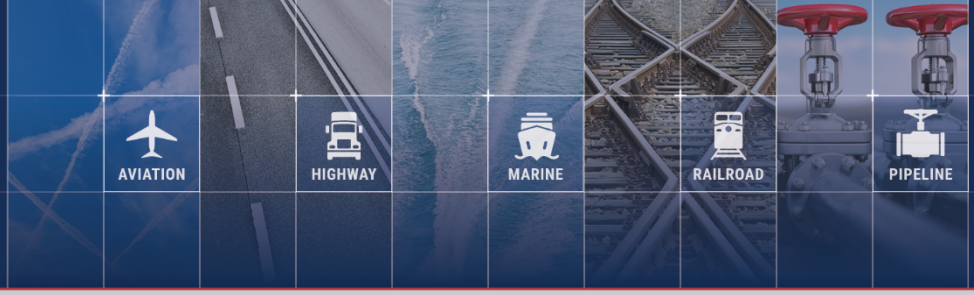

Aviation Investigation Final Report

Location:	BOWLING GREEN, Ohio	**Accident Number:**	BFO94LA149
Date & Time:	August 24, 1994, 16:18 Local	**Registration:**	N3916N
Aircraft:	MOONEY M20G	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 Serious, 1 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

ACCORDING TO THE PILOT, THE ENGINE LOST POWER AS HE WAS CRUISING AT 6500 FEET WITH A POWER SETTING OF 2400 RPM AND 22 INCHES OF MANIFOLD PRESSURE. DURING A SUBSEQUENT FORCED LANDING ON A ROAD, THE AIRPLANE STRUCK A SIGN, DITCH, AND TREE. THE PILOT REPORTED THAT DURING THE FLIGHT, HE USED THE RIGHT FUEL TANK FOR THE FIRST HOUR AND THEN THE LEFT TANK FOR TWO HOURS, BEFORE HE SWITCHED BACK TO THE RIGHT TANK. HE STATED THAT WHEN HE SWITCHED BACK TO THE RIGHT TANK, THE FUEL GAGES INDICATED 36 AND 108 LBS, RESPECTIVELY, IN THE LEFT AND RIGHT TANKS. ABOUT 30 MINUTES LATER, THE ENGINE LOST POWER. THE ENGINE WAS RESTARTED, BUT ABOUT 3 MINUTES LATER, A POWER LOSS OCCURRED AGAIN, THEN THE PILOT WAS UNABLE TO RESTART THE ENGINE. POSTACCIDENT EXAMINATION OF THE AIRPLANE REVEALED THAT BOTH FUEL TANKS WERE EMPTY AND THAT THERE WAS NO EVIDENCE OF LEAKAGE. TACHOMETER INFORMATION SHOWED THE ENGINE HAD BEEN OPERATED 4.1 HOURS. BASED ON FULL FUEL TANKS AND THE PILOT'S REPORTED CRUISE ALTITUDE/POWER SETTING, THE AIRPLANE SHOULD HAVE BEEN ABLE TO FLY FOR A TOTAL OF ABOUT 5.4 HOURS.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: fuel exhaustion for undetermined reason(s), which resulted in loss of engine power and a subsequent forced landing. A factor relating to the accident was: faulty fuel quantity gauge/system.

Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - NONMECHANICAL
Phase of Operation: CRUISE

Findings
1. (C) FLUID,FUEL - EXHAUSTION
2. (F) ENGINE INSTRUMENTS,FUEL QUANTITY GAGE - FALSE INDICATION

Occurrence #2: FORCED LANDING
Phase of Operation: EMERGENCY DESCENT/LANDING

Occurrence #3: ON GROUND/WATER COLLISION WITH OBJECT
Phase of Operation: EMERGENCY LANDING

Findings
3. OBJECT - TREE(S)
4. OBJECT - SIGN
5. TERRAIN CONDITION - DITCH

Factual Information

On August 24, 1994, at 1618 eastern daylight time, N3916N, a Mooney M20G, operated by James W. Beauchamp of Cora Peake, North Carolina, collided with a sign post while on final approach during a power-off forced landing in Bowling Green, Ohio. The forced landing was precipitated by a loss of engine power during cruise flight. The certificated commercial pilot received minor injuries and the passenger was seriously injured. The airplane sustained substantial damage. Visual meteorological conditions prevailed and a VFR flight plan was filed. The personal flight was operated under 14 CFR 91 and originated in Suffolk, Virginia. The intended destination was Toledo, Ohio.

