Aviation Investigation Final Report

Location:	PALMDALE, California	**Accident Number:**	LAX99LA015
Date & Time:	October 25, 1998, 10:25 Local	**Registration:**	N36EL
Aircraft:	Beech 36	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	3 Minor, 1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot stated that an annual inspection of the airplane had been completed 2 months earlier. The prior flight was flown from Chino, California, to Sacramento, California, and back to Chino without refueling after landing. The fuel computer/totalizer indicated that 58 gallons were left onboard following the trip. On the accident flight, the pilot leaned the mixture and engaged the autopilot after leveling out. A short time later, the engine began surging. The pilot enriched the mixture and turned the fuel boost on low, and the engine lost total power. He went through the emergency checklist, maintaining boost pump on and switching through the fuel tanks. After realizing he could not make the airport, he decided to land on a road and hit a truck. Examination of the wreckage revealed no fuel leaks were found in the lines or tanks. During disassembly, no fuel was found in the right main tank. Six gallons were in the left main tank; 7 gallons were in the left tip tank, and 2 gallons were in the right tip tank. The fuel selector was positioned to the left tip tank. A wet smear caked with dirt was present on the left tip tank from the filler port aft along the outboard side toward the trailing edge tip. The stopper type filler caps for the tip tanks were found loose in the filler ports. Also, the rubber stoppers were found to be cracked and deteriorated. The continuity of the fuel system was established. The aircraft master switch was energized and the sending unit floats were manipulated by hand and found that the gauges read high. The engine was restarted with the aid of serviceable propeller and fuel. The engine accelerated normally to 1,700 rpm where a magneto check was performed, and with a 60-rpm drop for both magnetos.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's improper management of his fuel supply which resulted in fuel starvation. Factors in the accident were the inadequate annual inspection which resulted in fuel siphoning, and a

high reading fuel gage.

Findings

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

Findings
1. (C) FLUID,FUEL - STARVATION
2. (C) FUEL MANAGEMENT - IMPROPER - PILOT IN COMMAND
3. (F) MAINTENANCE,ANNUAL INSPECTION - INADEQUATE - OTHER MAINTENANCE PERSONNEL
4. (F) ENGINE INSTRUMENTS,FUEL QUANTITY GAGE - OUTPUT HIGH
5. (F) FUEL SYSTEM,CAP - DETERIORATED
6. (F) FUEL SYSTEM,TANK - SIPHONING

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

Occurrence #3: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings
7. OBJECT - VEHICLE

Factual Information

On October 25, 1998, at 1025 hours Pacific standard time, a Beech 36, N36EL, collided with a pickup truck during a forced landing on a highway near Palmdale, California. The forced landing was precipitated by a total loss of power while the airplane was in cruise flight at 10,500 feet msl. Visual meteorological conditions prevailed at the time and no flight plan was filed for the personal cross-country flight. The airplane and the truck sustained substantial damage. The pilot was not injured; however, the two passengers on the airplane and the driver of the truck sustained minor injuries. The flight originated at the Bracket Airport, La Verne, California, at 1000 and was destined for Sacramento, California.

The pilot was interviewed on the telephone on October 26 and in person on October 29, 1998.

The pilot stated that the airplane completed an annual inspection 2 months prior, and was fueled afterward at the Chino, California, airport, which filled all four tanks to capacity. Following the fueling at Chino, he flew the airplane to Sacramento and back, but did not refuel during the trip. The fuel computer/totalizer said he had 58 gallons left onboard following the trip. The airplane had not flown since. There were no open discrepancies on the airplane following that trip, and no known problems with the airplane or engine.

He said he arrived at the Bracket airport about 0900 on the morning of the accident to preflight the airplane for another trip to Sacramento. He met his passengers at the airport and they watched him preflight. The pilot stated that he looked in all four tanks and observed fuel in each tank. The tips contained about 2/3 fuel. In the right main, he could just see the edge of the fuel on the bottom bladder skin by looking down through the filler neck. Fuel was not visible in the bottom of the left main tank directly below the filler; however, he could see the edge of the fuel line against the bladder further inboard.

The pilot departed Bracket about 1000 en route to Sacramento. After getting the appropriate clearances, he climbed to 10,500 feet and was flying a GPS direct course. Upon leveling at 10,500 feet msl, he leaned the mixture by EGT reference to around 13.8 gph and engaged the autopilot. During this process he felt more than heard a slight engine surge that went away quickly. A short time later, the engine began surging badly, and he enriched the mixture and turned the fuel boost on low. The surging abated somewhat, and then the engine quit altogether when the airplane was over the San Gabriel Mountains.

He went through the emergency procedures in the checklist, maintaining boost pump on and switching through the fuel tanks. During this process, the engine briefly restarted, then quit again. The pilot said he was unable to get a further restart.

