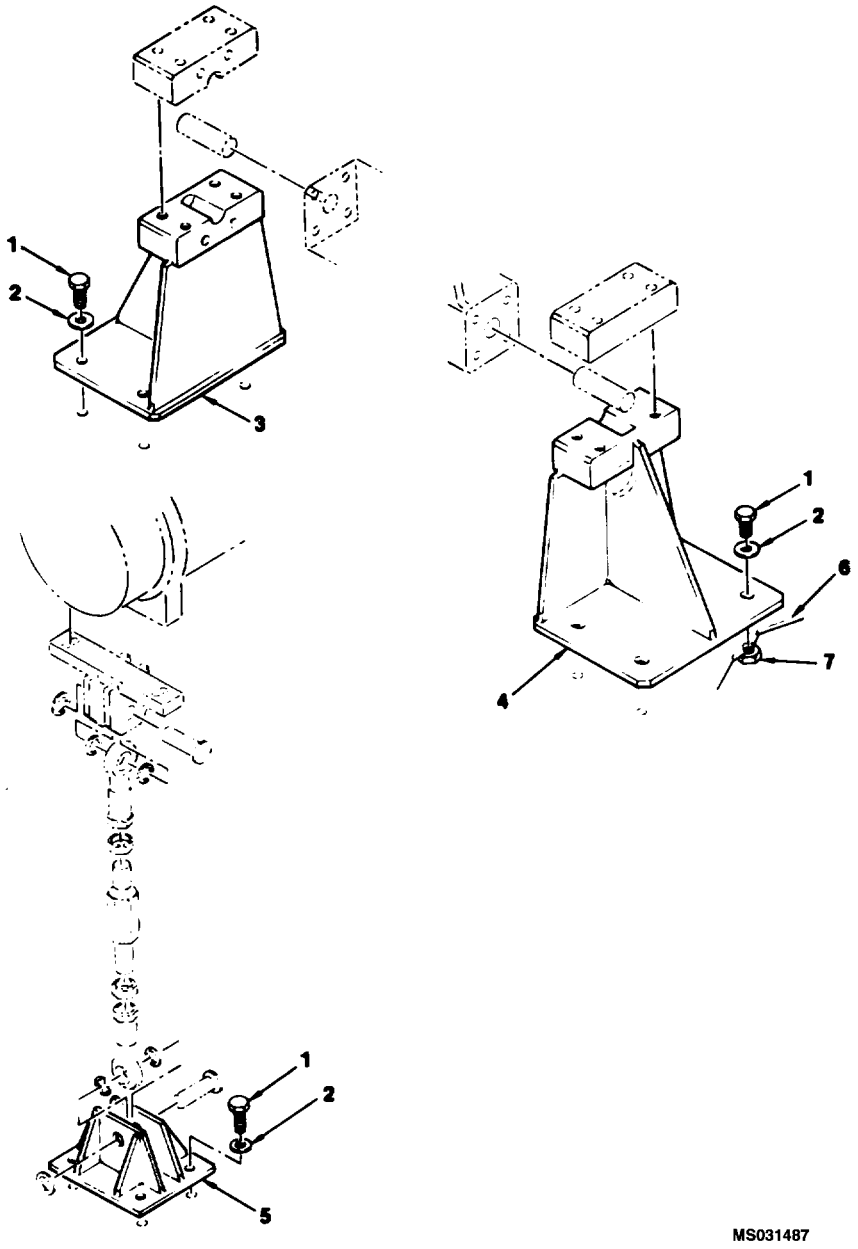
REMOVAL – CONTINUED



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.

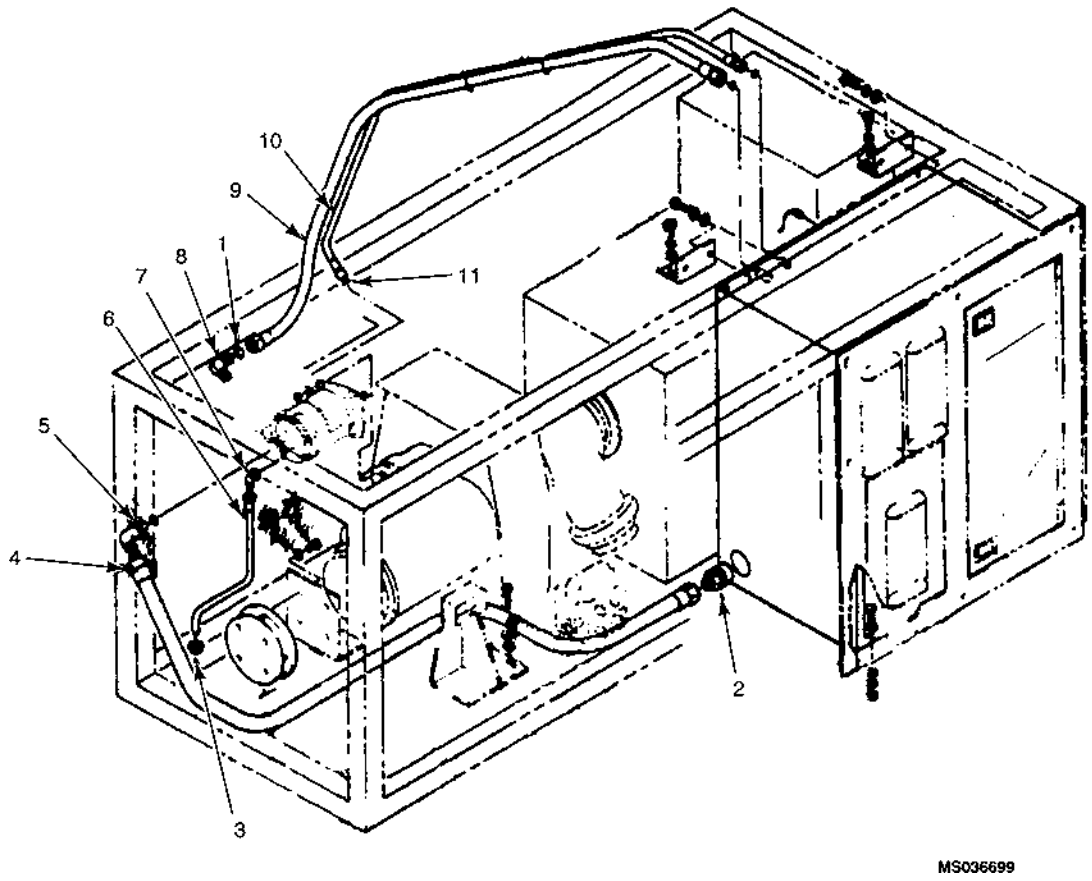
REMOVAL – CONTINUED



1. Bolt
2. Washer
3. Engine Mount, Left
4. Engine Mount, Right
5. Generator Support
6. Floor (Cutaway)
7. Welded Nut

Figure 8. Engine/Generator Mounts and Hardware.

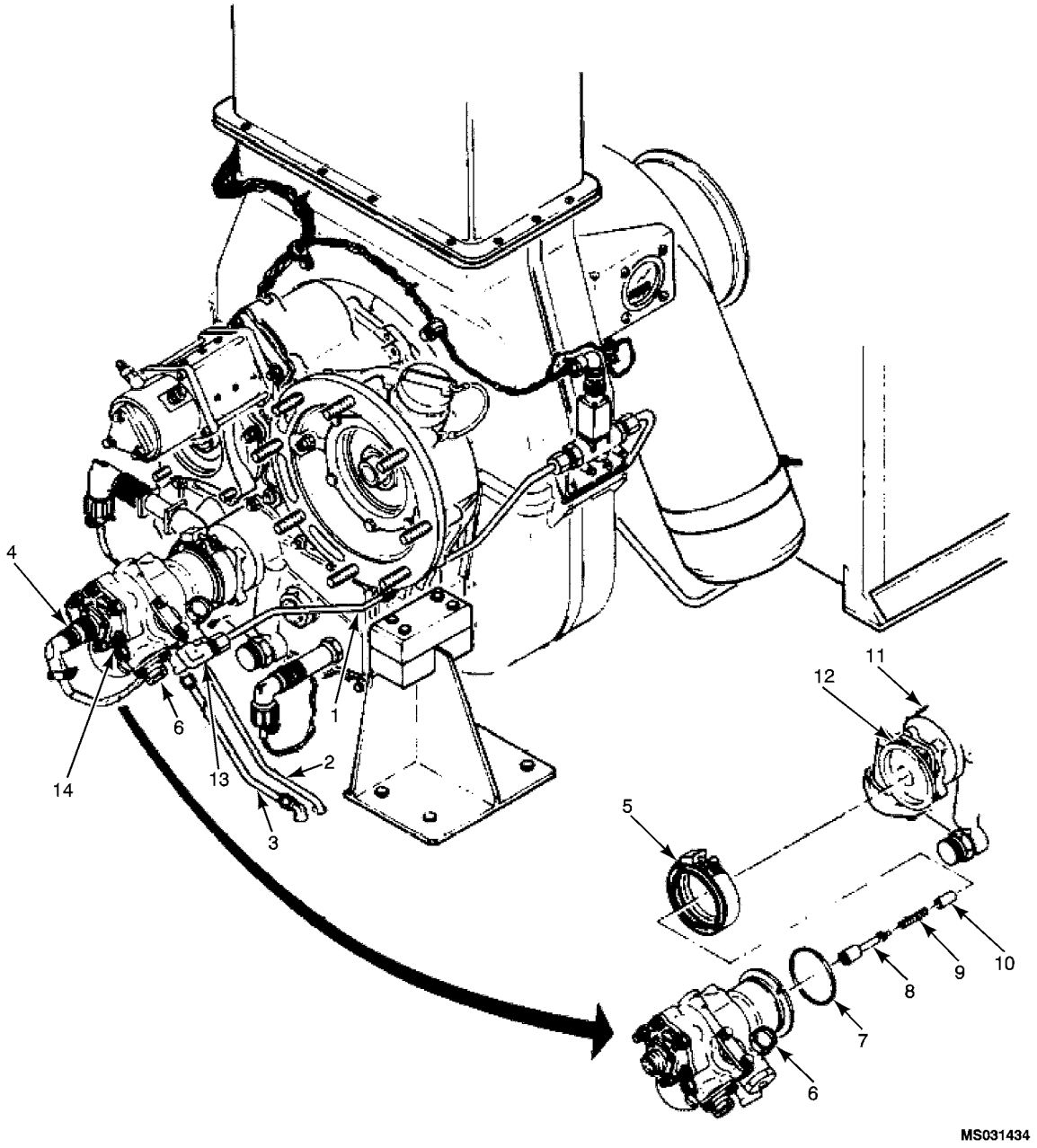
REMOVAL – CONTINUED



1. Seal 37 @ Flare	5. Fitting, Hydraulic, 90° Elbow	9. Hose, HP
2. Nipple, Male	6. Tubing, Drain, Hydraulic Seal	10. Hose Return
3. Grommet, Rubber	7. Fitting, Hydraulic, 45° Elbow	11. Seal 37°
4. Seal, 37° Flare	8. Fitting, Hydraulic, 90° Elbow	

Figure 9. Hydraulic System.

REMOVAL – CONTINUED



1. Fuel Line	6. Fuel Control Unit (FCU)	11. Oil Pump Housing
2. Drain Tube	7. Packing	12. FCU Adapter
3. Fuel Hose Supply	8. Shaft	13. Elbow
4. Electrical Connector (P9)	9. Spring	14. Fuel Filter
5. Clamp	10. Spacer	

Figure 10. 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.

e. Carefully lift engine from floor of AGPU while guiding engine/generator/alternator out of the top of the AGPU engine compartment.

f. Move engine forward a few inches to clear AGPU housing and lift engine from AGPU.

NOTE

Perform Steps 23g through 23h only if current Engine (GTE) will be exchanged with a different engine.

g. Remove hydraulic pump from engine (WP 0125 00).

h. Remove generator/alternator (WP 0079 00).

i. Install engine in maintenance stand or engine shipping container once engine mounts are removed refer to (WP 0148 00) for removal of mounts from engine.

j. Check AGPU floor around engine. Remove all signs of corrosion or rust, oil and fuel. Touch up paint floor of AGPU as required.

INSTALLATION

1. Install engine/generator/alternator/hydraulic pump (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/alternator.
   b. Carefully lift engine from maintenance stand and position over AGPU engine compartment.

NOTE

Both left and right hand side engine mounts (Figure 7, Item 18 and 19) and generator support (Figure 7, Item 4) should be mounted to engine prior to installation.

c. Carefully lower engine to a position just above engine mounts AGPU engine compartment floor.

NOTE

It may be necessary to utilize an alignment pin or drift to align the holes in the engine and generator mounts with the AGPU floor mounting holes.

d. Install eight bolts (Figure 8, Item 1) and washers (Figure 8, Item 2), to engine mounts both left and right sides (Figure 8, Item 3 and 4) of engine to floor of AGPU. Do not tighten bolts at this time.

e. Install four bolts (Figure 8, Item 1) and washers (Figure 8, Item 2) into rear generator support (Figure 8, Item 5). Do not tighten bolts at this time.

f. Tighten all mounting bolts to left and right motor mount and generator support as required. Generator mounts (base) bolts torque to 1100 to 1300 inch-pounds. Left and right engine mounts (base) bolts torque to 800 to 1000 inch-pounds.

g. 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).

INSTALLATION – CONTINUED

h. Using a shop level the engine (GTE) must be leveled in order to mate with the exhaust assembly plenum and the inner air intake duct assembly. Using INSTALLATION, Step 1g to level the engine to mate with both intake duct assembly and exhaust assembly as required.

2. Connect starter ground cable (-) (Figure 4, Item 9) and starter (+) cable (Figure 4, Item 7). Tighten cable retaining nuts as required.
3. Connector generator/alternator electrical connections.
   a. Connect ground lug wire (-) (Figure 6, Item 29) with lock washer (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), lock washers (Figure 6, Item 21) and nuts (Figure 6, Item 20). Tighten nuts as required.
   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). Tighten cover as required.

NOTE

If AGPU is a MEP 83-360D/E model Steps 3e through 3g will not be required. These steps are for A model AGPU only.

   e. Install DC cable (-) (Figure 6, Item 16) on DC terminal block (Figure 6, Item 7) with flat washer (Figure 6, Item 15), lock washer (Figure 6, Item 14) and nut (Figure 6, Item 13). Tighten nut as required.
   f. Install DC cable (+) (Figure 6, Item 11) on DC terminal stud (Figure 6, Item 7) with flat washer (Figure 6, Item 10), lock washer (Figure 6, Item 9) and nut (Figure 6, Item 8). Tighten nut as required.
   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). Tighten cover as required.
   h. Connect wiring harness (Figure 6, Item 2) cannon plug connector (Figure 6, Item 1) to generator/alternator connector (Figure 6, Item 3).
4. Connect engine electrical connector P2.
   a. Carefully pull P-2 engine connector (Figure 5, Item 1) and engine wiring harness (Figure 5, Item 3) through electrical bulkhead hole (Figure 5, Item 4).
   b. Connect engine P-2 connector (Figure 5, Item 1) to ECU J2 connector (Figure 5, Item 2).
   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. Install control panel (Figure 5, Item 8) in position and secure with four screws (Figure 5, Item 7).
   f. Close control panel access door (Figure 5, Item 6).
5. Connect hydraulic pump hoses and lines (WP 0124 00, Figure 1).
   a. Connect hydraulic pump electrical connector and wiring harness connector (Figure 4, Item 10 and 11).
   b. Connect drain tube (Figure 4, Item 2) to 45° elbow (Figure 9, Item 7) on hydraulic pump. Route end of tube through AGPU floor grommet (Figure 4, Item 1).
   c. Install new seal (Figure 9, Item 4) in the end of hose (Figure 4, Item 4) and connect hose to elbow (Figure 9, Item 5) on hydraulic pump. Tighten hose (Figure 4, Item 4) coupling nut to 1,520 to 1,680 inch-pounds of torque.

INSTALLATION – CONTINUED

d. Install new seal (Figure 9, Item 1) in the end of hose (HP) (Figure 9, Item 9) and connect to 90° elbow (Figure 9, Item 8) on hydraulic pump. Tighten hose coupling nut to 900 to 1,000 inch-pounds of torque.

e. Install new seal 37°(Figure 9, Item 11) in the end of hose return (Figure 9, Item 10) and connect to hydraulic pump. Tighten hose coupling nut to 200 to 230 inch-pounds of torque.

6. Connect fuel hose (Figure 3, Item 1) and fuel extension tube (Figure 3, Item 7).
   a. Connect fuel hose FCU (Figure 3, Item 1) to nipple (Figure 3, Item 3) on FCU (Figure 10, Item 6).
   b. Ensure electrical connector (P9) (Figure 10, Item 4) connected to the FCU (Figure 10, Item 6).
7. Connect FCU and gearcase drain tubes.
   a. Connect gearcase drain tube (Figure 3, Item 6) and route tube through AGPU floor grommet.
   b. Connect FCU drain tube (Figure 3, Item 5) and route tube through AGPU floor grommet.
   c. Connect combustor cap drain tube (Figure 1, Item 10) and route tube through AGPU floor grommet.
   d. Connect turbine housing drain tube (Figure 3, Item 2) and route tube through AGPU floor grommet.
8. Connect pneumatic hoses/fittings.
   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). Safety wire marmon clamp after tighten.
   b. Install adapter (Figure 2, Item 8) with pneumatic hose attached to LCV adapter (Figure 2, Item 9) and secure with marmon clamp (Figure 2, Item 7). Safety wire marmon clamp after tighten.
   c. Install adapter (Figure 2, Item 6) with pneumatic hose attached to LCV adapter manifold (Figure 2, Item 3) and secure with marmon clamp (Figure 2, Item 5). Safety wire marmon clamp after tighten.
   d. Connect tube assembly (Figure 2, Item 4) to fitting on LCV adapter manifold (Figure 2, Item 3). Tighten tube to LCV fitting as required.
   e. Install hose clamps (Figure 2, Item 1) and pneumatic hose (Figure 2, Item 2). Align and tighten hose clamps as required.
9. Install exhaust ejector (WP 0144 00 or WP 0145 00) and align with engine.
10. Install inner air intake duct assembly (WP 0034 00) and ensure that it seals with the air intake of the GTE. If not refer to leveling of engine in INSTALLATION, Steps 1g through 1h.

NOTE

After installing the hydraulics module, the air in the hydraulic system must be removed prior to putting the hydraulic system back into operation. Perform the hydraulic purge operation (WP 0011 00).

11. Install hydraulic module (WP 0124 00).

NOTE

During installation of the roof, one person should be stationed at each corner of the roof to prevent warping or damage to the roof.

12. Install roof (WP 0033 00).

INSTALLATION – CONTINUED

NOTE

Prior to performing MOC ensure all lines, fitting, cables and wires are secure and tied in their proper location. Re-verify all oil levels prior to starting the GTE.

13. Prior to starting GTE the fuel system must be purged of air (WP 0027 00, PRELIMINARY CHECKS AND ADJUSTMENTS, Step 13).
14. Perform PMCS (WP 0029 00) and MOC (this must be done prior to starting engine).
15. Install hydraulic access cover (Figure 4, Item 14) using ten screws (Figure 4, Item 12) and washers (Figure 4, Item 13).
16. Install the exhaust access cover (WP 0032 00, Figure 2, Item 9).
17. Install the engine access cover (WP 0032 00, Figure 2, Item 12).
18. Close and secure engine access door (WP 0002 00, Figure 13, Item 1).
19. Re-stow both the AC/DC cables in their storage bins.
20. Re-stow the pneumatic air hose in the storage and secure pneumatic air hose storage access door.

END OF WORK PACKAGE

FIELD MAINTENANCE

**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**

ENGINE/GENERATOR/ALTERNATOR MOUNTS

INITIAL SETUP:

Tools and Special Tools

Aviation Foot Locker, AFL (WP 0155 00, Item 3)
General Mechanics Tool Kit, GMTK (WP 0155 00, Item 16)
Tool Set, Aviation Unit (WP 0155 00, Item 41)

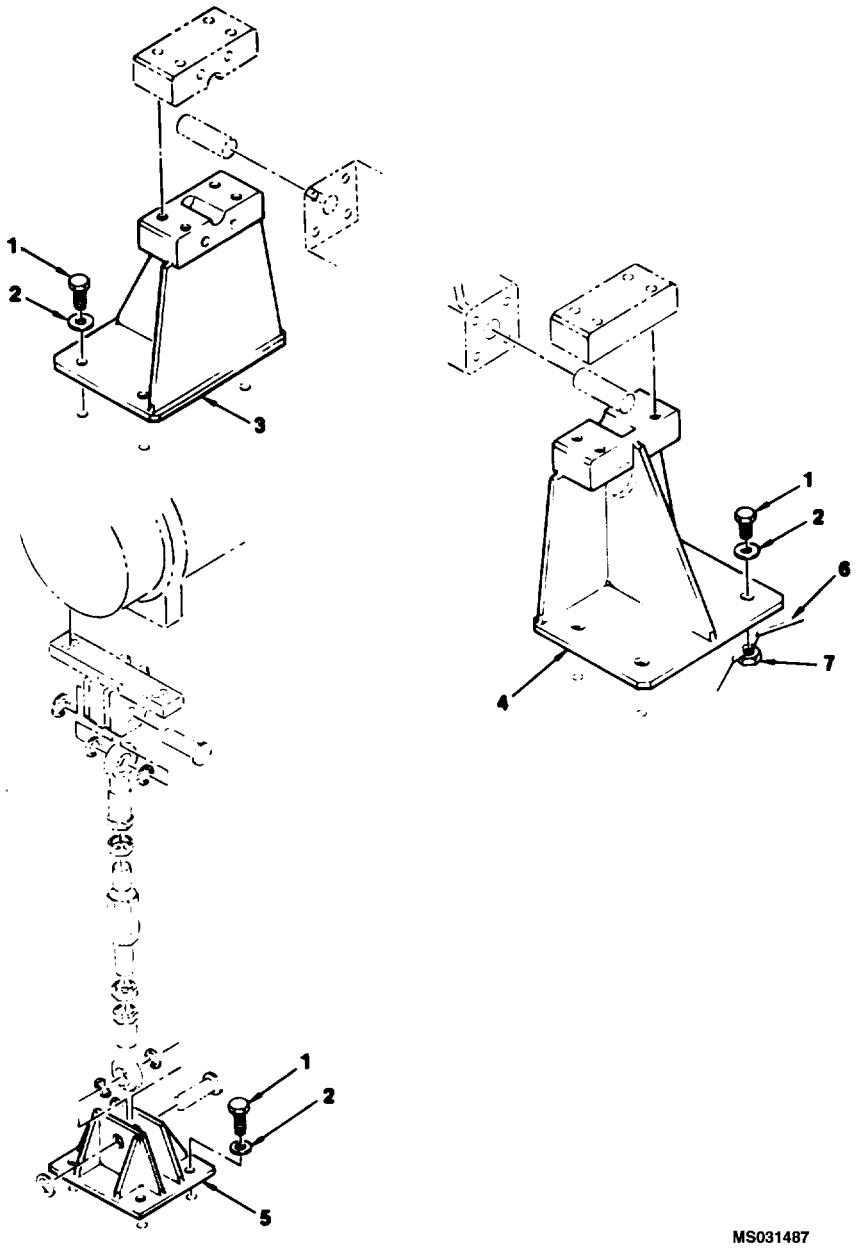
References

WP 0002 00
WP 0147 00

GENERAL

For description of frame and housing components refer to WP 0002 00.

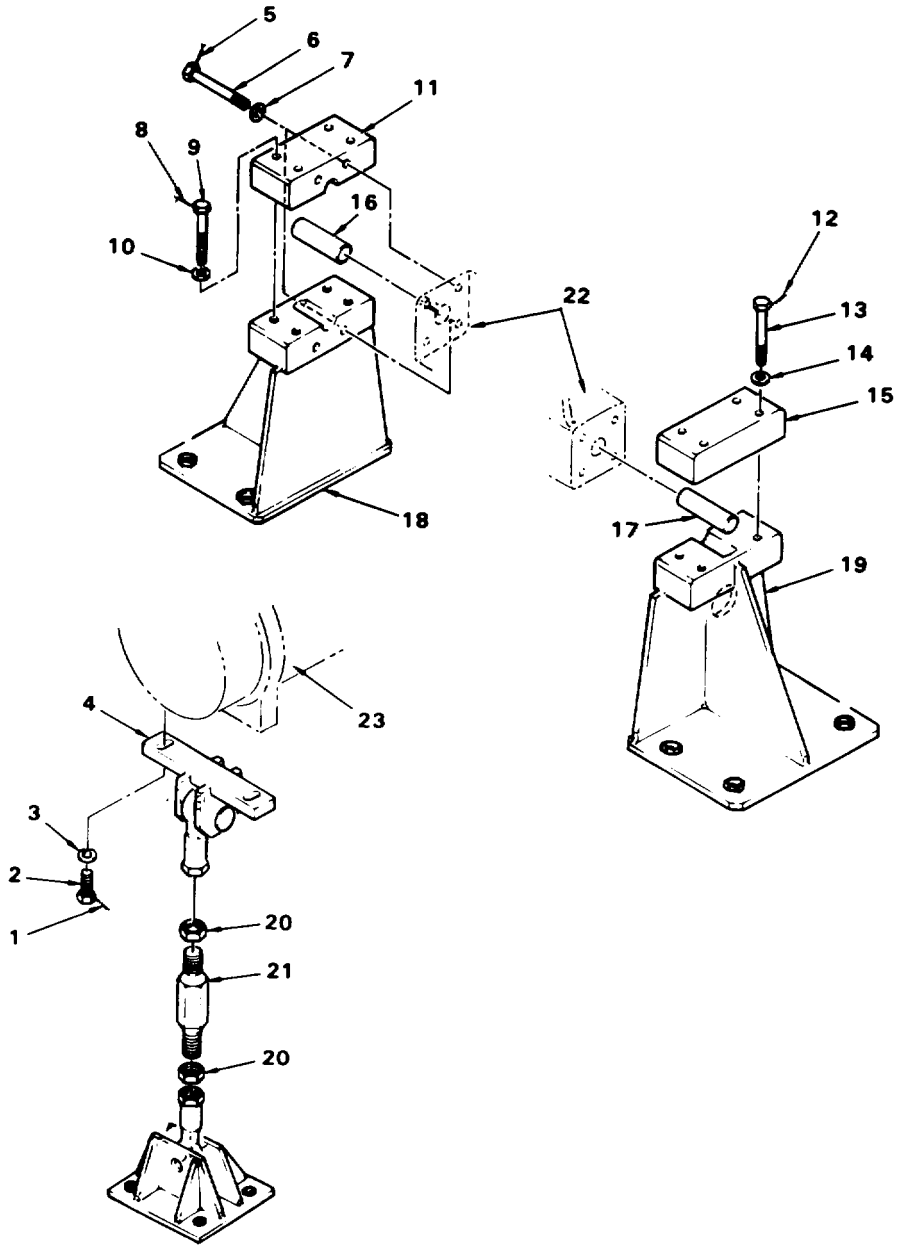
GENERAL – Continued



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.

