Aviation Investigation Final Report

Location:	JACKPOT, Nevada	**Accident Number:**	LAX00FA283
Date & Time:	July 30, 2000,	**Registration:**	N5853Q
Aircraft:	Mooney M20E	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The airplane collided with terrain after departure on a dark night. A witness watched the airplane depart runway 15 and appear to climb above lights on top of a mountain. The airplane turned left toward the east, and several seconds later it began to lose altitude. The airplane disappeared from sight; then the witness heard the engine rpm increase followed by a "crash sound." The first identified point of ground contact was 0.52 miles from the airport on a magnetic bearing of 105 degrees, and there was zero percent illumination of the moon. An examination of the airframe and engine revealed no catastrophic failures and no anomalies, which would have precluded normal operation of the airplane or engine.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot inadvertently became lost/disoriented during initial climb and collided with terrain. A related factor was the dark night.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings
1. (F) LIGHT CONDITION - DARK NIGHT
2. (C) BECAME LOST/DISORIENTED - INADVERTENT - PILOT IN COMMAND

Factual Information

HISTORY OF FLIGHT

On July 30, 2000, about 2400 hours mountain daylight time, a Mooney M20E, N5853Q, collided with terrain about 1 minute after departure from Jackpot, Nevada. The private pilot/owner was operating the airplane under the provisions of 14 CFR Part 91. The pilot and the one passenger sustained fatal injuries; the airplane was destroyed. The personal flight was departing Jackpot en route to its home field of Jerome, Idaho, about 48 nautical miles north of Jackpot. Night visual meteorological conditions prevailed and no flight plan had been filed.

A witness at a Casino about 2 miles away observed the airplane depart runway 15 and, from his angle, it appeared to climb above lights on top of a mountain. He watched the plane turn left toward the east, and several seconds later the airplane began to lose altitude. The airplane disappeared from sight; then he heard the engine rpm increase followed by a "crash sound." The first identified point of ground contact was at 41 degrees 58.297 west latitude and 114 degrees 38.883 minutes north longitude. A Safety Board computer program determined this was 0.52 miles from the airport on a magnetic bearing of 105 degrees. A sun and moon program determined there was zero percent illumination of the moon.

PERSONNEL INFORMATION

A review of Federal Aviation Administration (FAA) airman records revealed the pilot held a private pilot certificate with an airplane single engine land rating. A third-class medical certificate with the limitation "must have glasses for near vision" was issued on June 14, 2000. The pilot's insurance carrier stated that the pilot listed his total time at 2,057 hours with 47 hours in make and model on an application for insurance dated January 4, 2000. A review of the pilot's logbook indicated an estimated flight time of 10 hours between the application date and the accident, all in the accident airplane. Five round trip flights from Jerome to Jackpot were logged since January. The entry for the return leg on July 21, 2000, indicated the flight occurred at night. A biennial flight review was completed on July 9, 2000.

AIRCRAFT INFORMATION

The airplane was a Mooney M20E, serial number 792. A review of the airplane's logbooks revealed an annual inspection was completed in August 2000. A Textron Lycoming factory overhauled IO-360-A1A engine, serial number L-24718-51A, was installed on the airplane at the annual. Total time on the engine at installation was 2,562 hours at a tachometer time of 1,801. The tachometer read 1,970.2 at the accident scene.

METEOROLOGICAL INFORMATION

A routine aviation weather report (METAR) for Twin Falls, Idaho, magnetic bearing 010 degrees at 32 miles, was issued at 2353 MDT. It reported: skies clear; visibility 10 miles; winds from 190 at 9 knots; temperature 73 degrees Fahrenheit; dew point 43 degrees Fahrenheit; and altimeter 30.01 inHg.

AIRPORT INFORMATION

The Airport/Facility Directory, Southwest U. S., indicated runway 15 was 6,200 feet long and 60 feet wide. The runway surface was composed of asphalt.

WRECKAGE AND IMPACT INFORMATION

The airplane came to rest in the soft dirt of a recently cut alfalfa field. The debris path was along a magnetic bearing of 010 degrees. The first identified point of ground contact (IPC) was a ground scar about 36 feet long and 7 inches wide. The first portion of this ground scar was about 6 inches deep, and contained red lens fragments. This ground scar joined the principal impact crater (PIC), which was 12 feet long, 4 feet wide, and 17 inches deep. The propeller and its hub separated from the engine and were found in the PIC. Both of the blades exhibited leading edge polishing and chordwise striations, were bent aft, and twistied toward the low pitch position. The ground scar continued for another 20 feet, and green lens fragments were found at its terminus.

