Aviation Investigation Final Report

Location:	Susanville, California	**Accident Number:**	WPR14LA315
Date & Time:	July 27, 2014, 10:45 Local	**Registration:**	N2013H
Aircraft:	Ercoupe 415 C	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (partial)	**Injuries:**	2 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The commercial pilot reported that, before the first flight leg of the day, he used the engine primer during a cold engine start. He did not use the primer before he departed for the accident flight leg. He stated that, during cruise flight, he began to slowly climb the airplane to cross a ridgeline, and, as he pushed the throttle up, the engine did not respond. He pumped the throttle numerous times, and the engine finally responded; however, the airplane had lost altitude and airspeed, and he was forced to land the airplane in a wooded area.

Examination of the wreckage revealed that the spark plugs' electrode areas were dark and sooty, indicative of a rich-mixture condition. The engine primer plunger was found in the unlocked-and-extended position, and it was undamaged and would lock when the lugs were engaged. The primer position and the condition of the spark plugs indicated that the engine power loss was likely due to an overly rich mixture, which resulted from excess fuel being pulled through the primer into the engine's intake system when power was applied.

The Starting checklist procedures indicated that, after using the primer, the primer plunger should be locked. An unsecured primer plunger can cause the engine to run richer than normal and result in a rough-running engine, loss of power, and blackened spark plugs. It is likely that, when the pilot used the primer while starting the engine before the first flight leg, he did not ensure that it was locked before initiating the accident flight in accordance with the Starting checklist and that this led to the subsequent in-flight loss of engine power. The calculated density altitude at cruise altitude at the time of the flight was about 9,240 ft, which would have further degraded the engine's performance.

Probable Cause and Findings

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

The pilot's failure to follow the checklist while starting the engine and to lock the engine primer plunger, which resulted in the partial loss of engine power during cruise flight in high-density altitude conditions.

Findings

Personnel issues	Use of checklist - Pilot
Personnel issues	Use of equip/system - Pilot
Environmental issues	High density altitude - Effect on equipment
Environmental issues	(general) - Contributed to outcome

Factual Information

History of Flight

Enroute-cruise	Loss of engine power (partial) (Defining event)
Landing	Collision with terr/obj (non-CFIT)

On July 27, 2014, about 1045 Pacific daylight time, an Ercoupe, 415-C, N2013H, sustained substantial damage during a forced landing following a reported loss of engine power during cruise flight near Susanville, California. The commercial pilot and passenger sustained minor injuries. The airplane was registered to and operated by the pilot under the provisions of Title 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed and no flight plan was filed for the personal flight. The local flight departed Rogers Field Airport (O05), Chester, California, about 0940.

A family member of the pilot reported the airplane overdue to local law enforcement on the afternoon of July 27, 2014, after becoming concerned when the pilot had not arrived at his planned destination. The Federal Aviation Administration (FAA) issued an Alert Notification (ALNOT) for the missing airplane. The wreckage was located by law enforcement personnel about 1922 on July 27, 2014, in rugged terrain.

In a written statement to the National Transportation Safety Board (NTSB) investigator-in-charge (IIC), the pilot stated that during the first flight leg that day, the airplane primer was used during a cold engine start. The next flight was the accident leg, and due to the short period the engine was shutdown, the primer was not used for engine start during this leg.

On the accident flight, the pilot stated that while in cruise flight about 6,500 feet mean sea level (msl), he began a slow climb to cross a ridgeline and as he pushed the throttle up, the engine did not respond. He pumped the throttle numerous times and the engine finally responded but the airplane had lost altitude and airspeed and he was forced to land the airplane in a wooded area. Subsequently, the passenger and him egressed and hiked to safety.

Utilizing the weather conditions at the nearest reporting station, the density altitude was calculated by the IIC to be about 9,240 feet for the cruise altitude about the time of the accident flight.

An examination of the airplane wreckage was conducted by a FAA inspector at the accident site. The airplane's fuselage and wings were observed to have been substantially damaged. All major structural components of the airplane were present in the wreckage. The inspector observed that the engine primer plunger was in the unlocked and extended position. The primer plunger was observed to be undamaged and would appropriately lock when the lugs where engaged. Further, the recently installed spark plugs were removed and observed to be dark in color. No additional anomalies were observed that would preclude normal operation of the engine.

The airplane's manual, starting cockpit checklist states to use the primer 2 to 6 strokes and then to lock the primer plunger.

Pilot Information

Certificate:	Commercial	**Age:**	61,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	3-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Sport pilot Unknown	**Last FAA Medical Exam:**	
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	May 14, 2013
Flight Time:	(Estimated) 8475 hours (Total, all aircraft), 15 hours (Total, this make and model), 7995 hours (Pilot In Command, all aircraft), 8 hours (Last 90 days, all aircraft), 3 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Passenger Information

Certificate:		**Age:**	Male
Airplane Rating(s):		**Seat Occupied:**	Right
Other Aircraft Rating(s):		**Restraint Used:**	3-point
Instrument Rating(s):		**Second Pilot Present:**	No
Instructor Rating(s):		**Toxicology Performed:**	No
Medical Certification:		**Last FAA Medical Exam:**	
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Ercoupe	**Registration:**	N2013H
Model/Series:	415 C	**Aircraft Category:**	Airplane
Year of Manufacture:	1946	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	2636
Landing Gear Type:	Tricycle	**Seats:**	2
Date/Type of Last Inspection:	May 15, 2014 Annual	**Certified Max Gross Wt.:**	1240 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	2347 Hrs as of last inspection	**Engine Manufacturer:**	CONT MOTOR
ELT:	Installed, activated, aided in locating accident	**Engine Model/Series:**	A&C75 SERIES
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:**	Day
Observation Facility, Elevation:	RTS,5050 ft msl	**Distance from Accident Site:**	53 Nautical Miles
Observation Time:	10:35 Local	**Direction from Accident Site:**	143°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	5 knots /	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:	280°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.22 inches Hg	**Temperature/Dew Point:**	29°C / -3°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Chester, CA (O05)	**Type of Flight Plan Filed:**	None
Destination:	Chester, CA (O05)	**Type of Clearance:**	None
Departure Time:	09:40 Local	**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Minor	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Minor	**Latitude, Longitude:**	40.305,-120.755836(est)

Administrative Information

Investigator In Charge (IIC):	Nixon, Albert
Additional Participating Persons:	Donald Morgan; Federal Aviation Administration; Reno, NV
Original Publish Date:	July 11, 2016
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=89757