Aviation Investigation Final Report

Location:	Jacksonville, Texas	**Accident Number:**	CEN15LA038
Date & Time:	October 25, 2014, 15:00 Local	**Registration:**	N950TB
Aircraft:	STOL UC 1	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (partial)	**Injuries:**	2 Minor, 2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot reported that he was flying the twin-engine airplane on a cross-country flight. During the climb to about 2,200 ft mean sea level, the right engine "quit." The pilot performed the engine-out procedures checklist, and the right engine power was restored for about 2 minutes before the engine lost power again. The pilot was unable to restart the right engine and secured it. He then diverted toward the nearest airport, but the airplane would not maintain altitude, so he conducted a forced landing in hilly terrain short of the airport, during which the airframe sustained substantial damage.

During examination of the wreckage, no debris was found in the fuel strainers. A review of the data recorded by the engine data monitor from the previous flight showed that, toward the end of the flight's recorded data, the right engine's cylinder head temperature and exhaust gas temperature (EGT) dropped, consistent with a reduction of power in the right engine. A review of the accident flight data showed that, about 8 minutes into the flight, the right engine's EGT dropped from about 1,400 to about 375 degrees F for the next 30 seconds, increased to about 1,400 degrees F for the next 30 seconds, and then dropped again. The reason for the right engine's power interruption could not be determined based on the review of the data. Subsequent examination of the fuel lines revealed no anomalies or debris. The right engine fuel servo was test run, and met the flow test bench specifications. Based on the available evidence, the right engine likely experienced a fuel flow interruption, which led to fuel starvation and a loss of engine power. The reason for the fuel flow interruption could not be determined.

Probable Cause and Findings

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

The loss of right engine power while climbing due to fuel starvation for reasons that could not be determined during postaccident airplane examination and testing, which led to a forced landing on hilly terrain.

Findings

Not determined	(general) - Unknown/Not determined
Environmental issues	Rough terrain - Contributed to outcome
Aircraft	Fuel - Not specified

Factual Information

History of Flight

Enroute-climb to cruise	Loss of engine power (partial) (Defining event)
Emergency descent	Off-field or emergency landing
Landing	Collision with terr/obj (non-CFIT)

This report was modified on December 2, 2015. Please see the docket for this accident to view the original report.

On October 25, 2014, about 1500 central daylight time, a Stol UC-1 airplane, N950TB, impacted rough terrain during a forced landing following a loss of engine power near Jacksonville, Texas. The commercial pilot and one passenger sustained minor injuries and the two other passengers were uninjured. The airplane sustained substantial wing damage during the forced landing. The airplane was registered to and operated by Yellow Peril Aero LLC under the provisions of 14 Code of Federal Regulations Part 91 as personal flight. Day visual meteorological conditions prevailed for the flight, which did not operate on a flight plan. The flight originated about 1430 from Flying M Ranch Airport (7TA7), near Reklaw, Texas, and was destined for Covey Trails Airport (X09), near Fulshear, Texas.

The pilot reported that he flew the airplane cross country to 7TA7 and a landed there about 1030. During the return flight, the pilot intended to fly the airplane in cruise flight at 4,500 feet above mean sea level (msl). During the climb to about 2,200 feet msl, the right engine "quit." The pilot performed the engine out procedures checklist tasks and the right engine power was restored for about two minutes. The right engine subsequently lost power a second time. The pilot checked the engine's right magneto again and he reported that the engine did not restart. He feathered and secured the right engine. The pilot diverted towards the nearest airport, which was about 11 miles away. The pilot said, "The airplane would not maintain altitude, and we were forced to land in a field short of the airport." The terrain in the area was "hilly" with pine trees. During the forced landing, the airplane touched down and "slid" up a terraced field, where its left landing gear separated, its empennage was damaged, and its right wing strut was broken. The airplane continued for about 60 yards when it came to stop.

The 60-year old pilot held a commercial pilot certificate, with airplane single-engine land, multi engine land and sea, and instrument ratings. The pilot's most recent Federal Aviation Administration (FAA) second-class medical certificate was issued on April 16, 2013, with a limitation for corrective lenses and a waiver for color vision. The pilot reported that he had accumulated 2,924 hours of total fight time and 73 hours of total flight time in the same make and model as the accident airplane.

