

## CIVIL AERONAUTICS BOARD

## ACCIDENT INVESTIGATION REPORT

Adopted December 10, 1948

Released December 14, 1948

## EAGLE AIR FREIGHT, INC.—ELOY, ARIZONA—JUNE 12, 1948

## The Accident

At approximately 0105,<sup>1</sup> June 12, 1948, a DC-3-C aircraft, NC-79042, owned and operated by Eagle Air Freight, Inc., a non-scheduled carrier, crashed near Eloy, Arizona. The crew of two, the only occupants of the airplane, escaped without injury. The aircraft was destroyed.

## History of the Flight

At approximately 2235, June 11, 1948, the flight departed from Burbank, California, for Fort Worth, Texas, via El Paso, Texas. Prior to takeoff a VFR<sup>2</sup> flight plan was filed, the weather being clear. Only cargo was carried, the only persons aboard being the crew, which consisted of John Dobson, pilot, and John Leslie, copilot. After departure from Burbank, the flight proceeded en route to El Paso at the specified flight plan altitude of 9,000 feet. Approximately 15 minutes after takeoff, over the vicinity of Palmdale, California, control of the aircraft was given to the copilot, and the pilot went to sleep.

No trouble was experienced until 0048, at which time the copilot observed flames, deep orange in color and extending about two feet rearward, coming from under the cowl flaps around the entire circumference of the left engine. The pilot was awakened by a shout, and he immediately assumed control of the aircraft.

In an attempt to control the fire the crew discharged the emergency fire bottle, cut the fuel flow to the engine, and feathered the propeller, however, the fire continued to burn intensely and the propeller did not feather. A descent for an emergency landing was started, during which the color of the flame changed to brilliant white. It appeared to the crew

that the nacelle skin and the leading edge of the wing were burning.

Three emergency radio transmissions from NC-79042 were intercepted by an Air Force airplane which relayed the message to Tucson Radio at 0056. To correct excessive air speed the crew reduced power to the right engine and raised the nose of the aircraft. Then the cockpit filled with smoke to the extent that the crew were unable to see the instruments. The aircraft vibrated violently, then fell into an uncontrolled spin or spiral. At approximately 4,000 feet smoke cleared from the cockpit and control of the aircraft was regained. During the descent the burning engine had fallen from the wing, and after regaining control, the crew could observe no sign of fire.

Since the aircraft seemed to fly satisfactorily, a right turn towards Tucson, approximately 47 miles to the southeast, was made. In the turn, however, altitude could not be maintained, and the aircraft became increasingly right-wing heavy. Accordingly, it was decided to land at Eloy, Arizona, 45 miles northwest of Tucson which was observed straight ahead. Ground witnesses in Eloy saw the aircraft at a low altitude with fire in the left wing. A crash landing was made in a wheat stubble field one-fourth mile northeast of Eloy and the crew escaped through the cockpit hatch from the burning aircraft.

## Investigation

Contact with the ground was made in a landing attitude with the right landing gear retracted and the left landing gear extended. Fire had burned the hydraulic lines leading to the left landing gear, allowing the gear to extend. Considerable fire damage was done to the left wing in the nacelle area and to the left landing gear. No fire damage was done to the right wing or engine. A ground fire

<sup>1</sup>All times noted in this report are Pacific Standard and based on the 24-hour clock

<sup>2</sup>Visual Flight Rules

completely consumed the cockpit, including the radio equipment and instruments. The fuselage and cargo were severely damaged by the ground fire, and the fabric covered surfaces of the empennage were completely consumed.

In-flight fire had subjected the left power plant supporting structure to intense heat and had so weakened it that the entire power plant had torn free from its supports. The fire also resulted in severe damage to the left front spar and spar webbing in the nacelle area.

State and local authorities cooperated in an intensive search conducted by the Civil Aeronautics Board for the missing engine, but to date it has not been found.

A thorough examination of the operation, maintenance, and overhaul records of the aircraft was made. These records did not disclose any evidence that would aid in determining the cause of the engine fire. The investigation also included a detailed inspection of the maintenance facilities and the maintenance performed by Eagle Air Freight. This inspection revealed that the mechanical work accomplished by the carrier and some of their facilities were below a reasonable safety standard for air carrier operation. Subsequent to the inspection, Eagle Air Freight was reorganized, and many of the inadequacies in the maintenance work and maintenance facilities were corrected.

The captain of the flight, John R. Dobson, age 26, was employed August 4, 1947, by Eagle Air Freight. He held an airman certificate with a commercial and instrument rating. At the time of the accident he had 1,843 flying hours, 700 of which had been obtained in the DC-3. His previous flight experience had been obtained while a member of the Army Air Force. Prior to this flight he had a two-day rest period, and the 24 hours before the flight were spent in a normal manner. He was not familiar with the emergency procedures recommended for an engine fire by the company Operations Manual. Copilot John B. Leslie, age 22, was employed by Eagle Air Freight April 15, 1948. He held an airman certificate with a commercial and instrument rating. At the time of the accident he had 1,500 flying hours, 250 of which had been obtained in the DC-3. His rest period before the flight was 24 hours. He also was not familiar with the emergency procedures for an engine fire that were set

out in the company Operations Manual.

