

# AIRCRAFT ACCIDENT REPORT

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**ADOPTED:** May 13, 1964

**RELEASED:** May 19, 1964

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AAXICO AIRLINES, INC.,  
C-46-F, N 67935, McCARRAN FIELD  
LAS VEGAS, NEVADA  
SEPTEMBER 25, 1963

## SYNOPSIS

An AAXICO Airlines, Inc., C-46-F, N 67935, crashed at McCarran Field, Las Vegas, Nevada, at 2103 P.d.s.t., on September 25, 1963.

After the fire-detection system indicated the presence of fire in the left engine, the pilot shut down the engine, feathered the propeller, and attempted an emergency landing on runway 1. During the roll-out the landing gear collapsed and the aircraft slid down the runway, coming to rest 180 feet beyond the end. The pilot and first officer, the only occupants, were uninjured. The aircraft received substantial structural damage. There was no ground fire.

The Board has determined the probable cause of this accident was an improperly executed approach and landing during an emergency single-engine operation, resulting in an overshoot.

## Investigation

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AAXICO Airlines, Inc., LOGAIR 2/ Flight 14/25 was operated as an air cargo flight under a contractual agreement with the United States Air Force which was initiated on July 1, 1963, to provide transportation of cargo in support of Air Force logistics. The flight originated at Hill Air Force Base (AFB), Ogden, Utah, and was to return to Hill AFB after en route stops at Nellis AFB, Nevada, and Norton AFB, California. The flight from Hill AFB to Nellis AFB was uneventful and arrival was at 2000.

During the 49-minute ground time at Nellis AFB, 887 pounds of cargo were off-

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1/ All times herein are Pacific daylight saving time based on the 24-hour clock.

2/ Logistic Air Support.

loaded The first officer completed the weight and balance computations which indicated that the gross takeoff weight of the aircraft was 42,616 pounds, well below the maximum allowable of 48,000 pounds The Center of gravity (c.g.) was located at 24.1 percent Mean Aerodynamic Chord (MAC) and was within allowable limits The captain checked the local, en route, and terminal weather reports and filed a VFR flight plan to Norton AFB on a military flight clearance Form DD175 Estimated time en route was 1 hour and 10 minutes and the aircraft had 4 hours fuel aboard There were no significant discrepancies or writeups on the aircraft, and no maintenance or refueling was accomplished at Nellis AFB The crew checked the hydraulic reservoir during the preflight inspection and found it full of hydraulic fluid Hydraulic pressure was normal. Prior to departure, the fire-detector system was tested and found to be functioning properly.

The engine start, taxi, and run-up check were accomplished without incident

At 2049, LOGAIR Flight 14/25 departed Nellis AFB The two crew members were seated in their respective positions A normal takeoff was made using runway 20 at Nellis AFB. A climb of approximately 400 feet per minute was maintained at 125 knots indicated airspeed. The flight established radio contact with McCarran Departure Control when it was three miles south of Nellis AFB The crew testified that all engine instruments were within normal operating range throughout the takeoff and during the initial climb Approximately 10 minutes after takeoff, a steady fire-warning light for the left engine was noted as the aircraft was climbing between 6,500 and 7,000 feet. At this time, the aircraft was approximately 10 nautical miles south of McCarran Airport. The crew immediately shut down the engine and feathered the propeller, pulled the fire-wall shutoff handle, actuated the CO<sub>2</sub> bottles, and reversed the aircraft's course. The fire-warning light and bell continued to indicate a fire, however, a visual inspection of the engine by the first officer failed to disclose any indication of fire Approximately one minute after the emergency occurred, the crew contacted Nellis Tower on 126.2 mcs., and declared an emergency. They were instructed by Nellis Tower to change to 121.5 mcs. and call McCarran Tower The first officer then established radio contact with McCarran Tower During this contact, the tower advised that the wind was from 270 degrees at 10 knots, and that any runway was available for landing purposes

