Aviation Investigation Final Report

Location:	JACKSON, California	**Accident Number:**	LAX93FA202
Date & Time:	May 3, 1993, 15:03 Local	**Registration:**	N9494B
Aircraft:	CESSNA 175	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

THE CERTIFICATED, NON-INSTRUMENT RATED PRIVATE PILOT, DEPARTED ON A CROSS COUNTRY FLIGHT OF ABOUT 460 NAUTICAL MILES WITHOUT REFUELING. ABOUT 19 MILES SHORT OF THE INTENDED DESTINATION, WITNESSES OBSERVED THE ACCIDENT AIRPLANE MANEUVERING AT TREE TOP LEVEL OVER HEAVILY WOODED TERRAIN. INSTRUMENT METEOROLOGICAL CONDITIONS PREVAILED IN THE AREA OF THE ACCIDENT. THIRTY MILLILITERS OF FUEL WAS RECOVERED FROM THE WRECKAGE. THE PROPELLER DID NOT DISPLAY ANY SIGNS OF ENGINE POWER BEING PRODUCED AT THE TIME OF IMPACT.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A FAILURE OF THE PILOT TO ADEQUATELY CALCULATE THE REQUIRED FUEL FOR THE FLIGHT AND THE PILOT'S CONTINUED VISUAL FLIGHT INTO INSTRUMENT METEOROLOGICAL CONDITIONS. THE FAILURE OF THE NON-INSTRUMENT RATED PILOT TO OBTAIN A WEATHER BRIEFING, AND ADEQUATELY EVALUATE THE WEATHER CONDITIONS, WERE FACTOR IN THIS ACCIDENT.

Findings

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

Findings

1. FLUID,FUEL - EXHAUSTION
2. (C) FUEL CONSUMPTION CALCULATIONS - INADEQUATE - PILOT IN COMMAND
3. (F) METEOROLOGICAL SERVICE - NOT OBTAINED - PILOT IN COMMAND
4. (F) WEATHER EVALUATION - INADEQUATE - PILOT IN COMMAND
5. (C) VFR FLIGHT INTO IMC - CONTINUED - PILOT IN COMMAND
6. WEATHER CONDITION - RAIN
7. WEATHER CONDITION - LOW CEILING

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

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - EMERGENCY

Findings
8. TERRAIN CONDITION - MOUNTAINOUS/HILLY

Factual Information

History of the Flight

On May 3, 1993, at 1503 hours Pacific daylight time, a Cessna 175, N9494B, crashed while maneuvering about 19 miles northeast of Jackson, California. The airplane was being operated as a visual flight rules (VFR) cross country flight to Placerville, California. A flight plan was not filed. The airplane, owned and operated by the pilot, was destroyed. The certificated private pilot, the sole occupant, received fatal injuries. Instrument meteorological conditions prevailed. The flight originated from the Blythe airport, Blythe, California, at 1015 hours.

Witnesses reported that the airplane was filled with fuel prior to departure and the pilot had an appointment in Placerville at 1400 hours. Witnesses in the accident area reported observing the airplane maneuvering over the terrain at tree top level. The airplane was described as ascending and descending to match the contour of the terrain and occasionally would go into and out of prevailing low level ground fog. The airplane was last observed at 1500 hours. A resident, located about 1/2 mile from the accident site, reported hearing popping, sputtering, and two thud-like sounds while inside her residence; however, she did not observe the crash.

A missing aircraft report was filed with the Riverside Flight Service Station (FSS) on May 4, 1993. Search personnel reported that an emergency transmitter locator beacon (carrier only) was received on May 5, 1993, at 0900 hours. Search aircraft located the airplane in heavily wooded, rolling terrain at 1500 hours.

The distance from Blythe to Placerville was calculated to be about 460 nautical miles. The accident occurred during the hours of daylight at latitude 38 degrees, 26 minutes north, and longitude 120 degrees, 37 minutes west.

Crew Information

The pilot held a private pilot certificate with airplane single engine land and single engine sea ratings. The most recent third class medical certificate was issued to the pilot on September 4, 1991, and contained the limitation that the pilot possess correcting lenses for near vision while exercising the privileges of his airman certificate. According to the pilot's logbook, the last entry was recorded on September 2, 1992. At that time, his total aeronautical experience consisted of about 544 hours.

Aircraft Information

The airplane airframe and engine logbooks were not located. The airplane's total time in

service is unknown. The recording hourmeter in the engine tachometer instrument indicated 1,379.49 hours. A notation in the pilot's flight logbook indicated that an annual inspection was conducted on October 18, 1991. No other record of inspection was found.

The airplane was originally certified with a Continental G0-300-A engine. The engine was replaced at an unknown time with a Lycoming 0- 360-A1A, serial number L-16950-36A. The engine's total time in service was not determined. Aircraft performance data based on the different engine installation was not found.

