



Aviation Investigation Final Report

Location:	Bottineau, North Dakota	Accident Number:	CEN16LA012
Date & Time:	October 6, 2015, 18:30 Local	Registration:	UNREG
Aircraft:	REFLING RV8	Aircraft Damage:	Substantial
Defining Event:	Loss of engine power (total)	Injuries:	1 None
Flight Conducted Under:	Part 91: General aviation - Flight test		

Analysis

The pilot/owner had just finished building the unregistered, noncertificated airplane and was conducting the flight to seat the piston rings on the newly installed engine. The pilot reported that, during the flight, he detected the odor of fuel in the cockpit. He continued the flight, and shortly after, the engine power decreased to idle. He continued to fly away from the airport while he tried to regain engine power. The pilot then turned back toward to the airport, and the engine subsequently experienced a total loss of power. The pilot determined that the airplane was not going to be able to reach the airport, so he chose a field for a forced landing. During the landing, the pilot lost directional control of the airplane due to the rough terrain, and the airplane impacted a parked tractor.

A postaccident examination of the engine revealed that the fuel line between the mechanical fuel pump and the fuel injection servo was disconnected. The pilot stated that the engine was delivered with this fuel line installed and that he did not check the tightness of the fuel lines after installing the engine on the airplane.

Probable Cause and Findings

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

The pilot/builder's failure to ensure that the fuel line was properly secured, which resulted in fuel starvation and the subsequent total loss of engine power.

Findings

Personnel issues	Installation - Owner/builder
Aircraft	Fuel - Fluid level
Environmental issues	Rough terrain - Contributed to outcome
Environmental issues	Ground vehicle - Contributed to outcome

Factual Information

History of Flight

Enroute	Loss of engine power (total) (Defining event)
Enroute	Fuel starvation
Landing-landing roll	Collision with terr/obj (non-CFIT)

On October 6, 2015, at 1830 central daylight time, an unregistered Refling RV8, collided with a tractor during an off airport forced landing following a loss of engine power in Bottineau, North Dakota. The commercial pilot was not injured. The airplane sustained substantial damage to the wings and fuselage. The unregistered aircraft was operated by the builder, a private individual, under the provisions of 14 Code of Federal Regulations Part 91 as a test flight. Visual flight rules conditions prevailed for the flight, which was not operated on a flight plan. The local flight originated from the Bottineau Municipal Airport (D09), Bottineau, North Dakota, about 1800.

The purpose of the flight was to seat the piston rings on the new engine. The pilot was also the aircraft builder. He stated the engine had about 19 minutes of ground run time on it prior to the flight.

The pilot planned to make five 34-mile circuits around the extended runway centerline at an altitude of 5,000 feet. The pilot stated that during the fourth circuit, while on an extended downwind, he detected the odor of fuel in the cockpit. During the upwind leg of the fifth circuit at a point about 6 miles northwest of the airport, the engine power decreased to idle. The pilot attempted to diagnose the reason for the loss of power as he continued to fly away from the airport. At a point about 10 miles from the airport, he turned back toward the airport as he continued attempts to regain engine power. The airplane was about eight miles from the airport when total loss of engine power occurred. The pilot determined he was not going to be able to make it back to the airport, so he chose a field in which to make a forced landing. The pilot lost directional control of the airplane due to the rough terrain and the airplane contacted a parked tractor.

The pilot stated that after the accident he determined that the fuel line between the mechanical fuel pump and the fuel injection servo was disconnected. The pilot stated that the engine was delivered to him with this fuel line installed; however, he did not check the tightness of the fuel lines after installing the engine on the airplane.

The pilot/aircraft builder had just completed building the airplane and had not submitted the paperwork for the airworthiness certificate and aircraft registration.

Pilot Information

Certificate:	Commercial	Age:	66
Airplane Rating(s):	Single-engine land	Seat Occupied:	Front
Other Aircraft Rating(s):	None	Restraint Used:	5-point
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 2 With waivers/limitations	Last FAA Medical Exam:	April 2, 2015
Occupational Pilot:	No	Last Flight Review or Equivalent:	August 10, 2013
Flight Time:	(Estimated) 538 hours (Total, all aircraft), 1 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	REFLING	Registration:	UNREG
Model/Series:	RV8	Aircraft Category:	Airplane
Year of Manufacture:	2015	Amateur Built:	Yes
Airworthiness Certificate:	None	Serial Number:	83270
Landing Gear Type:	Tailwheel	Seats:	2
Date/Type of Last Inspection:		Certified Max Gross Wt.:	1800 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:		Engine Manufacturer:	Aero Sport Power
ELT:	C126 installed, not activated	Engine Model/Series:	IO-375-M1S
Registered Owner:	Charles Refling	Rated Power:	195 Horsepower
Operator:	Charles Refling	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:		Distance from Accident Site:	
Observation Time:		Direction from Accident Site:	
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	3 knots / None	Turbulence Type Forecast/Actual:	/
Wind Direction:	310°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:		Temperature/Dew Point:	18°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	BOTTINEAU, ND (D09)	Type of Flight Plan Filed:	None
Destination:	BOTTINEAU, ND (D09)	Type of Clearance:	None
Departure Time:	18:00 Local	Type of Airspace:	Class G

Airport Information

Airport:	Bottineau Municipal Airport D09	Runway Surface Type:	Dirt
Airport Elevation:	1680 ft msl	Runway Surface Condition:	Soft
Runway Used:		IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 None	Latitude, Longitude:	48.847221,-100.45111(est)

Administrative Information

Investigator In Charge (IIC):	Sullivan, Pamela
Additional Participating Persons:	Perry Oshsner; FAA; Fargo, ND
Original Publish Date:	March 14, 2016
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=92172

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