The captain stated that after making the 180-degree turn to return to McCarran, he found the aircraft lined up with runway 1 and, since he was familiar with this runway having landed on it before, he decided to use it Because of his apprehension of wheel-well fire, a rapid descent was made at an airspeed of 155 knots for a straight-in approach. When approximately one mile from the end of the runway and 500 feet above the ground, the captain retarded the No. 2 throttle and pulled the nose up to reduce the airspeed to 130 knots. The captain actuated the flap control lever to the full down position and instructed the first officer to extend the landing gear This nose-up maneuver was observed by some of the McCarran Tower personnel; however, they were unable to see the landing gear position because of darkness. Neither pilot, according to his testimony, checked the hydraulic pressure following gear extension or during the approach

The captain stated that the aircraft passed over the threshold of the runway at an altitude of approximately 100 feet at an indicated airspeed of 105 knots Tower personnel, positioned about one mile to the east of the runway 1 threshold, gave varied estimates regarding the altitude of the aircraft as it passed over the approach end of the runway. These estimates ranged from 30 to 400 feet above ground level.

The captain stated that during the approach and just prior to flare-out, he had difficulty observing the gear-down safe-indication light which had been previously set to the dim position. He stated this was due to illumination of the fire-warning light, the fuel pressure light, and the oil pressure light, all of which were illuminated and situated in proximity to the gear indicator lights. In addition, the bell of the fire-warning system continued to ring during the approach and touchdown. The captain said he was not aware of the existence of a cut-off switch for the fire-warning bell which was located on the center of the instrument panel. The landing gear warning horn was not heard during the approach and landing phase.

The captain stated that when ". . . approximately 1/3 of the way down the runway . . ." he was not certain that the landing gear was down and locked, and momentarily applied full power to the No. 2 engine to insure adequate hydraulic pressure. Power was then fully retarded and touchdown, according to the captain, was made ". . . 1/2 way down the runway . . ." The flaps were immediately retracted following touchdown and, after rolling approximately 500 feet, brakes were applied. During heavy application of the brakes, the landing gear retracted and the aircraft slid on its belly to a stop 180 feet beyond the end of the runway. The crew departed the aircraft through the left rear cargo door.

The captain said he had no intention of making a missed approach. When power was added, the first officer said he was of the opinion that a missed approach was being executed but when power was immediately retarded on the right engine, he was aware that a go-around was not contemplated. When queried as to whether he had actuated the gear to the "UP" position at any time before touchdown, the first officer hesitantly replied that he knew the gear could not be retracted once the weight of aircraft was on the gear. He stated that during the approach he was considering the idea of retracting the gear, that he had this on his mind all the way down the approach; that he was concerned they might roll into the over-run; and that he was getting ready for it and had his hand on the gear actuation lever. When asked whether he could have actuated the gear handle to the "UP" position, his answer was "I don't think so. I'd say no." When asked whether he could recall raising the gear or attempting to raise it, he stated, "No, I don't." When asked whether it was possible he could have reached for the gear actuation lever and attempted to retract the gear in anticipation of a missed approach, he replied, "I don't know whether that could happen or not."

A special weather observation taken immediately after the accident indicated clear sky, visibility more than 15 miles, temperature 81°F., dewpoint 41°F., wind from the west-southwest at 8 knots, altimeter setting 30.02 inches.

The field elevation of McCarran Field is 2,171 feet. The longest runway is 07/25 which was 9,995 feet in length. Runway 01 was 6,503 feet in length, but only 5,878 feet of it was lighted.

