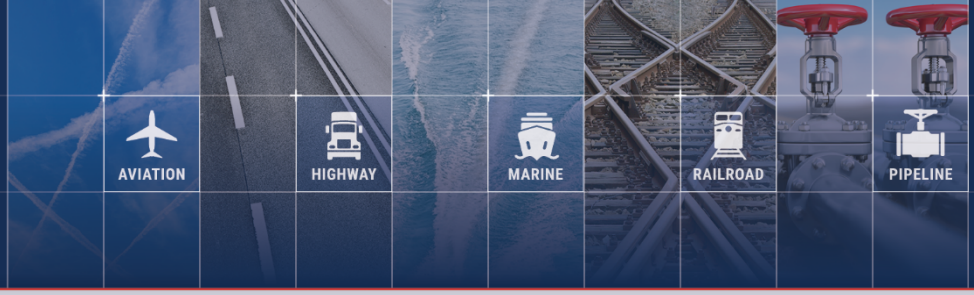

Aviation Investigation Final Report

Location:	PHOENIX, Arizona	**Accident Number:**	LAX01FA007
Date & Time:	October 9, 2000, 11:16 Local	**Registration:**	N888MM
Aircraft:	Cessna P210N	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

While on final approach, low, and configured to land, the engine lost all power. The pilot attempted to land in a field and collided with power lines. After returning from Mexico, and reentering the United States at a port of entry, the flight proceeded to the destination airport. Upon arrival the tower advised the pilot to hold for landing sequence, and was cleared to land after about 5 minutes of holding. The ATCT controllers observed the airplane turn left and descend steeply out of sight. Fuel was not available at the Mexico location and not purchased at the port of entry. According to a recovered trip log of seven previous trips, an average similar trip took 3.5 hours as recorded from the mechanical recording tachometer. The average fuel quantity used per round trip was 68.5 gallons. The highest recorded fuel used was 72.6 gallons. The longest round trip time was 3.7 hours. The lowest fuel quantity used was 65.1 gallons. The average fuel burn rate was 19.57 gallons per hour. The average number of gallons remaining at Deer Valley airport was 20.5 plus or minus 5 gallons. The actual fuel quantity could not be determined. The airplane has a two-tank system of 44.5 gallons of usable fuel in each tank, when properly serviced. The fuel selector was found in the off position, possibly a reaction to the emergency. The selector provides fuel from either the left or right fuel tank, but not both simultaneously. The postaccident fire destroyed the left wing and part of the right wing root; no fuel was found in the tank system. Cessna pilot safety and warning supplements were recovered from the wreckage. According to the information, if the fuel tank outlet is uncovered, by fuel, fuel flow to the engine may be interrupted and a temporary loss of power might result. A note in the pilot information manual for the fuel system states that "unusable fuel is at a minimum due to the design of the fuel system. However, when the fuel tanks are 1/4 full or less, prolonged uncoordinated flight such as slips or skids can uncover the fuel tank outlets, causing fuel starvation and engine stoppage. Therefore, with low fuel reserves, do not allow the airplane to remain in uncoordinated flight for periods in excess of one minute."

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The failure of the pilot to operate the airplane according to the flight manual, resulting in fuel starvation and loss of engine power during a critical phase of flight. A factor was the lack of suitable terrain for a forced landing and the presence of utility lines at the forced landing site.

Findings

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

Findings
1. (C) FLUID,FUEL - STARVATION
2. (C) FLIGHT MANUALS - NOT FOLLOWED - PILOT IN COMMAND

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

Findings
3. (F) TERRAIN CONDITION - NONE SUITABLE

Occurrence #3: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: DESCENT - EMERGENCY

Findings
4. (F) OBJECT - WIRE,TRANSMISSION

Factual Information

HISTORY OF FLIGHT

On October 9, 2000, at 1116 hours mountain standard time, a Cessna P210N, N888MM, collided with electrical wires and the ground during a forced landing at Phoenix, Arizona. The forced landing was precipitated by a loss of engine power on final approach for landing at the Deer Valley Airport. The airplane, operated by the pilot, was destroyed in the collision sequence and postcrash ground fire. The private pilot and passenger sustained fatal injuries. Visual meteorological conditions prevailed for the personal flight conducted under 14 CFR Part 91, and no flight plan was filed. The flight originated at Nogales, Arizona, about 1020. The pilot and passenger were returning from Puerto Penasco, Mexico, and had reentered the United States at Nogales, arriving about 1000.

