Aviation Investigation Final Report

Location:	La Veta, Colorado	**Accident Number:**	CEN10LA098
Date & Time:	January 17, 2010, 15:06 Local	**Registration:**	N782LU
Aircraft:	Mooney M20R	**Aircraft Damage:**	Substantial
Defining Event:	Sys/Comp malf/fail (non-power)	**Injuries:**	1 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot had just made a turn during taxi when he heard a “pop” and saw smoke and flames coming from the engine area. He stopped the plane, shut down the engine, and exited the airplane as the fuselage became engulfed in flames. By the time the fire was extinguished the fuselage had been mostly consumed by fire. Examination of the wreckage revealed a localized area of high temperature thermal damage in the engine compartment located directly behind the fuel flow transducer. Examination of the fuel transducer revealed the outlet fuel line was loose at the crimp of the fuel line connector where it attached to the outlet elbow. Upon removal, a portion of interior rubber hose was found missing from underneath the steel braid as well as a portion of steel braiding. The missing portion of the steel braid was absent pre-fire, which interfered with the crimp seal and subsequently resulted in a fuel leak and fire. The cause of the missing steel braid was not determined.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A fuel leak and subsequent fire due to a mechanical defect.

Findings

Aircraft	Fuel distribution - Not specified
Aircraft	Fuel distribution - Damaged/degraded

Factual Information

History of Flight

Prior to flight	Sys/Comp malf/fail (non-power) (Defining event)
Prior to flight	Fire/smoke (non-impact)

On January 17, 2010, at 1506 mountain standard time, a Mooney M20S airplane, N782LU, was substantially damaged after catching fire during taxi for takeoff at the Cuchara Valley Airport (07V), La Veta, Colorado. The private pilot received minor injuries. The personal flight was being conducted under the provisions of 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed at the time of the accident.

The pilot stated he had just made a turn during taxi when he heard a “pop” and saw smoke and flames coming from the engine area. He stopped the airplane, shut down the engine, and exited the airplane as the fuselage became engulfed in flames. By the time the fire was extinguished the fuselage had been mostly consumed by fire.

The engine compartment was intact and the engine was still attached to the airframe. The majority of the damage was located between the engine and the firewall. The rear portion of the engine compartment exhibited fire damage particularly in the area of the fuel flow transducer and the aft left lower section of the engine compartment. The firewall had a localized area of high temperature thermal damage where the firewall material had turned white. The area was located directly behind the fuel flow transducer.

The fuel flow transducer (Mooney Part #880030) with a section of fuel line from both the inlet side and the outlet side was examined by the NTSB Materials Laboratory. The associated fuel lines were standard steel braided sleeved, rubber fuel hose. The inlet connector for the transducer was an AN-816 straight, pipe to tube adapter. The outlet connector was a MS 51508 45-degree, pipe to tube elbow (male pipe end). The transducer was x-rayed with the fuel lines attached to determine if there was any damage to the interior prior to tear down. There were no obvious defects found in the x-rays of the transducer. The fuel lines were then removed to inspect the interior of the fuel transducer. During disassembly, the outlet fuel line was found to be loose at the crimp of the fuel line connector where it attached to the outlet elbow. Upon removal, approximately 0.75 inch of interior rubber hose was found missing from underneath the steel braid as well as a portion of steel braid approximately 0.25 inch wide and 0.25 inch in length. The interior rubber hose that remained appeared to have thermal damage. The section where the steel braid was missing did not appear to have any thermal damage. The cause of the missing steel braid was not determined.

Pilot Information

Certificate:	Private	**Age:**	63,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	October 5, 2008
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	October 10, 2009
Flight Time:	3000 hours (Total, all aircraft), 350 hours (Total, this make and model), 10 hours (Last 90 days, all aircraft), 4 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Mooney	**Registration:**	N782LU
Model/Series:	M20R	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	29-0314
Landing Gear Type:	Retractable - Tricycle	**Seats:**	2
Date/Type of Last Inspection:	April 13, 2009 Annual	**Certified Max Gross Wt.:**	3374 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	350 Hrs at time of accident	**Engine Manufacturer:**	CONT MOTOR
ELT:	Installed, not activated	**Engine Model/Series:**	IO-550 SERIES
Registered Owner:	On file	**Rated Power:**	300 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:		**Distance from Accident Site:**	
Observation Time:		**Direction from Accident Site:**	
Lowest Cloud Condition:	Few	**Visibility**	10 miles
Lowest Ceiling:	Overcast	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.1 inches Hg	**Temperature/Dew Point:**	4°C
Precipitation and Obscuration:			
Departure Point:	La Veta, CO (07V)	**Type of Flight Plan Filed:**	None
Destination:	Alamosa, CO (ALS)	**Type of Clearance:**	None
Departure Time:	15:05 Local	**Type of Airspace:**	

Airport Information

Airport:	Cuchara Valley Airport 07V	**Runway Surface Type:**	
Airport Elevation:	7153 ft msl	**Runway Surface Condition:**	
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Minor	**Latitude, Longitude:**	37.523887,-105.009162(est)

Administrative Information

Investigator In Charge (IIC):	Baker, Daniel
Additional Participating Persons:	Randy Kind; FAA; Denver, CO Sara Irwin; Teledyne Continental Motors; Mobile, AL
Original Publish Date:	May 19, 2011
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=75279