Fueling records at Blythe, California, established that the aircraft was last fueled on May 3, 1993, with the addition of 32.5 gallons of 100LL octane aviation fuel. No other record of fuel purchase after departure from Blythe was located. The fuel capacity of the airplane is 52 gallons, of which 43 gallons are useable in all flight conditions.

Meteorological Information

The closest official weather observation station is Mather Air Force Base, Sacramento, California, which is located 37 nautical miles west of the accident site. At 1357 hours, a surface observation was reporting in part:

Sky condition and ceiling, 2,800 feet scattered, measured ceiling 4,000 feet broken, 7,500 feet broken; visibility, 8 miles in light rain showers; temperature, 61 degrees F; dew point, 57 degrees F; wind, 230 at 16 knots, gusting to 23 knots; altimeter, 29.86 inHg.

At 1455 hours, a surface observation at Mather AFB was reporting in part:

Sky condition and ceiling, 2,800 feet scattered, measured ceiling 4,000 feet broken, 8,000 feet broken, visibility 12 miles; temperature, 65 degrees F; dew point, 50 degrees F; wind, 250 degrees at 14 knots, gusts to 19 knots; altimeter, 29.86 inHg.

Witnesses in the area reported that the weather conditions near the accident site consisted of overcast skies, gusty winds, misty rain, ground fog near the tree tops, and visibility less than 1/2 mile. The forecasted winds aloft data for use between 1000 and 1400 hours on the accident date from Blythe, California (BLH), Bishop, California (BIH), and Sacramento (SAC), were reported in part:

BLH - 3,000 feet: 290 at 8 knots; 6,000 feet: 300 at 16 knots; 9,000 feet: 300 at 20 knots.

BIH - 6,000 feet: 280 at 15 knots; 9,000 feet: 280 at 27 knots. SA - 3,000 feet: 240 at 14 knots; 6,000 feet: 260 at 24 knots; 9,000 feet: 260 at 38 knots.

Forecasted winds aloft data for use between 1400 and 2300 hours on the accident date from Sacramento was reporting in part:

SAC - 3,000 feet: 260 at 19 knots; 6,000 feet: 270 at 23 knots; 9,000 feet: 280 at 33 knots.

Communications

There were no known further communications received from the accident airplane after departure.

A search for any radar data on the airplane was conducted. A continuous data recording (CDR) from the Sacramento terminal radar approach control facility (TRACON), revealed that from about 1450 hours, the airplane was proceeding in a northwesterly direction at 4,400 feet. At 1455 hours, the airplane began extensive maneuvering in about a 2 by 3 mile area; climbing up to 5,900 feet and descending down to 3,000 feet. The last radar contact was at 1502 hours at 4,000 feet, at latitude 38 degrees 26.33 minutes N, and longitude 120 degrees 36.22 minutes W. (All altitudes in the paragraph are mean sea level altitudes, MSL).

A copy of the CDR appears as item 7 of this report.

Wreckage and Impact Information

Safety Board investigators examined the airplane wreckage at the accident site on May 6, 1993. The wreckage examination revealed that the airplane struck the tops of about 60-foot high trees, about 300 feet prior to the point of rest. Broken branches and separated portions of the airplane were located along a wreckage path oriented on about a 303 degree bearing. (All heading/bearings noted in this report are oriented toward magnetic north). All of the airplane's major components were found between the initial tree impact point and/or at the main wreckage area, at an elevation of about 2,950 feet MSL.

The first portions of the airplane were found about 90 feet from the initial impact point. About 2 feet of the right wing outer panel was located in a tree, about 30 feet above the ground. Below the tree was about 1/2 of the right wing aileron. From that point, for the remaining 200 feet to the main wreckage point of rest, the following aircraft parts were located: the right elevator, the inboard 2 feet of the left elevator, windshield fragments, 1/2 of the right wing aileron, about 8 feet of the lower right wing skin, the left wing tip and the left horizontal stabilizer.

About 4 feet of the separated right wing was located next to the main wreckage with its flap attached. The right wing lift strut was attached to the wing portion; however it was separated from the lower attach point. The right wing fuel tank separated from the wing and was located about 40 feet northwest of the main wreckage. The tank exhibited a semi-circular aft crushing signature which corresponded to the tree's girth. The fuel tank line fittings were fractured and the tank had several punctures. No fuel remained in the tank.

The left wing, with its aileron and flap assembly attached, was attached to the fuselage and exhibited a semi-circular aft crushing signature about 3 feet outboard from the root end. The

fuel tank, located in the wing, also exhibited an aft crushing signature. The tank had several cracks adjacent to areas of buckling and folding of the metal tank. About 10 milliliters of fuel was recovered from the tank. The lift strut was attached to the wing but was separated from the lower fuselage attach point. The outboard portion of the wing, from about mid-span to the wing tip, exhibited aft crushing and folding in a chordwise direction, with more crushing evident to the underside of the leading edge.

The fuselage came to rest upright after descending through several trees and knocking over several others. The fuselage was bent to the right about 45 degrees from the cabin area at a point just aft of the rear seat. The overhead, carry-through portion of the cockpit, separated at the upper end of the door posts.