The pilot contacted the Federal Aviation Administration (FAA) Air Traffic Control Tower (ATCT) southeast of the airport at 1107:15, and again at 1107:39, for landing. At 1107:41, the local controller advised the pilot to remain outside the controlled airspace, and he would be contacted in about 2 minutes. At 1108:36, the pilot again called the tower, and was again advised to call back in about 5 minutes. The pilot acknowledged at 1108:43, and stated that he was circling west of the airport. At 1111:59, the pilot was told to make a straight in approach to runway 7 left and report a 5-mile final. A 5-mile final was reported at 1113:38. At 1115:29, the pilot reported a power failure about 1.5 miles out. Subsequently, three ATCT controllers stated that they observed the airplane turn left and steeply descend out of sight.

PERSONNEL INFORMATION

At the pilot's last documented third-class flight physical conducted on January 14, 2000, he reported a total flight time of 2,150 hours. The pilot's flight logbook was recovered and examined by the Safety Board investigator. It consisted of 33 pages of entries starting on June 29, 1988, through July 19, 1995, for the operation of a Cessna T210A, and from August 16, 1995, through October 12, 1998, for the accident P210N. None of the logbook pages were totaled. The Safety Board investigator estimated that the pilot had about 346 hours in the accident airplane, with 34 hours from January 13, 2000, to October 9, 2000.

The pilot's last recorded biennial flight review (BFR) documented in the recovered log was conducted on October 1, 1998, and flown in the accident airplane.

AIRCRAFT INFORMATION

According to records, the airplane had accumulated about 4,116 total flight hours. The most recent recorded annual inspection was conducted on December 20, 1999, at 4,074.5 total flight

hours.

The last documented maintenance was September 27, 2000, at 4,112.9 tachometer hours. According to records on that date, new main gear tires, vacuum pump, aircraft battery, and a new mixture control were installed. The oil and filter were changed and a serviceable nose gear shock strut was installed.

According to a recovered trip log of seven previous trips, an average similar trip took 3.5 hours as recorded from the recording tachometer. The average fuel quantity used per round trip was 68.5 gallons. The highest recorded fuel used was 72.6 gallons. The longest round trip time was 3.7 hours. The lowest fuel quantity used was 65.1 gallons. The average fuel burn rate was 19.57 gallons per hour. The average number of gallons remaining at Deer Valley was 20.5 plus or minus 5 gallons. The actual fuel remaining at the time of the accident is unknown, as is the location of remaining fuel. The airplane has a two-tank system of 44.5 gallons of usable fuel in each tank. The fuel selector was found in the off position. The selector provides fuel from either the left or right fuel tank, but not both simultaneously.

Cessna pilot safety and warning supplements were recovered from the wreckage. According to the information, if the fuel tank outlet is uncovered, fuel flow to the engine may be interrupted and a temporary loss of power might result. A note in the pilot information manual for the fuel system states that "unusable fuel is at a minimum due to the design of the fuel system. However, when the fuel tanks are 1/4 full or less, prolonged uncoordinated flight such as slips or skids can uncover the fuel tank outlets, causing fuel starvation and engine stoppage. Therefore, with low fuel reserves, do not allow the airplane to remain in uncoordinated flight for periods in excess of one minute."

METEOROLOGICAL INFORMATION

At 1053, Deer Valley was reporting: wind 130 degrees at 8 knots; visibility 10 statute miles; sky clear; temperature 73 degrees Fahrenheit; dew point 46 degrees Fahrenheit; and altimeter 30.06 inHg.

WRECKAGE AND IMPACT INFORMATION

The Safety Board investigator conducted an on-scene examination at the accident site located on near level terrain about 1-mile west of the Deer Valley airport. About 50 feet behind the wreckage was located an electrical power pole. Examination of the pole revealed a severed section about 5 feet in length located ahead of the wreckage. Wires were found lying on the ground with damage to the adjacent pole. Twisted wire markings were found on wing leading edges with electrical arcing burns through the wing skins.

