Aviation Investigation Final Report

Location:	Ranchita, California	**Accident Number:**	LAX07FA080
Date & Time:	February 3, 2007, 18:38 Local	**Registration:**	N201RV
Aircraft:	Mooney M20J	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

Recorded radar data indicated that after the airplane took off for the cross-country flight across a costal mountain range, it climbed to an altitude of 7,500 feet msl on a northeasterly course toward its intended destination, which was in a large valley on the other side of the mountains. As the flight neared the destination airport and while still over mountainous terrain, the target began a gradual descent as it continued on the northeasterly heading. The last radar return was at an altitude of 4,100 feet msl. The wreckage was located on a flat mountain plateau covered with large rocks and low vegetation. The first identified point of contact with the ground were black rubber marks noted on numerous rocks about 180 feet from the main wreckage. The main wreckage was at an elevation of 4,294 feet and the ground scars and wreckage signatures were consistent with the airplane contacting the ground in a near wings level attitude. The propeller exhibited signatures consistent with significant power production from the engine. Night visual meteorological conditions prevailed at the time. Moonrise occurred approximately 20 minutes after the accident. Weather reports from nearby aviation reporting stations depicted conditions of clear skies and visibilities equal to or greater than 10 miles over a wide area encompassing the accident site. Investigators found no evidence of preimpact mechanical malfunctions.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to maintain terrain clearance during a cruise descent. Contributing to the accident were the dark night lighting conditions and the mountainous terrain.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - NORMAL

Findings
1. (F) LIGHT CONDITION - DARK NIGHT
2. (F) TERRAIN CONDITION - MOUNTAINOUS/HILLY
3. (C) CLEARANCE - NOT MAINTAINED - PILOT IN COMMAND

Factual Information

HISTORY OF FLIGHT

On February 3, 2007, at 1838 Pacific standard time, a Mooney M20J, N201RV, impacted mountainous terrain in the Anza Borrego Desert State Park near Ranchita, California. The owner/pilot was operating the airplane under the provisions of 14 CFR Part 91. The private pilot, the sole occupant, was killed; the airplane was substantially damaged. The cross-country personal flight departed Montgomery Field Airport (MYF), San Diego, California, about 1815, with a planned destination of Borrego Springs, California (L08). Visual night meteorological conditions prevailed, and no flight plan had been filed.

The wife of the pilot reported that her husband had departed MYF to fly to their vacation home in Borrego Springs. Typically, he would call her before he departed from MYF. She would then drive to the airport (L08) and pick him up. On the night of the accident, while she waited past his anticipated arrival time, she watched the moon rise. Up until that point, the sky had been very dark. At 1930, she contacted the Federal Aviation Administration (FAA) and filed a concerned alert notice (ALNOT).

The FAA issued an ALNOT at 2130. The Civil Air Patrol and San Diego County Sheriff's Department began a search, and located the wreckage about 0100 on February 4, 2007.

The National Transportation Safety Board investigator-in-charge (IIC) reviewed recorded radar data, and noted a secondary 1200 (VFR) beacon code at a mode C reported altitude of 300 feet mean sea level (msl) departing from MYF at 1815:52. The ensuing 1200 beacon code radar target return matched the projected flight path of the accident airplane.

Recorded radar data from Southern California Terminal Radar Approach Control (SCT) indicated that after the target took off, it climbed on a northeasterly course until obtaining a mode C reported altitude of 7,500 feet msl. The target then began a descent continuing in a northeasterly direction. The last radar return was at 1837:55, at a mode C reported altitude of 4,100 feet msl. The last radar return was about 1,300 feet laterally from the first identified point of contact (FIPC).

PERSONNEL INFORMATION

A review of Federal Aviation Administration (FAA) airman records revealed that the 62-year-old pilot held a private pilot certificate with ratings for airplane single-engine land and instrument airplane.

The pilot held a third-class medical certificate issued on December 20, 2006, with the

limitations that the pilot must wear corrective lenses.

An examination of the pilot's logbook indicated an estimated total flight time of 2,729 hours. He logged 8 hours in the last 30 days. He completed a biennial flight review on December 2, 2006.

AIRCRAFT INFORMATION

The airplane was a Mooney M20J, serial number 24-0256. A review of the airplane's logbooks revealed that the airplane had a total airframe time of 2,994.5 hours at the last annual inspection. The logbooks contained an entry for an annual inspection dated March 1, 2006.

