



Aviation Investigation Final Report

Location:	Sheridan, Wyoming	Accident Number:	DEN06LA094
Date & Time:	June 30, 2006, 15:09 Local	Registration:	N153M
Aircraft:	Cessna 180	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 Serious, 1 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

Prior to departure, the airplane had been refueled with 37.5 gallons of 100 low lead fuel. Shortly after takeoff from runway 23, the pilot "heard a pop/bang from the engine...engine seemed to lose power." The pilot stated that he felt a "severe vibration" after the pop/bang engine noise. The pilot executed a 180-degree left turn in an attempt to return to the airport. Subsequently, the airplane landed in a grass field, impacted a dirt embankment and a fence, and came to rest upright in a ditch. Examination of the aircraft revealed that the throttle cable was routed above the rear mounted alternator belt, and the cable was resting on the alternator belt. The throttle cable shielding was worn through by contact with the alternator belt, and the braided cable was exposed. No damage was noted to the braided throttle cable. One of the tubes of the engine mounting frame was fractured; the fracture surfaces were consistent with an overload failure. Mechanical continuity throughout the engine was established when the propeller was rotated by hand, and the engine was test run on the airframe. The engine test run was performed for approximately 1 minute at an engine tachometer speed of 1,300 RPM. No anomalies were noted with the engine during the examination and test run. The reason for the partial loss of engine power could not be determined. A review of the airplane's logbooks revealed the airplane underwent annual and 100-hour inspections between the time the overhauled engine was installed on the airframe and the accident.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the partial loss of engine power for undetermined reasons. Contributing factors were the dirt embankment and fence.

Findings

Occurrence #1: LOSS OF ENGINE POWER

Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings

1. (C) REASON FOR OCCURRENCE UNDETERMINED
2. THROTTLE/POWER LEVER,CABLE - MISROUTED
3. MAINTENANCE,INSTALLATION - IMPROPER - OTHER MAINTENANCE PERSONNEL

Occurrence #2: FORCED LANDING

Phase of Operation: DESCENT - EMERGENCY

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER

Phase of Operation: EMERGENCY DESCENT/LANDING

Findings

4. (F) TERRAIN CONDITION - DIRT BANK/RISING EMBANKMENT
5. (F) OBJECT - FENCE

Factual Information

On June 30, 2006, at 1509 mountain daylight time, a Cessna 180 single-engine airplane, N153M, sustained substantial damage when it impacted terrain following a partial loss of engine power during initial takeoff climb from the Sheridan County Airport, Sheridan, Wyoming. The private pilot sustained minor injuries and the passenger sustained serious injuries. The airplane was registered to and operated by the pilot. Visual meteorological conditions prevailed, and a flight plan was not filed for the Title 14 Code of Federal Regulations Part 91 personal flight. The flight was originating at the time of the accident.

According to the pilot, prior to departure, the airplane had been refueled with 37.5 gallons of 100 low lead fuel. Shortly after takeoff from runway 23, the pilot "heard a pop/bang from the engine...engine seemed to lose power." The pilot stated he felt a "severe vibration" after the pop/bang engine noise. The pilot executed a 180-degree left turn in an attempt to return to the airport. Subsequently, the airplane landed in a grass field, impacted a dirt embankment and a fence, and came to rest upright in a ditch.

Examination of the airplane by airport personnel revealed both wing struts were separated, both wings were bent, and the lower fuselage was crushed upward. A fuel sample was obtained from the left and right wing fuel tanks. The fuel samples were clear of contaminants.

A review of the airframe logbook revealed the airframe underwent its most recent annual inspection on November 21, 2005, at a total airframe time of 4,572.7 hours, and a tachometer time of 580.5 hours. A review of the engine logbook revealed that the Continental O-470K engine, serial number 47442-6-K, was overhauled in accordance with Teledyne Continental Motors (TCM) overhaul manual and installed on the airframe on July 24, 2004, at a tachometer time of 468.3 hours. The engine underwent its most recent 100-hour inspection on November 21, 2005. The tachometer time was 612.8 hours at the time of the accident.

On August 15, 2006, at the facilities of Beegles Aircraft Services, Greeley, Colorado, under the supervision of the NTSB investigator-in-charge, the airframe and engine were examined. Examination of the aircraft revealed that the throttle cable was routed above the rear mounted alternator belt, and the cable was resting on the alternator belt. The throttle cable shielding was worn through by contact with the alternator belt, and the braided cable was exposed. No damage was noted to the braided throttle cable. One of the tubes of the engine mounting frame was fractured; the fracture surfaces were consistent with an overload failure. Mechanical continuity throughout the engine was established when the propeller was rotated by hand, and the engine was test run on the airframe. The engine test run was performed for approximately 1 minute at an engine tachometer speed of 1,300 RPM. No anomalies were noted with the engine during the examination and test run.

Pilot Information

Certificate:	Private	Age:	47, Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 3 With waivers/limitations	Last FAA Medical Exam:	January 1, 2005
Occupational Pilot:	UNK	Last Flight Review or Equivalent:	February 1, 2005
Flight Time:	1134 hours (Total, all aircraft), 491 hours (Total, this make and model), 1039 hours (Pilot In Command, all aircraft), 13 hours (Last 90 days, all aircraft), 7 hours (Last 30 days, all aircraft), 4 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N153M
Model/Series:	180	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	32314
Landing Gear Type:	Tailwheel	Seats:	4
Date/Type of Last Inspection:	November 1, 2005 Annual	Certified Max Gross Wt.:	2650 lbs
Time Since Last Inspection:	4572.7 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	4572.7 Hrs as of last inspection	Engine Manufacturer:	Continental
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	O-470K
Registered Owner:	Harris K. Butler III	Rated Power:	230
Operator:		Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	SHR,4021 ft msl	Distance from Accident Site:	
Observation Time:	14:53 Local	Direction from Accident Site:	
Lowest Cloud Condition:	Scattered / 8500 ft AGL	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	8 knots / 0 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	90°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.01 inches Hg	Temperature/Dew Point:	35°C / 12°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Sheridan, WY (SHR)	Type of Flight Plan Filed:	None
Destination:	Hamilton, MT (6S5)	Type of Clearance:	VFR
Departure Time:	15:05 Local	Type of Airspace:	

Airport Information

Airport:	Sheridan County Airport SHR	Runway Surface Type:	Asphalt
Airport Elevation:	4021 ft msl	Runway Surface Condition:	Dry
Runway Used:	23	IFR Approach:	None
Runway Length/Width:	5039 ft / 75 ft	VFR Approach/Landing:	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Minor	Aircraft Damage:	Substantial
Passenger Injuries:	1 Serious	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Serious, 1 Minor	Latitude, Longitude:	44.769165,-106.980278

Administrative Information

Investigator In Charge (IIC):	Sauer, Aaron
Additional Participating Persons:	Mike Maglione; Federal Aviation Administration; Casper, WY Seth Buttner; Cessna Aircraft Company; Wichita, KS Josh Cawthra; Teledyne Continental Motors; Mobile, AL
Original Publish Date:	January 31, 2007
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=64057

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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](#).