GENERAL – 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 2. Engine/Generator/Alternator Mounts.

REMOVAL

NOTE

Mounts are to be removed and installed with engine removed from AGPU.

NOTE

There is no repair for Engine/Generator mounts. If welds or any part is found to be defective, replace mounts.

1. Remove engine/generator/alternator/hydraulic pump (WP 0147 00).
2. Support engine (GTE) and generator with a hoist prior to removing mounts
3. Cut lockwires (Figure 2, Item 1) and remove two hexhead capscrews (Figure 2, Item 2) and washers (Figure 2, Item 3) from generator support mount.
4. Cut lockwires (Figure 2, Item 12) and remove four hexhead capscrews (Figure 2, Item 13) and washers (Figure 2, Item 14) from right engine mount. Remove right mounting block (Figure 2, Item 15), but leave right pin (Figure 2, Item 17) in place.
5. Cut lockwires (Figure 2, Item 5 and 8) and remove eight capscrews (Figure 2, Item 6 and 9) and washers (Figure 2, Item 7 and 10) from left engine mount. Remove left mounting block (Figure 2, Item 11), but leave left pin (Figure 2, Item 16) in place.
6. Remove left/right pins (Figure 2, Item 16 and 17) in engine mounting pads. It may be necessary to use a puller to remove pins from engine mounting pads.

INSTALLATION

1. Install left/right pins (Figure 2, Item 16 and 17) in engine mounting pads. It may be necessary to use a mallet to seat pins into engine mounting pads by lightly tapping mount pin into place.
2. Install left mounting block (Figure 2, Item 11) to left engine mount (Figure 2, Item 18) and install eight capscrews (Figure 2, Item 6 and 9) and washers (Figure 2, Item 7 an 10) into left engine mount (base). Ensure pin (Figure 2, Item 16) is seated in face of mounting block.
3. Install right mounting block (Figure 2, Item 15) to right engine mount (base) (Figure 2, Item 19) and install eight capscrews (Figure 2, Item 13) and washers (Figure 2, Item 14) into right engine mount (base). Ensure pin (Figure 2, Item 17) is seated in face of mounting block.
4. Install lockwire (Figure 2, Item 12) using four hexhead capscrews (Figure 2, Item 13). Lockwire should be in a x-pattern and through all four hexhead capscrews.
5. Install lockwire (Figure 2, Item 5) using four hexhead capscrews (Figure 2, Item 6 and 9). Lockwire should be in a x-pattern and through all four hexhead capscrews.
6. Install lockwire (Figure 2, Item 1) using two hexhead capscrews (Figure 2, Item 2) and washers (Figure 2, Item 3) for generator support bracket (mount) (Figure 2, Item 4).
7. Install engine/generator/alternator/hydraulic pump (WP 0147 00).

END OF WORK PACKAGE

FIELD MAINTENANCE

**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

CAUTION

Overtightening fasteners can cause equipment damage or failure of fastener.

Table 1. Standard Torque Limits in Inch-Pounds for Threaded Fasteners.

BOLT & NUT MATERIAL	STEEL				CORROSION RESISTANT STEEL			ALUMINUM	
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 MS21069 MS21071 MS20365 MS21072 MS21044 MS21073 MS21045 NAS679 MS20500 NAS1021 MS21055 NAS1068 MS21056 BACN10MK MS21059 BACN110JZ MS21060 BACN 10FX MS21076 BACN10HY		AN320 AN316 AN315C MS21083 NAS1022 MS51967 MS51966 MS51971		MS17825	MS17826 MS21224	MS21244	AN310 AN315 MS21044	AN320 MS21038
TORQUE LIMITS (INCH-POUNDS									
THREAD SIZE	SEE Step 1a	SEE Step 1b	SEE Step 1a	SEE Step 1b	SEE Step 1d	SEE Step 1d			
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

TORQUE WRENCHES

5-50 Inch-Pounds
30-150 Inch-Pounds
100-750 Inch-pounds
700-1600 Inch-Pounds
0-600 Foot-Pounds

STANDARD TORQUE LIMIT APPLICATION – CONTINUED

1. Refer to Table 1 through Table 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. When nut-bolt assemblies are installed, the nut shall not engage the first incomplete thread next to the bolt shank.
   d. 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.
   e. Threads shall be clean and dry prior to installation. If threads are lubricated, torque limits are reduced by 30 percent.
   f. 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.
   g. 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 (Table 2).
   h. Washers are used for the following purposes:
      (1) To compensate for differences in bolt grip length and material thickness due to manufacturing tolerances, protective coating and other surface variations.
      (2) To distribute bearing load over a greater area to prevent damage to material under a bolt head or nut.
      (3) To protect the material surface when a bolt or nut is tightened.
      (4) Prevent galling of aluminum or other soft material when bolt or nut is tightened.
      (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.
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

STANDARD TORQUE LIMIT APPLICATION – CONTINUED

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.

f. Apply a coating of anti-seize compound 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
1-1/8-12	117.0
1-1/4-12	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 (Figure 1). 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

SELF-RETAINING BOLTS INSTALLATION – CONTINUED

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.
   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 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.

SELF-RETAINING BOLTS INSTALLATION – CONTINUED

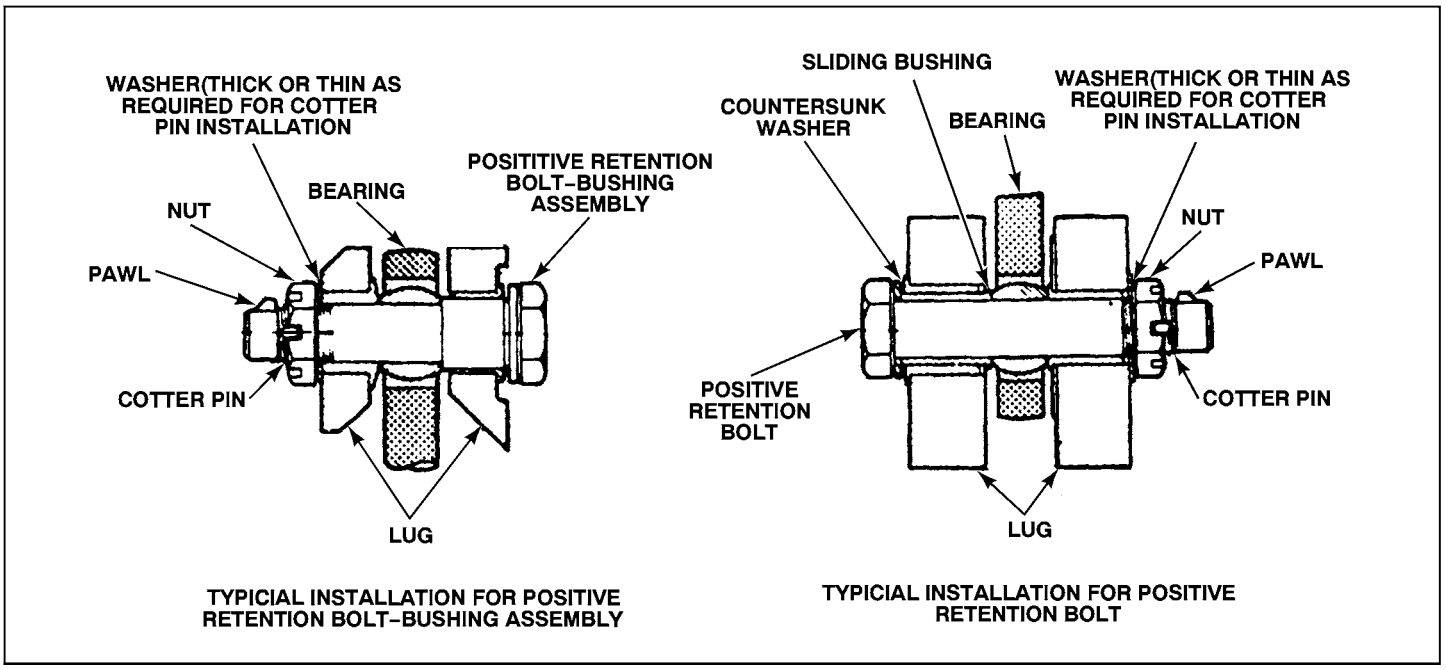


Figure 1. Typical Self-Retaining Bolt Assemblies.

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 prior to tightening.

SELF-RETAINING BOLTS INSTALLATION – CONTINUED

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

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.

TORQUE WRENCHES

30-150 Inch-Pounds 700-1600 Inch-Pounds

100-750 Inch-pounds

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

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).

TORQUE WRENCHES

30-150 Inch-Pounds 700-1600 Inch-Pounds

100-750 Inch-pounds

SELF-RETAINING BOLTS INSTALLATION – CONTINUED

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
Antiseize compound 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.		
TORQUE WRENCHES		
30 to 150 Inch-Pounds		
100 to 750 Inch-Pounds		

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	1/2	3/4-16	.775	.775	.90	240	280
-10	5/8	7/8-14	.880	.990	.90	320	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 5

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) 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

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. The manuals are coded (A) for Army use and (F) for Air Force use.

REFERENCES

AFM 66-1	Maintenance Management, VOL 2, Chief of Maintenance (Aircraft and Missile)
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
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
MIL-STD-1261	Arc Welding Procedures for Constructural Steels
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)

REFERENCES – CONTINUED

TB 1-1730-229-30-1	Inspection and Replacement of Exhaust. Installation, Aviation Ground Power Unit
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 (A)	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 (A) (F)	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 (A)	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 750-244-1-3 (A)	Procedures for Destruction of Equipment to Prevent Enemy Use
TM 9-2610-200-14 (A)	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 (A)	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	

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

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 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

MAINTENANCE ALLOCATION CHART (MAC) INTRODUCTION – CONTINUED

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 OCONUS 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 RPSTL.

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.
4. Adjust. To maintain or regulate, within prescribed limits, by bringing into proper or exact position or by setting the operating characteristics to specified parameters.
5. Align. To adjust specified variable elements of an item to bring about optimum or desired performance.
6. 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.
7. 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.
8. 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

9. 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.
10. 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 assembly), 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.

11. 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.
12. 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.

Term	Definition – Continued

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 on 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.

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

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**	NONE						
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
0104	Covers	INSPECT	.5					A , I
		SERVICE	.5					A , I
		ADJUST	.5					A , I
		ALIGN	.5					A , I

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	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
		REBUILD				16.0		A
0110	Air Cleaner Assembly	INSPECT	.5					A
		SERVICE	.5					A
		ADJUST	.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
		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**	NONE						
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

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
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
		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

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
		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
		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
		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
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/Alternator and Control System**	NONE						
0301	Generator/Alternator 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
		ALIGN	.5					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
		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/Alternator 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
		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

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
		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**	NONE						
0401	Fuel Pump	INSPECT	.5					A , C , B , D
		TEST	.5					A , C , B , D
		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

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
0406	Water Seperator	INSPECT	.5					A , E , C
		TEST	.5					A , E , C
		SERVICE	.5					A , E , C
		REPLACE	1.0					A , E , C
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
		ALIGN				.5		A , D , B , F , C
		REPLACE	1.0					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
		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**	NONE						
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
		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

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			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**	NONE						
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
		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**	NONE						

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
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
		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**	NONE						
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

Table 1. Maintenance Allocation Chart – Continued

(1)	(2)	(3)	(4)				(5)	(6)
			MAINTENANCE LEVEL				TOOLS AND	
			FIELD		SUSTAINMENT		EQUIPMENT	
GROUP NUMBER	DESCRIPTION	MAINTENANCE FUNCTION	AMC (O)	ASB (F)	TASMG (L)	DEPOT (D)	REF CODE	REMARKS CODE
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
		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

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
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
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

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				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
		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

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		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
		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**	NONE						
0901	Engine and Gearcase Assembly	INSPECT	.5					A , P , C
		TEST		1.0				A , P , C
		SERVICE	1.0					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
		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
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

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
		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
		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

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				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
		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**	NONE						
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

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	.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
		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**	NONE						
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

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
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
		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 Motor	INSPECT	.5					A , C , B , D
		TEST	.5					A , C , B , D
		SERVICE	.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
		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
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
		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	O	Tester, Battery Electrolyte Solution	6630-00-171-6126	
2	O	Multimeter	6625-00-581-2036	
3	O	Gauge, Pressure Fuel 0-100 PSIG		
4	F	Hydraulic Pressure Supply, 0-5,000 PSI Tester		
5	F	Gauge, Hydraulic 0-5,000 PSIG		
6	F	28 VDC Power Supply		
7	F	Gauge, Hydraulic 0-300 PSIG		
8	F	Hand Pump, Hydraulic 5,000 PSI Max.		
9	F	Stand, Maintenance		83-15011
10	O	Socket, Deep 3/8", 3/8" Drive		
11	D	Fiberscope	6720-01-023-6260	FS-100
12	O	Drain Fitting and Hose	4720-00-018-2146	DB75-108
13	O	Reservoir Servicing Unit	4940-01-504-5279	06-5022-6500-A7
14	O	Fill Adapter, Return Port	4730-01-449-9702	
15	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.

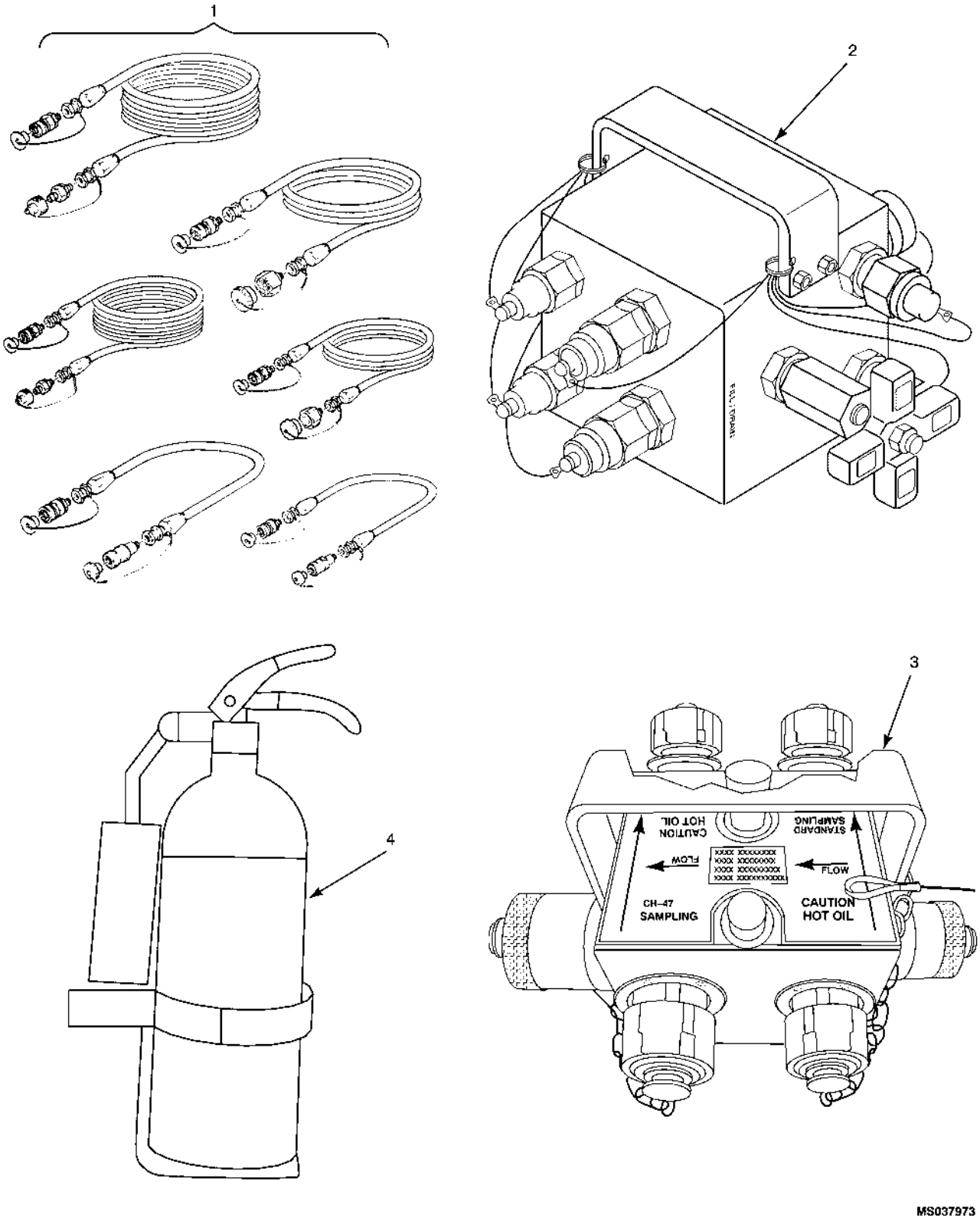


Figure 1. Components of End Item.

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 FT LOW PRESSURE HOSE ADAPTER ASSEMBLY (81996) 1013809			1
1		30 FT HIGH PRESSURE HOSE ADAPTER ASSEMBLY (81996) 1013812			1
1		10 FT LOW PRESSURE HOSE ADAPTER ASSEMBLY (81996) 1013811			2
1		10 FT HIGH PRESSURE HOSE ADAPTER ASSEMBLY (81996) 1013813			2
1		2 FT HIGH PRESSURE HOSE ADAPTER ASSEMBLY (81996) 1013818			1
1		2 FT LOW PRESSURE HOSE ADAPTER ASSEMBLY (81996) 1013817			1
2		MANIFOLD, DUAL SERVICE (06177 or 81996) 8140 or 1024269			1
3		HYDRAULIC OIL SAMPLING/PURGE ADAPTER (81996) 1024288			1
4	4210-01-388-7854	EXTINGUISHER, FIRE (58536) A52471-1-S			1

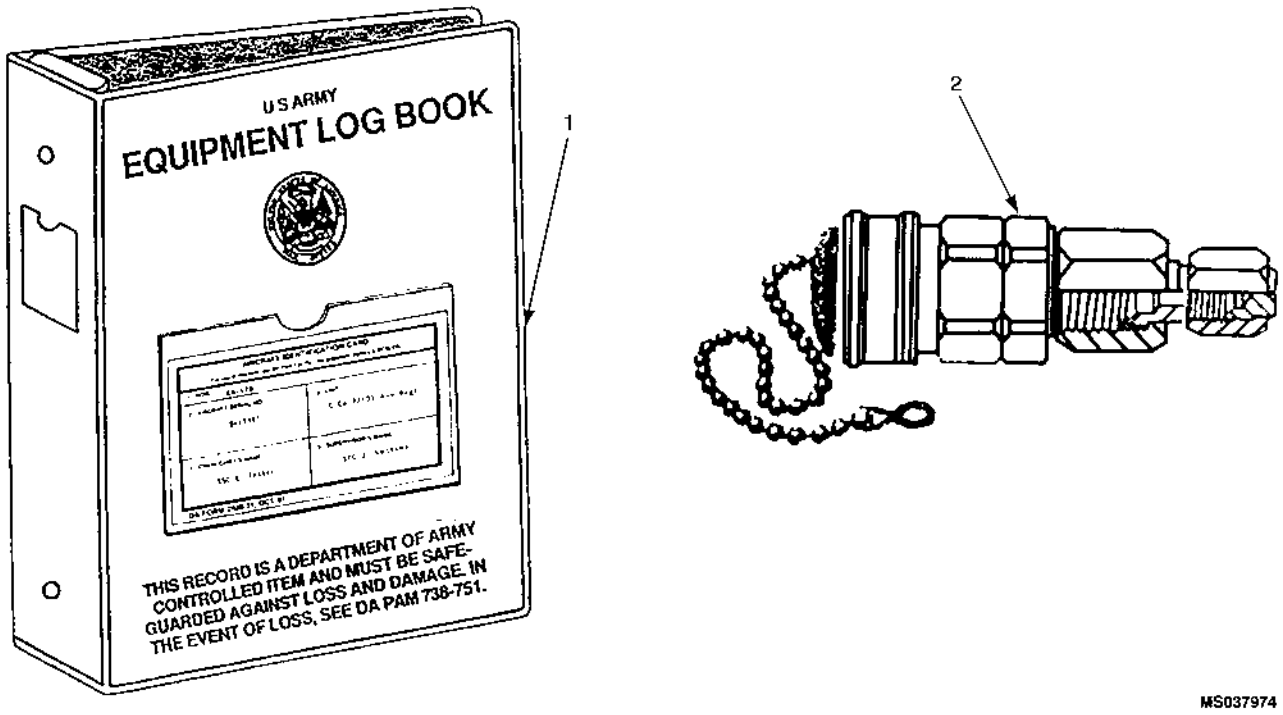


Figure 2. Basic Issue Items.

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	7510-01-065-0166	BINDER, LOOSE-LEAF MIL-B-43064			1
2	4720-00-018-2146	HOSE ASSEMBLY, NONMETALLIC, ENGINE OIL DRAIN 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
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

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
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
63	O	7930-01-381-3499	Cleaner, Glass	
64	O	7510-00-502-9147	Adhesive, Pressure Sensitive	
65	O	7510-00-502-9143	Adhesive, Pressure Sensitive 363 2 in. W	

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.

