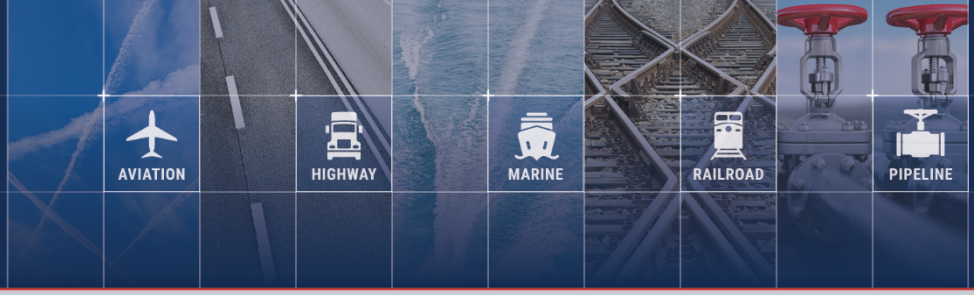

Aviation Investigation Final Report

Location:	Big Bear City, California	**Accident Number:**	LAX02TA207
Date & Time:	June 20, 2002, 19:30 Local	**Registration:**	N2671S
Aircraft:	Cessna 337C	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 None
Flight Conducted Under:	Public aircraft		

Analysis

After a 30 minute flight, and approximately 5 minutes prior to landing, the pilot switched the fuel selectors to the "AUXILIARY" position. During the turn from downwind to base, both engines lost total power. The pilot activated both auxiliary electric boost pumps to the "LOW" position with no change in power noted. Unable to reach the runway, the pilot elected to execute a forced landing to a residential road. The airplane landed hard and impacted a tree and a fence. The airplane was destroyed by an ensuing fire. The airplane contained approximately 40-60 gallons of fuel prior to departure. The amount of fuel in the fuel tanks at the accident site could not be determined; however, fuel samples were obtained from all four fuel tanks with no anomalies noted. The Cessna POH "Before Landing" checklist requires the fuel selectors to be in the following positions: Front Engine - "LEFT MAIN"; Rear Engine - "RIGHT MAIN". The POH "Engine-Out During Flight" checklist requires the fuel selectors to be in the main tank positions, and the pilot to "turn its auxiliary fuel pump on 'HI' until fuel flow is restored." The pilot had accumulated a total of 46 hours in the airplane make and model.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The loss of engine power due to fuel starvation.

Findings

Occurrence #1: LOSS OF ENGINE POWER
Phase of Operation: APPROACH - VFR PATTERN - BASE TURN

Findings
1. CHECKLIST - NOT FOLLOWED - PILOT IN COMMAND
2. 2 ENGINES
3. (C) FUEL SYSTEM - STARVATION

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

Occurrence #3: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: LANDING

Findings
4. OBJECT - FENCE
5. OBJECT - TREE(S)

Factual Information

On June 20, 2002, at 1930 pacific daylight time, a Cessna 337C, twin-engine airplane, N2671S, was destroyed during a forced landing following a loss of engine power to both engines while on approach to Big Bear City Airport (L35), Big Bear City, California. The airline transport rated pilot, sole occupant of the airplane, was not injured. The airplane was operated by the U. S. Department of Agriculture (USDA) Forest Service Pacific Southwest Region (Region 5) for public use fire fighting missions, and registered to Aero Haven Inc., of Big Bear City. Visual meteorological conditions prevailed, and a flight plan was not filed. The airplane departed San Bernardino, California, at 1900 and was destined for Big Bear City Airport.

According to the Pilot/Operator Aircraft Accident Report (NTSB Form 6120.1/2), the pilot reported that during the turn from downwind to base for runway 26, both engines lost total power. The pilot activated both auxiliary electric boost pumps with no change in power noted. Unable to reach the runway, the pilot elected to execute a forced landing to a residential road. After a hard landing to a road, the airplane impacted a tree and a fence. Subsequently, the airplane was destroyed by an ensuing fire. The pilot reported that the airplane contained approximately 40-60 gallons of fuel prior to departure. The 4000-hour pilot had accumulated a total of 46 flight hours in the aircraft make and model.

In an interview with the pilot conducted by a representative of the USDA Forest Service, the pilot reported that he placed both fuel selectors in the "AUXILIARY" position approximately 5 minutes prior to landing. While in the traffic pattern, both engines lost total power. After the loss of engine power, the pilot placed both electric fuel pumps in the "LOW" position, with no change in power noted.

