Aviation Investigation Final Report

Location:	Allentown, Pennsylvania	**Accident Number:**	ERA15LA177
Date & Time:	April 6, 2015, 12:56 Local	**Registration:**	N4826H
Aircraft:	Mooney M20J	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (total)	**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot stated that he departed with about 25 gallons of fuel in the left wing fuel tank and about 7 or 8 gallons in the right wing fuel tank and with the fuel selector positioned to the left wing fuel tank. After departure, he flew the airplane to a local airport to practice takeoffs and landings. During the fourth takeoff, about 30 minutes into the flight, and when the airplane was about 400 to 500 ft above the runway, the engine suddenly stopped producing power. The pilot made a forced landing straight ahead, and the airplane struck a fence.

Postaccident examination revealed no mechanical anomalies that would have precluded normal engine operation. Examination of the airplane revealed that the left and right wings were damaged, but no fuel was observed leaking from the airplane. About 4 to 5 gallons of fuel was found in the right tank, and about 8 to 12 gallons of fuel was found in the left tank; the fuel found in the tanks was higher than the unusable fuel limit for each tank. The fuel line from the engine-driven fuel pump to the fuel servo was disassembled, and there was no fuel in the line. The fuel line from the boost pump to the engine-driven fuel pump was disconnected, and, when the boost pump was turned, fuel came out in a pulsating spray, which indicates that air was in the line. Based on the evidence, it is likely that there was an interruption of fuel flow to the engine, which resulted in the loss of power; however, the reason for the interruption of the fuel flow could not be determined.

Probable Cause and Findings

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

A total loss of engine power during takeoff due to an interruption of fuel flow to the engine. The reason for the interruption of the fuel flow could not be determined during postaccident examination and testing.

Findings

Not determined	(general) - Unknown/Not determined
Aircraft	Fuel - Not specified

Factual Information

History of Flight

Takeoff	Loss of engine power (total) (Defining event)
Emergency descent	Off-field or emergency landing
Landing-landing roll	Landing area overshoot

On April 6, 2015, at 1256 eastern daylight time, N4826H, a Mooney M20J airplane, was substantially damaged during a forced landing after a total loss of engine power shortly after takeoff from the Allentown Queen City Municipal Airport (XLL), Allentown, Pennsylvania. The commercial pilot and the passenger were not injured. The airplane was registered to and operated by a private individual. No flight plan was filed for the flight that originated at the Lehigh Valley International Airport (ABE), Allentown, Pennsylvania, about 1230. Visual meteorological conditions prevailed for the personal flight conducted under 14 Code of Federal Regulations Part 91.

According to the pilot, he conducted a preflight inspection of the airplane, which included visually checking the total amount of fuel in each fuel tank. He stated there was about 25 gallons of fuel in the left-wing fuel tank and about 7 or 8 gallons in the right-wing fuel tank. The pilot said the engine started normally and he taxied to the runway where he performed an engine run-up. The engine run up was normal and he confirmed the fuel selector was on the left-wing fuel tank. The pilot said he then departed and flew to XLL for the purpose of practicing takeoffs and landings. On the fourth takeoff, about 30 minutes into the flight, when the airplane reached an altitude about 400 to 500-feet-above the runway, the "engine quit." The pilot described the loss of power as an "instantaneous stop with no warning or sputtering." He then made a forced landing straight ahead and the airplane struck a wire-mesh fence that was supported with steel poles.

An initial postaccident examination of the airplane was conducted by the Federal Aviation Administration (FAA) about 30 minutes after the accident. According to an inspector, the left and right wings sustained substantial damage and the nose gear had collapsed. The inspector did not see any fuel leaking from the airplane and the fuel selector was in the "off" position. The throttle/propeller/fuel-mixture controls were all in the full forward position. Further examination of the airplane conducted the day after the accident by an FAA maintenance inspector revealed there was about 4-5 gallons of fuel in the right tank and about 8-12 gallons of fuel in the left tank. The inspector disconnected the fuel line from the engine driven fuel pump to the fuel servo and there was no fuel in the line. He then disconnected the fuel line that runs from the boost pump to the engine driven fuel pump and when the boost pump was turned on, fuel came out in a pulsating spray indicative of air in the line. The airplane was equipped with two fuel tanks in each wing for a total capacity of 64 gallons, of which 61 gallons were usable. No mechanical anomalies were noted that would have precluded normal operation of the engine.

The pilot held a commercial pilot certificate for airplane single-engine and multi-engine land, and instrument airplane. He reported a total of 3,029 flight hours, of which, 60 hours were in the accident airplane.

Pilot Information

Certificate:	Commercial	**Age:**	76
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Unknown
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 Without waivers/limitations	**Last FAA Medical Exam:**	February 26, 2015
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	3029 hours (Total, all aircraft), 60 hours (Total, this make and model), 2950 hours (Pilot In Command, all aircraft), 7 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:**	N4826H
Model/Series:	M20J	**Aircraft Category:**	Airplane
Year of Manufacture:	1979	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	24-0890
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	May 9, 2014 Annual	**Certified Max Gross Wt.:**	2899 lbs
Time Since Last Inspection:	13 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	2205 Hrs	**Engine Manufacturer:**	LYCOMING
ELT:	Installed, not activated	**Engine Model/Series:**	IO360 SER A&C
Registered Owner:	PRO INTERNATIONAL INC	**Rated Power:**	200 Horsepower
Operator:	PRO INTERNATIONAL INC	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	XLL,399 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	12:55 Local	**Direction from Accident Site:**	0°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	4 knots /	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:	120°	**Turbulence Severity Forecast/Actual:**	/ N/A
Altimeter Setting:	30.22 inches Hg	**Temperature/Dew Point:**	18°C / 0°C
Precipitation and Obscuration:			
Departure Point:	Allentown, PA (XLL)	**Type of Flight Plan Filed:**	None
Destination:	Allentown, PA (XLL)	**Type of Clearance:**	None
Departure Time:	12:56 Local	**Type of Airspace:**	

Airport Information

Airport:	Queen City XLL	**Runway Surface Type:**	Asphalt
Airport Elevation:	399 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	25	**IFR Approach:**	None
Runway Length/Width:	3949 ft / 75 ft	**VFR Approach/Landing:**	Forced landing;Touch and go

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	**Latitude, Longitude:**	40.570278,-75.488334(est)

Administrative Information

Investigator In Charge (IIC):	Yeager, Leah
Additional Participating Persons:	Eric Sanford; FAA/FSDO; Allentown, PA
Original Publish Date:	October 21, 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=90989