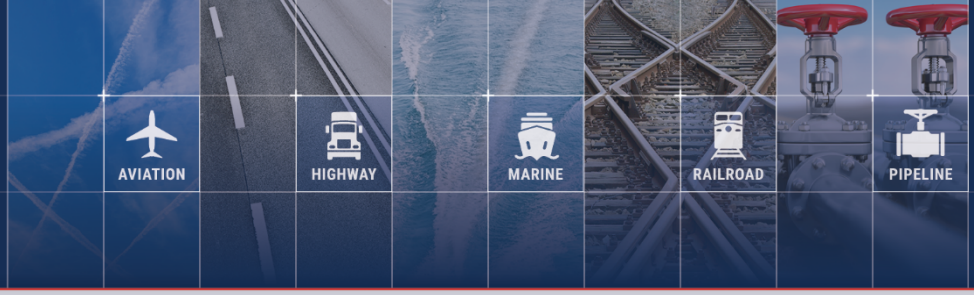

Aviation Investigation Final Report

Location:	LOS LUNAS, New Mexico	**Accident Number:**	FTW96LA224
Date & Time:	May 22, 1996, 12:45 Local	**Registration:**	N1813H
Aircraft:	Cessna 310C	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation		

Analysis

According to the pilot, the airplane was fully serviced with fuel (130 gal usable) before takeoff. The pilot planned on a fuel consumption of 25 gph per the manufacturer's data, which would have provided a 1 hour fuel reserve. En route the flight encountered forecasted turbulence. The pilot stated that during descent, both engines 'stopped like fuel starvation.' The airplane was maneuvered for a forced landing on a highway, but due to traffic, a railroad right-of-way was selected. During a wheels-up landing, the right wingtip collided with a boulder. The right wing auxillary fuel tank was compromised, and the fuel line separated from the right tip (main) tank, but there was no physical evidence of fuel at the site. About 1 pint of fuel remained in the right main tank; the left main tank was empty. Both fuel selectors were set for the main tanks. During test runs, the left engine rotated, but was not run due to a fuel leak ('O' ring) at the throttle body. The right engine would only run when an external fuel boost pump was 'ON.' An 'O' ring fuel leak was observed at the engine fuel pump, and the pump exhibited a fuel stain from seepage. The fuel pump and the metering unit (after replacing the 'O' ring) flowed within specifications. Both units appeared to be leaking; they were deteriorated and in need of overhaul to change the rubber components. Time since the last annual inspection was 21 hours.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: loss of total engine power due to fuel exhaustion for undetermined reason(s). The lack of suitable terrain for the forced landing was a related factor. The worn and leaking fuel system components and inadequate maintenance by unknown personnel were possible factors.

Findings

Occurrence #1: LOSS OF ENGINE POWER
Phase of Operation: DESCENT

Findings
1. ALL ENGINES
2. (C) FLUID,FUEL - EXHAUSTION
3. (C) REASON FOR OCCURRENCE UNDETERMINED
4. (F) FUEL SYSTEM,FUEL CONTROL - WORN
5. (F) FUEL SYSTEM,FUEL CONTROL - LEAK
6. (F) MAINTENANCE - INADEQUATE - UNKNOWN
7. WEATHER CONDITION - TURBULENCE

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

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

Findings
8. (F) TERRAIN CONDITION - NONE SUITABLE
9. TERRAIN CONDITION - ROCK(S)/BOULDER(S)
10. WHEELS UP LANDING - PERFORMED - PILOT IN COMMAND

Factual Information

On May 22, 1996, at 1245 mountain daylight time, a Cessna 310C, N1813H, registered to and operated by a private owner under Title 14 CFR Part 91, collided with terrain during a forced landing near Los Lunas, New Mexico. Visual meteorological conditions prevailed for the business cross country flight and a flight plan was not filed. The commercial pilot was not injured and the airplane sustained substantial damage. The flight originated from Banning, California, at 0745 Pacific daylight time.

During interviews, conducted by the investigator-in-charge and the FAA inspector, the pilot and the owner reported the following information. The owner fueled the airplane on May 9, 1996, and to his knowledge the airplane had not flown since that refueling. The owner has flown the airplane on numerous trips with a fuel consumption of 25 gph, which is consistent with the manufacturer's cruise/endurance performance charts. On the morning of the accident, the pilot performed the preflight and found the fuel tanks were full (130 gallons usable). The flight departed with a planned refueling stop at Alexander Airport, Belen, New Mexico, and a final destination of Seminole, Texas.

The pilot reported using a takeoff power setting of 16 gph per engine and a climb and cruise (9,500 feet MSL) power setting of 12.5 gph per engine. En route the flight encountered moderate turbulence and a climb to and cruise at 11,500 feet MSL was conducted for about 1 hour. Erratic operation of an "old style heading gyro" made it "difficult to hold and maintain headings in the turbulence."

