



Aviation Investigation Final Report

Location:	Aberdeen, Idaho	Accident Number:	WPR18LA149
Date & Time:	May 27, 2018, 14:20 Local	Registration:	N5700B
Aircraft:	Cessna 182	Aircraft Damage:	Substantial
Defining Event:	Loss of engine power (partial)	Injuries:	2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot was conducting a personal, cross-country flight. During the flight, the airplane encountered light drizzle and reduced visibility. After continuing for a few minutes in these conditions while about 2,000 ft above ground level, the pilot decided to initiate a right turn and divert from his original destination. As the airplane exited the turn, the engine “stuttered” a few times and eventually lost power. Despite the pilot's attempts to restore engine power, during which he did not apply carburetor heat, the engine would only run roughly and inconsistently. He then decided to divert to another airport that was closer to the airplane's position. As he was about to reattempt to restore engine power, the engine developed partial power; however, it was insufficient to sustain flight. Realizing the airplane could not reach the airport, he chose to conduct an emergency landing to an open field. During the landing roll, the main landing gear dug into dirt, and the nosewheel then hit the ground hard and collapsed. Subsequently, the nose dug into dirt, and the airplane nosed over, which resulted in substantial damage to the vertical stabilizer, rudder, and fuselage.

Examination of the engine revealed no evidence of preaccident mechanical malfunctions or failures that would have precluded normal operation. The atmospheric conditions that existed around the time of the accident were conducive to the formation of serious carburetor icing at cruise power. Therefore, it is likely the engine lost power due to the accumulation of carburetor ice, which resulted from the pilot's failure to use carburetor heat.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The pilot's failure to use carburetor heat while operating in conditions conducive to carburetor icing,

which resulted in a partial loss of engine power and a subsequent forced landing and nose-over.

Findings

Environmental issues	Conducive to carburetor icing - Effect on equipment
Personnel issues	Decision making/judgment - Pilot

Factual Information

History of Flight

Enroute-descent	Loss of engine power (partial) (Defining event)
Enroute-cruise	Off-field or emergency landing
Landing-landing roll	Nose over/nose down

On May 27, 2018, about 1420 mountain daylight time, a Cessna 182 airplane, N5700B, sustained substantial damage when it was involved in an accident near Aberdeen, Idaho. The pilot and passenger were not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot reported that, before the flight, he verified that 55 gallons of fuel were onboard for the 3-hour 3-minute-long flight. He typically planned for a fuel burn of about 12 gallons per hour. During the flight, he made two minor deviations from the intended flightpath due to weather. As the airplane passed Aberdeen Airport (U36), Aberdeen, Idaho, it encountered light drizzle and reduced visibility. After continuing for a few minutes in these conditions while about 2,000 ft above ground level, the pilot decided to initiate a right turn and divert from his original destination, Blackfoot Airport (U02), Blackfoot, Idaho, to Burley Municipal Airport (BIY), Burley, Idaho. As the airplane exited the turn, the engine “stuttered” a few times and eventually lost power. The pilot immediately began troubleshooting, but despite his attempts to restore engine power, it would only run roughly and inconsistently.

The pilot then chose to divert to U36 because it was closer to the airplane’s position, and as he was about to begin another attempt to restore engine power, the engine regained partial power; however, it was inconsistent and insufficient to sustain flight. Realizing the airplane could not reach U36, the pilot moved the mixture to idle cutoff, closed the fuel selector valve, turned off the ignition, and then initiated an emergency landing to an open field. During the landing roll, the main landing gear dug into dirt, and the nosewheel hit the ground hard and then collapsed. Subsequently, the nose dug into dirt, and the airplane nosed over. The pilot reported that he did not apply carburetor heat while troubleshooting the loss of engine power.