The separated left wing came to rest upright about 97 feet from the IPC and 24 feet right of the centerline of the debris path. The inverted main wreckage, which consisted of the aft cabin and empennage, were located 142 feet from the IPC. Both of the front seats, the rear seat, and the separated and inverted right wing were 170 feet from the IPC. The left seat was a few feet left of the debris path centerline, while the right front seat was slightly right of centerline, and the right wing a few feet further right.

The engine compartment, which was attached to the entry door, the lower portion of the instrument panel with the cockpit flight controls, and the front cabin floor were located 182 feet from the IPC. The left side pilot control wheel, with about 18 inches of control column attached, was the most distant piece of wreckage located, which was 218 feet from the IPC

Both control wheels fractured and separated along angular planes. Control column linkage was traced to the front cabin floor area, with all control rod ends and push pull tubes connected. Both the elevator and rudder push pull rods were connected and buckled in the empennage. The rods moved freely when their respective control surfaces were manually operated. All push pull tubes were found fractured and separated in the mid cabin area; all tubes were bent and fractured along angular planes. All landing gears were observed in their gear wells. Both flaps separated from their wing hinge points along irregular planes.

MEDICAL AND PATHOLOGICAL INFORMATION

The Elko County Coroner completed an autopsy. The FAA Toxicology and Accident Research Laboratory performed toxicological testing of specimens of the pilot. The results of analysis of the specimens were negative for carbon monoxide, cyanide, volatiles, and tested drugs.

TESTS AND RESEARCH

An inspection of the engine revealed the spark plug electrodes were nearly round in shape and undamaged. The spark plug electrodes were gray in color, which corresponded to normal operation according to the Champion Aviation Check-A-Plug AV-27 Chart. A blue liquid with an odor similar to aviation gasoline was found in the main inlet fuel line from the engine driven pump to the fuel servo, and in the fuel distribution valve. As the crankshaft was rotated by hand, the valves moved in sequence and thumb compression was obtained on all cylinders. Both magnetos were removed and sparked on all terminals when manually rotated. The oil pressure screen was clean.

The vacuum pump was removed and could not be turned by hand. Upon disassembly, dirt was observed in the pump. Its drive coupling was observed to be undamaged and rotated freely. The vacuum pump's vanes were in place, but the carbon rotor exhibited several cracks that propagated about 1/2-inch radially from the center. Once disassembled, this part could be rotated about 90 degrees by hand.

ADDITIONAL INFORMATION

The wreckage was released to the owner's representative.

Pilot Information

Certificate:	Private	**Age:**	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:**	Yes
Medical Certification:	Class 3 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	June 14, 2000
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	July 9, 2000
Flight Time:	2070 hours (Total, all aircraft), 60 hours (Total, this make and model), 1925 hours (Pilot In Command, all aircraft), 5 hours (Last 90 days, all aircraft), 3 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Mooney	**Registration:**	N5853Q
Model/Series:	M20E M20E	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	792
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	November 19, 1999 100 hour	**Certified Max Gross Wt.:**	2575 lbs
Time Since Last Inspection:	70 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	IO-360-A1A
Registered Owner:	JOHN R. APPEL	**Rated Power:**	200
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Night/dark
Observation Facility, Elevation:	TWF,4151 ft msl	**Distance from Accident Site:**	32 Nautical Miles
Observation Time:	23:53 Local	**Direction from Accident Site:**	10°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	9 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	190°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.01 inches Hg	**Temperature/Dew Point:**	23°C / 6°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Jackpot, NV (06U)	**Type of Flight Plan Filed:**	None
Destination:	JEROME, ID (JER)	**Type of Clearance:**	None
Departure Time:	00:00 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	Jackpot 06U	**Runway Surface Type:**	Asphalt
Airport Elevation:	5213 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	15	**IFR Approach:**	None
Runway Length/Width:	6200 ft / 60 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	41.982223,-114.663612

Administrative Information

Investigator In Charge (IIC):	Plagens, Howard
Additional Participating Persons:	CLARENCE BOHARTZ; FAA FSDO; RENO, NV JEFFREY R POSCHWATTA; TEXTRON LYCOMING; KENT, WA
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Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=49850