The area forecast for the Western United States included a developing trough. Airmet Tango valid until 2200 UTC (universal coordinated time) included moderate turbulence throughout portions of California, Arizona, and New Mexico. Pilot reports through Arizona and New Mexico included moderate turbulence.

During an interview, conducted by the investigator-in-charge, the pilot stated that during the descent the right engine "sputtered and stopped" followed by the left engine "sputtering and stopping like fuel starvation"; however, there should have been one hour of fuel remaining. The propellers were windmilling; however, no power was being developed. An emergency approach was established to the highway; however, due to vehicles on the highway, the right-of-way along a railroad was selected for the forced landing.

Local authorities and the FAA inspector reported that during the landing roll, the right wing struck a boulder and approximately 3 feet of the outboard section of the right wing separated from the airframe. Flaps were found in the retracted position and the landing gear was retracted. The integrity of the right wing (auxillary) fuel tank was compromised and the fuel line was separated from the right tip (main) tank; however, there was no physical evidence of

fuel at the site. The FAA inspector reported that about 1 pint of fuel remained in the right tip (main) tank and none in the left tip (main) tank. Both fuel selectors were on the main tanks and when the inspector activated the electrical system, the left engine fuel gage indicated "empty" and the right engine fuel gage indicated "less than 1/4." The FAA inspector found "wetness" in the fuel manifold with no accumulation of fuel. Both engines were examined with "no indications of external mechanical failure."

On August 22, 1996, engine test runs were conducted at Phoenix, Arizona, and observed by an FAA inspector. The left engine (S/N 75923-0-D) was turned over with the starter, but was not run due to a fuel leak at the throttle body. The right engine (S/N 79712-1-D) started up and ran up to "slightly" above ground idle RPM; however, an external fuel boost pump was used to pressurize the fuel system, and the engine "started to die" when this pump was switched "off."

The left engine throttle body fuel metering unit (P/N 625219-2R) and the right engine driven fuel pump (P/N 638154-9) was examined by the investigator-in-charge. Impact damage was noted on the throttle body metering unit. The fuel metering unit and the fuel pump was forwarded for examination, under the oversight of the FAA, at Teledyne Continental Motors (TCM) in Mobile, Alabama.

During the examination, (report enclosed) a fuel leak was observed at the high flow adjusting screw on the side of the fuel pump (manufactured in 1981). The leak was at the "O" ring on the adjustment needle valve and the "pump exhibited fuel stain from seepage during service." With the exceptions of the fuel leak, the fuel pump flowed at or near the TCM specifications. The fuel metering unit had a pressure switch attached to the inlet fitting and the switch valve "appeared fuel stained." The valve exhibited a leak at the "O" ring on the metering plug assembly. The "O" ring "dry and hardened from age" was replaced and the fuel metering valve flowed at or near TCM specifications. The metering unit manufacturer date could not be determined. "Both units appeared to be leaking and were in deteriorated shape and in need of overhaul to change the rubber components."

Maintenance records were never made available to the Board. The Pilot/Operator Report, stated that the last annual inspection was performed on October 2, 1995, with 21 hours since that inspection.

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	75,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine	**Toxicology Performed:**	No
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	December 28, 1995
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	8500 hours (Total, all aircraft), 100 hours (Total, this make and model), 7250 hours (Pilot In Command, all aircraft), 40 hours (Last 90 days, all aircraft), 8 hours (Last 30 days, all aircraft), 4 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N1813H
Model/Series:	310C 310C	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	35913
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	October 2, 1995 Annual	**Certified Max Gross Wt.:**	4830 lbs
Time Since Last Inspection:	21 Hrs	**Engines:**	2 Reciprocating
Airframe Total Time:	7365 Hrs	**Engine Manufacturer:**	Continental
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	IO-470-D
Registered Owner:	JACK L. HYSLOP	**Rated Power:**	260 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:	ABQ ,5352 ft msl	**Distance from Accident Site:**	335 Nautical Miles
Observation Time:	13:56 Local	**Direction from Accident Site:**	20°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots / 17 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	140°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29 inches Hg	**Temperature/Dew Point:**	29°C / -9°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	BANNING , CA (BNG)	**Type of Flight Plan Filed:**	None
Destination:	BELEN , NM (E80)	**Type of Clearance:**	None
Departure Time:	07:45 Local	**Type of Airspace:**	Class G

Airport Information

Airport:		**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	
Runway Length/Width:		**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	34.809803,-106.729545(est)

Administrative Information

Investigator In Charge (IIC):	Smith, Joyce
Additional Participating Persons:	JAMES MALARSIE; ALBUQUERQUE , NM
Original Publish Date:	April 3, 1997
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=19847