Investigation revealed that heavy tire skid marks were present on the runway beginning 4,775 feet from the first runway light near the threshold and continuing for a distance of approximately 800 feet. The left tire skid mark varied from 5 to 10 inches in width. The right tire skid mark was not as dark as the left mark and remained approximately 10 inches in width along its entire length. Approximately 500 feet from the beginning of the tire skid marks (5,275 feet from the initial thresh-

old light), tail-wheel fork-knuckle skid marks appeared on the runway. Four hundred feet farther, (5,675 feet from the initial threshold light) numerous propeller slash marks appeared on the runway. The aircraft then skidded 300 feet and came to rest 180 feet beyond the departure end of the runway with the fuselage on a heading of 346 degrees magnetic (See Attachment 1)

The aircraft was found with the main landing gears retracted and on the up latches. The tail landing gear was found hanging free between the up and down positions. The left wheel-well inboard door was found in the closed position under the left nacelle while the outboard door was found folded outwards towards the left wingtip. The right wheel-well inboard door separated from the aircraft while the outboard door was found in the closed position under the right nacelle. The bottom of the fuselage was scuffed extensively.

The landing gear actuation lever was found in the "DOWN" position. Hydraulic pressure registered zero and there was no hydraulic fluid visible in the reservoir sight-level gauge. Cowl flap hydraulic lines were found ruptured by impact and spillage of hydraulic fluid was evident from both engine nacelles.

Examination of the propellers revealed blade damage due to runway contact. The left propeller was feathered and the right propeller blade angle at impact was 21 degrees.

Investigation of the left engine revealed the No. 1 exhaust adapter which mounts on the No. 1 cylinder was cracked from the weld seam to the clamp flange. The Nos. 1 and 3 rocker-box covers showed evidence of oil leakage and the exhaust collector ring deflector aft of the Nos. 1 and 17 cylinders revealed evidence of heat blistering and heavy soot deposits. A fire detector is positioned directly behind the No. 1 cylinder.

The CO<sub>2</sub> fire bottles in the nacelle of the left engine had been discharged.

Investigation revealed the left engine fire-warning light and bell would come "ON" when 24-volt D.C. power was on the line. When the fire bell cut-out switch on the instrument panel was activated, the bell shut off. Heat was applied with a torch to the fire-warning detectors on both the left and right engines. The fire-warning light and bell operated normally. Investigation revealed an "open circuit" existed in the right fire-warning bell located in the nose section. The fire detectors will activate the system when exposed to heat of approximately 450°F. During the investigation, the cut-off switch was activated. The bell shut off normally at this time, however, it was not possible to activate the bell normally again after the cut-off switch was used to shut the alarm off. A check of the wiring disclosed an "OPEN" in the wire splice to the bell which prevented the bell from operating.

The aircraft was placed on jacks and the landing gear system was inspected. No primary failures were noted in the system and, using the aircraft emergency hydraulic pump as a source of pressure, the right main landing gear and tail landing gear were checked. The up latches functioned normally and the tail and right main landing gear locked down with a minimum of hydraulic pressure. The left main landing gear could not be completely functionally checked due to impact damage to the safety latch; however, the examination revealed no failures prior to impact.

The right engine hydraulic pump and the system pressure regulator were bench checked and found to be satisfactory. Hydraulic fluid was evident in the pump suction

lines and at the retract cylinders. The up latch would move to the "aft cocked" position anytime the handle was in the "DOWN" position and pressure was on the system.

The main landing gears of the C-46 series aircraft each incorporate a telescoping safety down-lock assembly and rod extending from the lower portion of the air-oil strut piston to the main landing gear down-latch in each nacelle. This telescoping linkage prevents the down-latch from releasing unless the shock strut has traveled at least 13 inches of its normal 14-inch stroke such as when weight is taken from the strut in takeoff. The purpose of the down-lock assembly is to prevent inadvertent retraction of the main landing gear when the weight of the airplane is on the gear.

A flight test was flown in another C-46 aircraft to determine the interval of time the landing gear would be in transit at various airspeeds with only the right engine hydraulic pump operating. While maintaining a true airspeed of 120 knots, the landing gear and flaps were simultaneously extended to the full "DOWN" position with the right engine power fully retarded. The landing gear required 12 seconds to extend and lock while the flaps required 18 seconds to extend to the full "DOWN" position. During the 12 seconds the landing gear was in transit, the aircraft traversed 4/10ths of a mile. Gear and flaps were then simultaneously retracted. The flaps retracted in three seconds and the landing gear in 23 seconds.