According to the Federal Aviation Administration’s carburetor icing probability chart, the temperature and dew point that existed when the engine lost power were conducive to the formation of serious icing at cruise power. Special Airworthiness Information Bulletin CE-09-35, “Carburetor Icing Prevention,” stated, in part, that “Pilots should be aware that carburetor icing doesn't just occur in freezing conditions, it can occur at temperatures well above freezing temperatures when there is visible moisture or high humidity.”

Examination of the airplane revealed that the vertical stabilizer, rudder, and fuselage had sustained substantial damage. The right and left wings remained attached to the fuselage. Both the left-and-right wing fuel caps were secured to the wings. No fuel was found in the left-wing fuel tank, and about 1 gallon of fuel was drained from the right-wing fuel tank. The fuel vents were free of debris. The

gascolator was intact and contained some fuel, which was free of debris. The screen was also free of debris. The fuel selector valve handle was in the "off" position, the primer was in the "in and locked" position, and the propeller lever was in the "full-forward" position. The throttle lever was about 3 inches from full forward. The mixture lever was set to full rich. The carburetor heat was in the "off" position.

The engine was separated from the airframe and its mounts. The oil sump exhibited impact damage. The exhaust exhibited impact damage. A portion of the induction system (aft elbows) was separated. The engine crankshaft was able to be rotated. Rotational continuity was established throughout the engine and valve train. Thumb compression and suction were obtained on all six cylinders.

The magnetos remained attached to the engine. When the crankshaft was rotated by hand, both the left and right magnetos produced spark on each ignition lead in proper firing order. The upper spark plugs had a light gray appearance in the electrode area, appeared to be oil soaked, and exhibited normal wear for their service life.

The carburetor was separated from the induction system. The throttle and mixture arms remained attached and actuated freely from stop to stop. When the throttle arm was actuated, the accelerator pump actuated; however, no fuel was expelled. No fuel was observed in the float bowl. The plastic floats and the needle valve were intact. The carburetor fuel screen was free of debris. The venturi was intact.

Pilot Information

Certificate:	Commercial	Age:	50, Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	3-point
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	BasicMed Without waivers/limitations	Last FAA Medical Exam:	January 11, 2018
Occupational Pilot:	No	Last Flight Review or Equivalent:	November 12, 2017
Flight Time:	383 hours (Total, all aircraft), 105 hours (Total, this make and model), 317 hours (Pilot In Command, all aircraft), 10 hours (Last 90 days, all aircraft), 7 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N5700B
Model/Series:	182 UNDESIGNAT	Aircraft Category:	Airplane
Year of Manufacture:	1956	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	33700
Landing Gear Type:	Tricycle	Seats:	4
Date/Type of Last Inspection:		Certified Max Gross Wt.:	2551 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:		Engine Manufacturer:	CONT MOTOR
ELT:	Installed, not activated	Engine Model/Series:	O-470 SERIES
Registered Owner:		Rated Power:	230 Horsepower
Operator:	On file	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	PIH,4452 ft msl	Distance from Accident Site:	9 Nautical Miles
Observation Time:	14:18 Local	Direction from Accident Site:	115°
Lowest Cloud Condition:	Few / 4600 ft AGL	Visibility	10 miles
Lowest Ceiling:	Broken / 8500 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	10 knots /	Turbulence Type Forecast/Actual:	/ None
Wind Direction:	260°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	16°C / 9°C
Precipitation and Obscuration:	In the vicinity - Thunderstorm - Rain		
Departure Point:	Reno, NV (RTS)	Type of Flight Plan Filed:	None
Destination:	Blackfoot, ID	Type of Clearance:	None
Departure Time:	10:00 Local	Type of Airspace:	Class G

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	1 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 None	Latitude, Longitude:	42.978332,-112.791946

Administrative Information

Investigator In Charge (IIC):	Cawthra, Joshua		
Additional Participating Persons:	Steven Grover; Federal Aviation Administration; Salt Lake City, UT		
Original Publish Date:	May 25, 2021	Investigation Class:	3
Note:	The NTSB did not travel to the scene of this accident.		
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=97328		

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