N950TB was a twin-engine amphibian airplane, equipped with tailwheel landing gear, and was manufactured in 1980. According to the airplane's type certificate data sheet, the five-place airplane's fuel system was equipped with an 85-gallon main fuel tank and a 16-gallon auxiliary fuel tank. Both engines were fed fuel from the main tank. The pilot reported that the airplane's last annual inspection was accomplished on March 5, 2014. The airplane accumulated a total time of 1,040 hours at the time of

that inspection. The airplane was powered by two Lycoming IO-360-B1D engines mounted on the wings. The left and right engine serial numbers were L-16451-51A and L-16452-51A respectively. The pilot reported that each engine accumulated 1,050 hours of total time and accumulated 10 hours of time since the last inspection.

At 1415, the recorded weather at the Cherokee County Airport, near Jacksonville, Texas, was: Wind 270 degrees at 5 knots; visibility 10 statute miles; sky condition clear; temperature 27 degrees C; dew point 15 degrees C; altimeter 30.15 inches of mercury.

FAA inspectors examined the wreckage and confirmed that the airplane sustained substantial airframe damage. The right engine could not be run on the airframe to verify its systems integrity due to damage of the right wing structure. The airplane's fuel strainers were removed and they contained no debris. The airplane's digital flow unit indicator and JPI engine monitor were removed and shipped to the National Transportation Safety Board (NTSB) Recorder Laboratory for downloading.

An NTSB recorder specialist was able to apply power to the engine monitor, downloaded its data, and produced a spreadsheet and plots of the data. The downloaded engine data plot from the prior flight showed that towards the end of that flight's recorded data, there was a drop in cylinder head temperature and exhaust gas temperature (egt) consistent with a reduction of power on the right engine.

The engine data from the accident flight showed that about 8 minutes into the flight the right engine's egt dropped from about 1,400 degrees F to about 375 degrees F during the next 30 seconds. The data showed that the egt then increased to about 1,400 degrees F for the next 30 seconds before it dropped again to 375 degrees F before decreasing to about 75 degrees F for the duration of the recording. A safety representative at Lycoming was consulted and the cause of the right engine's power interruption could not be determined based on the review of the data.

When powered up, the engine monitor's display showed that 49 gallons of fuel remained and 36 gallons of fuel was used, of which the left engine used 19.3 gallons and the right engine used 16.7 gallons.

An NTSB air safety investigator subsequently examined the recovered wreckage. Shop air was applied to the fuel lines and no debris was present in the lines. A liquid consistent with fuel was present in the right engine's fuel lines leading to its fuel servo. The cap of its flow divider was removed and no liquid was observed there. The right engine's fuel servo was shipped for further examination, during which the right engine's fuel servo was mounted to a test stand and it met flow bench test specifications.

Pilot Information

Certificate:	Commercial	**Age:**	60
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land; Multi-engine sea	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Lap only
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 2 Without waivers/limitations	**Last FAA Medical Exam:**	April 16, 2013
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	September 30, 2014
Flight Time:	2924 hours (Total, all aircraft), 73 hours (Total, this make and model), 25 hours (Last 90 days, all aircraft), 10 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	STOL	**Registration:**	N950TB
Model/Series:	UC 1 NO SERIES	**Aircraft Category:**	Airplane
Year of Manufacture:	1980	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	020
Landing Gear Type:	Retractable - Tailwheel	**Seats:**	5
Date/Type of Last Inspection:	April 5, 2014 Annual	**Certified Max Gross Wt.:**	3800 lbs
Time Since Last Inspection:		**Engines:**	2 Reciprocating
Airframe Total Time:	1040 Hrs as of last inspection	**Engine Manufacturer:**	LYCOMING
ELT:	Installed, not activated	**Engine Model/Series:**	IO-360-B1
Registered Owner:	YELLOW PERIL AERO LLC	**Rated Power:**	180 Horsepower
Operator:	YELLOW PERIL AERO LLC	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KJSO,677 ft msl	**Distance from Accident Site:**	6 Nautical Miles
Observation Time:	13:15 Local	**Direction from Accident Site:**	224°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	5 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	270°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.14 inches Hg	**Temperature/Dew Point:**	27°C / 15°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	REKLAW, TX (7TA7)	**Type of Flight Plan Filed:**	None
Destination:	FULSHEAR, TX (X09)	**Type of Clearance:**	None
Departure Time:	14:30 Local	**Type of Airspace:**	

Airport Information

Airport:	FLYING M RANCH 7TA7	**Runway Surface Type:**	
Airport Elevation:	310 ft msl	**Runway Surface Condition:**	Rough
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Minor, 2 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Minor, 2 None	**Latitude, Longitude:**	31.940834,-95.136108(est)

Administrative Information

Investigator In Charge (IIC):	Malinowski, Edward
Additional Participating Persons:	Morris E McAlister; Federal Aviation Administration; San Antonio, TX
Original Publish Date:	December 14, 2015
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=90356