A second approach was flown at a true airspeed of 105 knots under the same conditions as the first test. The landing gear extended and locked in 14 seconds and the flaps extended and reached full "DOWN" position in 18 seconds. The flaps retracted in three seconds and the landing gear retracted in 23 seconds. During the final landing, the idled right engine maintained at least 2,000 r.p.m. on the approach before flare-out and touchdown, and the hydraulic system pressure remained at normal operating pressure of 1,300 p.s.i.

The captain and first officer completed a 40-hour ground school on the C-46 on June 14, 1963, in which they received two hours of instruction on C-46 Fire Detection and Extinguishing.

A review of the maintenance and aircraft flight logs revealed that a previous false fire-warning occurred on the right engine on July 8, 1963, but there was no record of any on the left engine. There were no chronic malfunctions of the fire detection system revealed by write-ups appearing in the aircraft log. Records indicated the aircraft had been operated for long periods of time at oil pressures below specifications, and was being partly maintained by uncertificated mechanics.

### Analysis

The failure found in the No. 1 exhaust adapter of the left engine would have allowed sufficient heat from the exhaust to activate the fire-warning light and bell. It is also feasible that the oil leak from the No. 1 exhaust rocker-box cover could have permitted oil to seep to the exhaust deflector behind the Nos 1 and 17 cylinders. A small false fire could have occurred in the exhaust deflector which could have been ignited by the exhaust leakage from the No. 1 exhaust adapter. The charred and burned appearance of the exhaust deflector indicates that a small localized fire or excessive heat may have activated the fire detector aft of the No. 1 cylinder. However, after the engine was shut down and the CO<sub>2</sub> fire extinguisher bottles discharged, the fire-warning light and bell should have ceased to operate since the ambient temper-

ature in the fire detector zone would decrease. The fire warning bell and light however remained "ON" until sometime after the aircraft came to a stop at the end of the runway. The fire bell cut-out switch was not actuated by the flight crew to shut off the bell because they did not know that it existed on this aircraft.

It is believed a short circuit in the fire-warning system allowed the fire-warning light and bell to remain on after the engine was shut down. The design of the system is such that any time a "ground" is made to the airframe, the fire-warning light and bell will actuate. The wiring installation of the system together with the normal vibration of a reciprocating engine could have caused the fire-warning signal to remain on until either the cut-off switch was activated or power removed from the system.

When the emergency occurred, the captain said that he was climbing through an altitude of from 6,500 to 7,000 feet. He made an immediate 180-degree turn and found he was on the final approach to runway 1 at McCarran Field and approximately 10 miles distant. He said that he made a fast approach because of his concern for a wheel-well fire. He stated that a point on the approach one mile from the end of the runway and 500 feet above the ground, he nosed up the aircraft to reduce speed, ordered the first officer to lower the landing gear and extended the flaps to the full down position. Tower personnel observed this pull-up maneuver but because of intense darkness, were not able to observe the landing gear or flap positions. The first officer stated that he placed the gear selector in the down position at the time the captain ordered him to do so.

During the approach, the fire-warning bell rang continuously which prevented verbal instructions between the captain and the first officer. This could have caused the gear warning horn to be inaudible.

As the aircraft passed the threshold, the captain had difficulty in determining gear-light indication because of the glare of other lights situated in the same location on the instrument panel. To ensure adequate hydraulic pressure for gear safe indications, the captain momentarily applied almost full power to the right engine. The momentary adding of power by the captain was unnecessary since it could not increase hydraulic pump output. The flight test demonstrated that the hydraulic pump of only one engine is at full capacity, during the approach, to supply sufficient hydraulic pressure for landing gear and wing flap extension or retraction.

