



# Aviation Investigation Final Report

<b>Location:</b>	Independence, Kansas	<b>Accident Number:</b>	CHI03LA165
<b>Date &amp; Time:</b>	June 14, 2003, 11:27 Local	<b>Registration:</b>	N87198
<b>Aircraft:</b>	Engineering & Research 415-C	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	2 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

## Analysis

The airplane sustained substantial damage during a forced landing in a farm field following a total loss of engine power six miles from the destination airport. Inspection of the airplane revealed that at least one fuel cap was placed on backwards. No other anomalies to fuel system were noted. According to the pilot's operating handbook, if the fuel caps are placed on the airplane backwards, the fuel system may malfunction because the fuel system will be unable to vent and provide equal fuel flow to the tanks. Unequal flow may result in the fuel pump being unable to pump fuel to the fuselage tank.

## 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 fuel starvation. A factor to the accident was the pilot's improper installation of the fuel cap.

## Findings

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

### Findings

1. (F) FUEL SYSTEM,CAP - IMPROPER
2. (F) INSTALLATION - IMPROPER - PILOT IN COMMAND
3. (C) FUEL SYSTEM - STARVATION

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

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Occurrence #3: ON GROUND/WATER ENCOUNTER WITH TERRAIN/WATER  
Phase of Operation: EMERGENCY LANDING

Findings

4. TERRAIN CONDITION - NONE SUITABLE

## Factual Information

On June 14, 2003, at 1127 central daylight time, an Engineering & Research Corporation 415-C (Ercoupe), N87198, owned and piloted by a private pilot, sustained substantial damage during a forced landing following a total loss of engine power near Independence, Kansas. Visual meteorological conditions prevailed at the time of the accident. The 14 CFR Part 91 personal flight was not operating on a flight plan. The pilot and the passenger were uninjured. The flight originated from Colonel James Jabara Airport (AAO), Wichita, Kansas, at 1030, and was en route to Independence Municipal Airport (IDP), Independence, Kansas.

The airplane was about six nautical miles northwest from (IDP) when it experienced a total loss of engine power. The pilot stated he made a forced landing on a farm field.

A post accident investigation by a Federal Aviation Administration (FAA) inspector revealed the following: No obstructions were found in the main gascolator, fuel pump, and carburetor fuel screens. The carburetor, fuel pump, and return lines from the fire wall did not contain obstructions. The fuselage gravity feed fuel tank was empty, while the remaining fuel in the wing tanks measured to be five gallons. The engine driven pump was primed by hand and pumped fuel.

A certified mechanic reported that at least one of the fuel caps on the wing tanks was found to be on backwards. According to the Ercoupe operating manual, "It has been the experience of some Ercoupe owners and operators that line mechanics put the wing tank caps on backwards. To prevent malfunctioning of the fuel system, it is imperative that the caps be put on the tanks with the vent hole to the front. This provides venting of each wing tank and will prevent syphoning or unequal flow of the fuel. Unequal flow may result in the fuel pump being unable to transfer all of the fuel from the wing tanks to the fuselage tank."

The manual further states, "The sealing of the cap gasket also effects proper venting. If difficulty is experienced in attaining a good seal of the gas cap, which is an un-machined casting, the sealing surface may be filed smooth and the gasket cemented to this surface. Should there be an excessive amount of solder on the filler neck sealing surface, it may also be removed by filing."

## Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	63, Male
<b>Airplane Rating(s):</b>	Single-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 3 Valid Medical-w/ waivers/lim	<b>Last FAA Medical Exam:</b>	August 27, 2002
<b>Occupational Pilot:</b>	UNK	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	196 hours (Total, all aircraft), 16 hours (Total, this make and model), 16 hours (Last 90 days, all aircraft), 16 hours (Last 30 days, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Engineering & Research	<b>Registration:</b>	N87198
<b>Model/Series:</b>	415-C	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	371
<b>Landing Gear Type:</b>	Tricycle	<b>Seats:</b>	2
<b>Date/Type of Last Inspection:</b>	February 10, 2003 Annual	<b>Certified Max Gross Wt.:</b>	1260 lbs
<b>Time Since Last Inspection:</b>	15 Hrs	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	1134.9 Hrs	<b>Engine Manufacturer:</b>	Continental
<b>ELT:</b>	Installed, activated, did not aid in locating accident	<b>Engine Model/Series:</b>	C-85
<b>Registered Owner:</b>	Jimmy O. Farmer	<b>Rated Power:</b>	85 Horsepower
<b>Operator:</b>		<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	CFV,737 ft msl	<b>Distance from Accident Site:</b>	17 Nautical Miles
<b>Observation Time:</b>	11:52 Local	<b>Direction from Accident Site:</b>	100°
<b>Lowest Cloud Condition:</b>	Scattered / 4100 ft AGL	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	7 knots / 0 knots	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	120°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	29.98 inches Hg	<b>Temperature/Dew Point:</b>	28°C / 19°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Wichita , KS (AAO )	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Independence , KS (IDP )	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	10:30 Local	<b>Type of Airspace:</b>	Unknown

## Airport Information

<b>Airport:</b>	Independence Municipal Airport IDP	<b>Runway Surface Type:</b>	
<b>Airport Elevation:</b>	825 ft msl	<b>Runway Surface Condition:</b>	Unknown
<b>Runway Used:</b>		<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>		<b>VFR Approach/Landing:</b>	None

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	1 None	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	2 None	<b>Latitude, Longitude:</b>	37.22929,-95.709785(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Gallo, Mitchell
<b>Additional Participating Persons:</b>	Verle Engel; FAA Wichita FSDO; Wichita, KS
<b>Original Publish Date:</b>	June 2, 2004
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=57251">https://data.nts.gov/Docket?ProjectID=57251</a>

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 [here](#).