Aviation Investigation Final Report

Location:	STRATHMORE, California	**Accident Number:**	LAX99FA301
Date & Time:	September 9, 1999, 10:50 Local	**Registration:**	N1775P
Aircraft:	Piper PA-22-150	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The airplane collided with high-tension electrical transmission wires suspended across a valley. According to witnesses, the airplane had departed a local airport the morning of the accident. When the pilot had not returned home by nightfall, a concerned family member contacted the local authorities to report him missing. About 30 minutes later, an ALNOT was issued and the wreckage was located the following morning. Portions of the left wing and a severed skyline wire were found under the high-tension electrical power transmission lines. Two sets of electrical skyline wires cross the valley in a northwest-southeast direction passing approximately 500 feet northeast of the main wreckage location. The two sets of wires are about 50 feet apart and towers supporting the wires are on the hilltops to the northwest and southeast; the open span across the valley was 5,190 feet. At the center of the valley the wires are approximately horizontal and are suspended approximately 175 feet above the valley floor. Inspection of the airplane revealed that the leading edge of the left wing had an impact mark with a rust-colored, braided appearance resembling the skyline wire, there was also a similar scrape on the lower spar cap of the left wing that had remained attached to the airplane. A circular gouge was observed on the leading edge of one of the propeller blades; the diameter of the gouge corresponded to the end of the severed wire. The airframe and powerplant were inspected on-scene with no discrepancies noted.

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 maintain an adequate terrain and obstacle clearance altitude, which resulted in a collision with power transmission wires.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: CRUISE

Findings
1. OBJECT - WIRE,STATIC
2. (C) ALTITUDE/CLEARANCE - INADEQUATE - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Factual Information

HISTORY OF FLIGHT

On September 9, 1999, about 1050 hours Pacific daylight time, a Piper PA-22-150, N1775P, collided with steel wires strung between high tension towers and impacted terrain 5 miles northeast of Strathmore, California. The airplane, operated by the pilot/owner under the provisions of 14 CFR Part 91, was destroyed. The private pilot sustained fatal injuries. Visual meteorological conditions prevailed in the area throughout the day. No flight plan was filed for the personal flight that departed the Eckert Airport around 0900.

Eckert Airport, where the airplane is based, is a non-towered airport located in Strathmore. According to family members, the pilot had dropped off his daughter at school about 0830 and made plans to pick her back up at 1500 the same day. He had told his spouse that he was going to work on his airplane in the interim. At 1700, the spouse had to pickup their daughter at school because the pilot had not arrived to pick her up at the specified time. On the way home they drove by the airport to see if the pilot was there. She stated that his vehicle was at the airport, but the airplane was gone.

When the airplane did not return by evening, a concerned family member called the Tulare County Sheriff's Department about 1940 to report the pilot missing. They also told the Sheriff's deputy that he likes to fly around Success Valley area near Milo CDF. At 2230, the Federal Aviation Administration (FAA) was notified and an Alert Notice (ALNOT) was issued.

According to mission logs obtained from the United States Air Force Rescue Coordination Center (AFRCC), an emergency locator transmitter (ELT) beacon signal was identified via an orbiting satellite at 1221 on the day of the accident. After the first ELT signal at 1221, two passes by orbiting satellites reported negative contact. At 1500, a merge location of two ELT hits was identified. There was a negative pass made by satellite at 1501, and negative reports of an ELT signal from airborne aircraft. At 1516, another merge location was identified in the same area, and at 1522, AFRCC activated the mission with the California Civil Air Patrol (CAP) squadron. The CAP localized the ELT signal to a probable accident site location and then provided the coordinates to the local authorities, who located the airplane in Success Valley the following morning at 0800.

A Safety Board investigator found an outboard portion of the airplane's left wing under electrical power transmission wires; a severed skyline wire was also on the ground adjacent to the wing debris. A skyline wire is a nonconductive steel cable that passes in-between high-tension towers for structural purposes. Two sets of electrical skyline wires, operated by the Southern California Edison Company, cross the valley in a northwest-southeast direction passing approximately 500 feet northeast of the main wreckage location. The two sets of

wires are approximately 50 feet apart and towers supporting the wires were visible on the hilltops to the northwest and southeast; the open span across the valley was 5,190 feet. At the center of the valley the wires are approximately horizontal and are suspended approximately 175 feet above the valley floor.

PERSONNEL INFORMATION

Personal flight logs were unavailable for review by a Safety Board investigator. Review of the FAA Airman Certification records revealed that the pilot received his private pilot certificate on June 23, 1982.