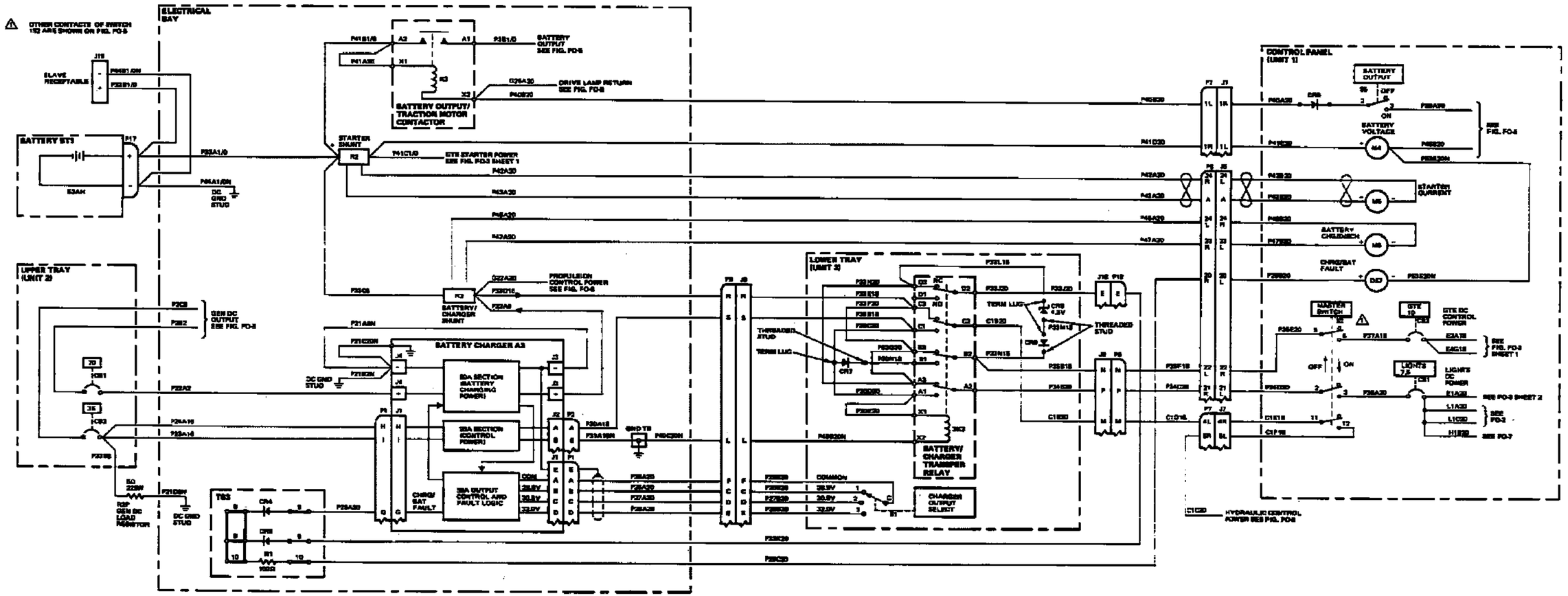
(1) ITEM NO	(2) ITEM NAME	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER CAGE CODE	(5) REFERENCE
1	Additional Apex Fitting Assembly			
2	Airframe Repairer Tool Kit, S/MTK	5180-01-548-4211	KIT PEOAVN-B02 00NS2	
3	Aviation Foot Locker, AFL	4920-01-377-5412	4920-99-B90 81996	
4	Brush, Brass			
5	Cap, Tube	4730-00-808-6848	A66-4 98660	
6	Cord, Nylon, Type III			
7	Cotton Webbing, 80 Pound			
8	Coupling Half, Quick Disconnect	4730-01-449-9702	G1-29-9160 55827	

Table 1. Tools Identification List. - Continued

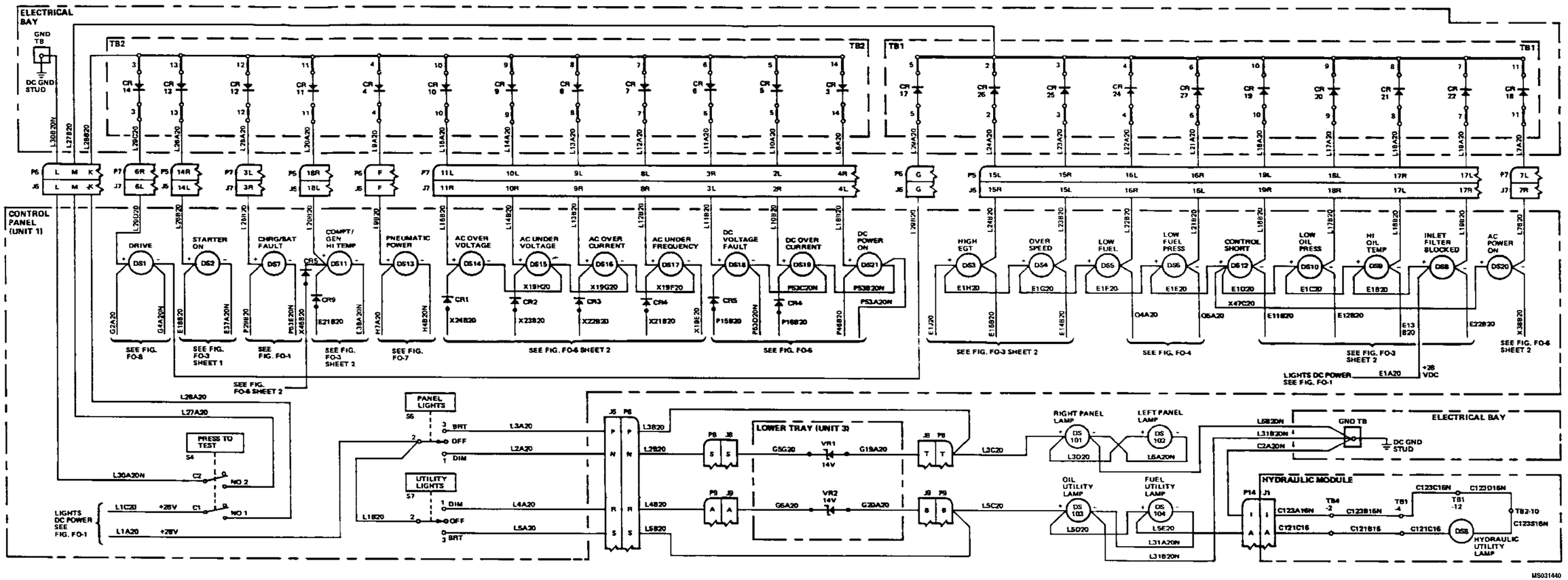
(1) ITEM NO	(2) ITEM NAME	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER CAGE CODE	(5) REFERENCE
9	Drain Fitting and Hose	4720-00-018-2146	DB 75-108 97484	
10	Elbow, Tube	4730-00-825-0587	332-2053-030 13499	
11	Electrical Repairer Tool Kit, EL/TK	5180-01-548-4213	KIT PEOAVN-B06 00NS2	
12	Fiberscope	6720-01-023-6260	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			
37	Tester, Battery Electrolyte Solution	6630-00-171-6126	GG-T-258 81348	
38	Tiedown Assembly, CGU-1/B			

Table 1. Tools Identification List. - Continued

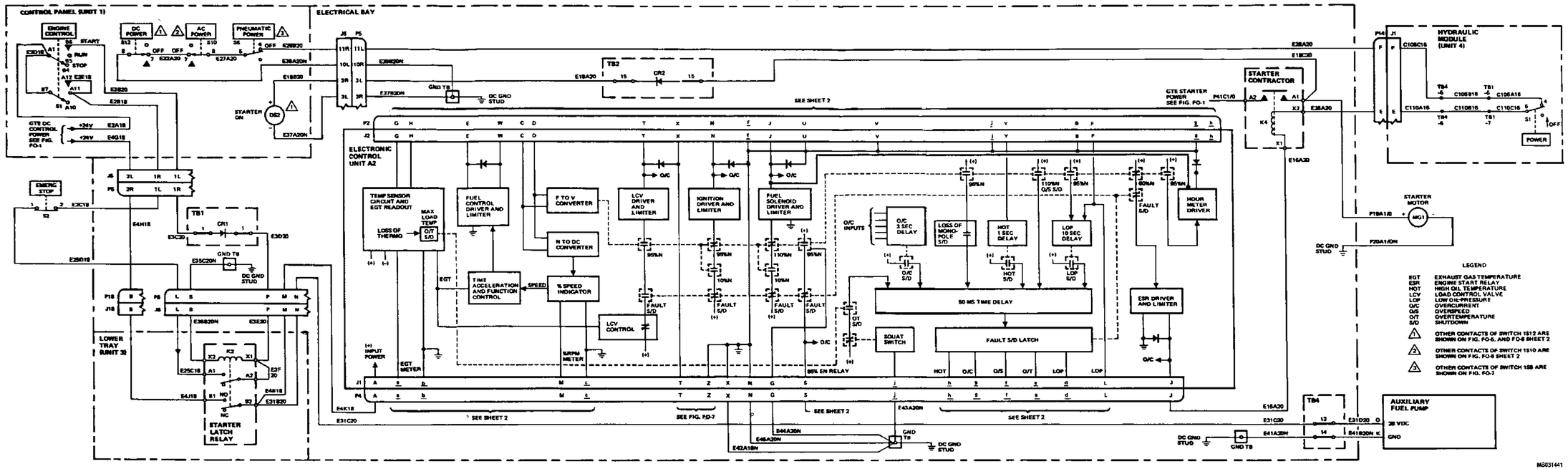
(1) ITEM NO	(2) ITEM NAME	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER CAGE CODE	(5) REFERENCE
39	Technical Inspector Tool Kit, TITK	5180-01-548-4223	KIT PEOAVN-A09 00NS2	
40	Tool Kit Army Aircraft Crash Investigation	5180-00-903-1049	SC518099CLA11 81996	
41	Tool Set, Aviation Unit	4920-00-567-0476	SC492099CLA92 81996	
42	28VDC Power Supply			



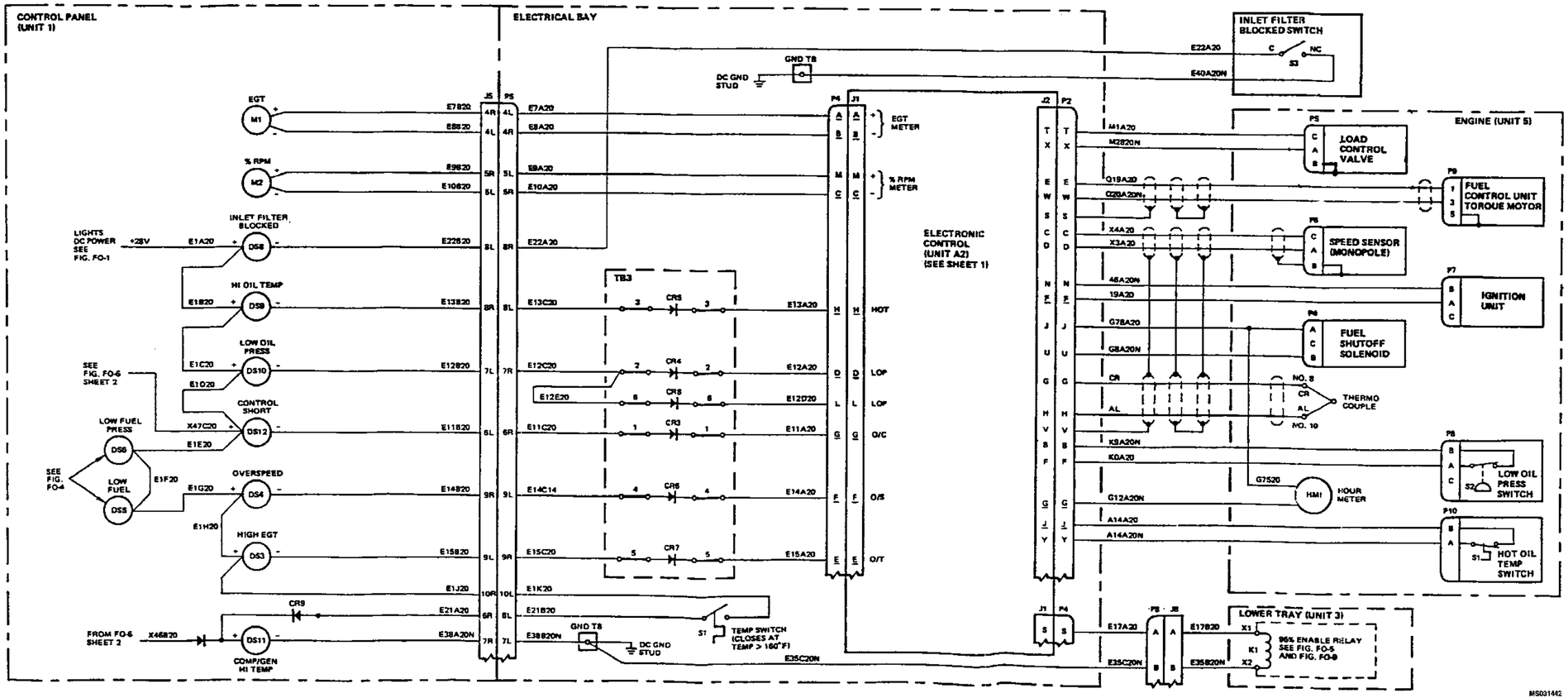
FO 1. Master DC Power Control System Schematic/Wiring Diagram .



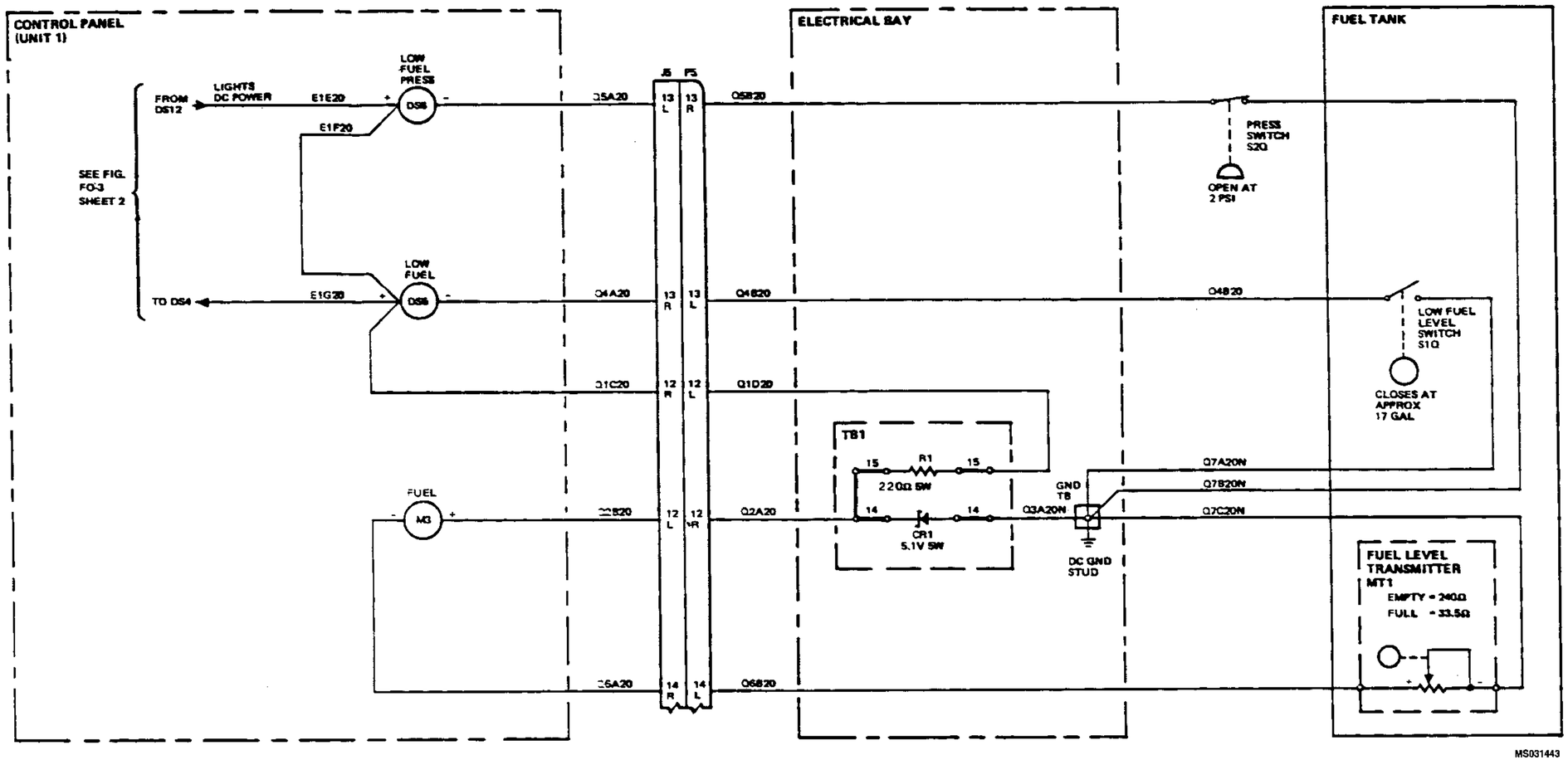
FO 2. Lighting System Schematic/Wiring Diagram .



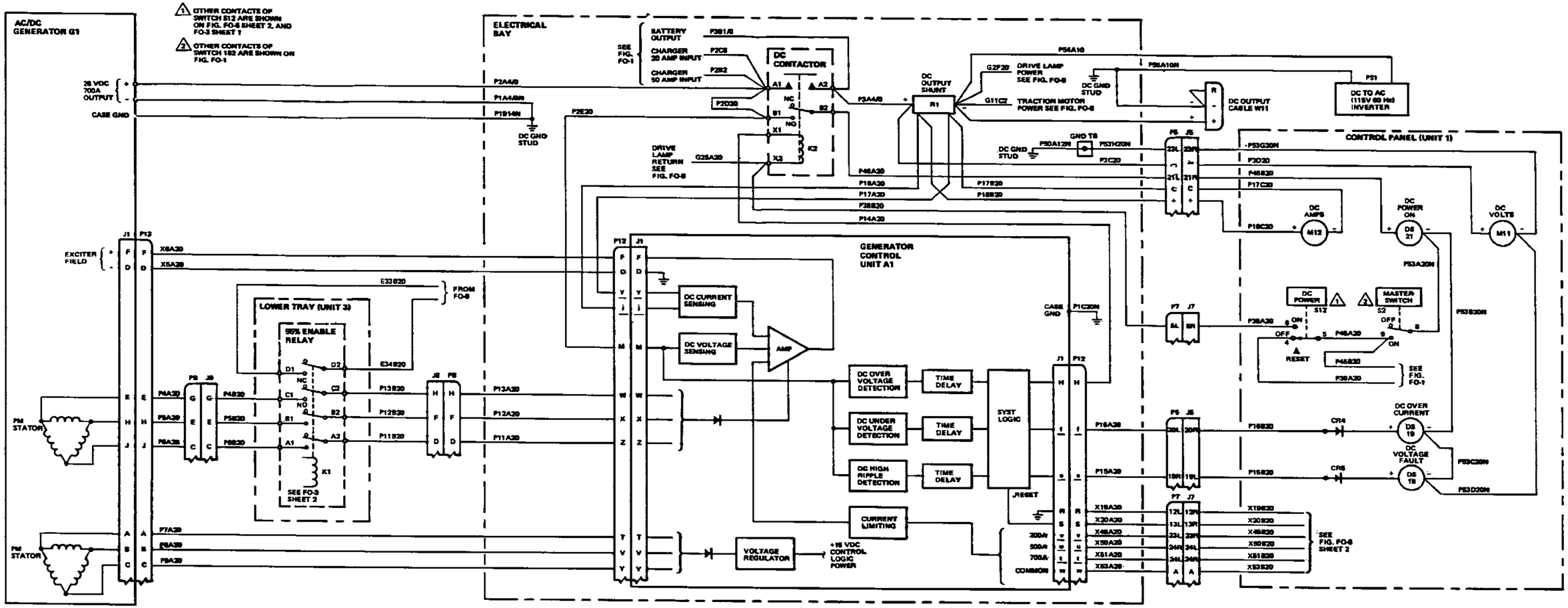
FO 3. Gas Turbine Engine Control System Schematic/Wiring Diagram (Sheet 1 of 2).



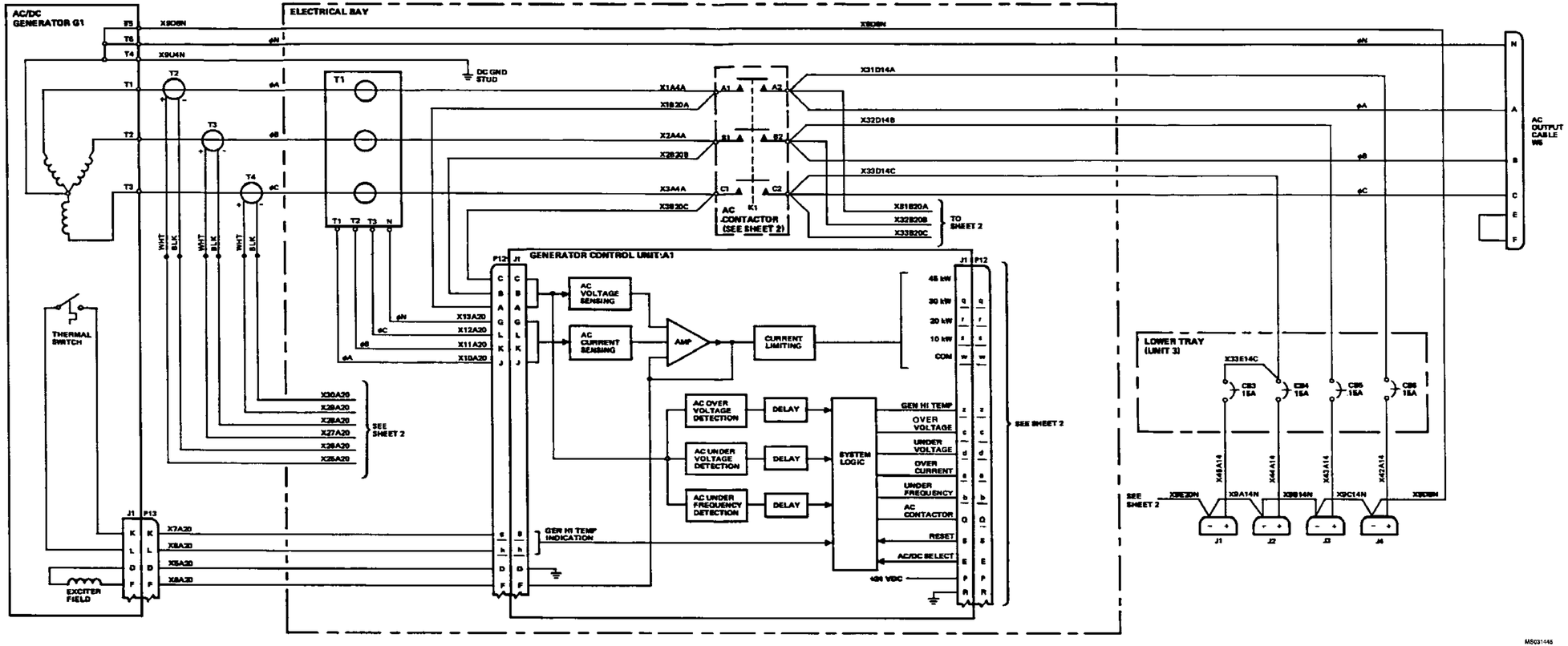
FO 3. Gas Turbine Engine Control System Schematic/Wiring Diagram (Sheet 2 of 2).



FO 4. Fuel Indication Control System Schematic/Wiring Diagram .

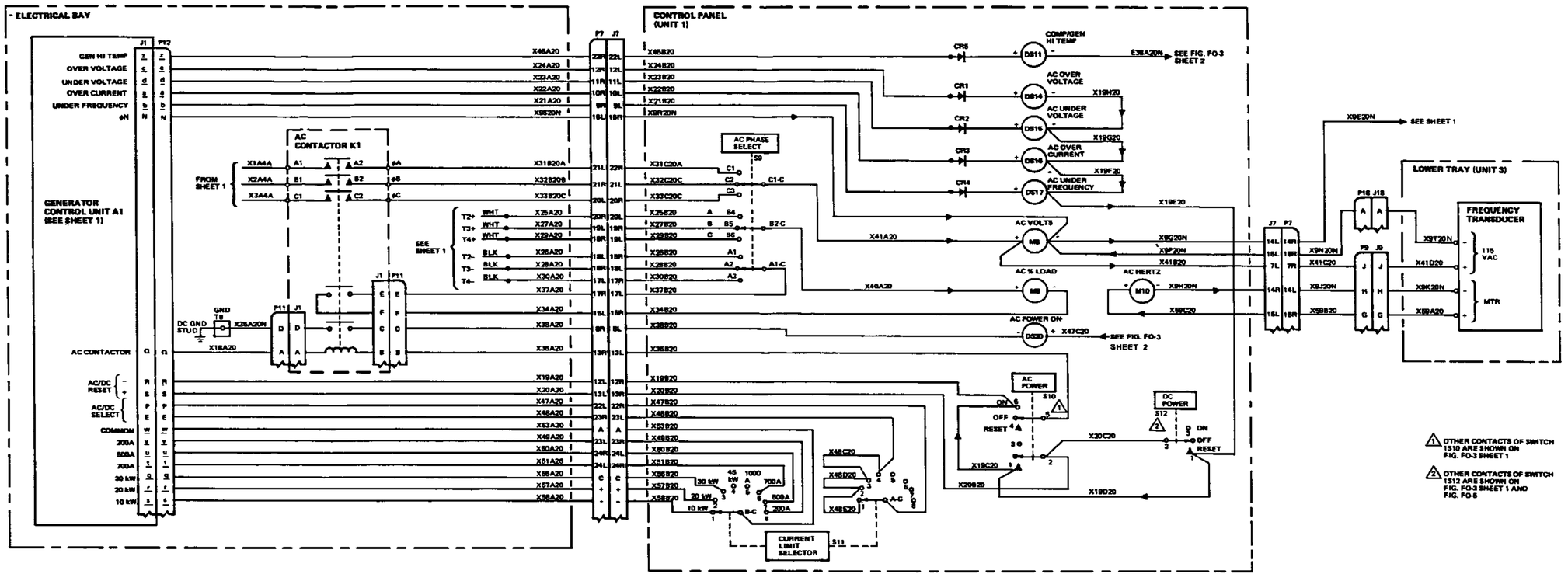


FO 5. DC Power Generation and Control System Schematic/Wiring Diagram .

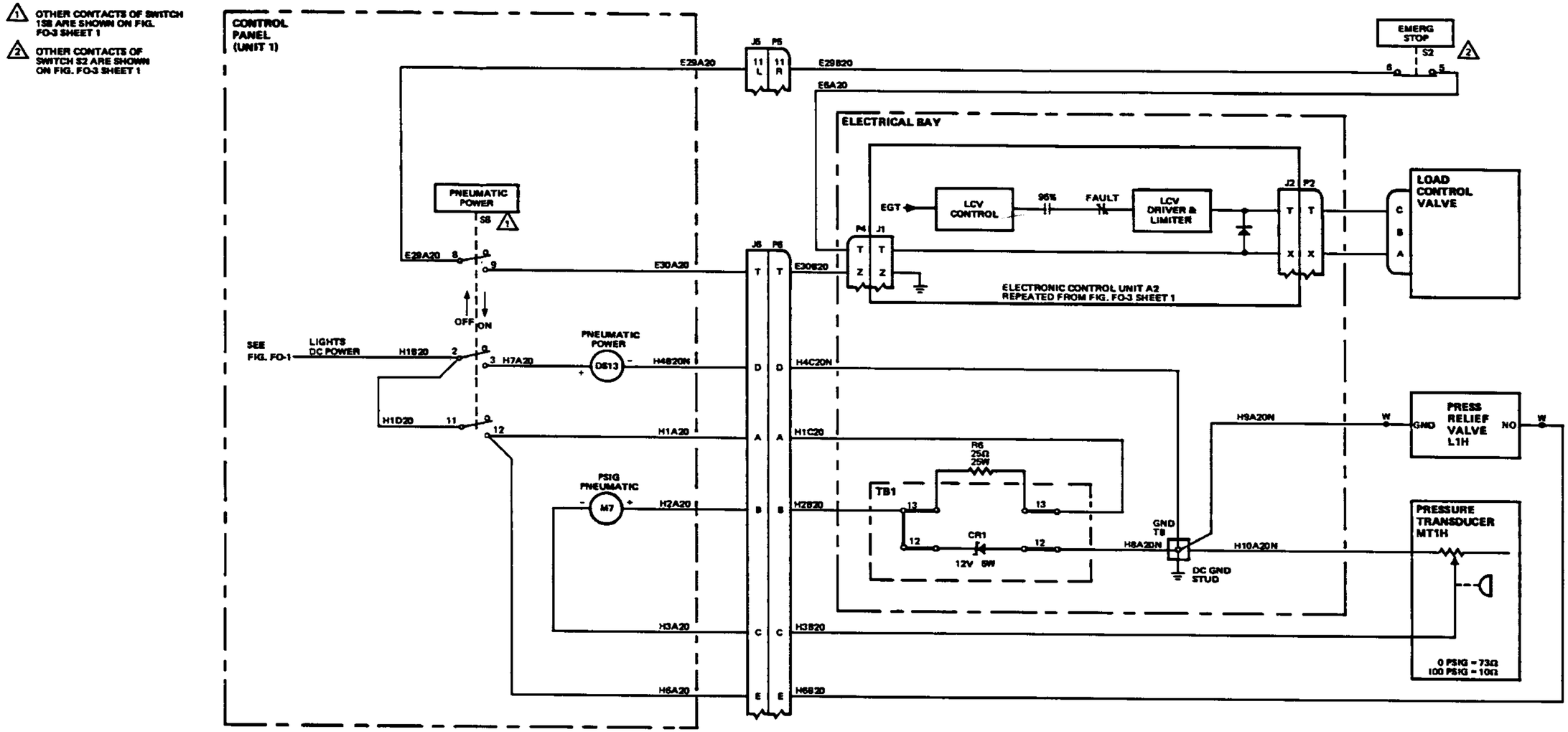


MS031146

FO 6. AC Power Generation and Control System Schematic/Wiring Diagram (Sheet 1 of 2).