According to an FAA Aviation Safety Inspector, the pilot was enroute to his destination when the engine lost power. The pilot contacted the Bowling Green tower and an air traffic controller told him that he was 3 miles from the Bowling Green Airport. The pilot elected to land on a road. During the forced landing, the right wing struck a steel sign post, travelled 200 feet, and collided with a four foot deep ditch.

The pilot reported that the aircraft was refueled and the tanks were visually verified. He stated that he flew the aircraft for the first hour on the right tank, and then he switched to the left tank for an additional two hours. He stated that he switched to the right tank for the remainder of the flight, and that the left fuel tank gage read 36lbs, and the right fuel tank gage read 108lbs. The pilot reported that 25 to 30 minutes later the engine lost power. He stated that he applied carburetor heat, switched fuel tanks, and turned the boost pumps on, but all were unsuccessful.

The airplane was examined at the accident site by an FAA Safety Inspector. The examination revealed that the fuel tanks were empty. The right wing fuel tank was intact while the left wing fuel tank was ruptured and there were no fuel stains on the airplane nor in the ditch. The pilot reported that he had approximately 24 gallons of fuel on board. The airplane was removed to a hangar for further examination of the fuel system. The examination included removing the carburetor, checking the fuel line from the fuel pump to the carburetor, the fuel selector drain and the only fuel that was found was about 2 ounces of fuel from the carburetor. Another pilot, who had rented the same aircraft 5 days before the accident, reported that at a cruise altitude of 10,000 ft and a recommended cruise power setting of 18 inches of manifold pressure and 2,400 rpm, the fuel burn for 3 hours 10 minutes in flight was 34.9 gallons. He also stated that the fuel gauges were operable and appeared to read normally.

The owner, who rented the airplane to the accident pilot, stated that the tachometer read 169.5 hours before the pilot's departure. The tachometer read 173.63 after the accident. According to the Mooney owner's manual, at an altitude of 7,500 feet and a power setting of 22.0 inches and 2,400 rpm, the endurance would be 4 hours and 38 minutes, and the range 724

miles. The pilot's flight plan for the accident flight, using the Apollo 800 Loran for Toledo, Ohio, indicated 477 miles.

Pilot Information

Certificate:	Commercial; Military	**Age:**	30,Male
Airplane Rating(s):	Single-engine land; Multi-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 2 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	April 20, 1994
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	2131 hours (Total, all aircraft), 5 hours (Total, this make and model), 1855 hours (Pilot In Command, all aircraft), 65 hours (Last 90 days, all aircraft), 10 hours (Last 30 days, all aircraft), 4 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	MOONEY	**Registration:**	N3916N
Model/Series:	M20G M20G	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	680061
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	April 1, 1994 Annual	**Certified Max Gross Wt.:**	2550 lbs
Time Since Last Inspection:	81 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	2197 Hrs	**Engine Manufacturer:**	LYCOMING
ELT:	Installed, not activated	**Engine Model/Series:**	O-360-A1D
Registered Owner:	JAMES WILLIAM BEAUCHAMP	**Rated Power:**	180 Horsepower
Operator:	JAMES WILLIAM BEAUCHAMP	**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	TOL ,643 ft msl	**Distance from Accident Site:**	14 Nautical Miles
Observation Time:	16:26 Local	**Direction from Accident Site:**	310°
Lowest Cloud Condition:	Scattered / 15000 ft AGL	**Visibility**	7 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	10 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	200°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	28°C / 18°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	SUFFOLK , VA (SFQ)	**Type of Flight Plan Filed:**	VFR
Destination:	TOLEDO , OH (TOL)	**Type of Clearance:**	None
Departure Time:	12:30 Local	**Type of Airspace:**	

Airport Information

Airport:		**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:	0	**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 Serious	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Serious, 1 Minor	**Latitude, Longitude:**	41.369251,-83.639701(est)

Administrative Information

Investigator In Charge (IIC):	Johnson, Beverley
Additional Participating Persons:	RON KOSSMAN; CLEVELAND , OH
Original Publish Date:	May 28, 1997
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=8969