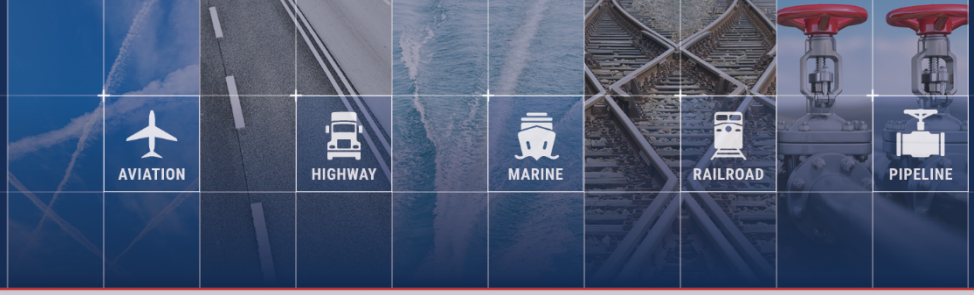

Aviation Investigation Final Report

Location:	Winslow, Arizona	**Accident Number:**	WPR11FA331
Date & Time:	July 17, 2011, 10:25 Local	**Registration:**	N3534X
Aircraft:	Mooney M20F	**Aircraft Damage:**	Substantial
Defining Event:	Fuel contamination	**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

During a cross-country flight, the pilot landed at the accident airport to refuel. After the airplane was refueled, witnesses saw the airplane depart toward the east. After takeoff, the pilot advised via radio that he was returning to the airport due to a rough running engine. Witnesses near the airport saw the airplane make a steep turn and then descend into an uncontrolled spiral. The airplane impacted in an inverted position at the departure end of the runway and slid about 65 yards. Postaccident examination of the airplane and engine revealed that the fuel injector servo had a substantial amount of rust and contamination inside the unit. The pilot had an issue with water contamination in the fuel system previously and suspected that he needed to replace the fuel bladders.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A loss of engine power due to fuel system contamination, and the pilot's subsequent failure to maintain an adequate airspeed, which resulted in a loss of control.

Findings

Aircraft	Water - Not specified
Aircraft	Airspeed - Not attained/maintained
Personnel issues	Incorrect action selection - Pilot
Personnel issues	Aircraft control - Pilot

Factual Information

History of Flight

Initial climb	Fuel contamination (Defining event)
Maneuvering	Loss of control in flight
Uncontrolled descent	Collision with terr/obj (non-CFIT)

HISTORY OF FLIGHT

On July 17, 2011, about 1025 mountain standard time (MST), a Mooney M20F, N3534X, crashed while attempting to land at Winslow-Lindbergh Regional Airport (INW), Winslow, Arizona. A co-owner/pilot was operating the airplane under the provisions of 14 Code of Federal Regulations (CFR) Part 91. The private pilot and one passenger sustained fatal injuries; the airplane sustained substantial damage by impact forces. The cross-country personal flight was departing Winslow at 1000, with a planned final destination of Chino, California. Visual meteorological conditions prevailed, and no flight plan had been filed.

During the cross-country flight the pilot had landed at INW to refuel the airplane. Airport personnel refueled the airplane with 41 gallons of 100LL Avgas.

Witnesses saw the accident airplane depart from INW using runway 11, heading eastbound. Another witness, who was flying inbound to land, heard the accident pilot report on the Unicom frequency 122.8 that he was departing using runway 11, and was going to continue eastbound. A few minutes later, the inbound pilot heard the accident pilot say he was returning to the airport due to a rough running engine. No other communications were received from the accident pilot.

Witnesses on the ground near the airport saw the accident airplane in a steep turn, and then saw it descend in an uncontrolled spiral. None of the witnesses saw the actual impact due to the terrain or visual obstructions.

The airplane impacted the approach end of runway 29 inverted and slid about 70 yards in a westerly direction.

PERSONNEL INFORMATION

A review of Federal Aviation Administration (FAA) airman records revealed that the 35-year-old pilot held a private pilot certificate with ratings for airplane single-engine land.

The pilot held a third-class medical certificate issued on August 4, 2009. It had no limitations or waivers.

The pilot completed a biennial flight review on August 27, 2010.

No personal flight records were located for the pilot. The IIC obtained the aeronautical experience listed in this report from a review of the FAA airmen medical records on file in the Airman and Medical Records Center located in Oklahoma City, Oklahoma. The pilot reported on his medical application that he had a total time of 127 hours with 1.0 hours logged in the last 6 months.