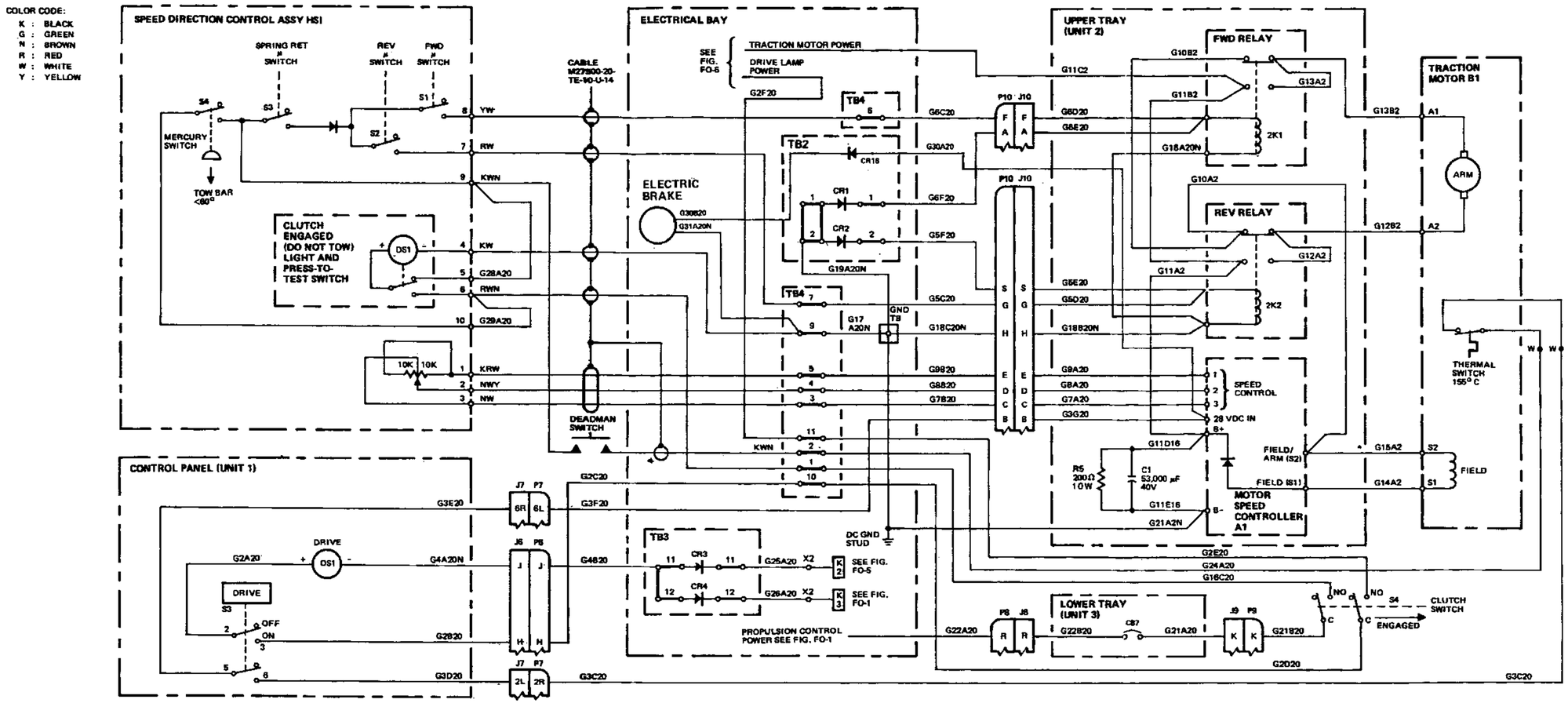


FO 6. AC Power Generation and Control System Schematic/Wiring Diagram (Sheet 2 of 2).

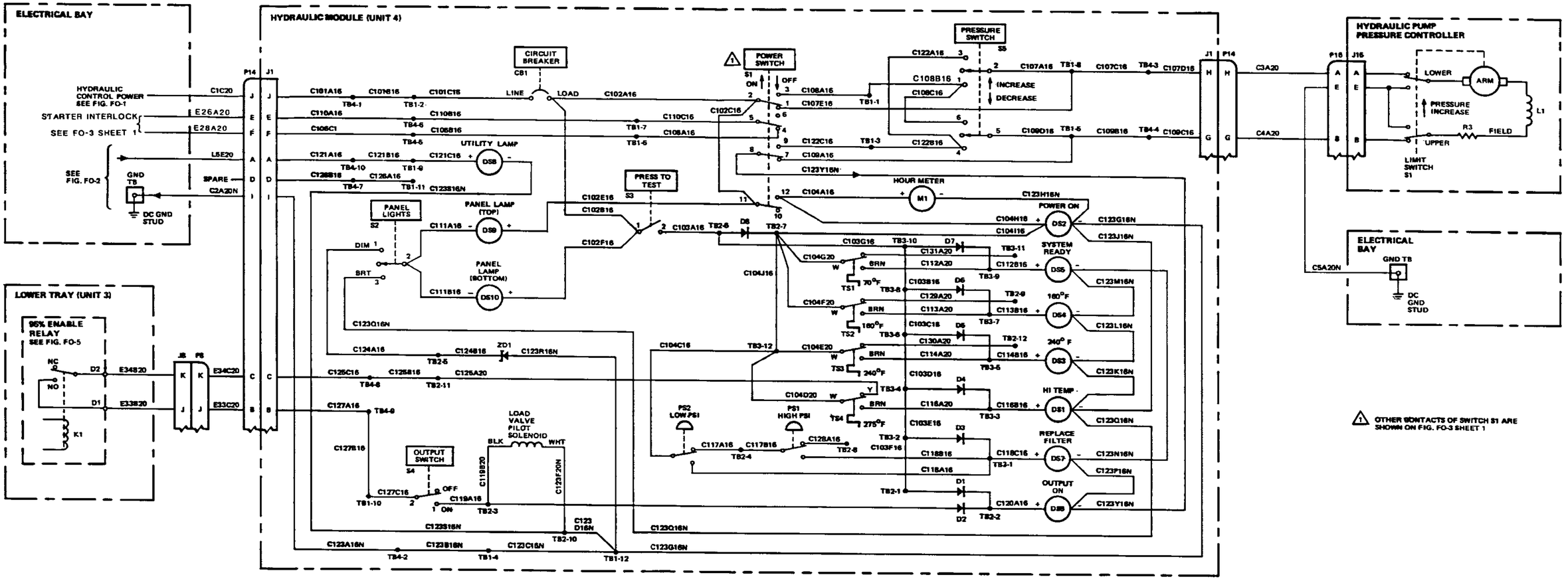


MS031447

FO 7. Pneumatic Control System Schematic/Wiring Diagram .

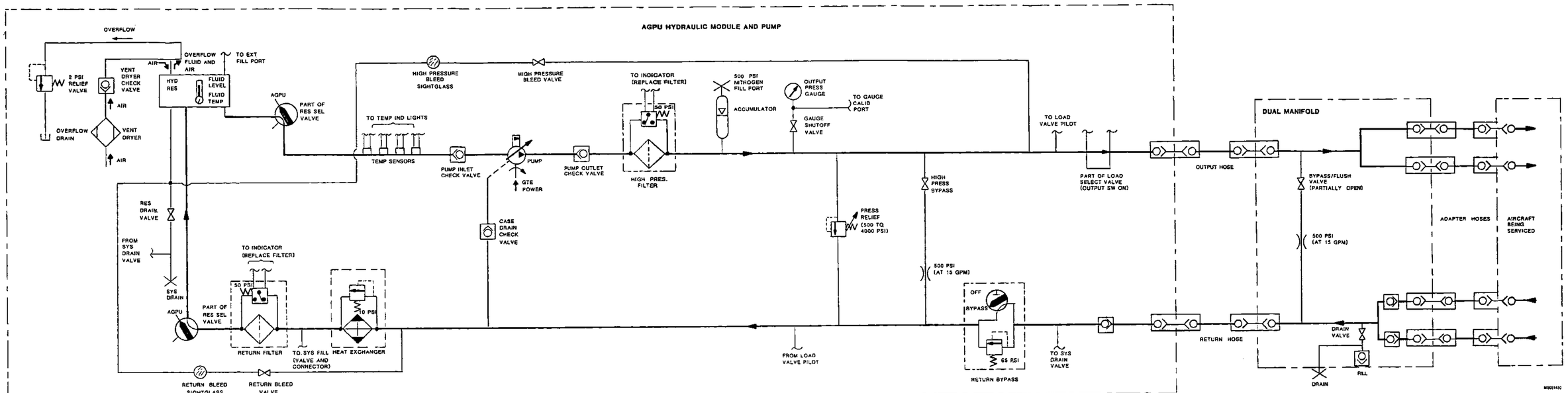


FO 8. Propulsion Control System Schematic/Wiring Diagram .

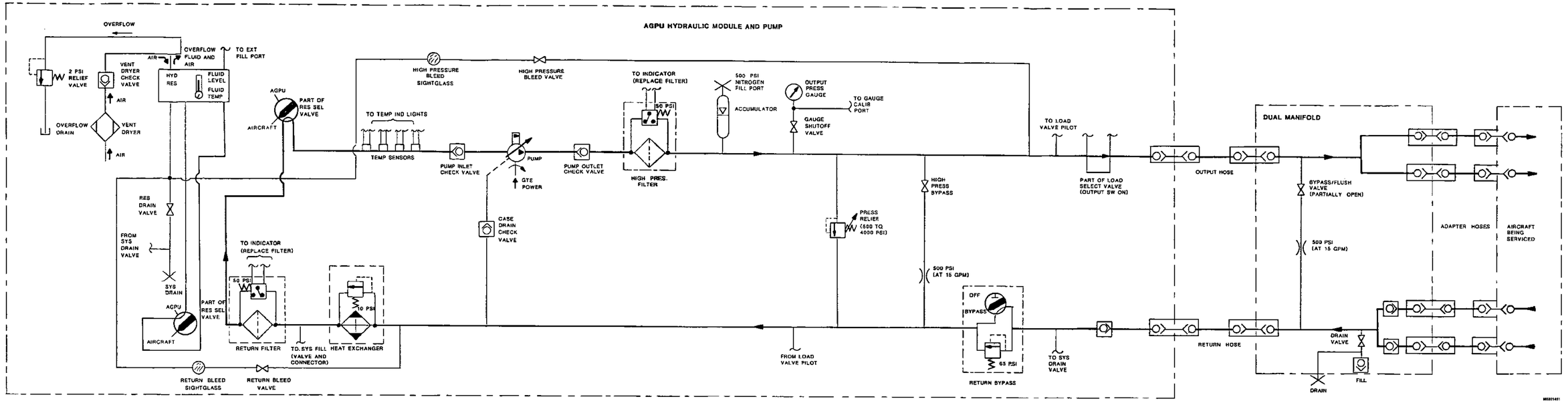


MS031449

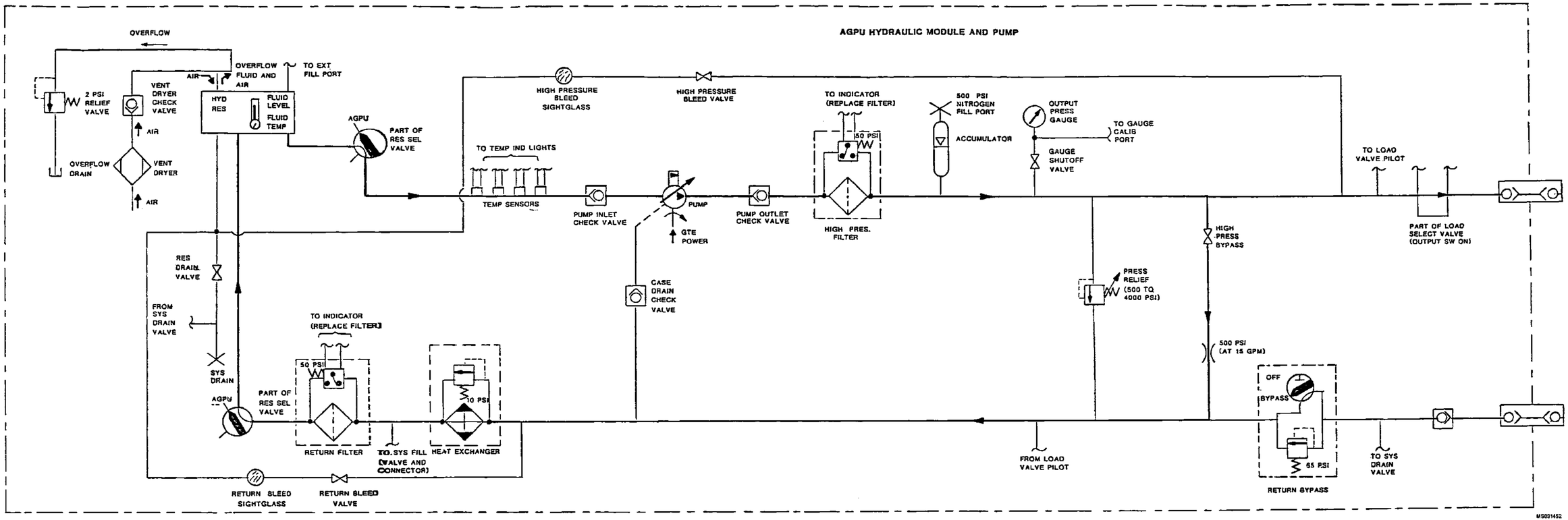
FO 9. Hydraulic Control System Schematic/Wiring Diagram .



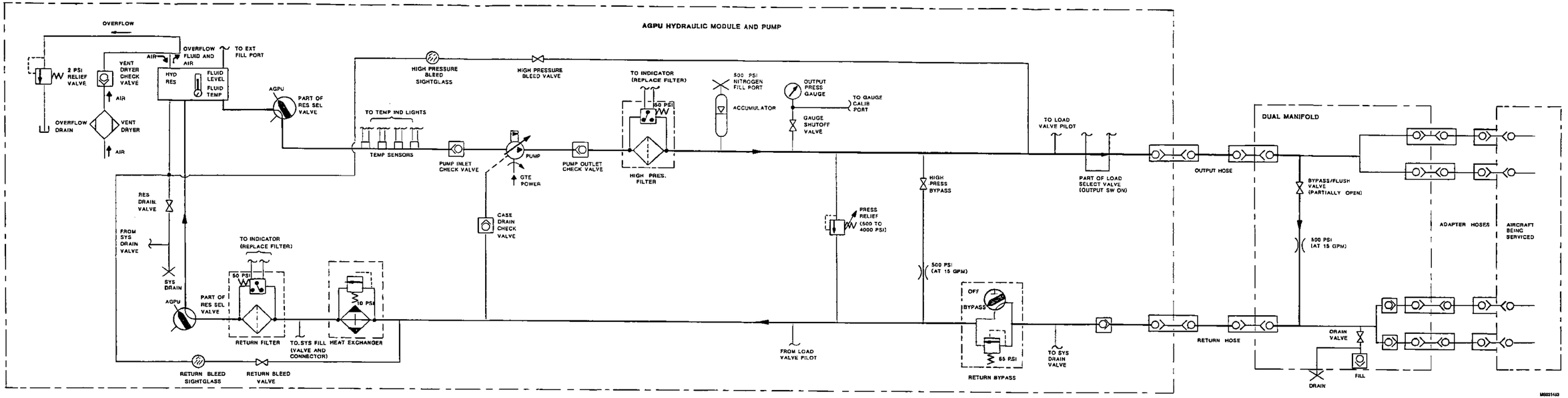
FO 10. Hydraulic System - Servicing Aircraft (Using Module Reservoir) .



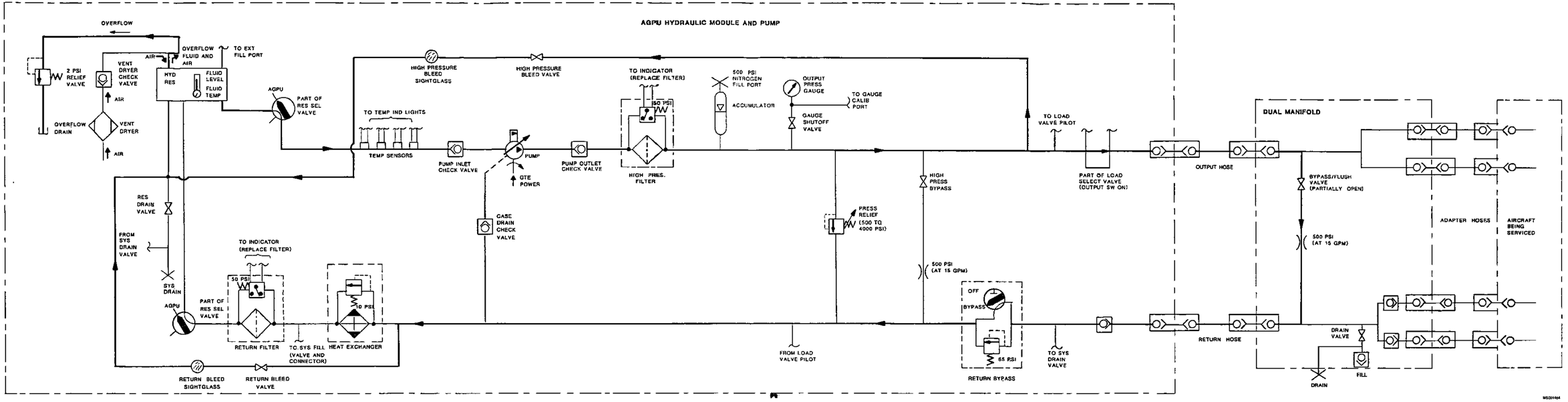
FO 11. Hydraulic System - Servicing Aircraft (Using Aircraft Reservoir) .



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. P/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-F80
P2 CONNECTOR, MS3106A-14S-2P-F80
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, MS3106E-20-29S
P12 CONNECTOR, MS3106E-36-10S-F80
P13 CONNECTOR, MS3106E-20-33P-F80
P14 CONNECTOR, MS3108E-18-1S-F80
P16 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.

7. MARK PER MIL-STD-130, WITH 83-14625 AND LATEST REVISION LETTER.

8. TWISTED PAIR (BY VENDOR), 2 TWISTS PER INCH.

9. CONNECTOR P7 TO HAVE INSERT KEYWAY 180° FROM ELBOW.

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
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-E	
E9A20	20		43.5"	P5-5L	P4-M	
E10A20	20		43.5"	P5-5R	P4-Y	
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
E1K20	20	WHT	36.5"	P5-10L (2)	S1F-NO	BARE WIRE

WIRE LIST CONTINUATION PAGE

WIRE NO.	SIZE	COLOR	LENGTH	FROM	TO	REMARKS
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-G	
P16A20	20		54"	P5-20L	P12-F	
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	
P53H20N	20		39.5"	P5-23L	GND TB	#6 LUG
P47A20	20		38.5"	P5-23R	R3(-)	SHUNT METER(-),#8 LUG
P48A20	20		38"	P5-24L	R3(+)	SHUNT METER(+),#8 LUG
P42A20 (8)	20	WHT	33.5"	P5-24R (2)	R2(-)	#8 LUG (TWISTED PAIR)

WIRE LIST CONTINUATION PAGE

WIRE NO.	SIZE	COLOR	LENGTH	FROM	TO	REMARKS
P43A20 (8)	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-(-) (2)	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
L2B20	20	WHT	42"	P6-N	P8-S	

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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	P13-R	
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	EMER SW., #6 LUG
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	
X41C20	20		42"	P9-J	P7-7R	
X9H20N	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 LUG
L11A20	20		30"	P7-3R	TB2-6	CATHODE, #6 LUG
L25A20	20	WHT	28"	P7-3L (2)	TB2-12	CATHODE, #6 LUG

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-b	
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-d	
L15A20	20		29"	P7-11L	TB2-10	CATHODE, #6 LUG
X24A20	20		54"	P7-12R	P12-c	
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-N	
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-f	
X47A20	20		54"	P7-22L	P12-P	
X48A20	20		54"	P7-23R	P12-E	
X49A20	20	WHT	54"	P7-23L (2)	P12-L	

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-f	
X53A20	20		54"	P7-A	P12-E	
X56A20	20		54"	P7-C	P12-S	
X57A20	20		54"	P7-(+)	P12-f	
X58A20	20		54"	P7-(-) (2)	P12-S	
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
G9B20	20		41"	P10-E	TB4-5	#6 LUG
G6C20	20		41"	P10-F	TB4-6	#6 LUG
G5C20	20		42"	P10-G	TB4-7	#6 LUG, PROPULSION CONTROLLER
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-T1	#4 LUG
X11A20	20	WHT	36"	P12-K	T1-T2	#4 LUG

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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-g	P13-K	
X8A20	20		59"	P12-n	P13-L	
P18A20	20		15"	P12-j	R1(+)	#8 LUG
P17A20	20		13"	P12-Y	R1(-)	#8 LUG
P50A12W (4)	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	PRES. 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 (4)	20		36"	DS101-(-)	DS102-(-)	BARE WIRE
L3D20 (4)	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		127.5"	P14-C	P16-B	
C3A20	20		137.5"	P14-H	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"	MT1O-(-)	GND TB	FUEL LEVEL SENDER, #6 LUG
P41A20 (4)	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 (4)	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/PLD
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 (4)	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 (4)	14		6"	3CB3-B	3CB4-B	#10 LUG, #10 LUG
X42A14 (4)	14	↓	48"	3CB6-L	J4(+) AC OUTLET	BARE WIRE, #10 LUG
X43A14 (4)	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 (4)	14	WHT	48"	3CB4-L	J2(+) AC OUTLET	BARE WIRE, #10 LUG
X45A14 (4)	14	↓	48"	3CB3-L	J1(+) AC OUTLET	BARE WIRE, #10 LUG
X9B14N (10)	14		6"	J3(-) AC OUTLET	J2(-) AC OUTLET	BARE WIRE, #10 LUG
X9D8N (10)	8		66"	J4(-) AC OUTLET	G1X-N	#10 LUG, 1/4 LUG
X9E20N	20		59.5"	J1(-) AC OUTLET	P7-4R (2)	BARE WIRE
E3D20	20		40"	TB1-1 CATHODE	P8-P	#6 LUG
E11A20	20		43"	TB3-1 CATHODE	P4-g	CATHODE, #6 LUG
E12A20	20		43"	TB3-2 CATHODE	P4-q	CATHODE, #6 LUG
E12E20 (4)	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-n	CATHODE, #6 LUG
E14A20	20		43.5"	TB3-4 CATHODE	P4-r	CATHODE, #6 LUG
E15A20	20		44"	TB3-5 CATHODE	P4-e	CATHODE, #6 LUG
C1D18	18		42"	P7-4L (2)	P9-M	
P22A2 (10)	2		68"	J4(+) BAT CHGR	3CB1-L	1/4", 1/4"
P2B2 (4)	2		34"	3CB1-B	K2-A1	1/4", 3/8"
P38B20	20		51"	P7-5L	K2-X2	#8 LUG
P2C8 (4)	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 (4)	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"	TB3-11 CATHODE	K2-X2	CATHODE
G11D20 (4)	20		24"	C1G(+)	2A1G-B(+) POS	BARE WIRE, #10 LUG
G11E20 (4)	20	↓	24"	C1G(-)	2A1G-B(-) NEG	BARE WIRE, #10 LUG
L3C20	20	WHT	52.5"	P8-T	DS101(+) PANEL LT	BARE WIRE

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WIRE LIST CONTINUATION PAGE

WIRE NO.	AWG SIZE	COLOR	LENGTH		FROM	TO	REMARKS
C2A20N	20		3½"	98½	P14-I	GND TB	# 6 LUG
C5A20N	20		3"	78	P16-E	GND TB	# 6 LUG
Q7A20N	20		2½"	26½	S1Q-(NO)	GND TB	FUEL LEVEL SW, # 6 LUG
Q7B20N	20		22½"	32½	S2Q-(NO)	GND TB	FUEL PRESS SW, GND TB, # 6 LUG
Q7C20N	20		4"	25	MT1Q-(-)	GND TB	FUEL LEVEL SENDER, # 6 LUG
P4A20	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			68	TB4-14	GND TB	#6 & #6
G11C2	2			42	R1-(-)	2K1-NO	½; ½, R1-(-) DC GABLE SIDE
G11B2	2			12	2K1-NO	2K2-NO	½; ½
G11A2	2			30	2K2-NO	2A1-B+ POS	½; ½
G13A2	2			10	2K1-NO	2K1-NC	½; ½
G13B2	2			80	2K1-NC	B1G-A1	½; ½, PROP MOTOR
G10B2	2			12	2K1-NC	2K2-NC	½; ½
G10A2	2			24	2K2-NC	2A1-(S2)	½; ½, ARM/FLD
G12A2	2			10	2K2-NO	2K2-NC	½; ½
G12B2	2			80	2K2-NC	B1G-A2	½; ½, PROP MOTOR
G14A2	2			80	B1G-S1	2A1-S1	½; ½
G15A2	2			80	B1G-S2	2A1-S2	½; ½
G21A2N	2			20	DC GND STUD	2A1-B - NEG	½; ½
P33C6	6			24	R2(+)	R3(+)	½; ½
* P32A6	6			24	R3(-)	J3-(+) BAT CHGR	½; ½, BAT CHGR
* P21A6N	6			24	J4-(-) BAT CHGR	J3-(-) BAT CHGR	½; ½, BAT CHGR
* P21B2N	2			96	J4-(-) BAT CHGR	DC GND STUD	½; ½, 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

