

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



ANC23LA024

ENGINE EXAMINATION

March 15, 2023

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A. ACCIDENT

Location: Anchorage, AK
Date: March 5, 2023
Time: 1400

Helicopter: N5688R Enstrom F-28C

B. ENGINE EXAMINATION

IIC Mark Ward
NTSB
Anchorage, AK

FAA IIC Mitch Deremer
FAA
Anchorage, AK

C. SUMMARY

On March 5, 2023, about 1400 Alaska Standard Time, an Enstrom F-28C Helicopter, N5688R sustained substantial damage when it was involved in an accident in Anchorage, Alaska. The pilot and passengers were not injured. The airplane was operated by the pilot as a Title 14 Code of Federal Regulations Part 91 personal flight.

The pilot completed the preflight and engine run-up with no anomalies noted. The helicopter took off from Lake Hood Seaplane Base (LHD), Anchorage, Alaska. During takeoff, at about 30 feet above the ground, the engine lost partial power. The pilot made a run-on landing to a snow-covered lake. The helicopter sustained substantial damage to the tail boom.

D. DETAILS OF THE EXAMINATION

1.0 Accident Site

Snow covered frozen lake.

2.0 Engine Examination

Lycoming HIO-360-E1AD
L-19961-51A
ETSMOH 381.5 hours



Figure 1 Right side of engine



Figure 2 Left side of engine.

The helicopter engine was started. The engine started normally. The engine rpm was limited to 2800 rpm to prevent damage to the engine. The engine sounded normal and responded normally to throttle inputs. At 2800 rpm all Cylinder Head Temperatures (CHT) indications were equal across all cylinders. Engine magneto check was completed and both magnetos were fully operational.

Engine compressions on the cylinders were as follows.

#1 80/80 psi

#2 74/80 psi

#3 64/80 psi

#4 78/80 psi

Compressions were done on a cold engine.

Fuel was drained from the gascolator. The fuel was blue in color and no evidence of water observed. The fuel screen in the gascolator was inspected and found in good condition.



Figure 3 Fuel removed from gascolator

Spark plugs were secure, plug leads secure, no damage. Bottom spark plugs were in serviceable condition with normal electrodes.



Figure 4 Spark plugs removed from the bottom side of the engine.

Turbo was inspected, all gaskets and hoses were secure and turbo fan moved freely.



Figure 5 Hose connection to the engine turbo.



Figure 6 View into the exhaust to the turbo fan.

Throttle cable was secured and undamaged.

All intake and exhaust connections were secure and undamaged. No blockages were observed.

Main rotor blade belt tensioner operated normally. It was in the engaged position at the start of the examination. Belt was in good condition. After disengaging the belt tensioner, the main rotor transmission moved freely by hand.



Figure 7 Belt clutch engagement system



Figure 8 Upper pulley/Over running clutch.



Figure 9 Drive belt.

No evidence of pre-impact mechanical malfunctions observed during the engine examination.

Submitted by:

Mark Ward
ASI