During the flight, the pilot was flight following with ATC and the controllers pointed out two

airports as the closest; Agua Dulce and Palmdale Plant 42. The pilot said he selected Palmdale, turned toward the airport and continued attempting a restart. It became apparent that he would not make the airport and found a nearby road, which was straight and had unobstructed fields on either side. After selecting gear down when the road was made, the airplane was nearing touchdown when a pickup truck with camper shell came from behind, passed underneath, and appeared directly in front of the airplane. The right wing hit the camper, which yawed the airplane just as it touched down. The left main gear collapsed as the airplane slid off the road onto the dirt shoulder.

TESTS AND RESEARCH

Responding Los Angeles County Fire Department personnel were contacted by telephone while at the accident site. They reported that no fuel was leaking from the airplane. An airplane retrieval firm, Aircraft Recovery Services of Compton, California, arrived at the site shortly thereafter. The retrieval personnel further documented that no fuel leaks were present and then transported the airplane to the nearby Palmdale Airforce Plant 42 grounds for secure overnight storage. The following morning, the airplane was disassembled for movement to Compton. During disassembly, a total of 15.4 gallons were drained from all the fuel tanks.. No fuel was found in the right main tank. Six gallons were drained from the left main tank, with 7 and 2 gallons respectively drained from the left and right tip tanks. The fuel selector was positioned to the left tip tank. All fuel line fittings in the wing roots were found to be tight with no evidence of leakage during the disassembly process.

During the initial documentation of the airplane prior to movement, the retrieval personnel noted that a wet smear caked with dirt was present on the left tip tank from the filler port aft along the outboard side toward the trailing edge tip.

On October 29th the airplane was examined by the Safety Board at the facilities of Aircraft Recovery Services. All remaining fuel line fittings were found tight, with no evidence of leakage within the airframe, engine compartment or wings. The stopper type filler caps for the tip tanks were found loose in the filler ports, with an estimated 0.150-inch clearance around the stopper circumference; both caps could be pulled out of the ports with slight hand pressure with the locking devices in the down position.

The master switch was turned on and the Hoskins Fuel Totalizer reading was noted to show 48 total gallons remaining on board.

All access ports for the fuel tanks were opened and no foreign objects or other debris was found during internal visual examination of the bladders. The electrical connections for the main fuel tank quantity sending units were reconnected at the wing root connectors. The airplane master switch was energized and the sending unit floats were manipulated by hand. The left main tank quantity gage responded to float movement; however, the gage read between zero and 1/4 with both of the tank's sending units full down. The right main tank quantity gage responded to float movement and read zero with both floats full down. With

both floats full up, the gage read 3/4 full. Subsequent examination disclosed that the outboard sending unit was not wired into the circuit.

Following installation of a serviceable propeller and plumbing a fuel source into the left tank supply line at the wing root fitting, the engine was started using the airplane systems, including the electric boost pump. Following a short idle warm-up period, the engine accelerated normally to 1700 rpm where a magneto check was performed, with a 60 rpm drop for both magnetos.

Pilot Information

Certificate:	Private	**Age:**	57,Male
Airplane Rating(s):	Single-engine land; Single-engine sea	**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 3 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	March 9, 1998
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	2000 hours (Total, all aircraft), 1500 hours (Total, this make and model), 1910 hours (Pilot In Command, all aircraft), 5 hours (Last 90 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	**Registration:**	N36EL
Model/Series:	36 36	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	E-8
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	August 1, 1998 Annual	**Certified Max Gross Wt.:**	3600 lbs
Time Since Last Inspection:	6 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	1903 Hrs	**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	IO-550-B
Registered Owner:	EDDIE W. LONG	**Rated Power:**	300 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:	PMD ,2543 ft msl	**Distance from Accident Site:**	3 Nautical Miles
Observation Time:	10:52 Local	**Direction from Accident Site:**	128°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	17 knots / 24 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	290°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29 inches Hg	**Temperature/Dew Point:**	16°C / 4°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	LA VERNE , CA (POC)	**Type of Flight Plan Filed:**	None
Destination:	SACRAMENTO , CA (SAC)	**Type of Clearance:**	VFR on top
Departure Time:	10:00 Local	**Type of Airspace:**	Class D

Airport Information

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

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	2 Minor	**Aircraft Fire:**	None
Ground Injuries:	1 Minor	**Aircraft Explosion:**	None
Total Injuries:	3 Minor, 1 None	**Latitude, Longitude:**	

Administrative Information

Investigator In Charge (IIC):	Rich, Jeff
Additional Participating Persons:	BRIAN ASHTON; VAN NUYS , CA MIKE GRIMES; MOBILE , AL
Original Publish Date:	June 21, 2000
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=45142