It may be concluded that the landing gear was retracted by a crew member in anticipation of a missed approach, and that after this act, placing the gear lever to the down position would not be effective for there was insufficient time for the gear to extend fully and lock (13 seconds required) by the time touchdown occurred. Touchdown was approximately 4,775 feet down the lighted 5,878-foot runway. It is obvious that the pilot could not have stopped his aircraft within the 1,100 feet of remaining runway.

On the basis of all evidence, the Board believes that the landing gear was down and locked when the aircraft passed the runway threshold but that the first officer actuated the gear lever to the "UP" position in anticipation of a missed approach. The gear began to retract because the weight of the airplane was off the gear. When power was retarded, the first officer became aware that a go-around was not contemplated and repositioned the gear lever to the "DOWN" position where it was found following the accident. All three gear subsequently collapsed under the weight of the aircraft as the landing roll speed diminished and the aircraft slid to a stop on its fuselage.

Probable Cause

The Board determines the probable cause of this accident was the improperly executed approach and landing procedures during an emergency single-engine operation resulting in an overshoot.

Recommendation

As a result of this accident, the Board made several recommendations to the Federal Aviation Agency concerning maintenance practices.  
(See Attachment II).

BY THE CIVIL AERONAUTICS BOARD:

/s/ ALAN S. BOYD  
Chairman

/s/ ROBERT T. MURPHY  
Vice Chairman

/s/ CHAN GURNEY  
Member

/s/ G. JOSEPH MINETTI  
Member

/s/ WHITNEY GILLILLAND  
Member

# S U P P L E M E N T A L D A T A

## Investigation and Depositions

The Civil Aeronautics Board was notified of this accident after its occurrence at approximately 2103 on September 25, 1963. Investigators were dispatched to the scene to conduct an investigation in accordance with the provisions of Title VII of the Federal Aviation Act of 1958, as amended. Depositions were ordered by the Board and taken at McCarran Field, Las Vegas, Nevada, on September 28, 1963, and at Oakland International Airport, Oakland, California, on October 9, 1963.

## Air Carrier

AAXICO Airlines, Inc., is a Florida corporation with its principal offices in Miami and its maintenance base at Oakland International Airport, Oakland, California. It holds an Interim Certificate for Supplemental Air Service (E-18873) issued by the Civil Aeronautics Board which authorized the air carrier to operate charter trips in air transportation and provide service for the military establishment, and an Air Carrier Operating Certificate (SW-266) issued by the Federal Aviation Agency. The carrier is principally engaged in an air freight operation pursuant to a contract with the U S. Air Force serving numerous Air Force bases on a regular schedule.

## Flight Personnel

Captain William P. Beavers, age 33, was employed by AAXICO Airlines on June 7, 1951, and had accumulated a total of 5,276 hours flight time of which 1,668 hours were in C-46 type aircraft. He held currently effective airline transport pilot certificate No. 1359881 together with a multiengine land C-46 type rating. He qualified as a captain in C-46 aircraft during a check with a company check pilot and and FAA observer on June 18, 1963. His last line check in C-46 aircraft was with a company check pilot on June 24, 1963. Records indicate he satisfactorily passed a first-class FAA flight physical on July 1, 1963, without waivers.

First Officer Kalman E. Saufnauer, age 39, was employed by AAXICO Airlines on July 3, 1963, and had accumulated a total of 1,251 hours flight time, of which 246 hours were in C-46 type aircraft. He held FAA airman certificate with commercial privileges; and instrument single and multiengine land ratings. His last proficiency flight check in C-46 aircraft was with a company check pilot on June 22, 1963. Records indicate he satisfactorily passed a second-class FAA flight physical on August 31, 1963.