Review of the FAA Medical Certification records revealed that the pilot held a third-class medical, which was issued on February 9, 1999, with no limitations. At that time he reported that he had accrued 1,000 hours, with 40 hours in the past 6 months.

AIRCRAFT INFORMATION

Review of the airplane logbook and engine logbooks disclosed that on July 1, 1999, an annual inspection was completed. The airframe manufacturer's representative noted that the airplane was manufactured with a tricycle landing gear arrangement. Examination of the wreckage disclosed that the nose landing gear had been removed and the aircraft converted to a conventional landing gear configuration with the addition of a tail wheel assembly.

METEOROLOGICAL INFORMATION

The aviation surface weather report from the Porterville Municipal Airport, located approximately 12 miles southwest of the accident site, reported the weather at 0755 to be 8 miles visibility; winds from 160 degrees at 4 knots; temperature 66 degrees Fahrenheit; dew point of 43 degrees Fahrenheit; and altimeter setting 29.86 inHg. Weather reported at 1055 was 10 miles visibility; winds from 290 degrees at 5 knots; temperature 81 degrees Fahrenheit; dew point 48 degrees Fahrenheit; and altimeter setting 29.85 inHg.

WRECKAGE AND IMPACT INFORMATION

The accident site was located near the center of a wide valley in rolling hilly terrain on the east side of the San Joaquin Valley at the foothills of the Sierra Nevada Mountains. Dry natural grasses covered the hills. The valley extended in a northeast-southwest direction and turned to the north approximately 2 miles northeast of the accident site. To the northwest and southeast of the site, mountains formed the valley and rise approximately 500 feet above the floor. The elevation of the accident site was about 700 feet msl. The entire airplane was located at the accident site and there was no fire.

The wires were identified as: the Big Creek 3 - Springfield (southwest set), and Big Creek 4 - Springfield (northeast set) circuits, and operate at 220 kilovolts. Each high voltage tower

supports five wires, three copper electrical conductors and two steel, nonconducting, skyline wires. The three electrical conductors are suspended from a horizontal beam near the top of the tower, are laterally abeam of each other, and each are separated by about 20 feet. The skyline wires extend from the top of the towers about 15 feet above and laterally in between the electrical conductors. The towers supporting the northeast set of wires (Big Creek 4) are approximately 50 feet taller than the towers supporting the southwest set of wires (Big Creek 3), and the resulting cable sets are vertically separated a like amount.

At the accident site, the northeastern of the two skyline wires of the Big Creek 3 system was severed. The southwestern skyline wire of the same set was visibly shiny over about 5 feet of its span above the accident site. An Edison Company lineman reported that damage to a wire dampener on the tower indicated to him that the airplane also impacted the southwestern skyline wire. The severed skyline wire, approximately 1-inch diameter, consisted of seven strands of cable and exhibited a hook of approximately 1/4-inch radius at the very end. The ends of the severed individual wires were necked down and exhibited a shear lip around the circumference. The three electrical conductors of the Big Creek 3 set and all five wires of the Big Creek 4 system were visibly undamaged.

There was a wreckage debris field over approximately 600 feet, with the central axis oriented northeast to southwest between the fuselage and the location on the ground beneath a shiny section of skyline wire. There was a shallow area of freshly disturbed dirt about 4 feet wide and 6 feet long approximately 20 feet northeast of the fuselage.

Underneath the shiny section of skyline wire was a small circular debris field of approximately a 50-foot radius consisting of pieces of airplane fabric cover, Plexiglas of thickness resembling a landing light lens, and light metal structure resembling wing rib structure. These components were subsequently identified as belonging to the left wing assembly.

The fuselage wreckage, with the right wing and empennage attached, was located approximately 500 feet southwest of the shiny section of skyline wire. The fuselage was on a magnetic bearing of approximately 230 degrees. The left wing was exhibited spanwise crushing from about half-span towards the fuselage. The left outboard portion of the wing was found underneath the skyline wire. The nose of the fuselage was crushed aft to the wing leading edge portion of the airplane. The right wing leading edge was crushed aft to the wing front spar, and the main landing gear was separated from the fuselage. The outboard section of the left wing was located in the center of the debris field approximately 300 feet from the fuselage wreckage.

