Aviation Investigation Final Report

Location:	Independence, Kansas	**Accident Number:**	CHI03LA165
Date & Time:	June 14, 2003, 11:27 Local	**Registration:**	N87198
Aircraft:	Engineering & Research 415-C	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 None
Flight Conducted Under:	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

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

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

Certificate:	Private	**Age:**	63,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--w/ waivers/lim	**Last FAA Medical Exam:**	August 27, 2002
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	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

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

Meteorological Information and Flight Plan

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

Airport Information

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

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:**	37.22929,-95.709785(est)

Administrative Information

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