The weather at the time of the accident was clear and is not considered a contributing cause.

## Discussion

There are not sufficient facts known at this time from which to deduce any probable cause of the fire. It is reasonable to conclude that the fire originated in Zone 1 of the left engine, since flames were observed coming from under the left engine cowl flaps. It is known that the fire flowed rearward, out of the cowl flaps, and ignited the dural skin of the left engine nacelle and the skin of the surrounding wing area. It is also known that the heat was of sufficient intensity to burn and weaken the power plant mount to the extent that it was unable to support the weight of the engine in flight. Little else concerning the fire has been found. However, as pointed out previously, the maintenance performed by Eagle Air Freight prior to the time of the accident was below safe standards. Though no real evidence exists to show a causal relationship between maintenance and the fire which started in the left engine, it is not unreasonable to suppose that the lack of proper maintenance or overhaul may have in some way contributed to the fire.

The lack of proper cockpit procedure during the course of the flight is also significant. Fifteen minutes after take-off the captain was asleep. Had he been awake at all times, he might have been aware of engine mal-operation and corrected it before fire occurred. Furthermore, had the crew followed normal procedure, they might have controlled the fire in the air. Normally, the propeller is feathered, and the shut-off valves are closed prior to the discharging of CO<sub>2</sub> in an engine nacelle.

## Findings

On the basis of all the available evidence, the Board finds that:

1. The aircraft, crew, and carrier were properly certificated.
2. The captain fell asleep fifteen minutes after takeoff from Burbank, California, and remained asleep until the copilot discovered the fire.
3. The fire occurred in the left engine two hours and fifteen minutes after takeoff from Burbank, California.

4 Neither the captain nor copilot was familiar with engine fire emergency procedures and failed to follow them in attempting to control the fire.

5. The engine fell from the aircraft after fire weakened the supporting structure and this engine to date has not been found.

6. A crash landing was effected one-quarter mile from Eloy, Arizona.

7. The maintenance performed by the carrier prior to the accident was below reasonable safety standards for air carrier operation.

#### Probable Cause

The Board determines that the probable

cause of this accident was fire in flight which resulted in the loss of the left engine, and required a crash landing. The cause of the fire has not been determined. Contributing factors were the failure of the pilot to remain fully awake at all times, and failure to follow correct emergency procedures.

BY THE CIVIL AERONAUTICS BOARD

/s/ JOSEPH J. O'CONNELL, JR

/s/ OSWALD RYAN

/s/ JOSH LEE

/s/ HAROLD A JONES

/s/ RUSSELL B ADAMS

# Supplemental Data

## Investigation and Hearing

The Civil Aeronautics Board received notification of the accident at 0617 on June 12, 1948, from the Civil Aeronautics Administration Communication Station at Los Angeles, California. Investigation was begun immediately in accordance with the provisions of Section 702 (a) (2) of the Civil Aeronautics Act of 1938, as amended. A public hearing was held August 18, 1948, in Santa Monica, California.

## The Air Carrier

Eagle Air Freight, a California Corporation, maintains its general offices in Burbank, California. At the time of the accident it was operating under a letter of registration from the Civil Aeronautics Board on a non-scheduled air carrier operating certificate from the Civil Aeronautics Administration.

## Flight Personnel

Captain John R. Dobson, age 26, was employed August 4, 1947, by Eagle Air Freight. He held an airman certificate with a commercial and instrument rating. At the time of the accident he had 1,843 flying hours, 700 of which had been

obtained while a member of the Army Air Force. His last CAA physical examination was on November 17, 1947.

Copilot John B. Leslie, age 22, was employed by Eagle Air Freight April 15, 1948. He held an airman certificate with a commercial and instrument rating. At the time of the accident he had 1,300 flying hours, 250 of which had been obtained in the DC-3. His last CAA physical examination was on October 24, 1947.

## The Aircraft

The Douglas DC-3, NC-79012, was owned by Eagle Freight, Inc. The aircraft had been flown a total of 4,823 hours since its manufacture. It was equipped with two Pratt & Whitney engines, R-1830-65 and 92, respectively, on which Hamilton Standard Propellers, Hydromatic Full Feathering, were installed. The left engine had been operated a total of 908 hours of which 756 hours were since overhaul. The right engine had been operated a total of 1,261 hours of which 756 were since overhaul. The aircraft at takeoff weighed 26,892 pounds, eight pounds less than the maximum allowable gross. The load was distributed with respect to the center of gravity within approved limits