## The Aircraft

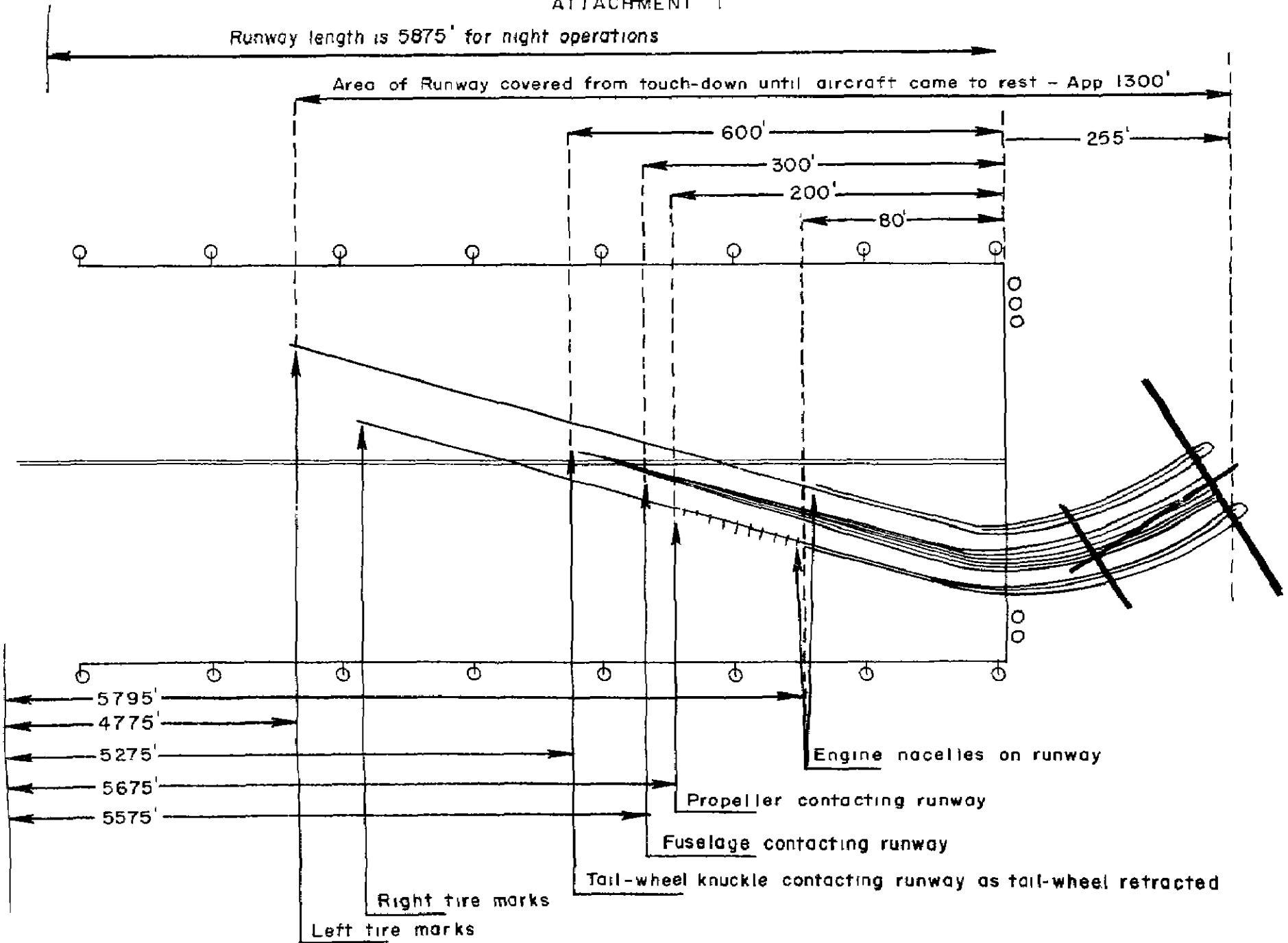
N 67935, a Curtiss-Wright C-46F, manufacturer's serial number 22383, owned and operated by AAXICO Airlines, Inc., was purchased from Slick Airways, Inc., on August 21, 1957. AAXICO operated the aircraft for 7,022 hours after which it was major overhauled and on January 19, 1961, it was leased to Capitol Airways, Inc. Capitol operated it approximately 954 hours. In July, 1961, the aircraft was leased to Zantop Air Transport, Inc., who operated it 2,384 hours until June 20, 1963, when it was returned to AAXICO Airlines. At the time of the accident, the aircraft had 3,927 actual hours airframe TSO. The aircraft had a total time of 31,341 hours.

