

# **Aviation Investigation Final Report**

Location:	EL CAJON, California		Accident Number:	LAX95LA150
Date & Time:	March 31, 1995, 10:30	Local	Registration:	N1937E
Aircraft:	AERONCA	7AC	Aircraft Damage:	Substantial
Defining Event:			Injuries:	1 Serious, 1 Minor
Flight Conducted Under:	Part 91: General aviation - Personal			

## Analysis

THE PILOT WAS CONDUCTING A LOCAL VFR FLIGHT AND THE PILOT EXECUTED AN EMERGENCY LANDING ON A ROUGH/UNEVEN FIELD FOLLOWING A TOTAL LOSS OF POWER. RESPONDING FIRE DEPARTMENT PERSONNEL AND FAA INSPECTORS DID NOT FIND ANY FUEL IN THE AIRCRAFT FUEL TANKS OR ON THE GROUND. THE AIRCRAFT WAS EQUIPPED WITH AN ORIGINAL EQUIPMENT GLASS GASCOLATOR BOWL. THE FUEL SYSTEM GASCOLATOR BOWL WAS NOT FOUND IN THE ENGINE COMPARTMENT OR ON THE GROUND ANYWHERE AT THE ACCIDENT SITE. INVESTIGATION REVEALED THAT THE MANUFACTURER RECOMMENDED REPLACEMENT OF THE GLASS GASCOLATOR BOWL WITH A METAL BOWL IN A SERVICE LETTER ISSUED IN 1946. THE ACTION WAS TAKEN DUE TO INCIDENCE OF THE GLASS BOWLS BREAKING IN FLIGHT. THE GLASS BOWL REPLACEMENT WAS NOT A SUBJECT OF ANY AIRWORTHINESS DIRECTIVES ON THE ACCIDENT AIRPLANE MAKE OR MODEL.

## **Probable Cause and Findings**

The National Transportation Safety Board determines the probable cause(s) of this accident to be: a loss of engine power due to an in-flight separation of the fuel system gascolator glass bowl resulting in a premature fuel exhaustion. The rough/uneven terrain is a factor in this accident.

**Findings** 

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - MECH FAILURE/MALF Phase of Operation: CRUISE Findings 1. (C) FUEL SYSTEM, GASCOLATOR - SEPARATION 2. MAINTENANCE, SERVICE BULLETIN/LETTER - NOT PERFORMED - COMPANY/OPERATOR MANAGEMENT 3. (C) FLUID, FUEL - EXHAUSTION

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

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

Findings 4. (F) TERRAIN CONDITION - ROUGH/UNEVEN

## **Factual Information**

On March 31, 1995, at 1030 hours Pacific standard time, an Aeronca 7AC, N1937E, collided with the terrain while executing an emergency landing at El Cajon, California. The emergency landing resulted from a total loss of engine power. The pilot was conducting a local visual flight rules personal flight. The airplane, registered to and operated by the pilot and passenger, sustained substantial damage. The certificated airline transport pilot sustained minor injuries; the passenger sustained serious injuries. Visual meteorological conditions prevailed. The flight originated at Gillespie Field, San Diego, California, at 1015 hours.

A Federal Aviation Administration (FAA), San Diego Flight Standards District Office, airworthiness inspector conducted the on-scene investigation. The inspector reported the airplane came to rest, right-side-up, in a rough surface, high-vegetation field about 300 yards north of Interstate 8. The right wing was canted downward. The airplane sustained extensive structural damage, including a buckled firewall, but the propeller was in the horizontal position and undamaged.

San Diego Fire Department personnel told the inspector they did not detect a strong fuel odor when they arrived at the accident site. The inspector noted that the fuel tank contained "... only a small unmeasurable amount of fuel ...."

The fuel tank was not compromised during the accident; however, the glass gascolator bowl was missing. The inspector found pieces of the gascolator bowl imbedded in the seal area. Recovery personnel told the inspector that there were no glass remnants of the gascolator under or within the surrounding area of the wreckage.

The FAA inspector established continuity of the engine gear and valve train assembly. The inspector reported the presence of thumb compression when the crankshaft was rotated.

The spark plugs exhibited normal operating signatures. Both magnetos produced spark when their respective drive shafts were rotated.

Champion Aircraft Corporation Service Helps and Hints #15, Replacing of Glass Gascolator Bowl with Metal Gascolator Bowls, was originally issued on August 23, 1946, and reissued on July 1, 1964. The service letter states, in part:

It has been reported that a few glass gascolator bowls have broken. Reports indicate the glass bowl broke near the bottom and was caused by a combination of vibration and too much pressure applied on the adjustment clamp.

In order to eliminate any such possibility, we are changing to metal gascolator bowls as

standard equipment on both our Champion Serial #4641 and up and Chief Serial #582 and up.

Compliance with this service letter is not mandatory. This issue is not addressed in an airworthiness directive.

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Certificate:	Airline transport	Age:	61,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Front
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 1 Valid Medical–w/ waivers/lim	Last FAA Medical Exam:	March 13, 1995
Occupational Pilot:	UNK	Last Flight Review or Equivalent:	
Flight Time:	25000 hours (Total, all aircraft), 25 hours (Total, this make and model), 22000 hours (Pilot In Command, all aircraft), 15 hours (Last 90 days, all aircraft), 8 hours (Last 30 days, all aircraft)		

### Aircraft and Owner/Operator Information

Aircraft Make:	AERONCA	Registration:	N1937E
Model/Series:	7AC 7AC	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	7AC-5504
Landing Gear Type:	Tailwheel	Seats:	2
Date/Type of Last Inspection:	September 21, 1994 Annual	Certified Max Gross Wt.:	1220 lbs
Time Since Last Inspection:	25 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	4399 Hrs	Engine Manufacturer:	CONTINENTAL
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	A65-8
Registered Owner:	JAMES D WALLER & RAY WELCH	Rated Power:	65 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
<b>Observation Facility, Elevation:</b>		Distance from Accident Site:	
Observation Time:		Direction from Accident Site:	
Lowest Cloud Condition:	Clear	Visibility	30 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	/	Turbulence Type Forecast/Actual:	/
Wind Direction:	0°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:		Temperature/Dew Point:	21°C
Precipitation and Obscuration:	No Obscuration; No Precipitat	tion	
Departure Point:	(SEE)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	10:15 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 Minor	Aircraft Damage:	Substantial
Passenger Injuries:	1 Serious	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Serious, 1 Minor	Latitude, Longitude:	32.839263,-116.880393(est)

#### **Administrative Information**

Investigator In Charge (IIC):	Llorente, A.
Additional Participating Persons:	JOHN L WHITE; SAN DIEGO , CA JERRY PENDZICK; SAN DIEGO , CA
Original Publish Date:	August 23, 1995
Last Revision Date:	
Investigation Class:	<u>Class</u>
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=29065

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, "accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person" (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB's statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available <u>here</u>.