WIRE LIST CONTINUATION PAGE

WIRE NO.	AWG SIZE	COLOR	LENGTH		FROM	TO	REMARKS
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			48	3CB5-L	J3-(+) AC OUTLET	BARE WIRE , # 10 LUG
X44A14	14			48	3CB4-L	J2-(+) AC OUTLET	BARE WIRE, # 10 LUG
X45A14	14			48	3CB3-L	J1-(+) AC OUTLET	BARE WIRE, # 10 LUG
X90BN	not done at R.C.E			6	J3-(-) AC OUTLET	J2-(-) AC OUTLET	BARE WIRE, # 10 LUG
X90BN				36	J4-(-) AC OUTLET	G1X-M	BARE WIRE, ½ & #10 LUG
X9E20N	20			73½	J1-(-) AC OUTLET	P7-14R	BARE WIRE
E3D20	20		12"	41	TB1-1 CATHODE	P8-P	# 6 LUG
E11A20	20		16"	51	TB3-1 CATHODE	P4-g	CATHODE, # 6 LUG
E12A20	20		16½"	50½	TB3-2 CATHODE	P4-d	CATHODE, # 6 LUG
E12E20	20			6	TB3-2 ANODE	TB3-6 ANODE	ANODE, CATHODE, # 6 LUG; #6 LUG
E12D20	20		8"	89	TB3-6 CATHODE	P4-L	CATHODE, # 6 LUG
E13A20	20		16½"	50½	TB3-3 CATHODE	P4-h	CATHODE, # 6 LUG
E14A20	20		17½"	89 3/4	TB3-4 CATHODE	P4-f	CATHODE, # 6 LUG
E15A20	20		17 3/4"	49¾	TB3-5 CATHODE	P4-e	CATHODE, # 6 LUG
C1D18	18			42	P7-4L	P9-M	
*P22A2	not done at RCE			54	J4-(+) BAT CHGR	3CB1-L	½" & ½"
*P2B2	2			48	JCB1-B	K2-A1	½" & ½"
P38B20	20		7½"	58½	P7-5L	K2-X2	# 8 LUG
P2C8	8			80	3CR2-B	K2-A1	3/8" LUG , # 8 LUG
E18C20	20		11"	39	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	40S3-(+)	P9-R	BARE WIRE
G24A20	20			34	TB4-2	B1G TEMP SW	PROP MOTOR, *BAREWIRE*
G22A20	20		3"	29	R3(-)	P8-R	3/8" LUG, SHUNT
G21B20	20			12	S4G - COM	P9-K	BARE WIRE, CLUTCH SW
G25A20	20			72	TB3-11 CATHODE	K2-X2	CATHODE
G30A20	20	WHT	30"		28 VDC INPUT	TB2-16 ANODE	20 AWG RECEPTACLE #6 LUG
G30B20	20	WHT	48"		TB2-16 CATHODE	ELECTRIC BRAKE	#6 LUG IN LINE SPLICE
G31A20N	20	WHT	24"		ELECTRIC BRAKE	TB4-9	IN LINE SPLICE #6 LUG

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FO 15. Main Harness Wire List (Sheet 5 of 5).

WIRE LIST	DOD PROJECT MANAGER-MOBILE ELECTRIC POWER WASHINGTON, DC	WL 83-14626	REV. D	PAGE 1 OF 8
TITLE HARNESS, WIRING - CONTROL PANEL		C INCORP. E.O. #10115 COMPLETELY REVISED & REDRAWN		
MODEL: A.G.P.U.	WIRING HARNESS: 83-14626	D INCORP. E/O #10272		
	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-36-403S
   J6 CONNECTOR, MS3106E-20-29S
   J7 CONNECTOR, MS3101A-36-403P
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 AWG WIRE P/N M22759/16-20-9 = 478.00'
   B) 18 AWG WIRE P/N M22759/16-18-9 = 17.00'

LTR.	ECO NO.	DATE	BY	AUTH.

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 (7)	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

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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 (7)	#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

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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

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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

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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
F1H20			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

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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"	S2-3	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

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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	BAREWIRE, BAREWIRE
H5B20	20	WHT	36"	S11-C-4	J5-7R	BAREWIRE, BAREWIRE

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FO 16. Control Panel Harness Wire List (Sheet 3 of 3).

WIRE LIST

DOD PROJECT MANAGER-MOBILE ELECTRIC POWER WASHINGTON, DC

TITLE: HARNESS, WIRING - UPPER TRAY

MODEL: A.G.P.C.

WIRING HARNESS 83-14627

NEXT ASSY 83-14691

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'

WL 83-14627 REV. C PAGE 1 OF 2

LTR.	ECO NO.	DATE	BY	AUTH.
B	INCORP. E.O. #10114 COMPLETELY REVISED & REDRAWN.			
C	INCORP. E/O #10273			

WL 83-14627 REV. C PAGE 1 OF 2

WIRE LIST CONTINUATION PAGE

WIRE NO.	SIZE	COLOR	LENGTH	FROM	TO	REMARKS
G6E20	20	WHT	36"	J-10-A (3)	2K1(+)	#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	2K1(+)	#10 LUG
G5D20			36"	-G	2K2(+)	#10 LUG
G18B20N			36"	-H	2K2(-)	#10 LUG
G5E20			36"	J-10-S (3)	2K2(+)	#10 LUG
G18A20N	20	WHT	8"	2K1(-)	2K2(-)	#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.

(B) 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.

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.

(B) 7. MARK PER MIL-STD-130 WITH 83-14628 AND LATEST REVISION LETTER.

LTR.	ECO NO.	DATE	BY	AUTH.
C	INCORP. 10116 REVISED	E.O. COMPLETELY & 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:

(B) 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
(B)	E17B20	20	WHT	31"	J8 -A △3	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	
	P4B20			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
	E4B18	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	3P1(+)	
	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
	X9K20N △5			31"	J9 -H △3	FTMTR(-)	#1/4 LUG
	E3F20			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
(B)	E36B20N	20	WHT	8"	3XK1-X2	3XK2-X2	

WL 83-14628 PAGE 2 OF 5

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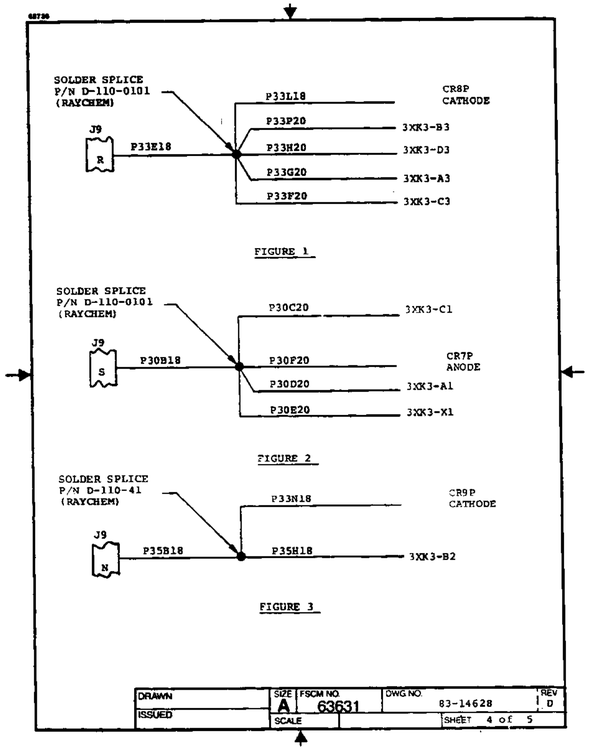
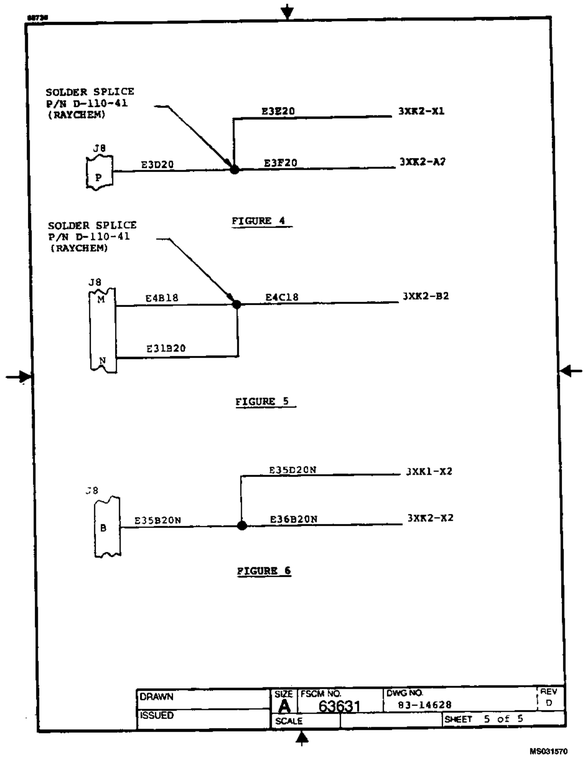
FO 18. Lower Electrical Tray Harness Wire List (Sheet 1 of 2).

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
X9T20N	20		31"	J18-A 4 3	FT115VAC(-)	#1/4 LUG 5
E4J18	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

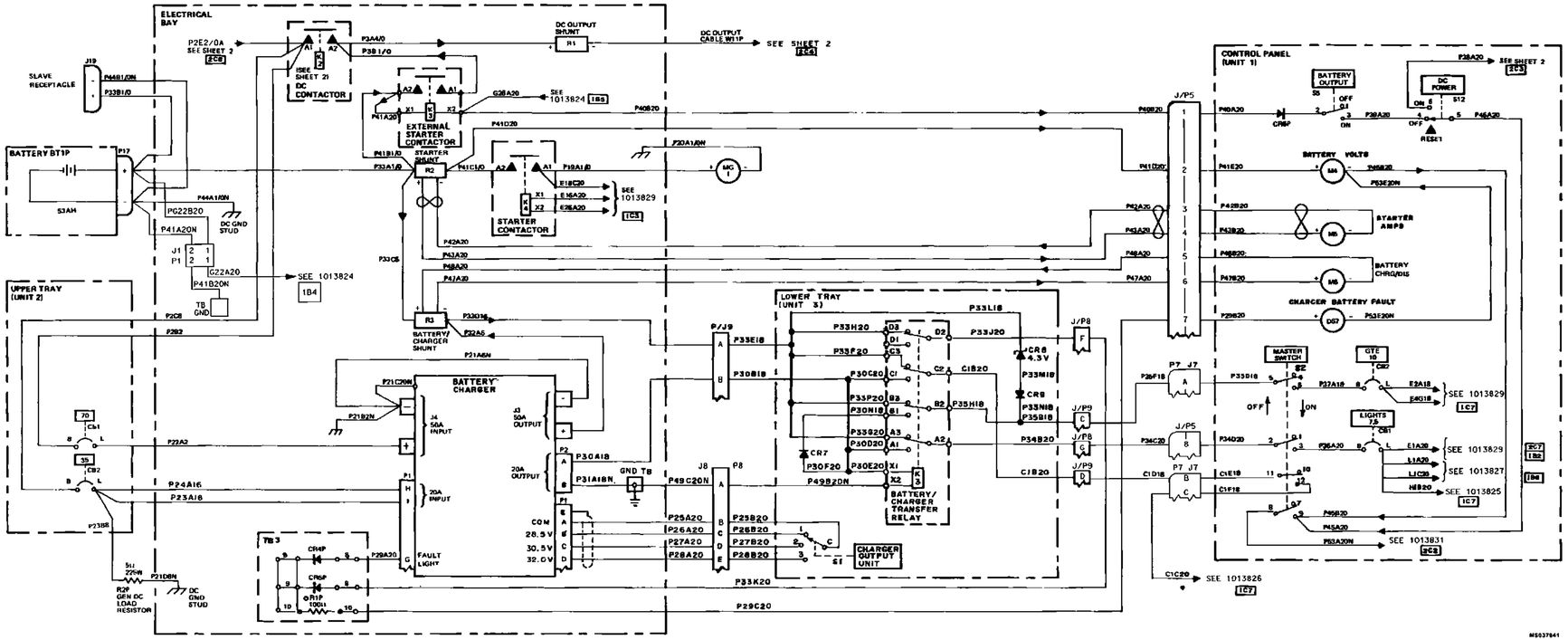
WL 83-14628 PAGE 3 OF 5



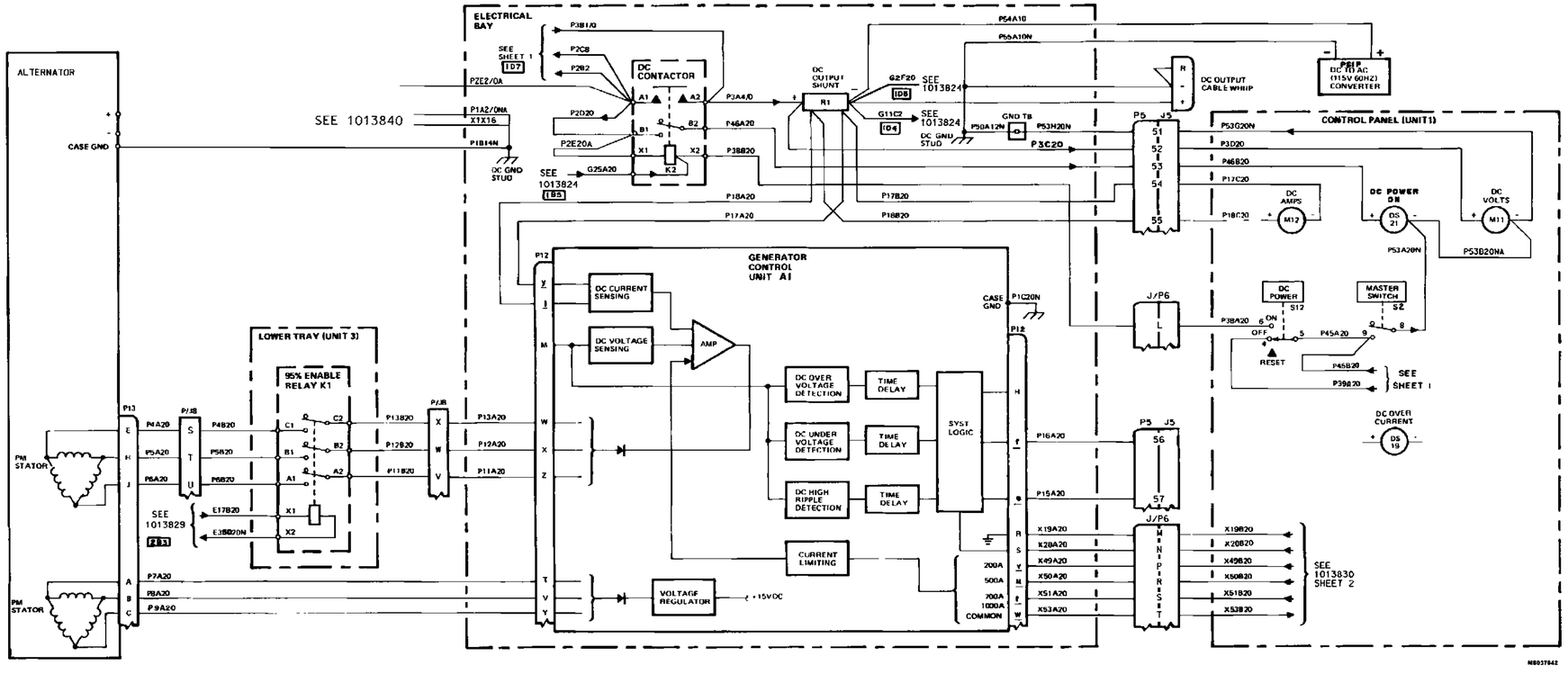


MS031570

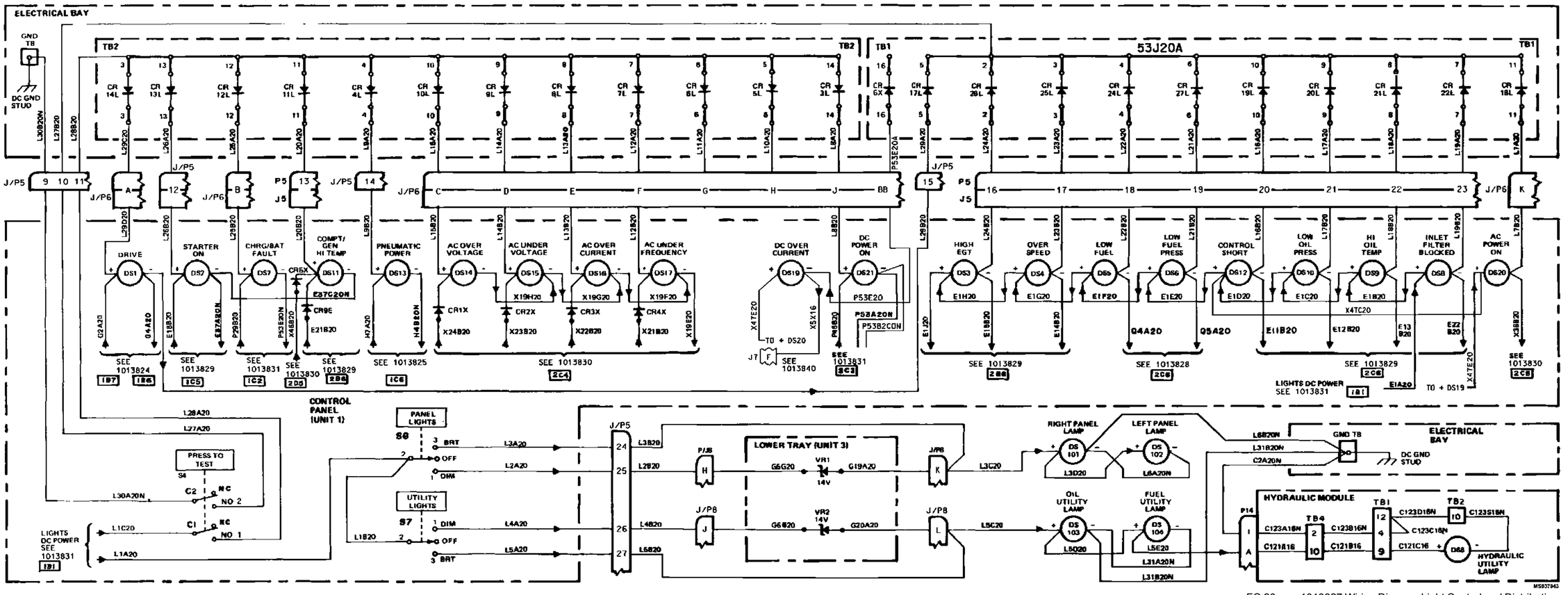
FO 18. Lower Electrical Tray Harness Wire List (Sheet 2 of 2).



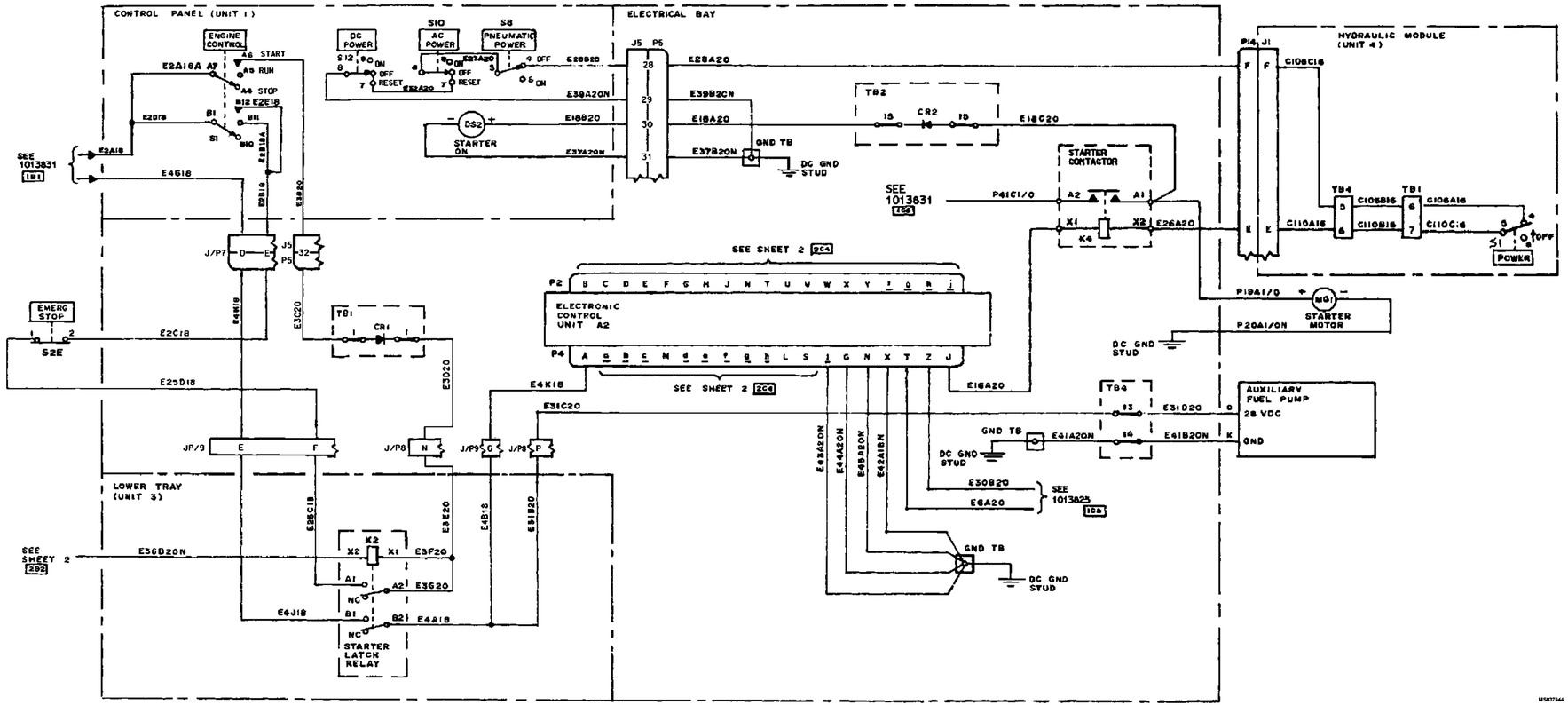
FO 19. 1013831_A DC System Control Schematic MEP 360E (Sheet 1 of 2).



FO 19. 1013831_A DC System Control Schematic MEP 360E (Sheet 2 of 2).

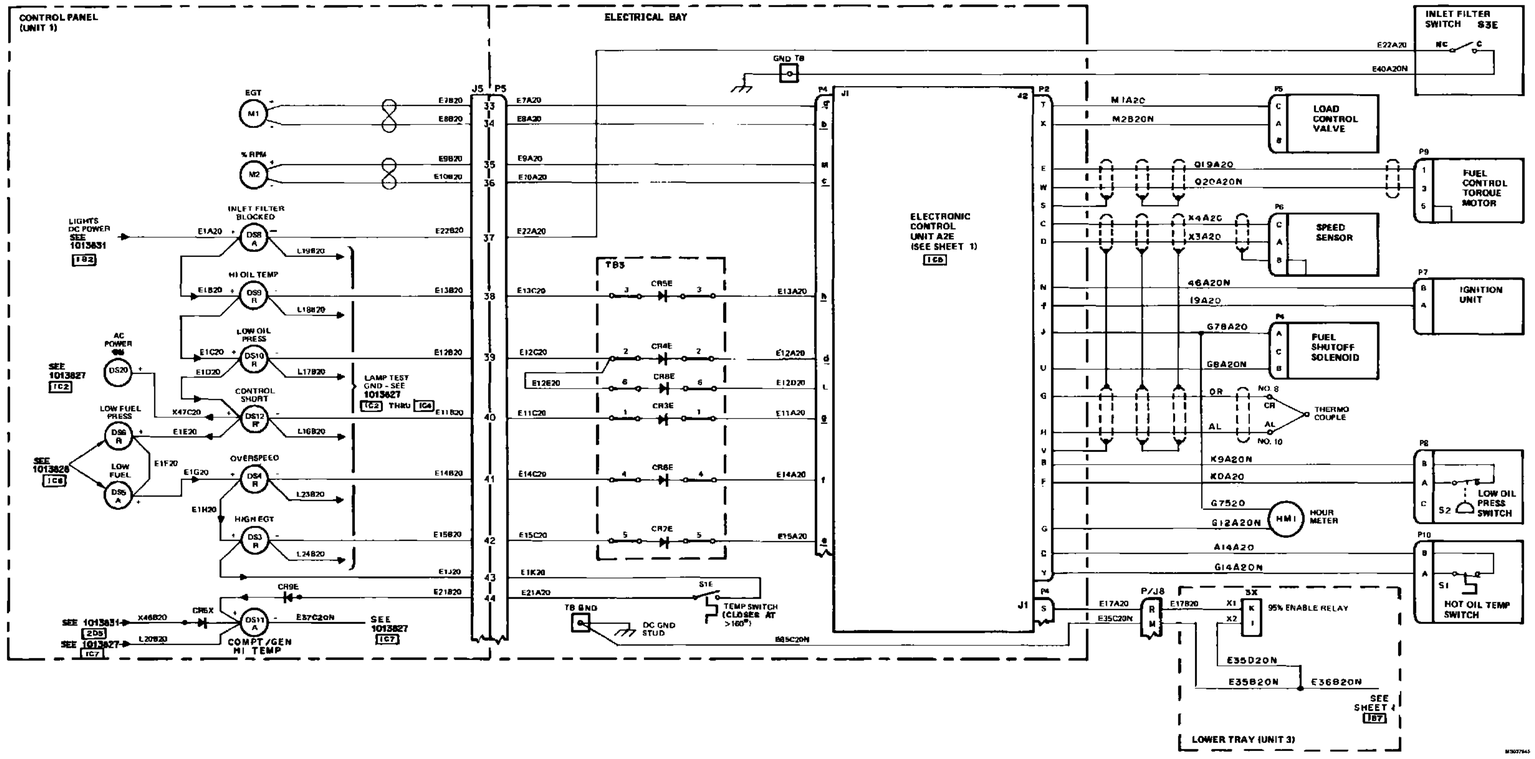


FO 20. 1013827 Wiring Diagram Light Control and Distribution .

