Aviation Investigation Final Report

Location:	Cookson, Oklahoma	**Accident Number:**	CEN14LA199
Date & Time:	April 12, 2014, 11:00 Local	**Registration:**	N2788H
Aircraft:	Ercoupe 415 C	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (partial)	**Injuries:**	2 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot-rated passenger reported that he and the pilot aborted the first takeoff attempt due to a loss of engine power. They taxied the airplane back to the departure end of the runway and applied full and partial power several times but were unable to duplicate the engine problem, so the pilot chose to take off again. Shortly after the airplane became airborne, the engine lost power, and the pilot subsequently landed the airplane in wooded terrain.

A postaccident examination of the airplane and engine revealed that the fuel tanks were breached during impact; however, some fuel was found in the header tank and gascolator. The carburetor inlet fitting had broken off at impact, and the carburetor bowl was empty. The mixture arm was separated from the carburetor and not safety-wired in the full-rich position. The Nos. 1 and 3 plugs were found blackened. The engine was manually rotated via the propeller, and valve train continuity was established. The primer was found unlocked and partially pulled out. An unsecured primer can cause the engine to run richer than normal, which could result in a rough-running engine, loss of power, and blackened spark plugs.

Probable Cause and Findings

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

The pilot's failure to properly secure the primer, which resulted in the loss of engine power during takeoff.

Findings

Aircraft	(general) - Failure
Personnel issues	Lack of action - Pilot

Factual Information

History of Flight

Takeoff	Loss of engine power (partial) (Defining event)

On April 12, 2014, at 1100 central daylight time, N2788H, an Ercoupe 415-C, sustained substantial damage when it made a forced landing after a partial loss of engine power shortly after takeoff from Tenkiller Airport (44M), Cookson, Oklahoma. The pilot and the pilot rated passenger were both seriously injured. The airplane was registered to and operated by the pilot. No flight plan was filed for the flight that was destined for a private airstrip in Etna, Arkansas. Visual meteorological conditions prevailed for the personal flight conducted under the provisions of 14 Code of Federal Regulations Part 91.

The pilot rated passenger stated the first takeoff attempt had to be aborted due to a loss of engine power. He and the pilot taxied the airplane back to the departure end of the runway and cleared the engine by applying full and partial power several times. The pilot rated passenger said the engine seemed to be performing well and departed. Shortly after becoming airborne, the engine began to lose power and the pilot made a left turn back toward the runway. The pilot was unable to maintain altitude and landed in wooded terrain. There was no post-impact fire.

A witness, who was a friend of the pilot, provided a statement similar to that of the pilot rated passenger. He also said the pilot had a rough running engine on takeoff the day before the accident and quickly landed. The pilot was unable to duplicate the problem on the ground but noted that the header tank had overflowed. The witness and the pilot then opened the cowling and saw that a large amount of fuel had evaporated and residual fuel stains were observed around the carburetor. The witness then got in the airplane, started the engine and did several high speed taxi-runs with no engine problems. He elected to takeoff and made two full-stop landings. On the second landing, the witness said the header tank began to overflow. The pilot consulted the airplane's manual, and read that a loose gasket in the gas cap might be the cause of the fuel overflowing and tightened the gasket. The next day, the witness asked the pilot if tightening the gasket had resolved the problem and he said it did.

A postaccident examination of the airplane wreckage revealed that all of the fuel tanks were breached and a small amount of fuel was found in the header tank and gascolator. The carburetor inlet fitting was broken from impact and there was no fuel found in the carburetor bowl. The mixture control was disconnected from the carburetor and was not safety-wired in the full-rich position. The top spark plugs were removed and the No.1 and No.3 plugs were black. The engine was manually rotated via the propeller and valve train continuity was established on each cylinder. Inside the cockpit, the primer was found unlocked and partially pulled out. Fuel was also found in the primer line to the carburetor.

The airplane's last annual inspection was completed on February 1, 2014, at an airframe total time of 2,235. The airplane had accrued 15 hours since this inspection.

The private pilot certificate for airplane single-engine land. His last FAA third class medical certificate was issued in November 2008 and his last biennial flight review was conducted in November 2009. The pilot reported a total of 850 flight hours, of which, 300 hours were in the same make/model as the accident airplane.

The pilot rated passenger held a private pilot certificate for airplane single-engine land. His last FAA third class medical was issued in May 1979. He reported a total of 500 flight hours, of which, 30 hours were in the same make/model as the accident airplane.

Pilot Information

Certificate:	Private	**Age:**	84
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	Lap only
Instrument Rating(s):	None	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	None None	**Last FAA Medical Exam:**	November 26, 2008
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	850 hours (Total, all aircraft), 300 hours (Total, this make and model), 850 hours (Pilot In Command, all aircraft), 15 hours (Last 90 days, all aircraft), 10 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Pilot-rated passenger Information

Certificate:	Private	**Age:**	74
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:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Sport pilot None	**Last FAA Medical Exam:**	May 25, 1979
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	500 hours (Total, all aircraft), 30 hours (Total, this make and model), 450 hours (Pilot In Command, all aircraft), 25 hours (Last 90 days, all aircraft), 5 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Ercoupe	**Registration:**	N2788H
Model/Series:	415 C	**Aircraft Category:**	Airplane
Year of Manufacture:	1946	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	3413
Landing Gear Type:	Tricycle	**Seats:**	2
Date/Type of Last Inspection:	February 1, 2014 Annual	**Certified Max Gross Wt.:**	1250 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	2235 Hrs as of last inspection	**Engine Manufacturer:**	CONT MOTOR
ELT:	Installed, not activated	**Engine Model/Series:**	C85 SERIES
Registered Owner:	DEMARCO ALBERT	**Rated Power:**	85 Horsepower
Operator:	DEMARCO ALBERT	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:		**Distance from Accident Site:**	
Observation Time:		**Direction from Accident Site:**	
Lowest Cloud Condition:		**Visibility**	10 miles
Lowest Ceiling:	Broken / 3000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	15 knots / 20 knots	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:	250°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:		**Temperature/Dew Point:**	24°C
Precipitation and Obscuration:			
Departure Point:	Cookson, OK (44M)	**Type of Flight Plan Filed:**	None
Destination:	Etna, AR (None)	**Type of Clearance:**	None
Departure Time:	11:00 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	Tenkiller 44M	**Runway Surface Type:**	Grass/turf
Airport Elevation:	877 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	23	**IFR Approach:**	None
Runway Length/Width:	2600 ft / 75 ft	**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	2 Serious	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Serious	**Latitude, Longitude:**	35.680313,-94.889846(est)

Administrative Information

Investigator In Charge (IIC):	Yeager, Leah
Additional Participating Persons:	
Original Publish Date:	February 23, 2015
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=89062