AIRCRAFT INFORMATION

The airplane was a Mooney M20F, serial number 670071. A review of the airplane's logbooks revealed that the airplane had a total airframe time of 4,776.1 hours at the last annual inspection. The logbooks contained an entry for an annual inspection dated August 16, 2010. The tachometer read 933.9 at the last inspection; the Hobbs hour meter read 2,104.0 at the last inspection. The tachometer read 933.9 at the accident site; the Hobbs hour meter read 2,122.7 at the accident site. A review of the logbooks indicated that the tachometer installed in the accident airplane was not operational, and numerous entries on various dates all indicated the same tachometer reading of 933.9.

The engine was a Lycoming IO-360-A1A, serial number L-1637-51A. Total time recorded on the engine at the last annual inspection was unknown total hours, and time since major overhaul was 52.7 hours.

Fueling records at INW established that the airplane was last fueled on July 17, 2011, with the addition of 41 gallons of 100LL octane aviation fuel.

Interviews with the co-owners of the airplane revealed that the pilot was having issues with what he believed to be water in the fuel tanks. He had reported that previously he had a loss of engine power during takeoff but was able to restart the engine. The accident pilot previously opined that maybe he would install new fuel cell bladders if the problem continued.

WRECKAGE AND IMPACT INFORMATION

Investigators examined the wreckage at the accident scene. The first identified point of contact (FIPC) was a ground scar. The airplane impacted in an inverted position with fragments of the left wing tip located along the right side of the approach end of runway 29. There was an impact mark from the right wing near the centerline of the runway. Midway between the two wing impact points was an impact mark from the propeller and spinner. The debris path was along a magnetic heading of 290 degrees and was 65 yards long. The orientation of the fuselage was inverted on a heading of 230 degrees.

MEDICAL AND PATHOLOGICAL INFORMATION

The Coconino County Coroner completed an autopsy of the pilot on July 19, 2011. The cause of death was listed as: multiple injuries due to a plane crash. The manner of death was an accident.

The FAA Civil Aerospace Medical Institute (CAMI), Oklahoma City, Oklahoma, performed toxicological testing of specimens of the pilot. Analysis of the specimens contained no findings for carbon monoxide, cyanide, and volatiles.

The report contained the following findings for tested drugs: Amlodipine, a blood pressure medication, was detected in the blood and Urine.

TESTS AND RESEARCH

Investigators examined the wreckage at Air Transport, Phoenix, Arizona, on January 17, 2012.

Except for the fuel injection servo, the airframe and engine were examined with no mechanical anomalies identified that would have precluded normal operation.

The fuel injection servo was displaced from the engine, and the portion of flange that remained attached at the mounting pad was secure. The fracture surface signatures were consistent with overload. The fuel injection servo and induction system were examined and observed to be free of obstruction. The throttle/mixture controls were found securely attached at their respective control arms of the servo. The plug on the side of the injector body was secure with the safety wire in place. The fuel injection servo was opened for examination. Investigators observed debris and corrosion within the servo fuel inlet filter screen, internal diaphragm cavities and mixture control mechanism bore, which appeared to be consistent with previous water contamination.

The fuel injection servo was retained for further examination.

On February 2, 2012, the fuel injector servo was examined at Precision Airmotive LLC, Marysville, Washington. The servo was disassembled during the examination and was not bench tested. The full report is attached to the docket. The results of the examination confirmed the servo had rust and corrosion present throughout the unit.

Other flight crew Information

Certificate:	Private	**Age:**	35,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 Without waivers/limitations	**Last FAA Medical Exam:**	August 4, 2009
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	August 27, 2010
Flight Time:	127 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Mooney	**Registration:**	N3534X
Model/Series:	M20F	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	670071
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	August 16, 2010 Annual	**Certified Max Gross Wt.:**	2740 lbs
Time Since Last Inspection:	18 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Lycoming
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	IO-360-A1A
Registered Owner:	On file	**Rated Power:**	200 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:	INW,4941 ft msl	**Distance from Accident Site:**	1 Nautical Miles
Observation Time:	09:56 Local	**Direction from Accident Site:**	270°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	10 knots / 17 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	110°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.82 inches Hg	**Temperature/Dew Point:**	33°C / 6°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Winslow, AZ (INW)	**Type of Flight Plan Filed:**	None
Destination:	Chino, CA (CNO)	**Type of Clearance:**	None
Departure Time:	10:00 Local	**Type of Airspace:**	

Airport Information

Airport:	Winslow-Lindbergh Regional Air INW	**Runway Surface Type:**	Asphalt
Airport Elevation:	4941 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	29	**IFR Approach:**	None
Runway Length/Width:	7099 ft / 150 ft	**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	35.100017,-110.639778(est)

Administrative Information

Investigator In Charge (IIC):	Jones, Patrick
Additional Participating Persons:	Renato A Lutz; Federal Aviation Administration; Scottsdale, AZ
Original Publish Date:	January 15, 2013
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=81114