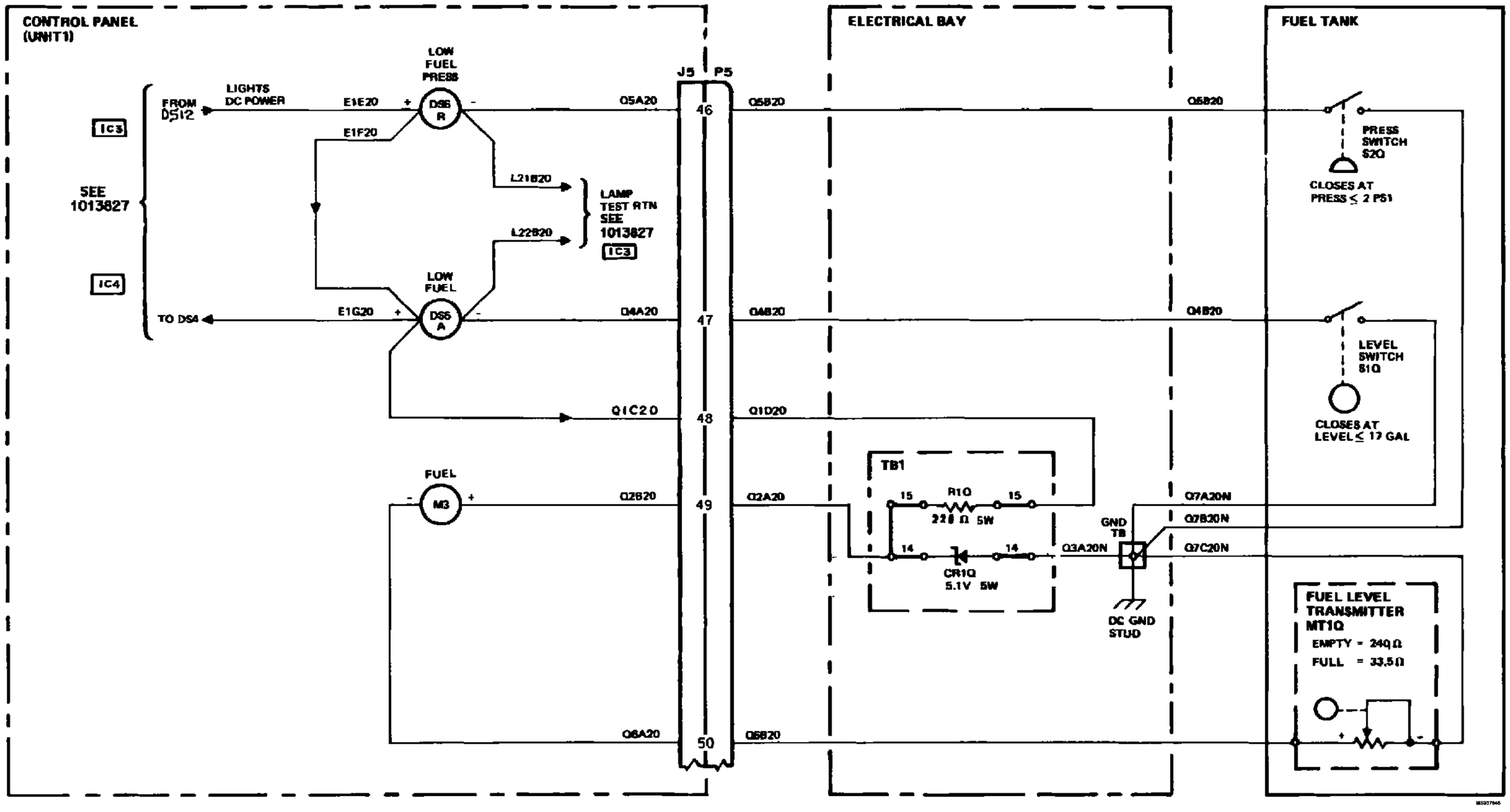


MS037944

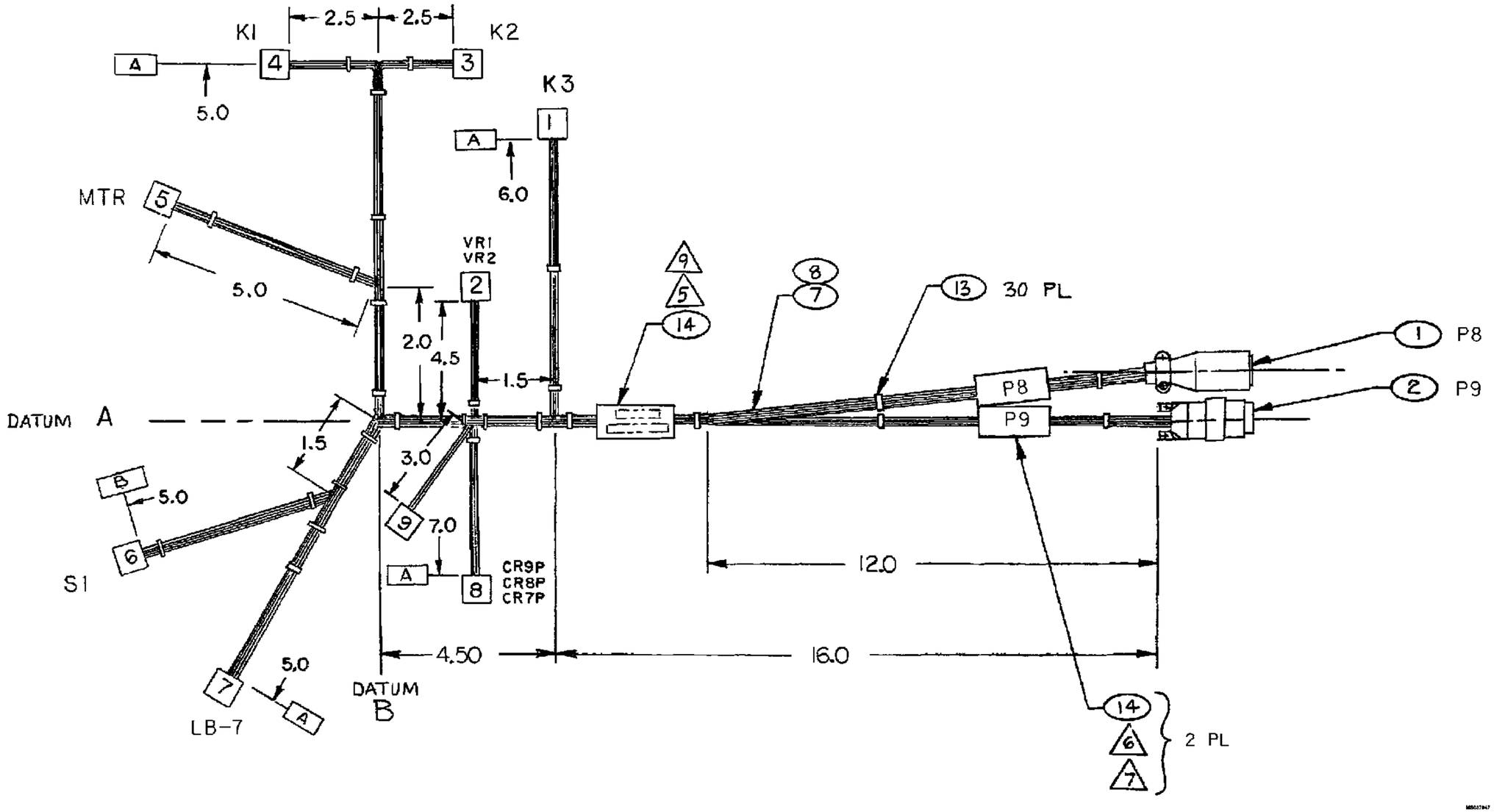
FO 21. Wiring Diagram Gas Turbine Engine (Sheet 1 of 2).



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.

LTR	ECO NO.	DATE	BY	AUTH.
-	RELEASED PER ERR AV-10392	051105		

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6	5	4	3	2	1	SHT	OF SHEETS

WL 1013779 REV - PAGE 1 OF 6

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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

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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
C13B20	20	WHT	25"	P9-D		3XK3-C2			
E17B20	20	WHT	29"	P8-R		3XK1-X1		BARE WIRE	
E25C18	18	WHT	29"	P9-F		3XK2-A3		BARE WIRE	
E31B20	20	WHT	9"	P8-P		E4B18 SPLICE		SEE PG. 5 FIG 5	
E33B20	20	WHT	29"	P8-f		3XK1-B1		BARE WIRE	
E34B20	20	WHT	28"	P8-e		3XK1-B2		BARE WIRE	
E35B20N	20	WHT	11"	P8-M		SPLICE		SEE PG. 5 FIG. 5	
E36C20N	20	WHT	18"	E35B20N, SPLICE		3XK1-X2		SEE PG. 5 FIG. 5	
E36B20N	20	WHT	18"	E35B20N, SPLICE		3XK2-X2		SEE PG. 5 FIG. 5	
E3E20	20	WHT	5"	P8-N		SPLICE		SEE PG. 5 FIG. 4	
E3F20	20	WHT	24"	E3E20, SPLICE		3XK2-X1		SEE PG. 5 FIG. 4	
E3G20	20	WHT	24"	E3E20, SPLICE		3XK2-A2		SEE PG. 5 FIG. 4	
E4A18	18	WHT	20"	E4B18, SPLICE		3XK2-B2		SEE PG. 5 FIG. 5	
E4B18	18	WHT	9"	P9-G		SPLICE		SEE PG. 5 FIG. 5	
E4J18	18	WHT	29"	P9-E		3XK2-B1		BARE WIRE	
G19A20	20	WHT	.23"	P8-K		3VR1-		#6 LUG	
G20A20	20	WHT	23"	P8-L		3VR2(-)		#6 LUG	
G21A20	20	WHT	26.5"	P8-d		CB7(-)		#6 LUG	
G22B20	20	WHT	26.5"	P8-c		CB7(+)		#6 LUG	
G5G20	20	WHT	23"	P8-H		3VR1+		BARE WIRE	
G6G20	20	WHT	23"	P8-J		3VR2(+)		BARE WIRE	
P11B20	20	WHT	29"	P8-V		3XK1-A2		BARE WIRE	
P12B20	20	WHT	28"	P8-W		3XK1-B2		BARE WIRE	
P13B20	20	WHT	29"	P8-X		3XK1-C2		BARE WIRE	
P25B20	20	WHT	26.5"	P8-B		SB1-COMM		BARE WIRE	
P26B20	20	WHT	26.5"	P8-C		SB1-1		BARE WIRE	
P27B20	20	WHT	26.5"	P8-D		SB1-2		BARE WIRE	
P28B20	20	WHT	26.5"	P8-E		SB1-3		BARE WIRE	F
P30B18	18	WHT	11"	P9-B		SPLICE		SEE PG. 5 FIG. 2	
P30C20	20	WHT	14"	P30B18, SPLICE		3XK3-C1		SEE PG. 5 FIG. 2	
P30D20	20	WHT	14"	P30B18, SPLICE		3XK3-A1		SEE PG. 5 FIG. 2	
P30E20	20	WHT	14"	P30B18, SPLICE		3XK3-X1		SEE PG. 5 FIG. 2	
P30F20	20	WHT	15.5"	P30B18, SPLICE		CR7P-ANODE		SEE PG. 5 FIG. 2	
P30N18	18	WHT	9"	3CR7P, CATHODE		3XK3-B1		BARE WIRE	
P33E18	18	WHT	9.5"	P9-A		SPLICE		SEE PG. 5 FIG. 1	
P33F20	20	WHT	15.5"	P33E18, SPLICE		3XK3-C3		SEE PG. 5 FIG. 1	
P33G20	20	WHT	15.5"	P33E18, SPLICE		3XK3-A3		SEE PG. 5 FIG. 1	
P33H20	20	WHT	15.5"	P33E18, SPLICE		3XK3-D3		SEE PG. 5 FIG. 1	
P33J20	20	WHT	25"	P8-F		3XK3-D2		BARE WIRE	
P33L18	18	WHT	18"	P33E18, 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

MS037960

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"	3CR9P-ANODE		3CR9P-ANODE		JUMPER,3CR9P;20A DIODE	
P33N18	18	WHT	16"	3CR9P-CATHODE		P35B16, SPLICE		SEE PG. 5 FIG. 3	
P33P20	20	WHT	15.5"	P33E18, SPLICE		3XK3-B3		SEE PG. 5 FIG. 1	
P34B20	20	WHT	25"	P8-C		3XK3-A2			
P35B18	18	WHT	7'	P9-C		SPLICE		SEE PG. 5 FIG. 3	
P35H18	18	WHT	16"	P35B18, SPLICE		3XK3-B2		SEE PG. 5 FIG. 3	
P49B20N	20	WHT	25"	P8-A		3XK3X2			
P4B20	20	WHT	29"	P8-S		3XK1-C1		BARE WIRE	
P5B20	20	WHT	29"	P8-T		3XK1-B1		BARE WIRE	
P6B20	20	WHT	29"	P8-U		3XK1-A1		BARE WIRE	
X41D20	20	WHT	26.5"	P8-Z		FT115VAC(+)		#1/4 LUG	
X59A20	20	WHT	28.5"	P8-b		FTMTR(+)		#1/4 LUG	
X9K20N	20	WHT	28.5"	P8-d		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: –
MODEL: A.G.P.U.

REVISION DATE:
SHEET 4

MS037951

FO 24. 1013779 Lower Tray Wiring Harness List (Sheet 4 of 6).

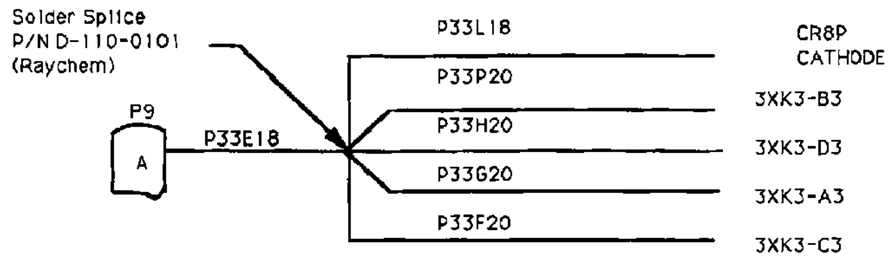


FIGURE 1

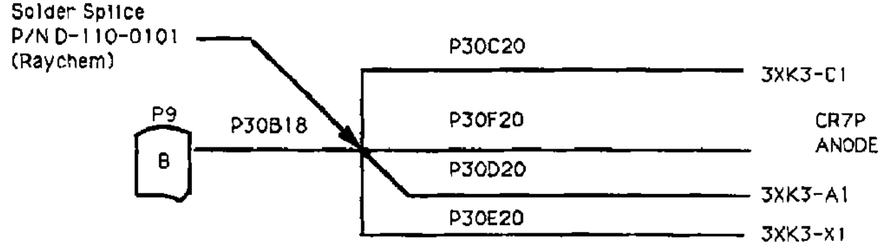


FIGURE 2

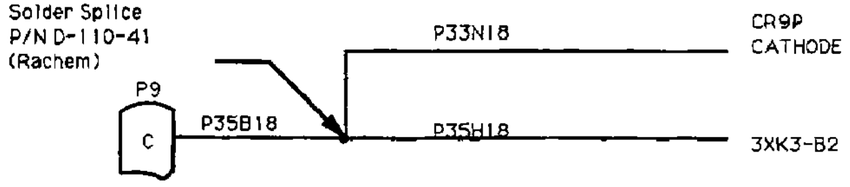


FIGURE 3

MS037952

FO 24. 1013779 Lower Tray Wiring Harness List (Sheet 5 of 6).

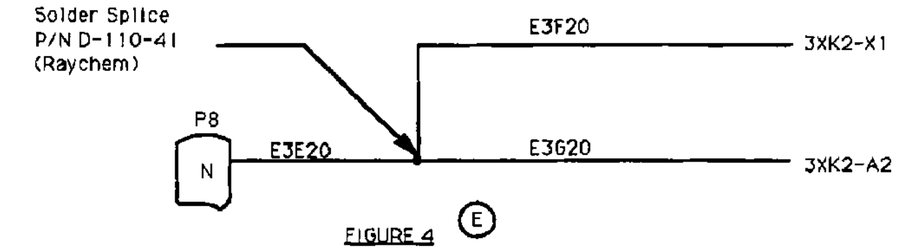


FIGURE 4

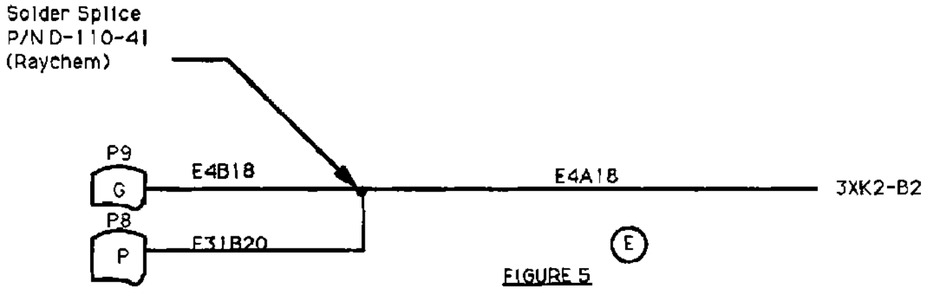


FIGURE 5

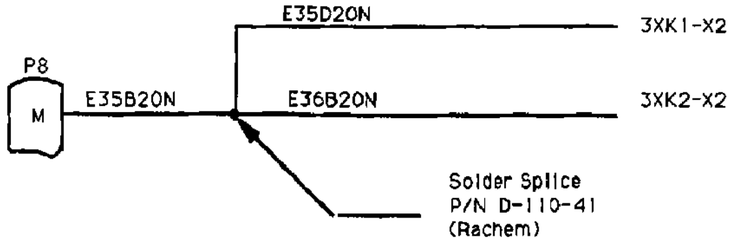
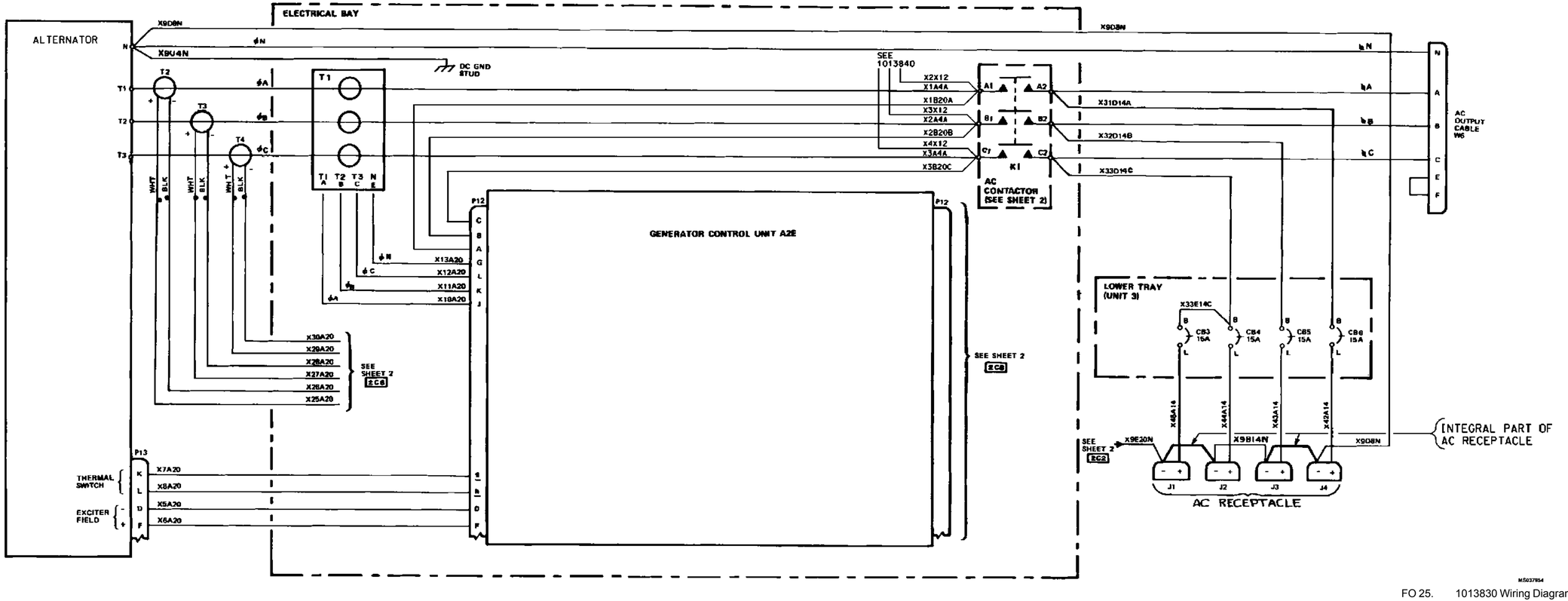


FIGURE 6

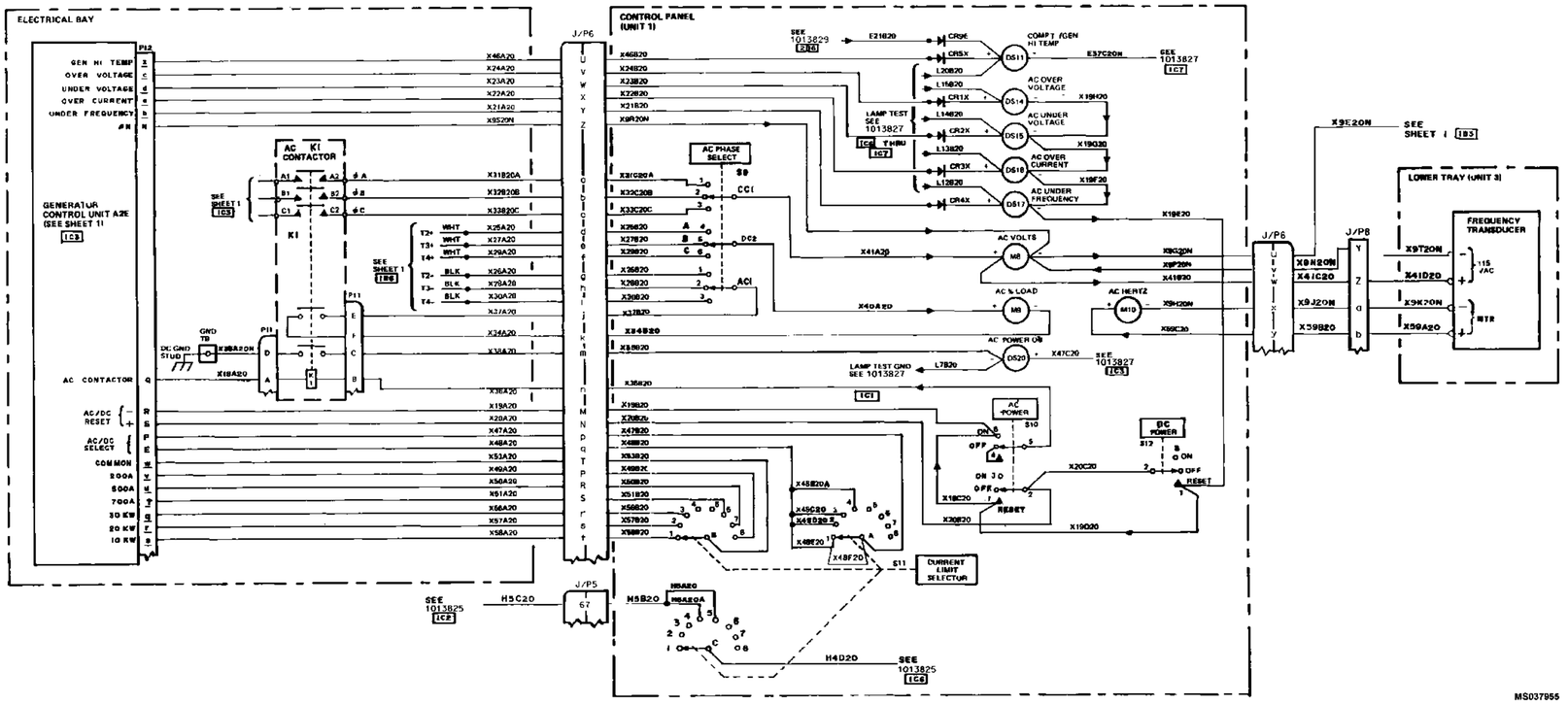
MS037953

FO 24. 1013779 Lower Tray Wiring Harness List (Sheet 6 of 6).

