National Transportation Safety Board
Aviation Accident Final Report

Location:	Syracuse, UT	**Accident Number:**	WPR11LA362
Date & Time:	08/01/2011, 2105 MDT	**Registration:**	N235GW
Aircraft:	CESSNA 172S	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (partial)	**Injuries:**	1 Minor
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The pilot reported that during cruise flight, the engine started running rough and began losing power. The pilot manipulated the throttle and mixture controls, but the engine continued losing power. All engine power was lost on approach during the forced landing to an alfalfa field, and the airplane nosed over during the landing roll. The engine had received a factory major overhaul and was installed in the airplane about 14 operational hours before the accident. Since installation, it had not received any maintenance. Postaccident examination of the engine found that the B-nut fitting on the fuel supply hose that goes from the fuel injection servo to the distribution spider was loose, which caused a fuel starvation-induced loss of engine power. No other mechanical malfunctions or failures were identified that would have precluded normal operation.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The failure of the maintenance technicians who installed the engine to properly tighten the fuel injection servo to a spider supply line, which caused a loss of engine power due to fuel starvation.

Findings

Aircraft	Fuel distribution - Incorrect service/maintenance (Cause)
Personnel issues	Installation - Maintenance personnel (Cause)

Factual Information

On August 1, 2011, about 2105 mountain daylight time, a Cessna 172S, N235GW, lost engine power and was substantially damaged when it nosed over in a field during landing rollout in Syracuse, Utah. The private pilot, the sole occupant, received minor injuries. The airplane was registered to Mount Olympus Aviation, LLC. It was operated by Leading Edge Aviation, Salt Lake City, Utah, under the provisions of 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed during the personal flight, and no flight plan was filed. The airplane departed Salt Lake City, Utah, about 2050 and was destined for Ogden, Utah.

According to the pilot, during cruise flight the engine started running rough and began losing power. The pilot manipulated the throttle and mixture controls, but the engine continued losing power. All engine power was lost on approach during the forced landing in an alfalfa field.

The engine had received a major overhaul and was installed in the pilot's airplane about 14 operational hours prior to the accident. Since installation, it had not received any maintenance.

Review of the airframe and engine maintenance records disclosed that the aircraft was a Cessna 172S, serial number 172S9235, which was manufactured in 2002. A Lycoming IO-360-L2A engine, serial number L-30858-51E, was installed in the airframe. The engine was overhauled by Lycoming Engines, on June 21, 2011, and installed on the aircraft on July 27, 2011 at a tach time of 1,830.8 hours. The tach time on the aircraft after the engine failure and crash landing was 1,845.0 hours. The annual inspection was accomplished on July 27, 2011.

On August 4, 2011 the airframe and engine were inspected by a Federal Aviation Administration airworthiness inspector. The engine rotated easily with no noticeable resistance.

The spark plugs were removed. The ones in the number 3 cylinder were oil soaked. There was some oil pooling in the bottom of the same cylinder and there was some scoring on the cylinder wall. It should be noted that the engine was upside down in the field where the landing occurred for several days.

There was no external damage to the magnetos, which were Slick Magnetos, part number 66GC20SFNN. The magneto timing was checked. One magneto's timing was 24 degrees BTDC and the other one was 27 degrees BTDC. The engine data plate states that the timing should be 25 degrees BTDC. The magnetos were installed on a test bench and tested satisfactory.

The gascolator was found pushed back into the firewall. The outlet hose was still attached but the other end with fitting was pulled from the fuel pump housing. The fuel gascolator bowl and screen was removed. There was no fuel in the bowl. The screen had only a very small amount of foreign material in it.

The fuel pump, part number LW-15473, was removed from the engine. Both the inlet and outlet fittings were torn from the housing during impact. The component could not be tested.

The fuel injection servo, part number, P/N 61J22088-70, was examined. The two attachment points were broken during impact. The inlet and outlet fittings were torn from the servo housing. The hose B-nut attached to the outlet fitting was loose. This is the hose that goes to the distribution spider.

The fuel servo diaphragm, part number AV2538295, was checked and was intact. This part number is not subject to AD 2011-15-10 that was was issued with an effective date of August 16, 2011.

The fuel injection spider, part number 2576624-1, was examined. The B-nut on the inlet hose at the spider was not tight. The diaphragm was checked and it had a small amount of viscous fluid on the dry side which may be some kind of assembly fluid. There was fuel on the wet side. No impact damage was noted.

History of Flight

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

Pilot Information

Certificate:	Private	**Age:**	48, Male
Airplane Rating(s):	Single-engine Land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 With Waivers/Limitations	**Last Medical Exam:**	07/11/2011
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	05/26/2011
Flight Time:	560 hours (Total, all aircraft), 510 hours (Total, this make and model), 510 hours (Pilot In Command, all aircraft), 20 hours (Last 90 days, all aircraft), 7 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	CESSNA	**Registration:**	N235GW
Model/Series:	172S	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Normal; Utility	**Serial Number:**	172S9235
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	07/27/2011, 100 Hour	**Certified Max Gross Wt.:**	2550 lbs
Time Since Last Inspection:	14 Hours	**Engines:**	1 Reciprocating
Airframe Total Time:	4153 Hours	**Engine Manufacturer:**	LYCOMING
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	IO-360-L2A
Registered Owner:	MOUNT OLYMPUS AVIATION LLC	**Rated Power:**	180 hp
Operator:	Leading Edge Aviation	**Air Carrier Operating Certificate:**	None

Meteorological Information and Flight Plan

Observation Facility, Elevation:		**Observation Time:**	MDT
Distance from Accident Site:		**Condition of Light:**	Night
Direction from Accident Site:		**Conditions at Accident Site:**	Visual Conditions
Lowest Cloud Condition:	Clear	**Temperature/Dew Point:**	21°C / 13°C
Lowest Ceiling:	None	**Visibility**	10 Miles
Wind Speed/Gusts, Direction:	5 knots, 315°	**Visibility (RVR):**	
Altimeter Setting:	30.16 inches Hg	**Visibility (RVV):**	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Salt Lake City, UT (SLC)	**Type of Flight Plan Filed:**	None
Destination:	Ogden, UT (OGD)	**Type of Clearance:**	IFR
Departure Time:	2050 MDT	**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:	N/A	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Minor		

Administrative Information

Investigator In Charge (IIC):	Wayne R Pollack	**Adopted Date:**	02/12/2013
Additional Participating Persons:	Brent A Robinson; Federal Aviation Administration; Salt Lake City, UT		
Publish Date:	02/12/2013		
Investigation Docket:	http://dms.ntsb.gov/pubdms/search/dockList.cfm?mKey=81365		