

National Transportation Safety Board

Office of Aviation Safety

Denver, CO 80239



CEN20LA245

WRECKAGE EXAMINATION SUMMARY

ACCIDENT

Location: Winfield, Texas
Date: June 24, 2020
Time: 1401 central daylight time
Airplane: Cessna 182R, Registration No. N958HP

ACCIDENT SYNOPSIS

On June 24, 2020, about 1401 central daylight time, a Cessna 182R airplane, N958HP, was substantially damaged when it was involved in an accident near Winfield, Texas. The pilot sustained serious injuries. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 pipeline patrol flight.

The flight departed with a full fuel load of about 88 gallons. The airplane experienced a total loss of engine power during cruise flight about 4.1 hours after departure.

WRECKAGE EXAMINATION DATE AND LOCATION

Location: Winston Field Airport (SNK)
City, State: Snyder, Texas
Date: March 10, 2021
Time: 0800 central daylight time

WRECKAGE EXAMINATION GROUP

Investigator	Dan Baker, Senior Air Safety Investigator National Transportation Safety Board Denver, Colorado
Group Member	Ervin Howell, Aviation Mechanic Brentco Aerial Patrol, Inc. Snyder, Texas

AIRPLANE DESCRIPTION

The airplane was a 1981 Cessna 182R, serial number (s/n) 18267923. The Continental Motors O-470-U18B, s/n 1038697, reciprocating engine was rated at 230 horsepower at 2,400 rpm. The engine provided thrust through a constant-speed, two-blade, McCauley C2A34C204-C propeller, s/n 767937. The high-wing airplane was of conventional aluminum construction with a fixed tricycle landing gear and wing flaps.

According to available maintenance documentation, the airframe had accumulated 19,420.1 hours since new at the time of the accident. The engine had accumulated 55.9 hours since it was factory-rebuilt by Continental Motors, Mobile, Alabama, on March 20, 2020. The propeller had accumulated 55.9 hours since it was overhauled by Lone Star Propeller, Midland, Texas, on December 16, 2019. The engine and propeller were both installed on the airplane on April 21, 2020, at 19,364.2 hours total airframe time.

DETAILS OF THE EXAMINATION

1.1 Airframe

The left and right wings were removed to facilitate recovery of the wreckage from the accident site near Winfield, Texas, to a hangar located at Winston Field Airport (SNK), Snyder, Texas. According to the wreckage recovery crew, about 1 gallon of fuel was recovered from each wing fuel tank.

The right wing exhibited leading edge crush damage 12-18 inches outboard the fuel tank cap, and the damage extended aft about 12 inches breaching the right-wing fuel tank. Both fuel screens inside the right fuel tank exhibited no obstructions or debris. The right fuel tank exhibited no evidence of corrosion, debris, or staining. There were no anomalies observed with the right fuel tank cap.

The left wing exhibited leading edge damage from the wing root to just outboard the fuel tank cap. The left-wing fuel tank remained intact, and there was no debris observed in the tank. There were no anomalies observed with the left fuel tank cap.

The cockpit fuel selector lever was found in the BOTH position; however, the shaft between the cockpit fuel selector lever and the fuel selector valve disconnected during impact. The fuel selector valve was removed and tested. When air was blown into the outlet port of the fuel selector valve it exited through the left fuel tank inlet port. The valve was manually rotated from the LEFT position to the BOTH, RIGHT, and OFF positions. There were no anomalies observed with the fuel selector valve, and tactile detents were present at each commanded position.

The throttle, mixture, and propeller controls were stuck in the full forward position in the cockpit. Impact damage was evident to the dash, which caused binding in the controls. The engine controls were separated from the engine between the firewall and the engine. Engine control continuity could not be verified due to impact related damage.

The airframe fuel filter assembly did not contain any fuel, water, or debris. The FAA Inspector who examined the wreckage onsite reported that the fuel filter assembly contained fuel and no contamination.

1.2 Engine

The engine separated from the airframe during impact. The upper and lower cowlings remained attached to the engine compartment structure. After wreckage recovery, the engine was stored vertically resting on the accessory section. There was one 1.5" x 2.5" tapered hole in the aft right side of the oil pan. The hole was consistent with impact-related damage. Oil was present on the ground under the engine. The remaining oil in the pan drained from the hole when the engine was repositioned horizontally for the examination. The drained oil was dark brown/black in color with no evidence of metallic debris.

All engine accessories remained securely attached to the rear of the engine and both magnetos were securely attached at the top rear of the engine crankcase. The fuel line connecting the fuel filter assembly to the carburetor was impact separated at the carburetor. The oil line from the oil pump was impact separated at the engine.

