

National Transportation Safety Board

Office of Aviation Safety

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ANC24LA049

ENGINE EXAMINATION

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TABLE OF CONTENTS

A. ACCIDENT.....	3
B. ENGINE EXAMINATION.....	3
C. SUMMARY.....	3
D. DETAILS OF THE EXAMINATION.....	4
1.1 Fuselage.....	4
1.2 Fuel/Fuel System.....	6
2.0 ENGINE EXAMINATION	6
3.0 PROPELLER EXAMINATION	9

A. ACCIDENT

Location: Port Alsworth, Alaska
Date: June 10, 2024
Time: 1635 Local
Airplane: DeHavilland DHC-2 N4957

B. ENGINE EXAMINATION

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C. SUMMARY

According to the operator, Talon Air Service INC, the airplane departed from Kijik Lake Alaska with five passengers for Longmere Lake near Soldotna Alaska. During engine run up, the pilot checked that the engine oil temperature was in the correct range, and the carburetor heat was working. He cycled the propeller four times and checked the magnetos to ensure they were within limits. After takeoff from the lake the pilot adjusted the airplane's manifold pressure, engine rpm and flaps for climb. About three miles after takeoff, the pilot felt the manifold pressure decrease. The pilot increased "full prop" and maximum engine rpm. The engine initially responded with an increase in engine rpm and manifold pressure but subsequently lost total power. The pilot performed a force landing into a heavily wooded area sustaining substantial damage to the fuselage and wings.

D. DETAILS OF THE EXAMINATION



Figure 1 View of the engine.

1.1 Fuselage

Witness marks were observed on both sides of the fuselage indicating flap position at impact. All connections to the engine instruments were secure and undamaged.



Figure 2. View of witness mark left by right side flap during impact.



Figure 3View of witness mark left by left side flap during impact.

1.2 Fuel/Fuel System

The airplane tail was lifted to level the fuselage. Moved the fuel selector to each tank and fuel was observed flowing from each tank. Witnesses reported smelling fuel leaking at the accident site. No obstructions were observed in the fuel system. The carburetor was inspected with no abnormalities observed.

2.0 Engine Examination

The engine turned over freely despite being heavily damaged. Pulled the spark plugs which were fine wire style plugs and there were no abnormalities observed.



Figure 4 Sparkplugs removed from engine.

The compression was good on all cylinders except No. 4, and No. 6 cylinder. No. 4 was exceptionally low, and air could be heard coming out the exhaust. The Nos. 4, 5 and 6 cylinders were inspected with a borescope. All valves were undamaged, and the valve train worked properly and moved as the engine was turned over indicating proper operation. There was some debris appearing to be carbon on the valve seats which would explain the low compression.

The cylinder bases and cylinder base nuts were present and did not have any distortion or evidence of damage from over-boosting. Intake tubes, exhaust system

and all associated hardware was present and no indication of loose, broken or disturbed hardware.

The induction system up to and including the carburetor was free of debris and no obstructions were found. All engine controls functioned properly and went stop to stop. The carburetor heat was in the "HOT" or "ON" position. The main fuel line was disconnected at the engine side of the firewall and fuel flowed on all three tanks.



Figure 5 View of the carburetor heat control lever.

The magnetos were tight, and the timing was at about 24°. The engine data tag showed 25° was the correct timing for the engine.

The oil screen was removed, inspected, and re-installed. No debris was found, and it was clear of any magnetic material.

3.0 Propeller Examination

The propeller control was free and correct and went stop to stop. The propellers exhibited tip bending due to impact; however, there was no rotational scoring present.



Figure 6 Propeller one



Figure 7 Propeller two.



Figure 8 Propeller three

Submitted by:

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AAI