



National Transportation Safety Board Aviation Accident Final Report

Location:	Fort Bridger, WY	Accident Number:	WPR14LA323
Date & Time:	08/01/2014, 1028 MDT	Registration:	N116GS
Aircraft:	RANS S-16	Aircraft Damage:	Substantial
Defining Event:	Loss of engine power (total)	Injuries:	2 None
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

Shortly after takeoff, experimental amateur-built airplane's engine lost all power. The pilot/owner performed a forced landing onto a road, and, during the landing flare, the main landing gear caught the edge of the road and collapsed. The airplane struck a pit and sustained substantial damage. The pilot had recently reinstalled the engine's fuel servo following the servo's overhaul, and this was the first flight since the installation. Postaccident examination revealed that the fuel line's B-nut fitting connecting the fuel servo to the fuel flow divider was about 1 1/3 turns loose. It is likely that the pilot had either forgotten to tighten the fitting or had not applied sufficient torque during reinstallation of the servo.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The fuel flow divider inlet line's B-nut coming loose during takeoff, resulting in a total loss of engine power. Contributing to the accident was the pilot's failure to adequately tighten the B-nut during recent maintenance.

Findings

Aircraft	Fuel divider - Incorrect service/maintenance (Cause)
Personnel issues	Repair - Pilot (Factor)

Factual Information

HISTORY OF FLIGHT

On August 1, 2014, at 1028 mountain daylight time, an experimental amateur-built Gerald Spittler (Rans Inc.) S-16 Shekari, N116GS, lost engine power following takeoff from Fort Bridger Airport, Fort Bridger, Wyoming. The airplane was registered to, and operated by, the pilot under the provisions of 14 Code of Federal Regulations Part 91 as a local flight. The private pilot and passenger were not injured, and the airplane sustained substantial damage during the forced landing. Visual meteorological conditions prevailed, and no flight plan had been filed.

The pilot reported performing an uneventful preflight check and engine run-up. He taxied onto the runway and applied full engine throttle control, and the airplane accelerated appropriately. Having reached a speed of 65 mph about 1,500 feet down the runway, he initiated a climb to 30 feet above ground level (agl), remaining over the runway as the airplane accelerated. Having attained a speed of 100 mph, he applied aft elevator control and the airplane climbed to about 200 feet agl as he approached the end of the runway. Shortly thereafter, the engine began to hesitate, and then lose all power. With minimal altitude, the pilot elected to maintain the airplane's heading and land on a dirt road ahead. He confirmed the fuel boost pump was on, and applied full rich fuel mixture control with no change in power. Just prior to landing he changed course for a larger road, and during the landing flare the right main landing gear caught the edge of the road and collapsed. The airplane struck a pit and spun around, sustaining substantial damage to the left wing and aft fuselage.

The pilot stated that the fuel servo had recently been overhauled due to a low fuel pressure problem. He reinstalled the unit himself following overhaul, and this was the first flight since.

An airframe and powerplant mechanic examined the engine following the accident under the direction of the NTSB investigator-in-charge. Examination of the fuel inlet line, which connected the fuel servo to the fuel flow divider, revealed that it was approximately 1 1/3 turns loose at the 'B' nut fitting at the fuel flow divider. The mechanic did not observe any other anomalies that would have precluded normal operation.

History of Flight

Takeoff	Loss of engine power (total) (Defining event)
Emergency descent	Off-field or emergency landing
Landing-landing roll	Collision during takeoff/land

Pilot Information

Certificate:	Private	Age:	36
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 3 Without Waivers/Limitations	Last Medical Exam:	01/30/2013
Occupational Pilot:	No	Last Flight Review or Equivalent:	06/05/2013
Flight Time:	147 hours (Total, all aircraft), 32 hours (Total, this make and model), 147 hours (Pilot In Command, all aircraft), 15 hours (Last 90 days, all aircraft), 4 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	RANS	Registration:	N116GS
Model/Series:	S-16	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	Yes
Airworthiness Certificate:	Experimental	Serial Number:	1298009
Landing Gear Type:	Retractable - Tricycle	Seats:	2
Date/Type of Last Inspection:	09/27/2013, Conditional	Certified Max Gross Wt.:	1450 lbs
Time Since Last Inspection:	32 Hours	Engines:	1 Reciprocating
Airframe Total Time:	203 Hours	Engine Manufacturer:	Lycoming
ELT:	Installed, not activated	Engine Model/Series:	IO-320
Registered Owner:	On file	Rated Power:	160 hp
Operator:	On file	Air Carrier Operating Certificate:	None

Meteorological Information and Flight Plan

Observation Facility, Elevation:	KBFR, 7038 ft msl	Observation Time:	1035 MDT
Distance from Accident Site:	0 Nautical Miles	Condition of Light:	Day
Direction from Accident Site:		Conditions at Accident Site:	Visual Conditions
Lowest Cloud Condition:	Clear	Temperature/Dew Point:	19° C / 8° C
Lowest Ceiling:	None	Visibility	10 Miles
Wind Speed/Gusts, Direction:	4 knots, 360°	Visibility (RVR):	
Altimeter Setting:	30.4 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Fort Bridger, WY (FBR)	Type of Flight Plan Filed:	None
Destination:	Fort Bridger, WY (FBR)	Type of Clearance:	None
Departure Time:	1027 MDT	Type of Airspace:	Class E

Airport Information

Airport:	FORT BRIDGER (FBR)	Runway Surface Type:	Asphalt
Airport Elevation:	7038 ft	Runway Surface Condition:	Dry
Runway Used:	22	IFR Approach:	None
Runway Length/Width:	6404 ft / 75 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:	N/A	Aircraft Explosion:	None
Total Injuries:	2 None		

Administrative Information

Investigator In Charge (IIC):	Elliott Simpson	Adopted Date:	01/14/2015
Additional Participating Persons:	Ronald Budnick; Federal Aviation Administration FSDO; Denver, CO		
Publish Date:	01/14/2015		
Investigation Docket:	http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=89781		

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