The lower spark plugs were removed from each of the six cylinders and the cylinder rocker box covers were removed. The lower spark plugs exhibited features consistent with normal engine operation. Engine continuity was verified by manually rotating the propeller and observing the starter drive rotate at the rear of the engine. Compression was confirmed at each cylinder by placing a finger over the open spark plug holes and feeling suction and expelled air as the engine crankshaft was rotated. Intake and exhaust valve movement was observed at each cylinder while the engine crankshaft was rotated. A spark was observed at each lower spark plug lead as the engine was rotated. There were no blockages or damage observed to the air intake or air filter. The engine exhaust remained firmly attached to the engine cylinders with no observed impact damage or deformation.

Examination and disassembly of the carburetor did not reveal any mechanical anomalies that would have prevented normal operation. The throttle and mixture arms moved freely when manipulated by hand. No fuel was discharged from the accelerator pump when the throttle arm was actuated. The inlet fuel screen was clean with no observed obstruction or debris. The carburetor bowl was void of any fuel, but

there was the odor of 100 low-lead aviation fuel present. The carburetor floats were in good condition. The floats were made of blue epoxy and exhibited no evidence of holes, staining, or discoloration. There were no anomalies observed with the carburetor's needle valve or its corresponding valve seat.

The postaccident engine examination did not reveal any mechanical anomalies that would have precluded normal operation during the flight.

1.3 Propeller

The propeller remained attached to the engine propeller shaft flange. The propeller spinner exhibited aft crush damage and slight rotational deformation. One propeller blade was bent aft about midspan, loose in the hub, and exhibited minor chordwise scratches near the blade tip. The other blade exhibited slight aft bending, slight twisting toward low pitch, minor leading-edge damage, and minor chordwise scratches near the blade tip.



Figure 1 - Fuselage, Engine, and Propeller



Figure 2 - Left and Right Wings



Figure 3 - Airframe Fuel Filter Assembly



Figure 4 - Fuel Selector Valve Control Rod

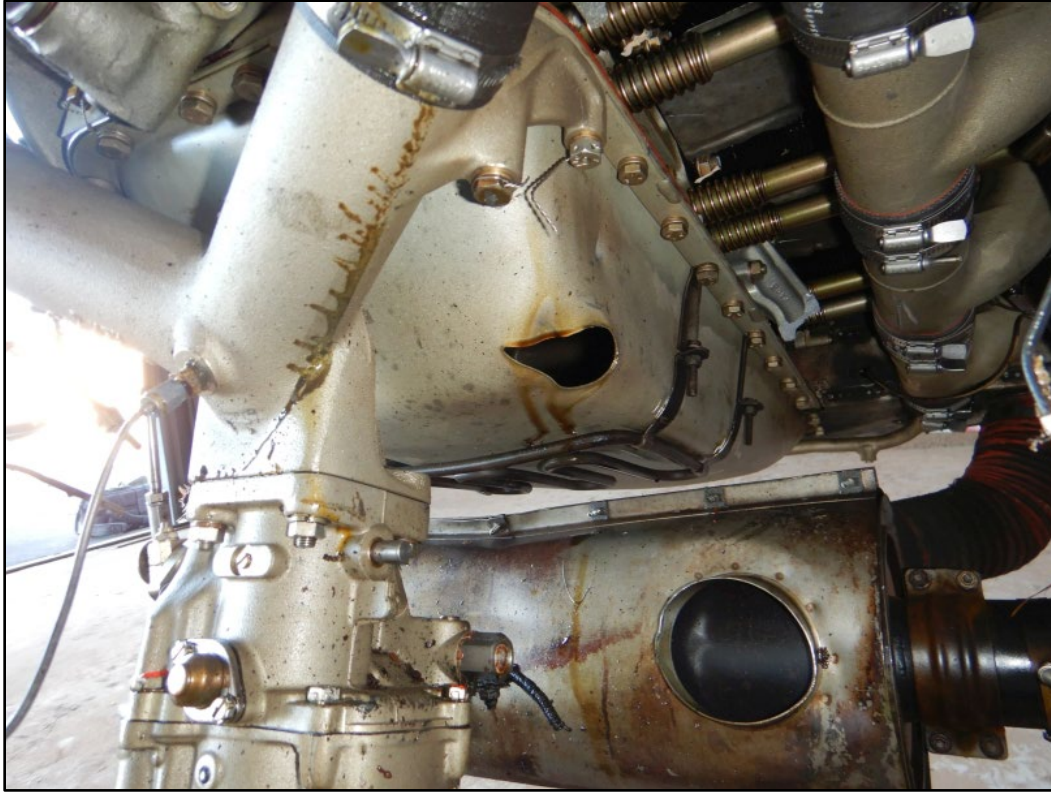


Figure 5 - Engine Oil Sump Damage



Figure 6 - Carburetor Bowl



Figure 7 - Carburetor Floats



Figure 8 - Carburetor Fuel Inlet Screen



Figure 9 - Propeller Spinner



Figure 10 - Propeller Blade "A"



Figure 11 - Propeller Blade "B"