Aviation Investigation Final Report

Location:	Casper, Wyoming	**Accident Number:**	CEN15LA284
Date & Time:	June 27, 2015, 08:00 Local	**Registration:**	N4751S
Aircraft:	Cessna TR182	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (partial)	**Injuries:**	3 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The private pilot was conducting a cross-country personal flight. Immediately after takeoff, the engine lost power. The pilot and pilot-rated passenger attempted to restore engine power but were unsuccessful. The airplane was unable to return to the airport, and the pilot conducted a forced landing, during which the airplane impacted terrain beyond the airport perimeter fence.

An examination of the engine revealed that the sheath for the carburetor heat cable was separated from the clamp. A black rubber adhesive was found at the joint between the sheath and the clamp, but it was not securing the clamp to the joint. The carburetor heat at the carburetor was partially on, and the position could not be changed when actuated by the control knob in the cabin. An examination of the airframe, engine, and related systems revealed no further anomalies.

The weather conditions at the time of the accident were conducive to the accumulation of serious carburetor icing at glide power; however, it could not be determined whether carburetor icing played a role in the loss of engine power. Even if carburetor icing had not accumulated, the separation of the sheath from the clamp would have prevented the proper operation of the carburetor heat, and the partial carburetor heat would have resulted in the loss of engine power at takeoff.

Probable Cause and Findings

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

The improper repair of the carburetor heat cable sheath to clamp joint, which prevented the proper operation of the carburetor heat and resulted in the loss of engine power.

Findings

Aircraft	Fuel control/carburetor - Incorrect service/maintenance
Aircraft	(general) - Incorrect service/maintenance
Environmental issues	Conducive to carburetor icing - Effect on operation

Factual Information

History of Flight

Initial climb	Loss of engine power (partial) (Defining event)
Landing-flare/touchdown	Landing gear not configured
Landing-flare/touchdown	Hard landing

On June 27, 2015, about 0800 mountain daylight time, a Cessna TR182, N4751S, was substantially damaged when it impacted terrain west of the Natrona County International Airport (KCPR), Casper, Wyoming. Visual meteorological conditions prevailed at the time of the accident. The flight was conducted under the provisions of 14 Code of Federal Regulations Part 91 without a flight plan. The private pilot, pilot-rated passenger, and one additional passenger were seriously injured. The flight had just departed and was en route to Jackson Hole Airport, (KJAC), Jackson, Wyoming.

The airplane was cleared for takeoff from runway 26. About 300 feet above ground level the engine began to run rough and lose power. The pilot and pilot-rated passenger attempted to restore engine power but were unsuccessful. The pilot-rated passenger "took control" of the airplane and attempted to return to the airport. The engine continued to run rough and lose power, and they were unable to return to a runway to land. The airplane impacted terrain beyond the airport perimeter fence, just off of the departure end of runway 26.

The left wing was bent and buckled, the fuselage was crushed up and aft, and the firewall was buckled. A postaccident examination of the engine revealed that the sheath for the carburetor heat cable was partially separated. A black rubber adhesive was at the joint between the sheath and the clamp joint but was not securing the clamp to the joint. The carburetor heat at the carburetor was partially on and the position could not be changed when actuated by the control knob inside the cabin of the airplane.

A blue liquid, consistent in smell with 100 low lead aviation fuel, was drained from the engine sump and left wing. The samples were clear of visible water or particle contamination. A quarter cup of a clear liquid was drained from the right wing. No other fuel or liquid was recovered from the right wing. The fuel samples were sent to a laboratory for further examination. The analysis of the chemical composition of the fuel samples was consistent with previously measured aviation gasolines.

An examination of the airframe, engine, and related systems revealed no further anomalies.

Temperature at the time of the accident was 18 degrees Celsius (C) (64 degrees Fahrenheit (F)) and a dewpoint of 10 degrees C (50 degrees F). A review of the carburetor icing probability chart, located in the Federal Aviation Administration's Special Airworthiness Information Bulletin CE-09-35, revealed that conditions at the time of the accident were conducive to the accumulation of serious carburetor icing at glide power.

Pilot Information

Certificate:	Private	**Age:**	67,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	3-point
Instrument Rating(s):	None	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 Without waivers/limitations	**Last FAA Medical Exam:**	September 3, 2014
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	July 17, 2013
Flight Time:	1143 hours (Total, all aircraft), 32 hours (Total, this make and model), 4 hours (Last 90 days, all aircraft)		

Pilot-rated passenger Information

Certificate:	Airline transport; Flight instructor	**Age:**	53,Male
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	3-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Helicopter; Instrument airplane	**Toxicology Performed:**	No
Medical Certification:	Class 3 Without waivers/limitations	**Last FAA Medical Exam:**	May 19, 2015
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	June 17, 2015
Flight Time:	5390 hours (Total, all aircraft), 120 hours (Total, this make and model), 4990 hours (Pilot In Command, all aircraft), 28 hours (Last 90 days, all aircraft), 19 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N4751S
Model/Series:	TR182	**Aircraft Category:**	Airplane
Year of Manufacture:	1979	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	R18201413
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	June 6, 2015 Annual	**Certified Max Gross Wt.:**	3112 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	2170.9 Hrs as of last inspection	**Engine Manufacturer:**	Lycoming
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	O-540-L3C5D
Registered Owner:	On file	**Rated Power:**	235 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:	KCPR,5344 ft msl	**Distance from Accident Site:**	1 Nautical Miles
Observation Time:	07:53 Local	**Direction from Accident Site:**	90°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:		**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/ N/A
Altimeter Setting:	30.09 inches Hg	**Temperature/Dew Point:**	18°C / 10°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Casper, WY (KCPR)	**Type of Flight Plan Filed:**	None
Destination:	Jackson, WY (KJAC)	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	Class D

Airport Information

Airport:	Natrona County Intl Airport KCPR	**Runway Surface Type:**	Asphalt
Airport Elevation:	5344 ft msl	**Runway Surface Condition:**	Dry;Vegetation
Runway Used:	26	**IFR Approach:**	None
Runway Length/Width:	8679 ft / 150 ft	**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Serious	**Aircraft Damage:**	Substantial
Passenger Injuries:	2 Serious	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	3 Serious	**Latitude, Longitude:**	42.907222,-106.48722

Administrative Information

Investigator In Charge (IIC):	Rodi, Jennifer
Additional Participating Persons:	Bruce Hanson; FAA FSDO; Casper, WY Peter Basile; Textron Aviation; Wichita, KS Troy R Helgeson; Lycoming; Williamsport, PA
Original Publish Date:	June 1, 2016
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=91458

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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.