A postaccident fire consumed the left wing, and most of the cabin area aft to the vertical stabilizer dorsal fin. The right wing sustained fire damage at the wing root outboard about 3 feet. Electrical arcing holes were found in the wing skins with electrical wire scrapes across

the wing leading edges.

The Safety Board investigator conducted a postaccident examination of the airframe and engine on October 10 and 11, at Air Transport Company, Phoenix.

The landing gear and wing flaps were in the full down positions. The elevator trim tab was measured about 15 degrees tab up. The fuel tank selector was found in the off position. The magneto switches were found in the on position. The fuel boost pump switches were destroyed, as was all instrumentation. The throttle, mixture, and propeller control were found in the full forward position.

A detailed engine examination was conducted. Examination of the propeller blades revealed one blade was destroyed by fire damage, one blade displayed minimal damage, and one had some aft bending. Rotating the crankshaft confirmed gear train continuity and finger compression from all six cylinders.

The upper spark plugs, according to the manufacturer's wear chart, appeared normal and operational. Both magnetos were manually sparked on all leads. The oil filter was examined and found to be free from contaminants. The turbo charger rotated freely with minor waste gate damage. Internal engine examination revealed all six pistons, valves, and cylinder assemblies exhibited normal wear. The crankshaft, rods, and counterweights appeared well lubricated and intact. The crankshaft rotated freely with no signs of oil starvation.

Examination of the camshaft revealed a sharp wear lip on the number 2 forward lobe; the corresponding lifter body was also pitted and worn. All engine controls were attached and functional. The fuel gascolator was melted, and the screen appeared to be free of hard contaminates. The engine driven fuel pump drive coupling was intact; the pump appeared to be functional in appearance. The engine fuel control screen was clean, as was the fuel manifold. Traces of fuel were found in the manifold.

Control cable continuity was established from the elevator, elevator trim, and rudder into the aft fuselage area. Right wing flap and aileron control cable continuity was established from the control surfaces to the wing root. Left wing flap and aileron control cable continuity was not established due to the extent of fire damage. A section of the left flap was found away from the wreckage and free of fire damage. The flap section was aligned with the utility pole strike area about 3 feet from the wing root.

MEDICAL AND PATHOLOGICAL INFORMATION

On October 10, 2000, the Maricopa County Medical Examiner performed an autopsy on the pilot. During the course of the procedure the FAA Civil Aero Medical Institute in Oklahoma City, Oklahoma, obtained samples for toxicological analysis. The results of the analysis were negative for carbon monoxide, cyanide, ethanol, and drugs. An unquantified amount of Cimetidine "Tagamet" (antiulcer, histamine) was detected in the blood and urine.

ADDITIONAL INFORMATION

Radar data was not available from the FAA.

The wreckage was released to the insurance company representative on October 11, 2000.

Pilot Information

Certificate:	Private	**Age:**	59,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:**	January 14, 2000
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	October 1, 1998
Flight Time:	2150 hours (Total, all aircraft), 346 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N888MM
Model/Series:	P210N P210N	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	P21000536
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	December 29, 1999 Annual	**Certified Max Gross Wt.:**	4000 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	4074 Hrs as of last inspection	**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	TSIO-520-P
Registered Owner:	MINGUS MOUNTAIN ESTATE, INC.	**Rated Power:**	310 Horsepower
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	DVT,1476 ft msl	**Distance from Accident Site:**	2 Nautical Miles
Observation Time:	11:16 Local	**Direction from Accident Site:**	70°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	130°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.05 inches Hg	**Temperature/Dew Point:**	23°C / 8°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	NOGALES, AZ (OLS)	**Type of Flight Plan Filed:**	None
Destination:	Phoenix, AZ (DVT)	**Type of Clearance:**	VFR
Departure Time:	10:20 Local	**Type of Airspace:**	Class D

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	33.679836,-112.09066(est)

Administrative Information

Investigator In Charge (IIC):	Petterson, George
Additional Participating Persons:	STEVE D'URSO; FAA FLIGHT STANDARDS DISTRICT OFFICE; SCOTTSDALE, AZ James H Thomas; Cessna Aircraft Co.; Wichita, KS Scott Boyle; Teledyne Continental Motors; Mobile, AL
Original Publish Date:	May 28, 2002
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=50423