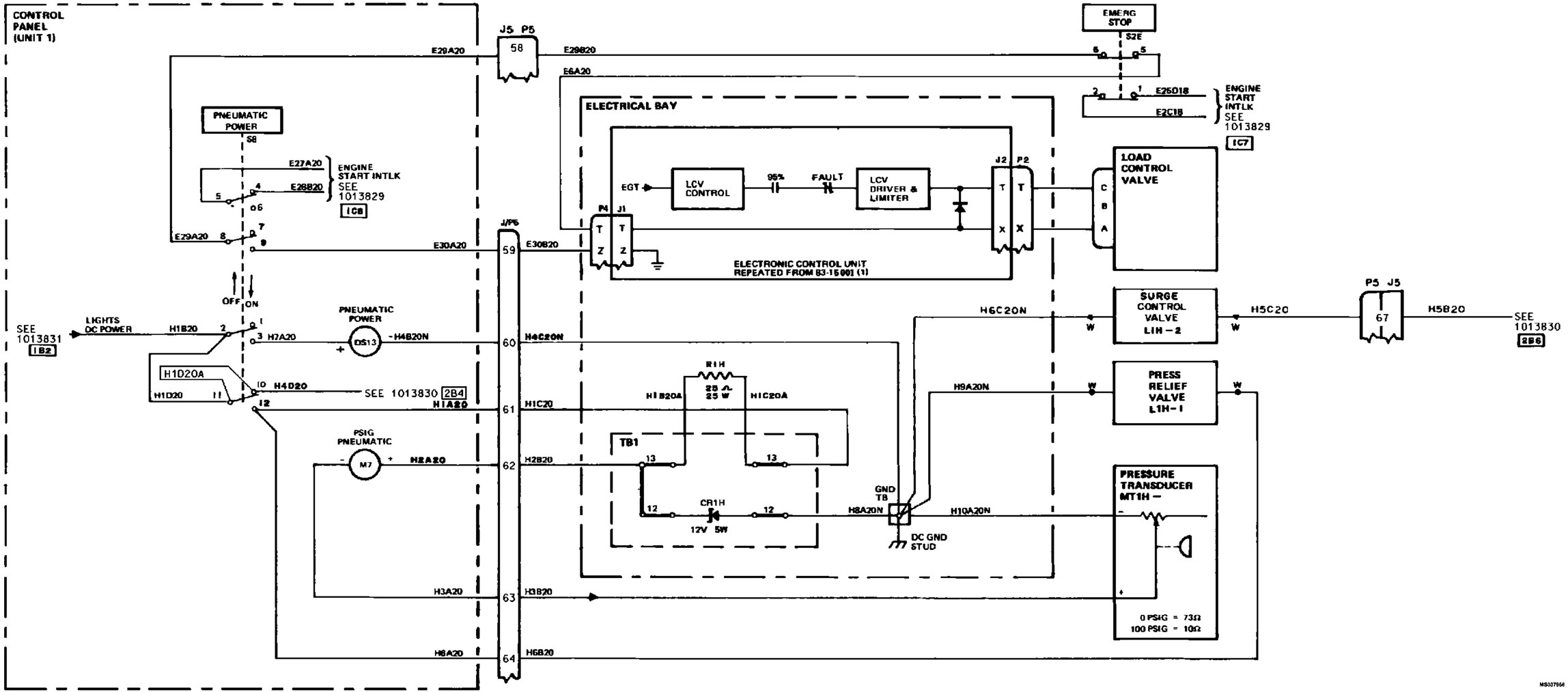


M5037854

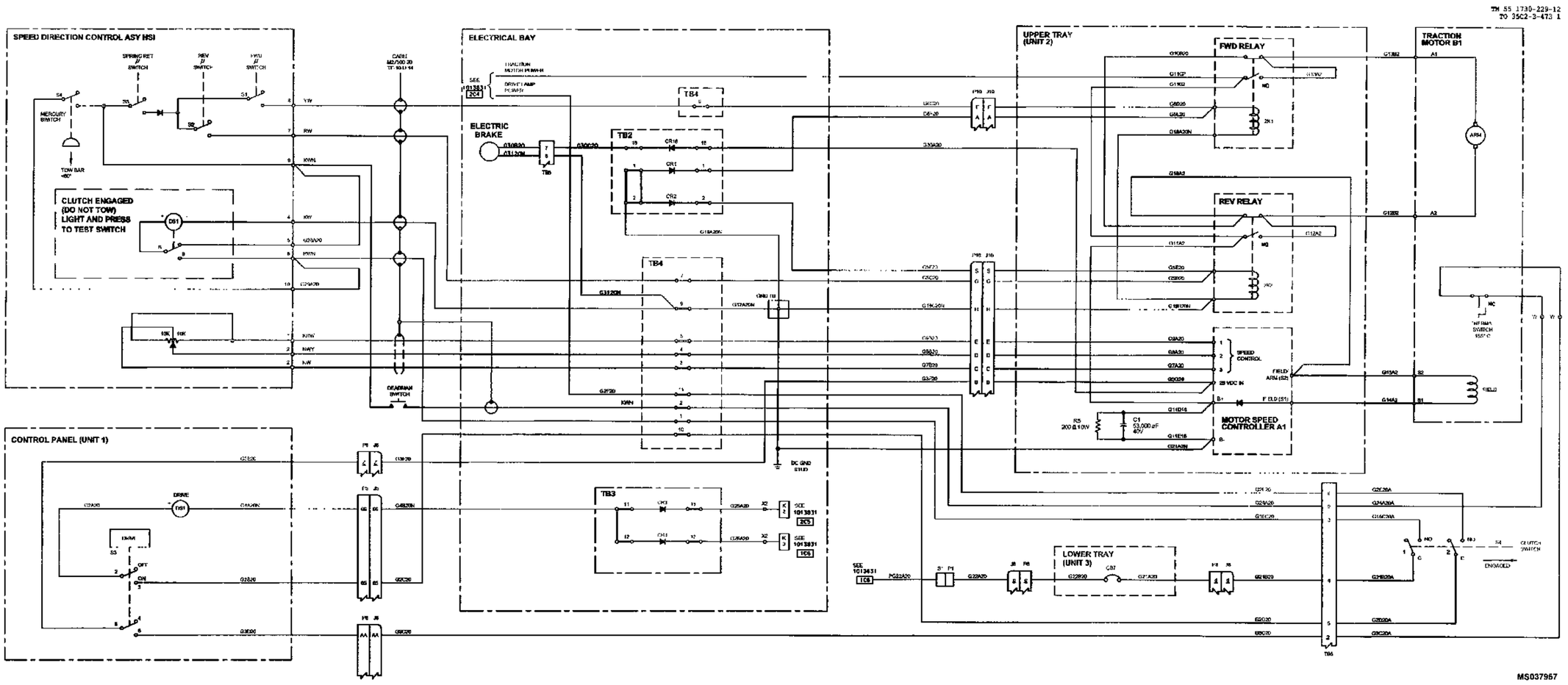
FO 25. 1013830 Wiring Diagram AC System and Control (Sheet 1 of 2).



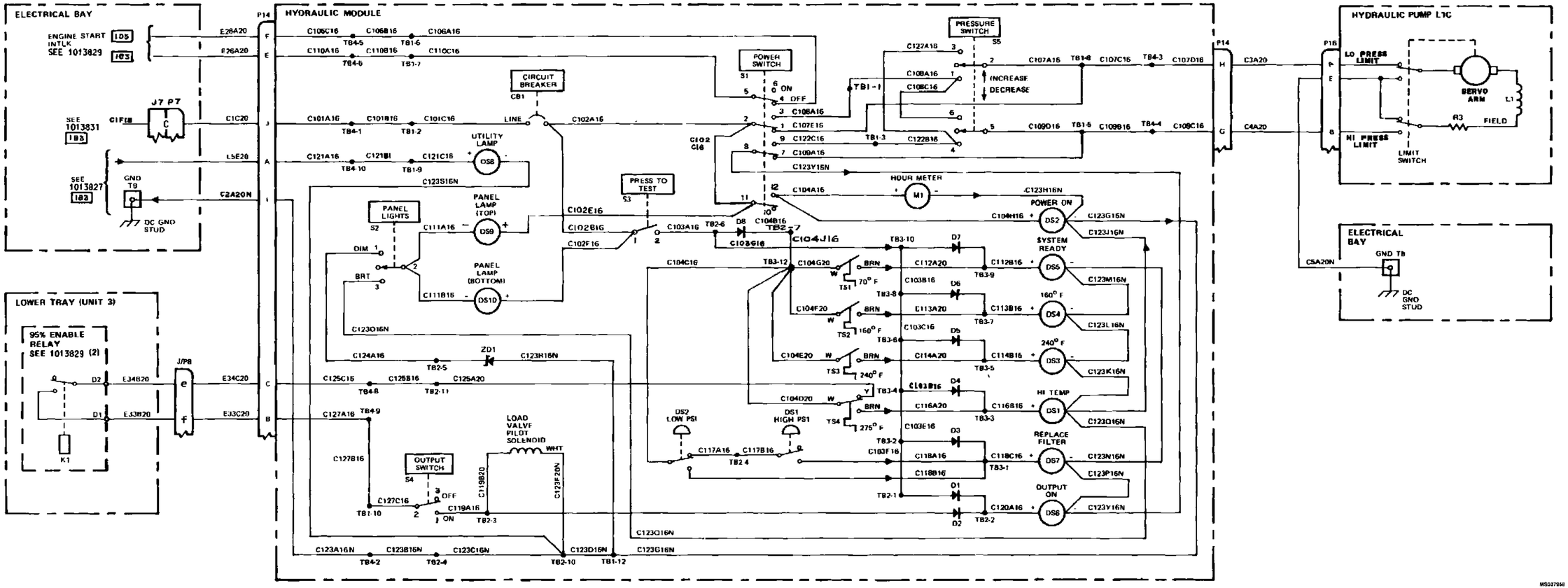
FO 25. 1013830 Wiring Diagram AC System and Control (Sheet 2 of 2).



FO 26. 1013825 Wiring Schematic Diagram Pneumatic Control and Indicator .



FO 27. 1013824 Propulsion Control Schematic .



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. (flagged note) 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. (flagged note) WIRES SUPPLIED AS LOOSE ITEMS AND NOT SHOWN ON HARNESS.
10. BW INDICATES BARE WIRE STRIPPED AND TINNED.
11. (flagged note) SEE "TO LOCATION" FOR WIRE LENGTH. WIRE FN AND TERMINATION FN.
12. (flagged note) J8-K HAS WIRE NUMBER L3F20 WHICH IS SPLICED TO WIRE NUMBERS L3B20 AND L3C20.
13. (flagged note) 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
96	2			83-9091	PARALLEL CRIMP SPLICE, 12-10, UNINSULATED		EA	
94	3			02-09-2101	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-TF-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, WITH STRAPS ATTACHED		FT	
86	AR		SAE-AS33671	MS3367-1-9	TIEDOWN, STRAP, ELECT 8.3"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-25036-156	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	

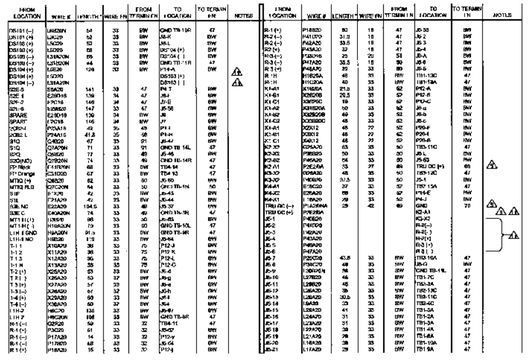
PARTS LIST

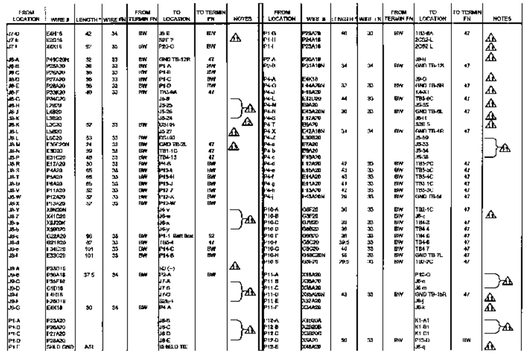
FIND NO.	QTY RQD	CAGE CODE	DRAWING OR SPECIFICATION	PART OR IDENTIFICATION NO.	NOMENCLATURE OR DESCRIPTION	PL	UM	NOTES / REMARKS
76	3		SAE-AS25036	AS-25036-150	TERMINAL LUG, ½" RING, 22-18 AWG, RED		EA	
75	1		SAE-AS25036	AS-25036-148	TERMINAL LUG, #4 RING, 22-18 AWG, RED		EA	
74	1		SAE-AS25036	AS-25036-141	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	6		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, 6 AWG, RED		EA	
60	3		SAE-AS25036	AS-25036-116	TERMINAL LUG, ½" 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, ¼" RING, 8 AWG, UN-INSUL		EA	
53	1			324114	TERMINAL LUG, ¼" 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	16		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			M16-20148/2-20-2	WIRE, ELECT, TWISTED PAIR, 20 AWG, WHT		FT	
44	AR		SAE-AS22759	M22759/16-00-0	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	M85049/83-20W	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	M28840/1CW	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	M85049/31-16A	BACKSHELL		EA	
20	1		MS3456D	MS3456W20-16S	CONNECTOR, PLUG		EA	P20
19	1		MS3470E	MS3470W16-11S	CONNECTOR, RECEPTACLE		EA	J9
18	1		SAE-AS85049	M85049/31-22A	BACKSHELL		EA	
17	1		MS3470F	MS3470W22-55S	CONNECTOR, RECEPTACLE		EA	J8
16	1		MS3101D	MS3101E 20-29P	CONNECTOR, PLUG, STRAIGHT		EA	P10
15	1		MS3106D	MS3106F20-16S	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	MS3470W16-8S	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			83-15086-01	CABLE, 16 CONDUCTOR, 20 AWG		FT	
1	3			M16-20148/2-20-4	CABLE, SHIELDED, 4 CONDUCTOR		FT	

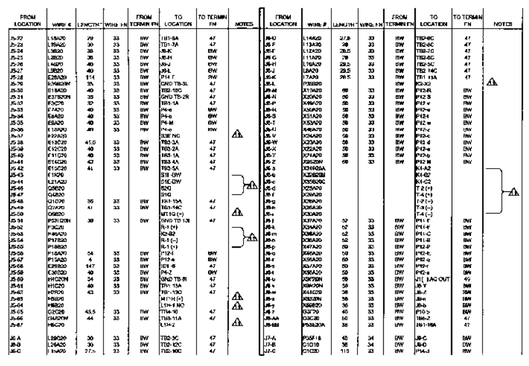
PARTS LIST

MS037959

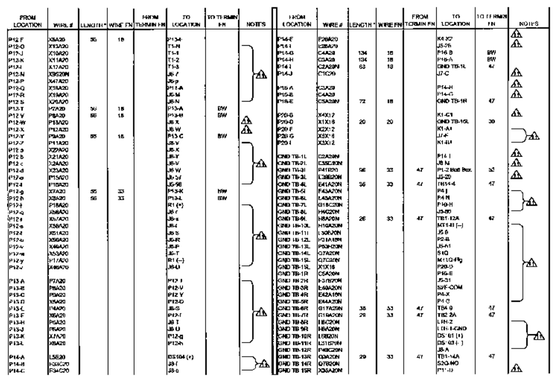
FO 29. 1025386 (Main) Harness Assembly (primary) MEP 83 360-E Model AGPU (Sheet 1 of 4).







WIRE LIST



WIRE LIST

MS037960

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-16K	P50A12N	48	30	67	DC GND #1	80	
TB1 1A	F30C20				J5-32		
TB1 2A	L26A20				J5-16		
TB1-3A	L20A20				J5-17		
TB1-4A	L22A20				J5-18		
TB1-5A	L25A20				J5-19		
TB1-6A	L21A20				J5-20		
TB1 7A	L16A20				J5-23		
TB1-8A	L16A20				J5-22		
TB1-9A	L17A20				J5-21		
TB1-10A	L18A20				J5-20		
TB1-11A	L7A20				J5-K		
TB1-12A	H8A20N				GND TB-6L		
TB1-13A	H12B0				J5-H		
TB1-14A	H12B0A				J5-N		
TB1-15A	Q1D20				J5-M		
TB1-16A	P53E20A				J5-BB		
TB1-1C	E3D20				J5-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		
TB1-14C	H10D0A				K 1H		
TB1-15C	Q2A20				J5-49		
TB1 16C	P53J20A				TB1-11C		
TB2 1A							NOT USED
TB2-2A	C18A20N				GND TB 7K		
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		
TB2-16A	G20A20	20	18		MS CONTROL	91	
TB2 1C	G6F20				P10-A		
TB2 2C	G6F20				P10-S		
TB2-3C	L19K20				J5-A		
TB2-4C	L9A20				J5-14		
TB2-5C	L10A20				J5-H		
TB2-6C	L11A20				J5-G		
TB2-7C	L12A20				J5-F		
TB2 8C	L12C20				J5-E		
TB2-9C	L14A20				J5-D		
TB2-10C	L15A20				J5-C		
TB2-11C	L20A20				J5-13		
TB2-12C	L25A20				J5-13		
TB2-13C	L28A20				J5-12		
TB2-14C	L8A20				J5-J		
TB2-15C	E18A20				J5-30		
TB2-16C	G30C20	57	33	47	TB6-7	47	
TB3-1A	E11C20				J5-40		
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		
TB3-6A	E12E20				TB3-2A		
TB3-7A							NOT USED
TB2-8A	P53A20				P1-C		
TB3-9A	H33A20				J5-F		
TB3 10A	P29C20				J5-7		
TB3 11A	5N8J20N				J5-48		
TB3-1C	F11A20				J4-g		
TB3-2C	E12A20				J4-d		
TB3-3C	E13A20				J4-h		
TB3-4C	E14A20				J4-f		
TB3 5C	F15A20				J4-e		
TB3 6C	F17D20				J4-L		
TB3-7C							NOT USED
TB3-8C							NOT USED
TB3-9C							NOT USED
TB3-10C							NOT USED
TB3 11C	G25A20				K3-X2		
TB3-12C	G25A20				K3-X2		
TB4-1	G10C28	43	33	47	TB5-3	47	
TB4-2	G24A20	27	33	47	TB6-9	47	
TB4-3	G7B20				P10-C		
TB4-4	G8B20				P10-D		
TB4-5	G9B20				P10-E		

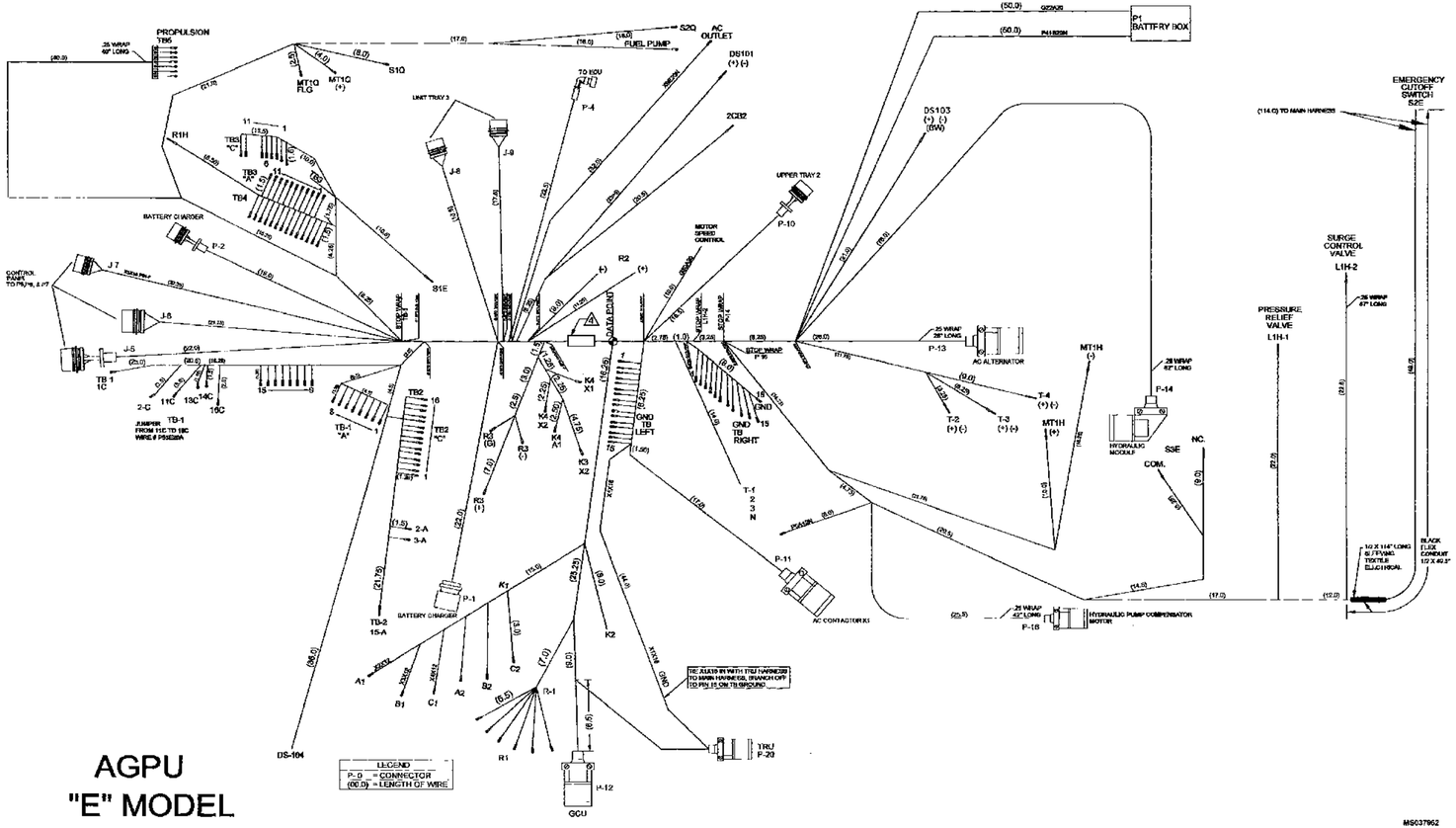
FROM LOCATION	WIRE #	LENGTH *	WIRE FN	FROM TERMIN FN	TO LOCATION	TO TERMIN FN	NOTES
TB4-6	G8C20				P10-F		
TB4-7	G6C20				P10-G		
TB4-8	G17A20N				GND TB-6R		
TB4-9	G31B20N	42	18	30	TB5-8	47	
TB4-10	G2C20				J5-55		
TB4-10	G2D20	42	18	30	TB5-5	47	
TB4-11	G2F20				R1 (-)		
TB4-11	G2F20	40	33	47	TB5-5	47	
TB4-13	E31D20				HP Orange		
TB4-13	E31C20				J5 P		
TB4 14	E41B20W				FP Black		
TB4 14	E41A20W				GND TB-4L		
TB5 1							NOT USED
TB5-2	G3C20				J5-AA		
TB5-3	G16G20				TB4 1		
TB5-4	G21B20				J4 d		
TB5-5	G2D20				TB4 10		
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				J5 c		
P1-2 Batt Box	P41B20N				GND TB-3L		
J1 (–) AC OUT	X9E20N				J5-u		

FROM LOCATION	WIRE #	LENGTH *	WIRE FN	FROM TERMIN FN	TO LOCATION	TO TERMIN FN	NOTES
	G8D20	48	33	14 SPL		14 SPL	
	G51A20N	24	39	14 SPL		47	
	L3D20	31	33	BW		BW	
	L6A20N	31	33	BW		BW	
	P1C20N	16	33	¼ LUG		¼ LUG	
	P5D20	8	33	¼ LUG		¼ LUG	
	P1D20	8	33	3/8 LUG		#10 LUG	
	P41A20	16	33	3/8 LUG		#10 LUG	
	G78A20	3	33	30		47	
	G79A20	3	33	30		47	
	V2L20A	5	33	#10 LUG		#10 LUG	
	X3D14A	63	39	3/8 LUG		46	
	X3D14B	63	39	3/8 LUG		46	
	X3D14C	63	39	3/8 LUG		46	
	X33P14C	3	39	46		46	
	X42A14	43	39	46		46	
	X43A14	44.5	39	46		46	
	X44A14	48	39	46		46	
	X45A14	38.5	39	46		46	
	X9B14N	6	39	#8 LUG		46	
	P1B14N	6	39	¼ LUG		76	
	P56A3N	43	37	30		80	
	P54A3N	43	31	BW		80	
	P55A3N	46.5	31	BW		80	
	P56A8N	7	39	¼ LUG		60	
	P21D8N	4	39	59		67	
	P2C8	39	39	59		67	
	X9D8N	63	39	59		60	
	P1A28NA						
	P28B8A						
	P3AA8	4	45	78		74	
	10 CONDUCTOR CABLE - 20 AWG						
	K-R/W	198		49		47	
	K-W	198		49		47	
	K-W-N	198		49		SPL	
	K-WN	198				47	
	N-W	198		47		47	
	N-W-Y	198		47		47	
	R-W	198		47		47	
	R W N	198		47		47	
	Y-W	198		47		47	

WIRE LIST

MS037961

FO 29. 1025386 (Main) Harness Assembly (primary) MEP 83 360-E Model AGPU (Sheet 3 of 4).



MS037962

FO 29. 1025386 (Main) Harness Assembly (primary) MEP 83 360-E Model AGPU (Sheet 4 of 4).

