

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



WPR22LA115

N8814X EXAMINATION SUMMARY

June 2, 2022

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A. ACCIDENT

Location: Mortmar, California
Date: March 3, 2022
Time: 0813 (Local)
1613 (UTC)
Airplane: N8814X Cessna 182D / 180G

B. PARTICIPANTS

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C. SUMMARY

A post-accident examination of the airframe and engine revealed no evidence of mechanical malfunctions or failures that would have precluded normal operation. An engine test run was completed with no anomalies or malfunctions. The engine was started and idled for several minutes in a maximum pitch propeller configuration, and with the mixture in the rich and lean positions. The throttle was advanced to full power and the engine operated up to 2,672 rpm. The fuel selector was removed and examined from handle to valve, which revealed no binding, restriction, or anomalies.

D. DETAILS OF THE EXAMINATION

1.0 Accident Site

The accident site was located near the town of Mortmar, California. The accident site Lat/Long was N 33.52814°, W -115.96742. The airplane came to rest inverted and intact. Substantial damage was sustained to the Right wing lift strut, vertical stabilizer and the rudder. The airplane touched down on a soft dirt farm field, the ground run was about 200ft, and subsequently the airplane nosed over.

2.0 Airframe Examination

The accident airplane was met by FAA Inspectors shortly after the impact occurred. The inspectors noted that the airplane appeared to have partial flaps

applied, the fuel selector was in the right tank position, the master and ignition switches were in the off position. The inspectors were not able to confirm the quantity or even the presence of fuel at the accident site. The airplane was taken to Phoenix, Arizona for further examination.

2.1 Fuselage

The airplane's fuselage remained intact and sustained minor damage.

2.2 Empennage

The vertical stabilizer and the rudder sustained substantial damage as revealed by the vertical crushing signatures on the top of the rudder and the vertical stabilizer. The base of the vertical stabilizer exhibited compression signatures. The horizontal and elevator did not sustain impact damage.

2.3 Wings

The left and right wing separated from the fuselage by the recovery company for transport. The wings were detached from the accident airplane at the wing root. The flaps appeared to be partially down, with minor damage to the upper wing skin. The fuel pickups and vent were unobstructed, and the gravity-fed fuel system operated without anomalies or failures from the wing tank throughout the fuel system. The wing tanks were not breached and contained non-vented caps. The left wing contained the fuel vent and was observed at the time of the examination with a red rubber sleeve covering the vent. Compressed air was inserted from the fuel vent, and the air was observed exiting the vent line located at wing root.

2.4 Landing Gear

The main landing gear and tail wheel remained attached to the lower fuselage and appeared unremarkable. The left and right brake pads, calipers and hydraulic lines were unremarkable. The landing gear tires remained attached to their respective wheels.

2.5 Cockpit

The cockpit remained intact, and the higher dollar avionics devices were removed and secured by the recovery company for security. The airspeed indicator and vertical speed indicator were intact, and the needles indicated zero. The altimeter indicated 1,220ft and the Kollsman window indicated 30.02 inHg. The turn and slip indicator ball and airplane were in a level, neutral position. The manifold pressure gage indicated 28 inHg. The master and alternator switches were in the off position. The ignition key was removed and remained in the off position. The throttle, propeller, carburetor heat and mixture controls were all full forward. The primer was

in and locked. The left and right fuel gages indicated zero/empty, and the oil pressure and temperature gages indicated zero degrees. The elevator trim wheel appeared to be in a nose full down position, and the rudder trim wheel appeared to be in a neutral position.

2.6 Survivability

The seat belts were not cut and remained intact.

2.7 Fuel/Fuel System

The fuel line from the fuel flow transducer to the carburetor fuel inlet, was disconnected from the carburetor. A fuel source was connected to the left and right wing tank fuel pick-up lines, and the gravity fed fuel system produced fuel which exited the fuel line that was disconnected from the carburetor. When the fuel selector was cycled through the left, right, and both positions, fuel was coming out of the disconnected line at the carburetor. The fuel line to the carburetor was reconnected, and a power supply was connected to the battery. The engine started and ran for several minutes. The engine was shut down, and the fuel selector was removed and examined from handle to valve, which revealed no anomalies, binding, or restriction. Light blue colored fuel consistent with the properties of 100LL was extracted from the gascolator, and no signatures of water entrainment were present.

2.8 Other Systems

The JPI EDM-700 was removed from the airplane's instrument panel for further examination. The device was sent to the NTSB Lab for download and data population. The findings from the downloaded device are included in the public docket.

3.0 Engine Examination

Make: Continental / NorthPoint

Model: O-470 / XP470

Serial Number: 278764-R / 3295

Rated Horsepower: 275 HP

Total Time: 2,169 Hrs.

TSMO: 464

Since Last Inspection: Condition Inspection 261 Hrs.

N4418X was photographed at the examination site and evaluated for damage and potential engine test run capability. The engine and accessories were not damaged. Two of the three propeller blades were separated, but the propeller hub was intact. The upper and lower engine cowlings were removed, and all accessories were secure and intact.

All engine ignition leads were removed. Top spark plugs were removed and exhibited a light grey color consistent with a lean fuel-air mixture engine operation. Each of the spark plugs were intact and appeared operational. Pusher rod housings were unimpeded and revealed no signs of impact damage. Rocker covers were removed from each of the six cylinders, and the propeller was rotated through by hand. Each of the spark plug leads produced a spark. Thumb compression was attained on each of the cylinders, and the intake and exhaust rocker arm movement traveled equally on each of the six cylinders, which indicated that the cam lobes were not worn.

Throttle linkage, mixture control linkage and propeller governor linkage were each manipulated from their respective cockpit controls and mechanical continuity was visible from stop to stop. Amp meter was connected to the left and right magnetos, and the propeller was turned through by hand to validate magneto to engine timing, which was observed to be ~23 degrees TDC. Rocker covers were reapplied to their respective cylinders, the top spark plugs were put back into their respective orifices, and the top and bottom spark plug leads were connected to each spark plug. The propeller was removed and replaced with an exemplar propeller. The engine started and idled for several minutes in a maximum pitch propeller configuration, and with the mixture in the rich and lean positions. The throttle was advanced to full power and the engine operated up to 2,672 rpm.

4.0 Propeller Examination

Make: MT
Model: MTV-9-D / 210-58
Blades: 3 blade

Two of the three controllable pitch propeller blades were separated, but the propeller hub was intact. Each of the propeller blade roots remained attached to the hub. The two blades that were liberated, were missing about 66 percent of the blade material.

5.0 Pilot Information

Refer to NTSB Factual and the Pilot Logbook in the public docket.

6.0 Aircraft Information

The airplane was converted from a 182D to a 180G and was registered as a 182D. The airplane and engine were registered with an experimental airworthiness certificate, for research and development. The last engine overhaul was conducted

about 464 hours before the accident. A condition inspection was completed about 261 hours before the accident. Total time on the engine was 2,169 Hrs.

7.0 Meteorological Information

About the time of the accident, the nearest weather reporting station was located 11 miles west-north-west and reported the following METAR:

KTRM 021552Z AUTO 14004KT 10SM CLR 16/M02 A3003 RMK AO2 SLP167
T01561022

Submitted by:

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Air Safety Investigator