



# Aviation Investigation Final Report

<b>Location:</b>	OKLAHOMA CITY, Oklahoma	<b>Accident Number:</b>	FTW99LA010
<b>Date &amp; Time:</b>	October 18, 1998, 10:00 Local	<b>Registration:</b>	N6534B
<b>Aircraft:</b>	Mooney M20A	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	3 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

## Analysis

The engine lost power soon after departing from runway 35 at an altitude of 400 to 500 feet AGL. The pilot was aware during the preflight inspection that the left main fuel cell was 3/4 full and the right tank was very low on fuel. Prior to takeoff, the pilot inadvertently switched the fuel selector to the right fuel tank. The pilot assumed that the engine had malfunctioned and did not switch the fuel selector to the fullest tank. The 400 hour pilot landed the airplane in an open pasture with the landing gear extended. During the landing roll, the airplane collided with a terrace, collapsing the landing gear. According to local law enforcement personnel that responded to the accident site, the pilot reported that 'the airplane ran out of fuel,' however, the left main fuel cell was approximately 3/4 full. The pilot added that the 1959 vintage airplane was equipped with a single fuel gauge controlled by a two-position toggle switch for both fuel cells.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The loss of engine power due to fuel starvation as result of the pilot's improper placement of the fuel tank selector switch. A factor was the lack of suitable terrain for the pilot to execute the forced landing.

## Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - NONMECHANICAL  
Phase of Operation: APPROACH - VFR PATTERN - DOWNWIND

Findings

1. CHECKLIST - NOT FOLLOWED - PILOT IN COMMAND
2. (C) FLUID,FUEL - STARVATION
3. (C) FUEL TANK SELECTOR POSITION - IMPROPER - PILOT IN COMMAND

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Occurrence #2: FORCED LANDING

Phase of Operation: DESCENT - EMERGENCY

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Occurrence #3: ON GROUND/WATER ENCOUNTER WITH TERRAIN/WATER

Phase of Operation: EMERGENCY LANDING

Findings

4. TERRAIN CONDITION - DIRT BANK/RISING EMBANKMENT
5. (F) TERRAIN CONDITION - NONE SUITABLE

## Factual Information

On October 18, 1998, at 1000 central daylight time, a Mooney M20A airplane, N6534B, was substantially damaged during a forced landing following the loss of engine power near Oklahoma City, Oklahoma. The instrument rated private pilot and her two passengers were not injured. The airplane was owned and operated by the pilot under Title 14 CFR Part 91. Visual meteorological conditions prevailed for the personal flight for which a flight plan was not filed. The flight originated from the Sundance Airpark, near Yukon, Oklahoma, approximately 10 minutes prior to the accident.

In the enclosed NTSB Form 6120.1/2, the pilot stated that she checked the fuel tanks prior to takeoff and noted that the left fuel tank was 3/4 full and the right fuel tank was "very low." During takeoff; however, the pilot positioned the fuel selector on the right fuel tank. The engine lost power soon after departing from runway 35, while at an altitude of 400 to 500 feet AGL. The pilot added that she thought she had selected the fullest tank and "assumed there was an engine malfunction," so she did not switch the fuel selector to the left tank.

The 400 hour pilot landed the airplane in an open pasture with the landing gear extended. During the landing roll, the airplane collided with a terrace, collapsing the landing gear. In a telephonic interview, the pilot reported to the NTSB investigator-in-charge, that her total concentration after the loss of power was "to fly the airplane to a safe landing."

According to local law enforcement personnel that responded to the accident site, the pilot reported that "the airplane ran out of fuel." Examination of the airplane revealed that the left main fuel cell was approximately 3/4 full. The pilot added that the 1959 vintage airplane was equipped with a single fuel gauge controlled by a two-position toggle switch which selects which fuel tank quantity is displayed.

Examination of the airplane by the FAA inspector and the owner revealed that both wooden wings and the flaps sustained structural damage.

## Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	49,Female
<b>Airplane Rating(s):</b>	Single-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 3 Valid Medical-w/ waivers/lim	<b>Last FAA Medical Exam:</b>	March 21, 1997
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	403 hours (Total, all aircraft), 30 hours (Total, this make and model), 295 hours (Pilot In Command, all aircraft), 20 hours (Last 90 days, all aircraft), 10 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Mooney	<b>Registration:</b>	N6534B
<b>Model/Series:</b>	M20A M20A	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	1203
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>	August 30, 1998 Annual	<b>Certified Max Gross Wt.:</b>	2600 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	1396 Hrs	<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	O-360-A1D
<b>Registered Owner:</b>	MARIANNE C. TURNER	<b>Rated Power:</b>	180 Horsepower
<b>Operator:</b>		<b>Operating Certificate(s) Held:</b>	None
<b>Operator Does Business As:</b>		<b>Operator Designator Code:</b>	

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	PWA ,1190 ft msl	<b>Distance from Accident Site:</b>	1 Nautical Miles
<b>Observation Time:</b>	09:53 Local	<b>Direction from Accident Site:</b>	180°
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	8 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	10°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30 inches Hg	<b>Temperature/Dew Point:</b>	11°C / 6°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	(HSD )	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>		<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	09:50 Local	<b>Type of Airspace:</b>	Class G

## Airport Information

<b>Airport:</b>		<b>Runway Surface Type:</b>	
<b>Airport Elevation:</b>		<b>Runway Surface Condition:</b>	
<b>Runway Used:</b>	0	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>		<b>VFR Approach/Landing:</b>	Forced landing

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	2 None	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	3 None	<b>Latitude, Longitude:</b>	

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Casanova, Hector
<b>Additional Participating Persons:</b>	JERRY YATES; OKLAHOMA CITY , OK
<b>Original Publish Date:</b>	February 15, 2001
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=45126">https://data.nts.gov/Docket?ProjectID=45126</a>

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The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).