NOTES: UNLESS OTHERWISE SPECIFIED

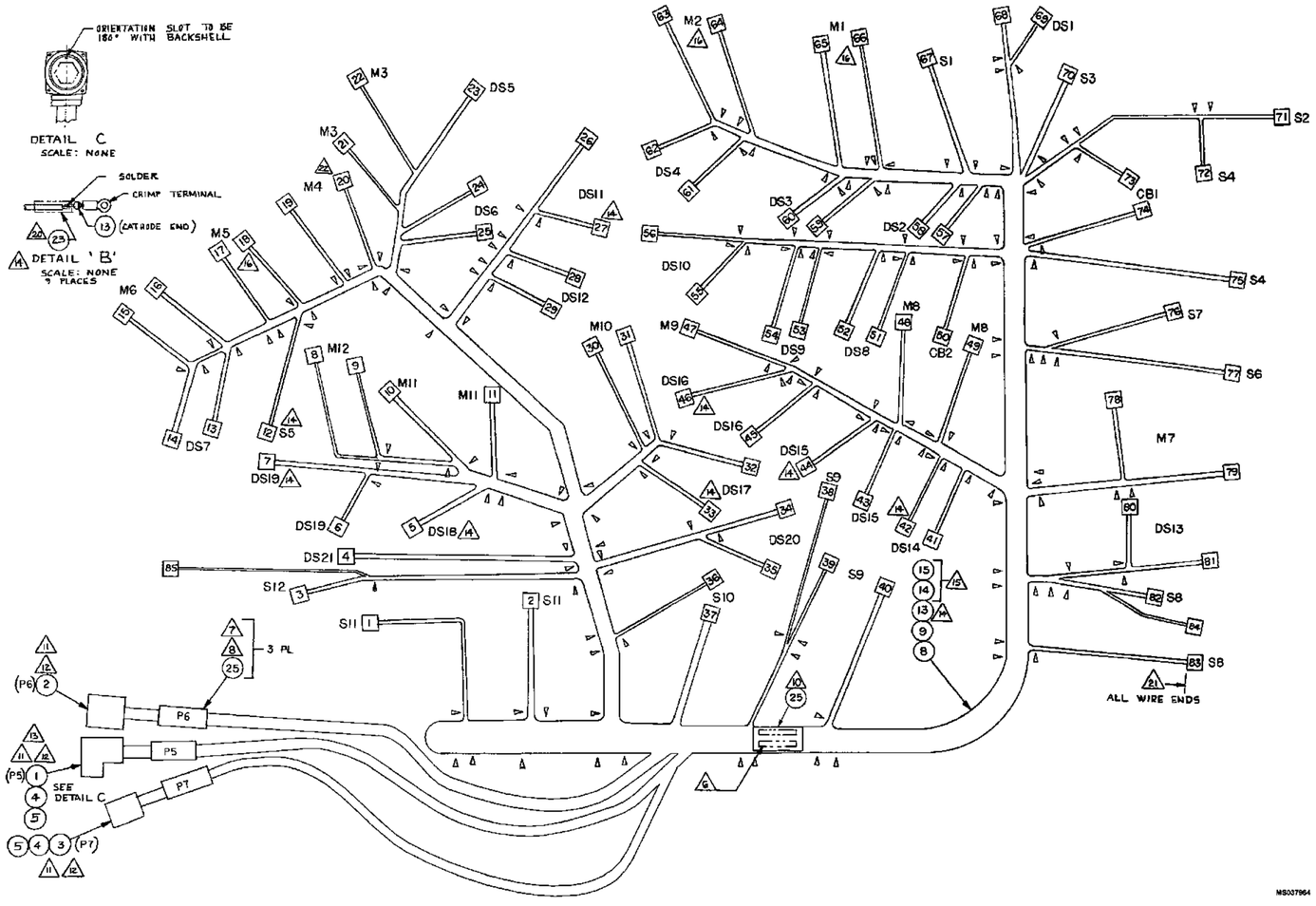
1. INTERPRET DRAWING PER ASME-14.100 AND ASME-Y14.5M.
2. SOLDER IN ACCORDANCE WITH ANSI J-STD-001, CLASS 3.
3. DELETED.
4. FOR WIRING LIST SEE WL 1024247. WIRE LENGTHS ARE FOR REF ON WIRE LIST.
5. ⊃ DENOTES TIE WRAPS, ITEM 24, AS NECESSARY.
6. MARK 1024247 & LATEST REVISION LETTER WITH .10 MIN HIGH CHARACTERS. 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	(#14- RING)
19			AS-25036-149	8	TERMINAL LUG	AS-7928	(#8- RING)
18			AS-25036-101	30	TERMINAL LUG	AS-7928	(#6-RING)
17			AS-25036-148	88	TERMINAL LUG	AS-7928	(#4- RING)
16							
15	06090		D-110-0101	1	SPLICE, SOLDER		RAYCHEM
14	06090		D-110-41	2	SPLICE, SOLDER		RAYCHEM
13			1N5061	9	DIODE		DO-5, 9-11
12							
11							
10							
9			M22759/16-16-9	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-85049/47-24A	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-AG16	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).

WIRE END	WIRE NO	F/N	
1 (S11)	X48B20A	—	
	X61B20	—	
	X56B20	—	
2 (S11)	H4D20	—	
	H5A20	—	
	H5B20A	—	
	XA7B20	—	
	X40C20	—	
	X48D20	—	
	X48E20	—	
	X48B20	—	
	X50B20	—	
	X53B20	—	
	X57B20	—	
	X58B20	—	
3 (S12)	E32A20	18	
	E29A20N	18	
	P39A20	19	
	P45A20	18	
	X19D20	18	
	X19E20	18	
	X20C20	18	
4 (DS28)	L9B20	17	
	P46B20	17	
	P53A20N	17	
	P53B20N	17	
5 (DS18)	L11K20	17	
	P15B20	17	CR11 ⚠4
6 (P39)	P53E20	17	
	X5X16A	17	
7 (DS19)			
8 (M12)	P18C20	20	
9 (M12)	P17L20	20	
10 (M11)	P3D20	20	

WIRE END	WIRE NO	F/N	
11 (M11)	P53D20N	20	
	P53G20N	20	
12 (S5)	P39A20	18	
	P40A20	18	CR6 ⚠4
13 (DS7)	P55E20N	17	
14 (DS7)	L25B20	17	
	P27B20	17	
15 (M6)	P47B20	17	
16 (M6)	P48B20	17	
17 (M5)	P43B20	17	⚠4
18 (M5)	P42B20	17	⚠4
19 (M4)	P41E20	17	
20 (M4)	P45B20	17 ⚠4	
	P53E20N		
21 (M3)	Q2B20	20	
22 (M3)	Q6A20	20	
23 (DS5)	E16Z0	17	
	E1F20	17	
	L22B20	17	
	B1C20	17	
	B4A20	17	
24 (DS6)	L21B20	17	
	Q5A20	17	
25 (DS6)	E1E20	17	
	E1F20	17	
26 (DS11)	E37C20N	17	

WIRE END	WIRE NO	F/N	
27 (DS17)	EZ1B20	17	CR9 ⚠4
	L20B20	17	
	X46B24	17	CR5 ⚠4
28 (DS12)	E11B20	17	
	L16B20	17	
29 (DS9)	E1D20	17	
	E1E20	17	
	X47C20	17	
30 (M18)	X57C20	20	
31 (M10)	X9N20N	20	
32 (DS7)	X19E20	17	
	X19F20	17	
33 (DS7)	L12B20	17	
	X21B20	17	CR4 ⚠4
34 (DS20)	L7B20	17	
	X58B20	17	
35 (DS21)	X47C20	17	
36 (S10)	E3ZA20	18	
	X19C20	18	
	X19D20	18	
37 (S10)	E27A20	18	
	X19B20	18	
	X19C20	18	
	X20B20	18	
	X20C20	18	
	X36B20	18	
38 (S9)	X26B20	—	
	X28B20	—	
	X31C20A	—	
	X32C20C	—	
	X37B20	—	
39 (S9)	X25B20	—	
	X30B20	—	
	X33C20C	—	
40 (S8)	X27B20	—	
	X29B20	—	
	X40A20	—	
	X41A20	—	

WIRE END	WIRE NO	F/N	
41 (DS14)	X19H20	17	
42 (DS14)	L15B20	17	
	X24B20	17	CR1 ⚠4
43 (DS15)	X19H20	17	
	X19G20	17	
44 (DS15)	L14B20	17	
	X23B20	17	CR2 ⚠4
45 (DS16)	X19F20	17	
	X19G20	17	
46 (DS16)	L13B20	17	
	X22B20	17	CR3 ⚠4
47 (M9)	X34B20	20	
	X40A20	20	
48 (M8)	X41A20	20	
	X41B20	20	
49 (M8)	X9G20N	20	
	X9P20N	20	
	X9R20N	20	
50 (DS2)	EZA18	19	
	E4G18	19	
	P37A18	19	
51 (DS9)	EZZB20	17	
	L17B20	17	
52 (DS5)	E1A20	17	
	E1B20	17	
53 (DS9)	E13B20	17	
	L18B20	17	
54 (DS7)	E1B20	17	
	E1C20	17	

WIRE END	WIRE NO	F/N	
55 (DS18)	E12B20	17	
	L17B20	17	
56 (DS18)	E1C20	17	
	E1D20	17	
57 (DS2)	E37A20N	17	
	E37C20N	17	
58 (DS2)	E15B20	17	
	L26B20	17	
59 (DS3)	E15B20	17	
	L24B20	17	
60 (DS8)	E1H20	17	
	E1J20	17	
61 (DS4)	E14B20	17	
	L23B20	17	
62 (DS4)	E1G20	17	
	E1H20	17	
63 (M2)	E9BZ0	20	⚠4
64 (M2)	E10B20	20	⚠4
65 (M1)	E7B20	20	⚠4
66 (M1)	E5B20	20	⚠4
67 (S1)	EZA18A	—	
	E2B18A	—	
	EZD18	—	
	E2E18	—	
	E3B20	—	
68 (DS1)	G4A20	17	
	L29B20	17	

WIRE END	WIRE NO	F/N	
69 (DS1)	G2A20	17	
	L29D20	17	
70 (S3)	G2A20	15	
	G2B20	16	
	G3D20	16	
	G3E20	16	
71 (S2)	C1E16	19	
	C1F16	19	
	P34D20	19	
	P35D18	18	
	P36A20	19	
	P37A18	18	
	P45A20	18	
	P45B20	18	
	P53A20N	16	
72 (S4)	L1C20	—	
73 (CB1)	E1A20	19	
	H1B20	19	
	L1A20	19	
	L1C20	19	
74 (CB1)	P36A20	19	
75 (S4)	L27A20	—	
	L28A20	—	
	L38A20N	—	
76 (S7)	L1B20	18	
	L4A20	18	
	L5A20	18	
77 (S6)	L1A20	18	
	L1B20	18	
	L2A20	18	
	L3A20	18	
78 (M7)	H2A20	20	

WIRE END	WIRE NO	F/N	
79 (M7)	H3A20	20	
80 (DS13)	H7A20	17	
	L9B20	17	
81 (DS13)	H4B20N	17	
82 (S5)	E28B20	18	
83 (S6)	E27A20	18	
	E29A20	18	
	E30A20	18	
	H1A20	18	
	H1B20	18	
	H1D20	18	
	H1E20	18	
	H6A20	18	
	H7A20	18	
84 (S8)	H4D20	18	
85 (S12)	P38A20	18	

MBC37965

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 W. McDaniel
MODEL. AGPU	WIRING HARNESS: 1024247		SEE ECP AV-10836	A	080609 W. McDaniel
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 stripper and tinned in Lug column.

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CAD MAINTAINED. CHANGES SHALL BE INCORPORATED BY THE DESIGN ACTIVITY.

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).

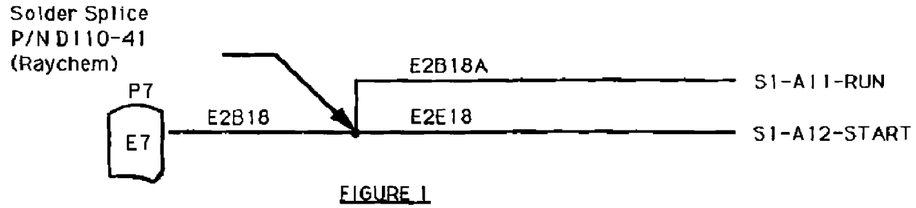


FIGURE 1

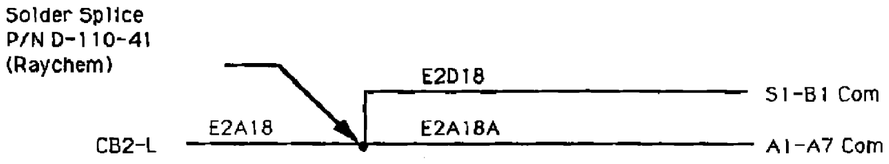


FIGURE 2

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
C1E18	18	WHT	51"	S2-11		P7-B	#6		
C1F18	18	WHT	51"	S2-12		P7-C	#6		
E10B20	20	WHT	46.75"	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			
E16B20	20	WHT	38"	DS2(+)	#4	P5-30			
E1A20	20	WHT	7"	CB1-L	#8	DS8(+)	#4		
E1B20	20	WHT	5.5"	DS8(+)	#4	DS9(+)	#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	6"	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"	DS8(-)	#4	P5-37			
E27A20	20	WHT	15"	S8-(5)	#8	S10-(5)	#8		
E28B20	20	WHT	28.5"	S8-(4)	#8	P5-28			
E29A20	20	WHT	27.75"	S8-(6)	#6	P5-58			
E2A18	18	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
E2B18	18	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	6"	E2A18 SPLICE	BW	S1-B1 COM	BW	SEE FIG. 2	G
E2E18	18	WHT	6"	E2B18 SPLICE	BW	S1-B12-START	BW	SEE FIG. 1	
E30A20	20	WHT	28"	S8-9	#8	P5-59			
E32A20	20	WHT	13.5"	S10-(7)	#8	S12-(7)	#8		
E37A20N	20	WHT	38"	DS2(-)	#4	P5-31			
E37C20N	20	WHT	40"	DS11(-)	#4	DS2(-)	#4		
E38A20N	20	WHT	35.75"	S12-(8)	#8	P5-29			
E3B20	20	WHT	39.5"	S1-A6-START	BW	P5-32			
E4G18	18	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	#6	DS1(+)	#4		

TITLE : WIRE LIST.HARNESS.CONTROL PANEL
REVISION LTR: –
REVISION DATE:
HARNESS : 1027247/81996
NEXT ASSY : 1013771
MODEL: A.G.P.U.
SHEET 3

MS037965

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
G2B20	20	WHT	41"	S3-3	#6	P5-65			
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"	S6-12	#6	P5-61			
H1B20	20	WHT	13"	CB1-L	#8	S8-2	#6		
H1D20	20	WHT	5.5"	S8-2	#8	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			
H4B20N	20	WHT	32.25"	DS13(-)	#4	P5-60			
H4D20	20	WHT	24"	S8-10	#6	S11-C-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	S6-2	#6		
L1B20	20	WHT	6.25"	S6-2	#6	S7-2	#6		
L1C20	20	WHT	5"	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			
L29D20	20	WHT	65"	DS1(+)	#4	P6-A			

TITLE WIRE LIST-HARNESS-CONTROL PANEL REVISION LTR: A REVISION DATE:
HARNESS : 1024247/81996
NEXT ASSY : 1013771 MODEL: A.G.P.U. SHEET 4

MS037969

FO 31. 1024247 Control Panel Harness Wire List (Sheet 4 of 6).

DATE: 07/07/10
WIRE LIST CONTINJATION PAGE
WIRE LIST BY: WIRE NUMBER

WIRE NO.	SIZE	COLOR	LENGTH	FROM	LUG	TO	LUG	REMARKS	REV LTR
L2A20	20	WHT	39"	S6-1	#6	P5-25			
L30A20N	20	WHT	42"	S4-COM2	BW	P5-9			
L3A20	20	WHT	39"	S6-3	#6	P5-24			
L4A20	20	WHT	37"	S7-1	#6	P5-26			
L5A20	20	WHT	37"	S7-3	#6	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"	M12(+)	#1/4	P5-55			
P29B20	20	WHT	42.25"	DS7(+)	#4	P5-7			
P34D20	20	WHT	43"	S2-2	#6	P5-8			
P35D18	18	WHT	54"	S2-5	#6	P7-A			
P36A20	20	WHT	6"	S2-3	#6	CB1-B	#8		
P37A18	18	WHT	10"	S2-6	#6	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(CR6P-AN/CATH)		S5-2	#6		
P41E20	20	WHT	39"	M4(+)	#4	P5-2			
P42B20	20	WHT	42.75"	M5(-)	#4	P5-3		TWISTED PAIR/P43B20	
P43B20	20	WHT	45"	M5(+)	#4	P5-4		TWISTED PAIR/P42B20	
P45A20	20	WHT	39.5"	S2-9	#6	S12-5	#6		
P45B20	20	WHT	42.5"	S2-9	#6	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"	M6(-)	#4	P5-5			
P53A20N	20	WHT	37"	S2-8	#6	DS21(+)	#4		
P53B20NA	20	WHT	9"	DS21(-)	#4	M11(-)	#1/4		
P53E20	20	WHT	30"	DS19(-)	#4	P6-BB			
DELETED									
P53E20N	20	WHT	8.25"	M4(-)	#4*	DS7(-)	#4	M4/CRIMP W/P45B20	G
P55G20N	20	WHT	32"	M11(-)	#1/4	P5-51			
Q1C20	20	WHT	40"	DS5(+)	#4	P5-48			
Q2B20	20	WHT	40.25"	M3(+)	#1/4	P5-49			
Q4A20	20	WHT	40"	DS5(-)	#4	P5-47			
Q5A20	20	WHT	37.75"	DS6(-)	#4	P5-46			
Q6A20	20	WHT	39.75"	M3(-)	#1/4	P5-50			

TITLE : WIRE LIST.HARNESS.CONTROL PANEL
HARNESS : 1024247/81996
NEXT ASSY : 1013771

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

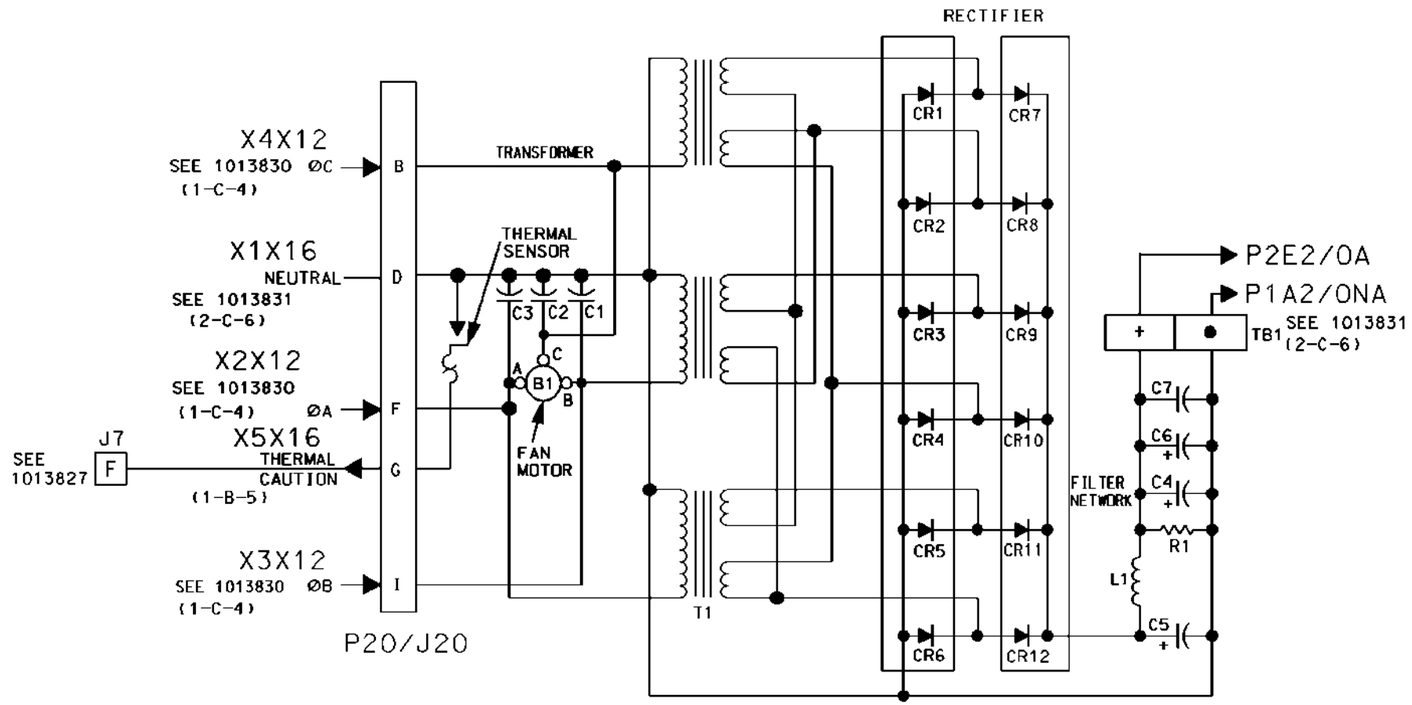
WIRE NO.	SIZE	COLOR	LENGTH	FROM	LUG	TO	LUG	REMARKS	REV LTR
X19B20	20	WHT	26.75"	S10(6)	#8	P6-M			
X19C20	20	WHT	5.5"	S10-6	#8	S10-1	#8		
X19D20	20	WHT	15.75"	S10-1	#8	S12-1	#8		
X19E20	20	WHT	8.75"	S12-1	#8	DS17(-)	#4		
X19F20	20	WHT	31"	DS17(-)	#4	DS16(-)	#4		
X19G20	20	WHT	5.25"	DS16(-)	#4	DS15(-)	#4		
X19H20	20	WHT	5.25"	DS15(-)	#4	DS14(-)	#4		
X20B20	20	WHT	26.75"	S10(2)	#8	P6-N			
X20C20	20	WHT	25.25"	S10-2	#8	S12-2	#8		
X21B20	20	WHT	30.25"	P6-Y (CR4XAN/CATH)		DS17(+)	#4		
X22B20	20	WHT	37"	P6-X (CR3XAN/CATH)		DS16(+)	#4		
X23B20	20	WHT	34.5"	P6-W (CR2XAN/CATH)		DS15(+)	#4		
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"	M9(-)	#1/4	p6-k			
X35B20	20	WHT	27.25"	S10(5)	#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	M9(+)	#1/4		
X41A20	20	WHT	18.5"	S9-C-COM	BW	M9(+)	#1/4		
X41B20	20	WHT	43.5"	M9(+)	#1/4	P6-w			
X45B20	20	WHT	39"	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
REVISION DATE:
MODEL: A.G.P.U.
SHEET 6

MS037971

FO 31. 1024247 Control Panel Harness Wire List (Sheet 6 of 6).



MS038009

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.

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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″
P1A2/0NA (2)	00	BLK	29″
P2E2/0A (2)	00	BLK	33″

FROM	TO	REMARK
P20(D)	GRD	1/2″ LUG
P20(F)	K1-A1	3/8″ LUG
P20(I)	K1-B1	3/8″ LUG
P20(B)	K1-C1	3/8″ LUG
P20(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 CR8P; Diodes at Light Terminals CR9E, CR7X-CR9X, 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 Lear Siegler, 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, Requirment 5, Soldering
MIL-T-81533 or TT-T-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 AEC-2000, Ungar #9000, 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 6 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 Pretin 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.

FIND NO.	FSCM	SMR CODE	PART OR IDENTIFYING NO.	QTY EACH	NOMENCLATURE OR DESCRIPTION	SPECIFICATION	MATERIAL

PARTS LIST

MS03812

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 connection 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 cup.

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.

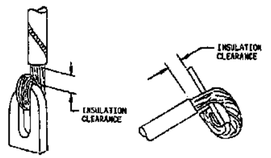
t. Insufficient lead clinch.

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

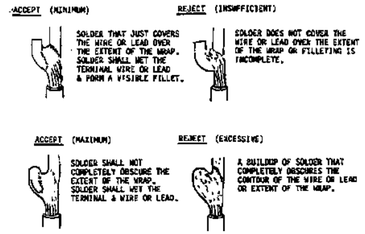


FIGURE 2

Soldering Items:

1. Main Control Panel: Battery Output Switch Diode CR5P
Comp/Gen Ht Temp Light Diodes CR9E and CR5X
AC Over Voltage Light Diode CR1Z
AC Under Voltage Light Diode CR2Z
AC Over Current Light Diode CR3Z
AC Under Frequency Light Diode CR4Z
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).

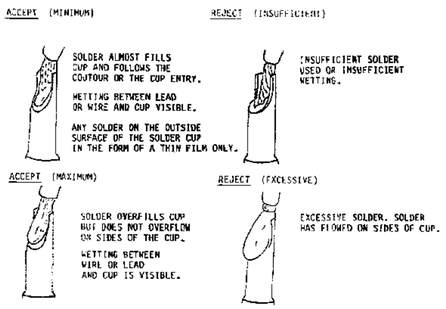


FIGURE 3

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 C 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, R, 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 R, 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 performance 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 R; to require recertification of category H 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 R 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 7.1.2.2, 7.1.2.2 and 7.1.7.2.

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 R 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.

MS03B014

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
1033305

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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*) Commander, U.S. Army Aviation and Missile Command ATTN: AMSAM--MMC--MA--NP Redstone Arsenal, AL 35898	FROM: (*Activity and location)(Include ZIP Code*) 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.*)

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE
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RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS **For use of this form, see AR 25--30; the proponent agency is ODISC4.**	Use PartII(*reverse*) for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/ Supply Manuals (SC/SM)	DATE
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PART 1 --ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER	DATE	TITLE

ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO. *	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON

* *Reference to line numbers within the paragraph or subparagraph.*

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TO: *(Forward direct to addressee listed in publication)* Commander, U.S. Army Aviation and Missile Command ATTN: AMSAM-MMC-MA-NP Redstone Arsenal, AL 35898	**FROM:** *(Activity and location) (Include ZIP Code)*	**DATE**

PART II --REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

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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

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

Weights Square

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

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

PIN: 085364-000

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