



Aviation Investigation Final Report

Location:	Spearfish, South Dakota	Accident Number:	CEN21LA082
Date & Time:	December 8, 2020, 11:00 Local	Registration:	N2554M
Aircraft:	Piper PA12	Aircraft Damage:	Substantial
Defining Event:	Loss of engine power (total)	Injuries:	2 None
Flight Conducted Under:	Part 91: General aviation - Flight test		

Analysis

Before departing on the first flight after completion of the annual inspection, the pilot selected the right wing fuel tank, which was the fuller tank, performed an engine runup, and then initiated takeoff. The pilot said that the airplane climbed to about 70 ft above the runway, lost engine power for a few seconds, regained power briefly, then lost total power. The airplane landed hard on the runway, resulting in substantial damage to the fuselage.

A postaccident engine run revealed no mechanical anomalies that would have precluded normal airplane operation. Based on the available evidence, the reason for the loss of engine power could not be determined.

Probable Cause and Findings

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

A total loss of engine power during initial climb for undetermined reasons.

Findings

Aircraft	(general) - Unknown/Not determined
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Factual Information

History of Flight

Initial climb	Loss of engine power (total) (Defining event)
Landing	Hard landing

On December 8, 2020, about 1030 mountain standard time, a Piper PA-12, N2554M, was involved in an accident near Spearfish, South Dakota. The private pilot and a passenger were uninjured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 maintenance test/check flight.

After completing an annual inspection, maintenance personnel performed post-inspection engine run-ups, then turned the fuel selector to the OFF position.

The pilot arrived at the maintenance facility with a passenger to perform a post-maintenance test/check flight. The pilot stated that the left fuel tank was $\frac{1}{2}$ full and the right fuel tank was $\frac{3}{4}$ full, and that he positioned the fuel selector to the right fuel tank. Following an engine run-up, he initiated takeoff, and the airplane climbed to about 70 ft above the runway. The airplane lost engine power for a few seconds, regained power for a few more seconds, and then lost total power. The pilot lowered the airplane's nose to increase airspeed, and the airplane continued to descend. He tried to flare the airplane, but the airplane landed hard on the runway, resulting in substantial damage to the fuselage tubular structure.

A postaccident engine run revealed no mechanical anomalies that would have precluded normal operation.

Pilot Information

Certificate:	Private	Age:	56, Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Front
Other Aircraft Rating(s):	None	Restraint Used:	Unknown
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	
Medical Certification:	Class 3 Without waivers/limitations	Last FAA Medical Exam:	April 25, 2016
Occupational Pilot:	No	Last Flight Review or Equivalent:	March 21, 2019
Flight Time:	737 hours (Total, all aircraft), 161 hours (Total, this make and model), 737 hours (Pilot In Command, all aircraft), 14 hours (Last 90 days, all aircraft), 11 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Passenger Information

Certificate:		Age:	
Airplane Rating(s):		Seat Occupied:	Rear
Other Aircraft Rating(s):		Restraint Used:	Unknown
Instrument Rating(s):		Second Pilot Present:	No
Instructor Rating(s):		Toxicology Performed:	
Medical Certification:		Last FAA Medical Exam:	
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N2554M
Model/Series:	PA12	Aircraft Category:	Airplane
Year of Manufacture:	1946	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	18267237
Landing Gear Type:	None	Seats:	2
Date/Type of Last Inspection:	December 7, 2020 Annual	Certified Max Gross Wt.:	1750 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	704.9 Hrs as of last inspection	Engine Manufacturer:	Lycoming
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	O320-A2A
Registered Owner:	On file	Rated Power:	150
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:	SPF,3933 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	10:15 Local	Direction from Accident Site:	
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	11 knots /	Turbulence Type Forecast/Actual:	None /
Wind Direction:	260°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.09 inches Hg	Temperature/Dew Point:	16°C / -11°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Spearfish, SD	Type of Flight Plan Filed:	VFR
Destination:	Lakeville, MN (LVN)	Type of Clearance:	IFR
Departure Time:		Type of Airspace:	Class G

Airport Information

Airport:	Black Hills Airport-Clyde Ice Field SPF	Runway Surface Type:	Grass/turf
Airport Elevation:	3933 ft msl	Runway Surface Condition:	Soft;Vegetation
Runway Used:	26	IFR Approach:	None
Runway Length/Width:	4003 ft / 100 ft	VFR Approach/Landing:	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	1 None	Aircraft Fire:	None
Ground Injuries:		Aircraft Explosion:	None
Total Injuries:	2 None	Latitude, Longitude:	44.481056,-103.786(est)

Administrative Information

Investigator In Charge (IIC):	Gallo, Mitchell
Additional Participating Persons:	William Howell; Federal Aviation Administration, Rapid City FSDO; Rapid City, SD
Original Publish Date:	July 7, 2022
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=102397

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).