The aircraft was powered by two Pratt and Whitney R-2800-51M1 engines with the following statistics:



<u>Position</u>	<u>Serial Number</u>	<u>Installation Date</u>	<u>Time Since Overhaul</u>	<u>Time Allowable</u>
1	HP-212534	8/1/63	1,116.29	1,500
2	FP-061937	6/7/63	591:06	1,500

ATTACHMENT 1



ATTACHMENT II

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CIVIL AERONAUTICS BOARD  
WASHINGTON 25, D. C.

December 27, 1963

Mr. George S Moore  
Director  
Flight Standards Service  
Federal Aviation Agency  
Washington, D. C. 20553

Dear Mr. Moore:

The Board's recent investigation of two accidents involving Aaxico Airlines C-46, N 67941 and N 67935 at Great Falls, Montana, on August 14, 1963 and Las Vegas, Nevada, September 25, 1963, respectively, revealed maintenance practices which, in our opinion, warrant your attention.

Our review of the maintenance records of N 67941 showed that operation of the aircraft had been transferred three times with the first and last operator during these transfers being Aaxico Airlines. At each transfer, the aircraft time since overhaul (TSO) was adjusted in accordance with the proration formula outlined on FAA advisory Circular 121-1. These adjustments resulted in the aircraft being operated beyond their approved overhaul time period. In the final transfer back to Aaxico Airlines, this carrier gained approximately 790 hours of flying time on the subject aircraft solely by applications of the proration formula.

The Bureau recognizes the need for an equitable plan to establish overhaul time limits for operations with varying experience levels. However, we do not believe that the proration time on the percent of time to overhaul and the actual time since overhaul should exceed the approved TSO.

As a result of our investigation of this problem it is recommended that the proration formula in FAA Advisory Circular 121-1 be reviewed to assure that TSO cannot be adjusted, as a result of transfer of aircraft, beyond the approved actual time since overhaul. Furthermore, it is suggested that the aircraft records of Aaxico Airlines be checked to assure that no other aircraft are being operated beyond their approved time limit by virtue of application of the proration formula.

The Bureau's investigation of the flight log records of C-46F, N67935 revealed several incidents of maintenance practices which are not in our opinion conducive to acceptable standards of airworthiness. On August 15, 1963, at Albuquerque, New Mexico, the left magneto and both distributor fingers of the right engine were replaced by a military mechanic without appropriate FAA ratings. The approval of this

Mr. George S. Moore (2)

work was not certified until the completion of a Logair flight to Odgen, Utah, the same date. The flight logs of N67935 for a period between August 3, 1963 to September 21, 1963, covering 14 flights, revealed that the aircraft was operated with the oil pressure of the left engine at 50 psi which is below specified limits. Corrective action was taken on five of the flights; however, it did not correct the problem.

Our investigation of the maintenance facilities of Aaxico Airlines at Oakland, California, revealed that the carrier had experienced eleven R-2800B series engine failures between the period of July 1, 1963 to September 19, 1963. We believe that this number of failures is high for a fleet of 12 C-46 aircraft. At the time of the Board's investigation, and to this date, the causes of all of these failures are unknown; however, four of the failures resulted from failure of the P/N 44764 exhaust valve.

The Bureau is aware that the P/N 44764 valve is an obsolete type and that improved types are available. We are also aware that some operators and overhaul agencies are using the newer type valves which assure better service life.