A 3-foot section of the left wing outboard leading edge containing the landing light assembly was located approximately 320 feet from the fuselage and 80 feet northwest of the central axis of the debris field. On the wing leading edge was an impact mark with a rust-colored, braided appearance resembling the skyline wire. The impact mark extended from the underside of the left wing immediately inboard of the landing light frame diagonally upward over about 2 feet of wing span to the upper surface of the wing. The wing spar aft of this

location, which remained attached to the outboard section of the left wing, contained a similar scrape mark on the lower spar cap.

The first blade of the propeller exhibited a circular gouge in the leading edge approximately 6 inches from the tip. The gouge was approximately 1-inch in diameter and 1-inch deep. The perimeter metal was extruded toward the aft face of the blade. The second blade contained chordwise striations on the cambered surface. The outboard 6 inches of the blade was separated. The tip, which exhibited an S-bend, was located beneath the fuselage when the airplane was raised.

TESTS AND RESEARCH

The airframe and power plant examination were conducted on-scene under the supervision of a Safety Board investigator, with representatives from The New Piper Aircraft and Textron-Lycoming, who were parties to the investigation.

Flight control continuity was established from the cockpit to the ailerons, flaps, stabilizer, and rudder. According to the manufacturer, the elevator trim drum jackscrew had eight threads exposed, which correlates to a neutral trim setting. The fuel selector was found on the LEFT tank. The left fuel tank was found separated from the left wing. The fuel tank was bulged and distorted with no fuel found inside the tank. The right wing fuel tank was found attached to the wing assembly, with a small amount of fuel found inside the tank. No further discrepancies were noted.

A visual inspection of the engine revealed no evidence of a catastrophic failure. The top spark plugs were removed, and, according to the Champion Aviation Check-A-Plug AV-27 chart, found to display coloration consistent with normal operation. The cylinder combustion chambers were inspected utilizing a lighted borescope. No evidence of foreign object ingestion was observed. The valves were found undamaged and there was no evidence of valve to piston face contact observed. Mechanical continuity was established throughout the engine. Crankshaft rotation produced thumb compression in each cylinder in proper firing order, with accessory gear and valve train continuity established.

During rotation of the crankshaft the impulse coupled left magneto produced spark on the Nos. 1 and 3 bottom spark plug leads. The remaining two left magneto spark plug leads were observed to be crushed behind the engine and did not produce any spark. It was further noted that during the rotation of the crankshaft that the impulse coupling was heard clicking.

A subsequent engine inspection was conducted on September 15, 1999, by the Safety Board investigator, at Aircraft Recovery Services in Compton, California. Magneto to engine timing was established and found to be within manufacture's specifications. The magnetos were removed and bench tested; both magnetos sparked at their respective leads. No further discrepancies were noted with the engine.

MEDICAL AND PATHOLOGICAL INFORMATION

The Tulare County Coroner, Tulare, California, performed an autopsy on the pilot on September 11, 1999. A toxicological analysis was performed by the FAA Civil Aeromedical Institute, Oklahoma City, Oklahoma. The results of the analysis were negative for carbon monoxide, cyanide, ethanol and drugs.

ADDITIONAL INFORMATION

The airplane was released to the co-owner of the airplane on February 15, 2000.

Pilot Information

Certificate:	Private	**Age:**	41,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	February 9, 1999
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	1000 hours (Total, all aircraft), 40 hours (Last 90 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N1775P
Model/Series:	PA-22-150 PA-22-150	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	22-2548
Landing Gear Type:	Tailwheel	**Seats:**	4
Date/Type of Last Inspection:	July 1, 1999 Annual	**Certified Max Gross Wt.:**	1950 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Lycoming
ELT:	Installed, activated, aided in locating accident	**Engine Model/Series:**	O-320
Registered Owner:	JAMES AND PATRICIA BOHLING	**Rated Power:**	150 Horsepower
Operator:		**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:	PTV ,442 ft msl	**Distance from Accident Site:**	12 Nautical Miles
Observation Time:	07:55 Local	**Direction from Accident Site:**	13°
Lowest Cloud Condition:	Clear	**Visibility**	8 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	4 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	160°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29 inches Hg	**Temperature/Dew Point:**	19°C / 6°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	, CA (1Q1)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	00:00 Local	**Type of Airspace:**	Class G

Airport Information

Airport:		**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	36.139358,-119.090438(est)

Administrative Information

Investigator In Charge (IIC):	Cornejo, Tealeye
Additional Participating Persons:	DON MAHAFFEY; FRESNO , CA CHARLES LITTLE; CHINO HILLS , CA MARK PLATT; VAN NUYS , CA
Original Publish Date:	April 6, 2001
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=47356