

National Transportation Safety Board

Office of Aviation Safety

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ANC25LA017

ENGINE EXAM

February 19, 2025

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A. ACCIDENT

Location: Anchorage, Alaska
Date: February 2, 2025
Time: 03:54
23:54
Airplane: Cessna 182F

B. ENGINE EXAM

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C. SUMMARY

On February 2, 2025 about 1354 Alaska standard time, a Cessna 182F, N3206U, sustained substantial damage when it was involved in an accident near Anchorage Alaska. The pilot and passenger were uninjured.

The pilot departed Merrill Field Airport (PAMR), Anchorage, Alaska at 11:06 and flew to the Cantwell airport (PATW); he over flew the airport and returned to PAMR. The pilot reported that he last fueled the airplane on December 17 at which time he added 34 gallons of fuel. Prior to departure the pilot visually checked that both the left and right tanks had fuel. The amount of fuel onboard prior to departure could not be confirmed. With the fuel selector valve on both, the total useable fuel for all flight conditions is 57 gallons.

The pilot reported that on takeoff the fuel selector valve was set to feed from both tanks. The pilot kept the fuel selector on both tanks for 2 hours, at which time he moved the fuel selector valve to the right tank for the remainder of the flight. The pilot said that as he was crossing the inlet on his return to PAMR he moved the fuel selector back to both tanks. While established in the traffic pattern the pilot reported that the engine began to run rough, and he noticed a simultaneous rise in the Exhaust Gas Temperature (EGT); he applied full carburetor heat which resulted in a return of full power and lowered the EGT. On final for runway 25, the engine lost all power, and the pilot made a forced landing to an empty parking lot. Shortly after touchdown the airplane impacted a curb, the nose gear was separated from the fuselage and the airplane came to rest on its nose.

At the accident site the NTSB checked the fuel level in each tank; the right tank contained no fuel and the left tank contained 6.0 gallons.

D. DETAILS OF THE EXAMINATION

1.0 Airframe Examination

The airframe was presented on a stand with the top engine cowling removed. There was impact damage to the bottom of the lower engine cowling and to belly of the airplane. The wings were both removed during the recovery process, neither wing exhibited damage.

2.0 Engine Examination

The continental O-470-R Serial Number 8118170-R engine was securely attached to the firewall.



Figure 1 Airplane engine presented at examination

The oil dipstick indicated that there were 10 quarts of oil in the engine at the time of the examination. The oil was dark in color consistent with the number of hours in service. The bottom engine cowling was removed.

The front left engine mount was observed to be broken between the engine mount pad and the engine.



Figure 2 Broken engine mount

Continuity was confirmed between the mixture, throttle, carburetor heat, and propeller controls in the cockpit to the engine. The carburetor heat line was impact separated just prior to the carburetor. The carburetor flange was impact damaged. The ignition harness was in good condition and all leads were firmly attached to the spark plugs. The top 5 tempest spark plugs and 1 champion spark plug were removed. All electrodes were covered in grey deposits and had normal wear signatures when compared to the Champion Check-A-Plug AV-27 chart.



Figure 3 Spark plugs

Compression checks were done on each cylinder using an air compressor; cylinder No. 1, 72, cylinder No. 2, 76; cylinder No. 3, 75, cylinder No. 4, 75, cylinder No. 5, 78, cylinder No. 6, 78.

A Borescope was used to inspect the recently replaced No. 3 and No. 6 cylinders. The exhaust and intake valves and combustion chambers had normal wear for the cylinders of their age.

The magnetos were firmly attached to their mounting pads. The propeller turned freely, and the impulse couplers were confirmed. Magnetos were timed at 21.5 which is within normal limits (22).

The intake system was intact, no cracks or breaches were noted.

The oil screen was firmly attached to the fire wall. The oil screen was removed, a magnet was used to detect metal particulates, no metal particulates were detected.



Figure 4 Engine oil filter

2.1 Fuel/Fuel System

The airplane was configured with aftermarket fiberglass fuel tanks which have a total capacity of 62 gallons, 57 gallons of useable fuel. At the accident site the NTSB IIC measured the fuel quantity in each tank using a fuel gauge provided by the owner; the right wing tank was observed to be empty and the left wing tank had 6 gallons of fuel.