In view of the questionable maintenance practices of Aaxico Airlines, it is recommended that a review of the maintenance and inspection practices and procedures of this carrier be reviewed and improvements be made where necessary in order that acceptable airworthiness standards are assured. It is also suggested that consideration be given to time limiting P/N 44764 exhaust valves for use on C-46 series aircraft.

During investigation of these accidents, personnel of our Engineering Division discussed these findings with Messrs. K. E. Neland, J. J. Morris and J. Haddad of your Flight Standards Service and J. Kiselica, Flight Standards Division, Eastern Region.

If we can be of any further assistance in your consideration of these recommendations, please feel free to contact us.

Sincerely yours,

/s/ Leon H. Tanguay  
Director, Bureau of Safety

ATTACHMENT III

FEDERAL AVIATION AGENCY  
WASHINGTON, D. C. 20553

C  
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In Reply  
Refer to: FS-321

March 13, 1964

Mr. Leon H. Tanguay  
Director, Bureau of Safety  
Civil Aeronautics Board  
Washington, D. C. 20428

Dear Mr Tanguay:

This is in reply to your letter of December 27, 1963, reference B-80-96, concerning AAXICO Airlines.

The Agency has investigated the maintenance practices of AAXICO Airlines directing particular attention to C-46 aircraft N67941 and N67935.

The significant actions taken by the Agency and AAXICO are as follows:

1. Violation action is being taken against the carrier in connection with replacement of engine components by non-certificated military personnel.
2. The carrier has issued instructions to AAXICO flight crews prohibiting the use of non-certificated, unqualified ~~me-~~chanics for maintenance.
3. The carrier elected to replace the maintenance supervisor at Hill Air Force Base.
4. A fleet campaign directed toward erratic oil pressure problems was conducted of all AAXICO C-46 aircraft. The campaign included removal of oil coolers and temperature regulators, and adjustment of oil regulators to manufacturers' specifications. Further, engines with low oil pressure tendencies, having low-capacity oil pumps, were converted to high-capacity pumping by changing the drive/driven gear ratio.
5. In addition to the above, we determined that the following related actions were also implemented. These actions included reduction of cruise horsepower; revised operational procedures to avoid operation under unloaded cylinder pressures; avoidance of rapid changes in cylinder temperatures, revised inspection procedures requiring boroscope inspection

of all cylinders at 200-hour intervals; compression check of all cylinders and revised ignition procedures.

The effectiveness of this program has resulted in improved engine performance and reliability for AAXICO Airlines.

6. Directing attention to the Pratt & Whitney P/N 44764 valve, examination of the air carrier's records shows that eight engine failures were experienced and reported during the period of July 1, 1963, through December 1963. During this same period, thirteen engines were removed for routine overhaul and four engines were removed, repaired and returned to service. Of the eight engines failed, four experienced valve difficulties and involved engines procured from another operator.

The Agency is handling the P&W P/N 44764 valve as an overall industry problem by Airworthiness Directive action. The proposed AD is in our Office of the General Counsel in preparation for Notice of Proposed Rulemaking. This AD will require, in essence, replacement of all P/N 44764 valves during the next engine overhaul. Replacement valves may not be new or reconditioned P/N 44764 valves.

Reference is made to the Agency's Advisory Circular 121-1. With regard to the transfer of aircraft from operator to operator, we consider the pro rata time control system described in AC 121-1 to be basically sound.

The system has functioned quite well in the execution of several hundred transactions during the past four years. Unfortunately, the unusual combination of circumstances which resulted in the overhaul time combination obtained by AAXICO was not anticipated when AC 121-1 was prepared. Therefore, in view of this experience, we are studying a revision intended to preclude intentional or inadvertent time accumulation in the transfer transactions.

Our extensive interest in this matter and the initiation of actions we determined as necessary has accumulated some additional time in our reply.

Sincerely yours,

/s/ C. Schuck  
for George S. Moore  
Director  
Flight Standards Service