The engine was a Textron Lycoming IO-360-A386D, serial number L-17652-51AC. The time since major overhaul was 1,096.4 hours.

Fueling records at MYF established that the airplane was last fueled to full capacity on February 3, 2007, with the addition of 8.7 gallons of 100LL-octane aviation fuel. Examination of the maintenance and flight department records revealed no unresolved maintenance discrepancies against the airplane prior to departure.

METEOROLOGICAL INFORMATION

The closest official weather observation station was Thermal/Palm Springs, California (TRM), which was located 24 nautical miles (nm) north of the accident site. The elevation of the weather observation station was -115 feet msl. An aviation routine weather report (METAR) for TRM was issued at 1852. It reported: winds from 330 degrees at 3 knots; visibility 10 miles; skies clear; temperature 49 degrees Fahrenheit; dew point 33 degrees Fahrenheit; and altimeter 30.23 inHg.

Records from the U.S. Naval Observatory, Astronomical Application Department, reported that the moonrise for the accident site occurred at 1858.

WRECKAGE AND IMPACT INFORMATION

The accident site was located at the top of Pinyon Mountain, which is essentially a flat plateau covered with large rocks, boulders and vegetation consisting of cactus, pine trees and sparse long grasses.

The Safety Board IIC examined the wreckage on scene. The FIPC were black rubber marks on numerous rocks about 180 feet from the main wreckage at a GPS estimated elevation of 4,294 feet msl. A large ground scar followed with a debris path leading to the main wreckage. The airplane came to rest at a GPS estimated elevation of 4,292 feet msl.

MEDICAL AND PATHOLOGICAL INFORMATION

The San Diego County Coroner completed an autopsy on February 5, 2006. The Coroner listed the cause of death as a result of "Multisystem Blunt Force Injuries." The FAA Forensic Toxicology Research Laboratory, Oklahoma City, Oklahoma, performed toxicological testing of specimens of the pilot.

Analysis of the specimens contained no findings for carbon monoxide, cyanide, volatiles, and tested drugs.

TESTS AND RESEARCH

Investigators examined the wreckage at Aircraft Recovery Service, Littlerock, California, on May 10, 2006.

The two bladed constant speed propeller was displaced from the crankshaft flange due to the fragmentation of the propeller hub. The fracture surfaces exhibited signatures consistent with overload due to the absorption of rotational energy. The portion of propeller hub that remained on the crankshaft flange was secure at the mechanical attachments. The propeller blades displayed leading edge gouging, torsional twisting, chordwise striations across the cambered surface and trailing edge "S" bending. The signatures were consistent with the absorption of rotational forces applied at the crankshaft at the time of impact.

Investigators examined the engine and found no evidence of preimpact mechanical malfunctions.

Pilot Information

Certificate:	Private	**Age:**	62,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 With waivers/limitations	**Last FAA Medical Exam:**	December 1, 2006
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	December 1, 2006
Flight Time:	2729 hours (Total, all aircraft), 8 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Mooney	**Registration:**	N201RV
Model/Series:	M20J	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	24-0256
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	March 1, 2006 Annual	**Certified Max Gross Wt.:**	2900 lbs
Time Since Last Inspection:	80 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	2994.5 Hrs as of last inspection	**Engine Manufacturer:**	Lycoming
ELT:	Installed, activated, aided in locating accident	**Engine Model/Series:**	IO-360
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:**	Night/dark
Observation Facility, Elevation:	RNM,-115 ft msl	**Distance from Accident Site:**	24 Nautical Miles
Observation Time:	18:52 Local	**Direction from Accident Site:**	360°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	330°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.22 inches Hg	**Temperature/Dew Point:**	9°C / 1°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	SAN DIEGO, CA (MYF)	**Type of Flight Plan Filed:**	None
Destination:	BORREGO SPRINGS, CA (L08)	**Type of Clearance:**	None
Departure Time:	18:15 Local	**Type of Airspace:**	

Airport Information

Airport:	BORREGO VALLEY L08	**Runway Surface Type:**	
Airport Elevation:	520 ft msl	**Runway Surface Condition:**	
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	33.171112,-116.423889

Administrative Information

Investigator In Charge (IIC):	Jones, Patrick
Additional Participating Persons:	Gregory Nolting; Federal Aviation Administration; San Diego, CA Mark Platt; Textron Lycoming; Williamsport, PA
Original Publish Date:	September 26, 2008
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=65241