



Aviation Investigation Final Report

Location:	South Boston, Virginia	Accident Number:	ERA21LA062
Date & Time:	December 6, 2020, 16:18 Local	Registration:	N2674H
Aircraft:	Ercoupe 415	Aircraft Damage:	Substantial
Defining Event:	Sys/Comp malf/fail (non-power)	Injuries:	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

During cruise flight, the engine lost total power and the pilot performed a forced landing to a road, during which the right wing sustained substantial damage. Subsequent examination of the engine revealed the failure of a fuel filter screen cover gasket from the fuel transfer pump, which transferred fuel from the wings to the header fuel tank. The failure allowed the fuel transfer pump to draw in air rather than fuel. Given this information, it is likely the engine consumed all the fuel in the fuel header tank, and the fuel was not replaced with fuel in the wings due to the transfer pump anomaly.

When the failed gasket was replaced with a new gasket, the engine started normally, and the fuel transfer pump operated normally. Further examination of the failed gasket revealed that the gasket was damaged, likely during installation at the most recent annual inspection about 4 months before the accident. Additionally, the sight gauge for the fuel header tank was cloudy and was an unapproved part, which obscured viewing of the fuel level in the fuel header tank and likely prevented the pilot from recognizing that the fuel was not transferring properly from the wing tanks.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The improper installation of a fuel filter screen cover gasket, which resulted in its failure, fuel starvation, and a subsequent total loss of engine power during cruise flight. Contributing to the accident was the unapproved fuel sight gauge, which obscured the pilot's view of the fuel level

in the fuel header tank.

Findings

Personnel issues	Replacement - Maintenance personnel
Aircraft	Fuel pumps - Failure
Aircraft	Fuel quantity indicator - Not specified

Factual Information

History of Flight

Prior to flight	Aircraft maintenance event
Enroute	Fuel starvation
Enroute	Sys/Comp malf/fail (non-power) (Defining event)
Emergency descent	Off-field or emergency landing
Landing	Collision with terr/obj (non-CFIT)

On December 6, 2020, about 1618 eastern daylight time, an Ercoupe 415-C, N2674H, was substantially damaged when it was involved in an accident near South Boston, Virginia. The private pilot was not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot reported that the airplane had 25 gallons of fuel onboard when he departed on the accident flight. The pilot performed three takeoffs and landings, followed by a local sightseeing flight northeast of his home airport. About 45 minutes into the flight, the engine lost partial power. The pilot applied carburetor heat and used the primer to try and inject fuel into the engine; however, the engine eventually lost all power. The pilot subsequently performed a forced landing to a road, during which the airplane impacted a mailbox, resulting in substantial damage to the right wing.

Following the accident, a mechanic examined the engine and noted that a fuel filter screen cover gasket from the fuel transfer pump that transferred fuel from the wings to the header fuel tank, had failed. The failed gasket would allow the fuel transfer pump to draw in air rather than fuel. The mechanic added that, when he replaced the failed gasket, the engine started normally, and the fuel transfer pump operated normally.

Examination of the failed gasket by a Federal Aviation Administration inspector revealed that the gasket was damaged, possibly during installation. The inspector added that the gasket was an approved cork gasket. He further stated that the sight gauge for the fuel header tank was cloudy and an unapproved part. The failed gasket was installed on August 1, 2020, at the most recent annual inspection.

Pilot Information

Certificate:	Private	Age:	51, Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Lap only
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	
Medical Certification:	Sport pilot	Last FAA Medical Exam:	
Occupational Pilot:	No	Last Flight Review or Equivalent:	November 29, 2020
Flight Time:	82 hours (Total, all aircraft), 2 hours (Total, this make and model), 60 hours (Pilot In Command, all aircraft), 2 hours (Last 90 days, all aircraft), 2 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Ercoupe	Registration:	N2674H
Model/Series:	415 C	Aircraft Category:	Airplane
Year of Manufacture:	1946	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	3299
Landing Gear Type:	Tricycle	Seats:	2
Date/Type of Last Inspection:	August 1, 2020 Annual	Certified Max Gross Wt.:	1260 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	1474 Hrs as of last inspection	Engine Manufacturer:	Continental
ELT:	C91 installed, not activated	Engine Model/Series:	C-85-12F
Registered Owner:	On file	Rated Power:	85 Horsepower
Operator:	On file	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Dusk
Observation Facility, Elevation:	W78,419 ft msl	Distance from Accident Site:	3 Nautical Miles
Observation Time:	16:15 Local	Direction from Accident Site:	120°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	/	Turbulence Type Forecast/Actual:	None / None
Wind Direction:		Turbulence Severity Forecast/Actual:	N/A / N/A
Altimeter Setting:	29.92 inches Hg	Temperature/Dew Point:	11°C / -4°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	South Boston, VA	Type of Flight Plan Filed:	None
Destination:	South Boston, VA	Type of Clearance:	None
Departure Time:		Type of Airspace:	Class G

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:		Aircraft Explosion:	None
Total Injuries:	1 None	Latitude, Longitude:	36.6987,-78.9014(est)

Administrative Information

Investigator In Charge (IIC):	Gretz, Robert
Additional Participating Persons:	Amber White; FAA/FSDO; Richmond, VA
Original Publish Date:	October 13, 2022
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=102381

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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](#).