The vertical stabilizer, with the rudder attached, was bent to the right from the tail cone, about 90 degrees. The right horizontal stabilizer remained attached to the tail. The elevator trim tab actuator was found extended 1.75 inches. According to the manufacturer, exact trim tab extension values for the accident airplane have not been documented. The extended trim tab actuator corresponds to about a 15 degree tab up, (nose down) setting. The flap control mechanism consists of a manually activated, floor mounted lever. Examination of the flap lever revealed that it was set to a 20 degree extension.

Due to the extensive impact damage, Safety Board investigators could not operate all of the flight controls by their respective control mechanisms; however, flight control system cable continuity was established to all of the flight controls.

The left side of the engine mount pulled away from the firewall, allowing the engine to pivot to the right about 45 degrees at the point of rest. The engine sustained aft and upward crushing to the number 1 and 2 cylinder exhaust tubes.

The magnetos were intact and undamaged. Hand rotation of the right magneto produced spark at all leads. The massive electrode spark plugs did not display any unusual combustion signatures.

The carburetor remained attached to the engine. The venturi was intact. No fuel was present in the fuel line from the engine fuel pump to the carburetor. About 15 milliliters of fuel was present in the electric boost pump, and in the fuel line from the electric pump to the engine fuel pump. A total of about 30 milliliters of fuel was recovered from all fuel sources. The fuel selector was found on the both position. The engine fuel strainer separated from its attach points and was broken. The fuel screen was free of contaminants. The carburetor heat box was destroyed.

The controllable pitch propeller remained connected to the engine crankshaft. Both propeller blades remained in the hub. One propeller blade was straight with a slight forward bend about 4 inches inboard from the tip. The blade exhibited several small bends along the leading and trailing edge. No leading edge gouging, chordwise scratching, "S" bending, or torsional twisting

was evident on the blade. The other propeller blade was bent aft about 90 degrees at mid-span. The outboard portion exhibited an "S" bending signature. The blade did not exhibit any leading edge gouging, chordwise scratching or torsional twist.

Medical and Pathological Information

A post mortem examination of the pilot was conducted by the Amador County Coroner's Office on May 6, 1993. The examination revealed that the cause of death for the pilot was attributed to multiple traumatic injuries. No pre-existing conditions were noted during the autopsy which would have adversely affected the pilot's abilities to pilot an aircraft.

Toxicological examinations were conducted by the Amador County Coroner on May 13, 1993, and by the FAA's Civil Aeromedical Institute (CAMI) on September 8, 1993. The examinations revealed the presence of 72.00 ug/ml of Salicylate detected in the urine. According to CAMI personnel, Salicylate is the main ingredient of aspirin.

Additional Information

Since the aircraft was originally certified with a Continental engine, an investigator from Teledyne Continental Motors (TCM) was a party to the investigation. Upon arrival at the accident site, it was discovered that the engine had been replaced with a Textron Lycoming engine. Safety Board investigators utilized the TCM investigator to assist in the engine examination.

Wreckage Release

The Safety Board released the wreckage, located at Faith Aviation, Sacramento, California, to the owner's representatives on May 19, 1993. No parts or components were retained by the NTSB. A signed copy of the original wreckage release form was not returned to the Safety Board by the owners representative; however, a signed return receipt was received on May 27, 1993, and is contained in this report.

Pilot Information

Certificate:	Private	**Age:**	56,Male
Airplane Rating(s):	Single-engine land; Single-engine sea	**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--w/ waivers/lim	**Last FAA Medical Exam:**	September 4, 1991
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	544 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	CESSNA	**Registration:**	N9494B
Model/Series:	175 175	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	55294
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	October 18, 1991 Annual	**Certified Max Gross Wt.:**	2350 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-360-A1A
Registered Owner:	WILLIAM E. LEWALLEN	**Rated Power:**	180 Horsepower
Operator:		**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	MHR ,96 ft msl	**Distance from Accident Site:**	37 Nautical Miles
Observation Time:	14:55 Local	**Direction from Accident Site:**	256°
Lowest Cloud Condition:	Scattered / 2800 ft AGL	**Visibility**	12 miles
Lowest Ceiling:	Broken / 4000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	14 knots / 19 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	250°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29 inches Hg	**Temperature/Dew Point:**	18°C / 10°C
Precipitation and Obscuration:	N/A - None - Fog		
Departure Point:	BLYTHE , CA (BLH)	**Type of Flight Plan Filed:**	None
Destination:	PLACERVILLE , CA (PVF)	**Type of Clearance:**	VFR
Departure Time:	10:15 Local	**Type of Airspace:**	Class G

Airport Information

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

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:**	38.34943,-120.769546(est)

Administrative Information

Investigator In Charge (IIC):	Erickson, Scott
Additional Participating Persons:	DAVID RYAN; WICHITA , KS MICHAEL GRIMES; MOBILE , AL
Original Publish Date:	September 30, 1994
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=28325