Aviation Investigation Final Report

Location:	EMERYVILLE, California	**Accident Number:**	LAX99LA256
Date & Time:	July 24, 1999, 09:00 Local	**Registration:**	N5784T
Aircraft:	Cessna 172E	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot made a forced landing on an interstate highway following a loss of engine power. His destination was overcast with thick clouds so he flew inland and descended to a low altitude to get under them. He turned back toward his destination airport. The airplane was level at 1,500 feet under the overcast about 10 miles north of his destination when the engine power went to zero. The engine restarted and stopped two more times. He setup to land on the highway. He thought he might hit a car, so he pulled the nose up into a full stall. The airplane hit hard; the right wing hit a road sign and spun the airplane into a fence. The pilot had planned about 3 hours en route; actual flight time was 3 hours 40 minutes. Recovery personnel drained no fuel from the right tank and 2 drops of fuel from the left tank. They drained less than 3 ounces from the fuel sump. During a follow-up inspection, investigators supplied the engine with fuel. The engine started and they completed normal run-up checks of the magnetos and propeller. They ran the engine to full power without discovering any discrepancies. The airplane had been modified so that the original 145 horsepower Continental engine had been replaced with a 180 horsepower Textron Lycoming engine with a constant speed propeller. The FAA accident coordinator looked onboard the airplane, but did not find any supplements or changes to the airplane flight manual regarding this engine modification.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's inadequate in-flight planning and inadequate fuel consumption calculations, resulting in a total loss of engine power due to fuel exhaustion. Factors were the pilot's failure to have all appropriate flight manuals aboard the airplane and the low cloud ceilings.

Findings

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

Findings
1. (C) FLUID,FUEL - EXHAUSTION
2. (C) IN-FLIGHT PLANNING/DECISION - INADEQUATE - PILOT IN COMMAND
3. (C) FUEL CONSUMPTION CALCULATIONS - INADEQUATE - PILOT IN COMMAND
4. (F) FLIGHT MANUALS - NOT AVAILABLE - PILOT IN COMMAND
5. (F) WEATHER CONDITION - LOW CEILING

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

Findings
6. AIRPORT FACILITIES,RUNWAY/LANDING AREA CONDITION - ROADWAY/HIGHWAY

Occurrence #3: ON GROUND/WATER COLLISION WITH OBJECT
Phase of Operation: LANDING - ROLL

Findings
7. (C) OBJECT - SIGN
8. OBJECT - FENCE

Factual Information

On July 24, 1999, about 0900 hours Pacific daylight time, a Cessna 172E, N5784T, sustained substantial damage when it lost engine power and made a forced landing on Interstate 80 in Emeryville, California. Aerodrome of Redlands, California, operated the rental airplane under the provisions of 14 CFR Part 91. The private pilot and one passenger were not injured. The airplane departed Redlands about 0520 en route to Hayward, California, on a personal flight. Visual meteorological conditions prevailed and a VFR flight plan had been filed.

The pilot stated his destination was overcast with thick clouds so he flew inland to get under them. He was level at 1,500 feet under the overcast about 10 miles north of Hayward, when the power went to zero. The engine started, and then quit two more times. His altitude was about 500 to 600 feet agl, so he set up to land on the interstate highway. The pilot thought he might hit a car, so he pulled the nose up into a full stall. He hit hard, the nose gear collapsed, and he hit a road sign with his right wing. The airplane spun 90 degrees to the right and nosed into a chain link fence. No vehicles on the ground were damaged. Two motorists who observed the accident were pilots. One of them swerved across the lanes of traffic to make a traffic break so that the pilot would have a clear landing path.

The airplane's flight manual listed a total capacity of 42 gallons of fuel with 39 gallons of useable fuel. The airplane had an auxiliary fuel tank installed, but the pilot felt he had enough fuel onboard to make the flight without filling it. The airplane had been modified so that the original 145 horsepower Continental engine had been replaced with a 180 horsepower Textron Lycoming engine with a constant speed propeller. The Federal Aviation Administration (FAA) accident coordinator looked onboard the airplane, but did not find any supplements or changes to the airplane flight manual regarding this modification.

The pilot's flight planning estimated the flight would take 3 hours 3 minutes, and that he had 4 hours of fuel onboard. The pilot planned a fuel burn of 9.7 gallons per hour. His actual flight time was about 3 hours 40 minutes. The airplane flight log indicated the tachometer reading at the time of departure was 276.0. The FAA accident coordinator noted a reading of 280.5 after the accident. The pilot noted during his preflight inspection that the right tank was full and the left tank was down about half an inch. He noted in his written statement that the left gauge indicated between the 1/4 and 1/2 levels at the time of the accident.

The FAA accident coordinator inspected the airplane at Plain Parts in Sacramento, California, on July 29, 1999. The recovery agent told the coordinator that he drained the fuel system prior to removing the wings during recovery. He recovered no fuel from the right wing, 2 drops of fuel from the left wing, and less than 3 ounces from the fuel sump. The recovery agent placed a can of fuel on top of the wing and plumbed it to the engine. He started the engine after about five revolutions and allowed the engine to idle. He ran the engine up and completed a

functional check of the magnetos and propeller. He ran the engine at full power, and then completed a normal shutdown. The coordinator detected no discrepancies during any of the functional checks.

Pilot Information

Certificate:	Private	**Age:**	39,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:**	No
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:	119 hours (Total, all aircraft), 19 hours (Total, this make and model), 75 hours (Pilot In Command, all aircraft), 60 hours (Last 90 days, all aircraft), 8 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N5784T
Model/Series:	172E 172E	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	17251684
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	July 10, 1999 100 hour	**Certified Max Gross Wt.:**	2300 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	3840 Hrs	**Engine Manufacturer:**	Continental
ELT:		**Engine Model/Series:**	O-360
Registered Owner:	BRADLEY THOMPSON, SUE THOMPSON	**Rated Power:**	180 Horsepower
Operator:	ANDY TESTMAN	**Operating Certificate(s) Held:**	None
Operator Does Business As:	AERODROME	**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	OAK ,6 ft msl	**Distance from Accident Site:**	7 Nautical Miles
Observation Time:	08:50 Local	**Direction from Accident Site:**	320°
Lowest Cloud Condition:	Scattered / 1100 ft AGL	**Visibility**	25 miles
Lowest Ceiling:	Overcast / 1500 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	10 knots / None	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	280°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	16°C / 12°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	REDLANDS (L12)	**Type of Flight Plan Filed:**	VFR
Destination:	HAYWARD (HWD)	**Type of Clearance:**	VFR
Departure Time:	05:20 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:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	37.829185,-122.289451(est)

Administrative Information

Investigator In Charge (IIC):	Plagens, Howard
Additional Participating Persons:	ROGER ZIMMERMAN; OAKLAND , CA
Original Publish Date:	July 10, 2001
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=46943