On June 21, 2002, the airplane, which was recovered to a hangar at L35, was examined by an FAA inspector, representatives from the USDA Forest Service, and a Cessna representative. According to the Forest Service representative, the amount of fuel in the fuel tanks at the accident site could not be determined; however, fuel samples were obtained from all four fuel tanks with no anomalies noted. Due to extensive fire and heat damage, fuel selector handle positions were not obtained. Fuel selector valve positions revealed that the left valve was found in the "AUXILIARY" position, and the right valve was found between the "MAIN" and "OFF" position. In the forward engine, fuel was present in the pressure fuel line between the engine-driven fuel pump and mixture control, and on the demand side of the engine driven fuel pump. In the aft engine, fuel was not present on the pressure or demand side of the engine driven fuel pump.

According to the Cessna 337 pilot's operating handbook (POH), the total capacity for each main fuel tank was 46.4 gallons, and the total capacity for each auxiliary tank was 19.0 gallons. The auxiliary fuel pumps are controlled by switches, and the switches are labeled

"LEFT MAIN" and "RIGHT MAIN", and their positions are "HI", "LOW", and "OFF". The "LOW" position operates the pumps at low speed, providing sufficient fuel for priming and starting. The "HI" position operates the pumps at high speed, supplying the sufficient to maintain normal power in the event of engine-driven fuel pump failure. In addition, the "HI" position can be used for vapor elimination in flight.

The POH "Before Landing" checklist requires the fuel selectors to be in the following positions: Front Engine - "LEFT MAIN"; Rear Engine - "RIGHT MAIN". The POH "Engine-Out During Flight" checklist requires the fuel selectors to be in the main tank positions, and the pilot to "turn its auxiliary fuel pump on 'HI' until fuel flow is restored."

In addition, the POH states that "if the auxiliary tanks are to be used, select fuel from the main tank for 60 minutes prior to switching to auxiliary tanks. This is necessary to provide space in the main tanks for the returned auxiliary fuel and vapor. If sufficient space is not available in the main tanks for this returned fuel, the main tanks may overflow through the vent line. When operating from the auxiliary fuel tanks, the tanks will run dry sooner and endurance will be less than may be anticipated since part of the fuel is being diverted back to the main tanks instead of being consumed by the engines."

Pilot Information

Certificate:	Airline transport	**Age:**	71,Male
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-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:**	No
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	July 17, 2001
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	May 29, 2002
Flight Time:	4000 hours (Total, all aircraft), 46 hours (Total, this make and model), 2200 hours (Pilot In Command, all aircraft), 50 hours (Last 90 days, all aircraft), 46 hours (Last 30 days, all aircraft), 20 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N2671S
Model/Series:	337C	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	337-0971
Landing Gear Type:	Retractable - Tricycle	**Seats:**	5
Date/Type of Last Inspection:	April 2, 2002 100 hour	**Certified Max Gross Wt.:**	4400 lbs
Time Since Last Inspection:	77 Hrs	**Engines:**	2 Reciprocating
Airframe Total Time:	3866.5 Hrs at time of accident	**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	IO-360-C6
Registered Owner:	Aero Haven Inc.	**Rated Power:**	210 Horsepower
Operator:	USDA Pacific Southwest Region	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:		**Distance from Accident Site:**	
Observation Time:		**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	250°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:		**Temperature/Dew Point:**	16°C / 5°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	SAN BERNARDINO, CA (SBD)	**Type of Flight Plan Filed:**	None
Destination:	Big Bear City, CA (L35)	**Type of Clearance:**	None
Departure Time:	19:00 Local	**Type of Airspace:**	Class E

Airport Information

Airport:	BIG BEAR CITY L35	**Runway Surface Type:**	Asphalt
Airport Elevation:	6748 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	26	**IFR Approach:**	None
Runway Length/Width:	5850 ft / 75 ft	**VFR Approach/Landing:**	Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	34.26361,-116.854446

Administrative Information

Investigator In Charge (IIC):	Sauer, A.
Additional Participating Persons:	Anthony Costanza; Federal Aviation Administration; Riverside, CA Stuart E Bothwell; U.S. Department of Agriculture - Forest Service; Milwaukee, WI
Original Publish Date:	May 13, 2003
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=55003