The pilot reported moving the fuel selector valve to the off position after the accident sequence. During the engine examination the gascolator was drained and a small amount of fuel was observed in the gascolator. The fuel color and smell resembled that of 100LL, no water was observed in the fuel. The fuel valve was moved to the both position and fuel was observed draining from the gascolator; the fuel was clean and free of any contaminants. The fuel screen was removed, no particulates were observed.

A fuel flow test was conducted, a funnel was connected to the forward fuel lines in each tank and clean fuel was added; after about 5-6 seconds fuel was observed draining from the fuel line to the carburetor. Testing of the fuel selector valve confirmed normal valve operation in all selectable positions.



Figure 5 Fuel flow test with forward fuel line



Figure 6 Fuel flow test carburetor fuel line

The carburetor was not removed and inspected because the fuel delivery to the carburetor was confirmed and there were no other indications that the carburetor was not functioning normally during flight.

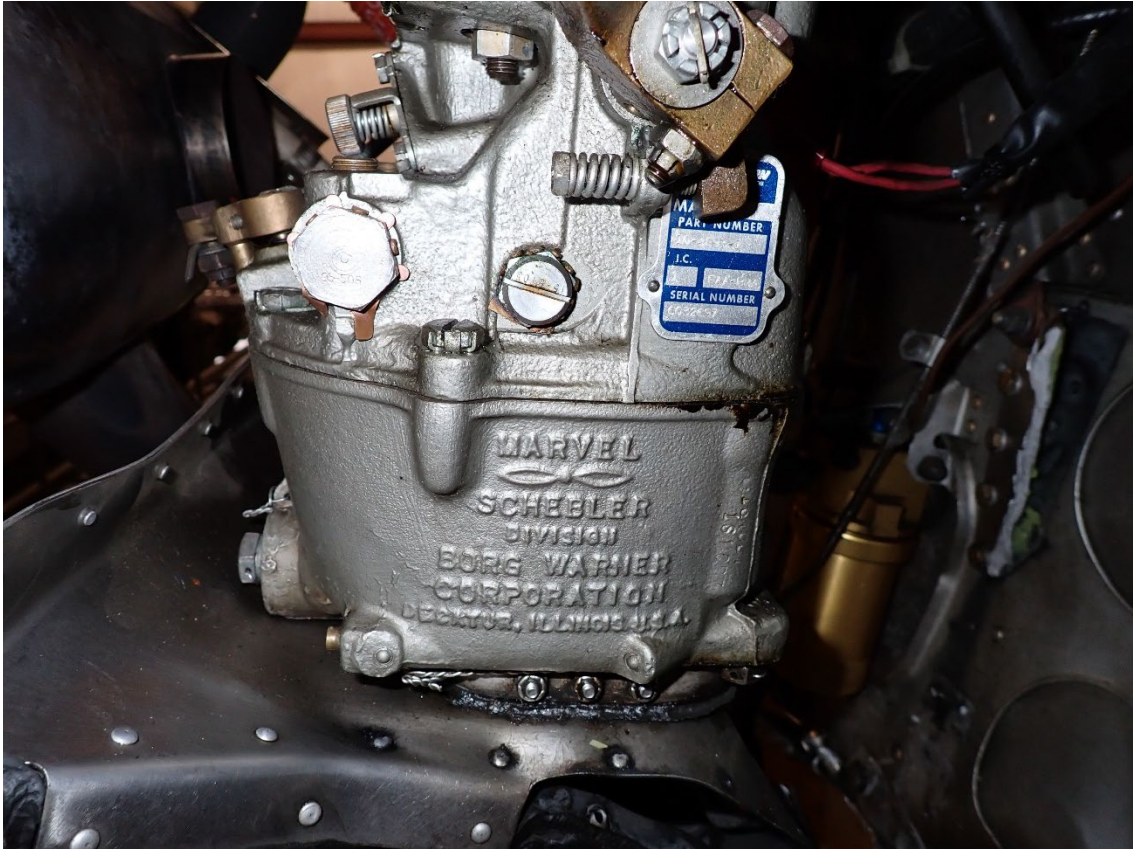


Figure 7 Undamaged carburetor

3.0 Meteorological Information

*METAR PAMR 022253Z 00000KT 10SM CLR M08/M11 A3060 RMK AO2
SLP366 T10781111=*

Submitted by:

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