Aviation Investigation Final Report

Location:	Amelia, Ohio	**Accident Number:**	CEN14LA195
Date & Time:	April 12, 2014, 10:45 Local	**Registration:**	N87JL
Aircraft:	LARSEN MARK V	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (total)	**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot reported that the engine experienced a sudden and total loss of power during cruise climb. He was unable to restart the engine by isolating the ignition systems and the two fuel pumps. The propeller would rotate while he engaged the starter, but the engine would not restart. Subsequently, the pilot completed a forced landing on a nearby golf course. After an uneventful touchdown on a fairway, the airplane collided with a sand bunker that preceded the green.

A postaccident examination revealed that the experimental amateur-built airplane was equipped with a converted automobile engine that had two ignition systems. The two ignition systems combined at a common distributor before terminating at the spark plugs. Although both ignition coils provided voltage while the engine crankshaft was rotated, a corresponding spark was not produced at the individual spark plugs. An examination of the distributor assembly revealed that the electrode contact had separated from the distributor rotor, which would have resulted in an immediate and total loss of engine power and prevented the engine from being restarted.

Probable Cause and Findings

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

The distributor failure, which resulted in a total loss of engine power during cruise climb.

Findings

Aircraft	Magneto/distributor - Failure

Factual Information

History of Flight

Enroute-climb to cruise	Powerplant sys/comp malf/fail
Enroute-climb to cruise	Loss of engine power (total) (Defining event)
Landing	Off-field or emergency landing
Landing-landing roll	Collision with terr/obj (non-CFIT)

On April 12, 2014, at 1045 eastern daylight time, an experimental amateur-built Larsen model Mark V airplane, N87JL, was substantially damaged during a forced landing near Amelia, Ohio. The commercial pilot and his pilot-rated-passenger were not injured. The airplane was registered to and operated by a private individual, under the provisions of 14 Code of Federal Regulations Part 91, without a flight plan. Day visual meteorological conditions prevailed for the personal cross-country flight that had departed Clermont County Airport (I69), Batavia, Ohio, at 1035, and was en route to French Lick Municipal Airport (FRH), French Lick, Indiana.

The pilot reported that after an uneventful takeoff from I69, the flight continued to climb toward its initial cruise altitude of 2,500 feet mean sea level (msl). As the flight climbed through 2,100 feet msl, the pilot established cruise-climb by making a reduction to engine power. The pilot reported that shortly after making the power reduction, the engine experienced a sudden loss of power and the propeller stopped rotating. He was unable to restart the engine by isolating the ignition systems and the two fuel pumps. He reported that the propeller would rotate while he engaged the starter, but the engine would not restart. Ultimately, the pilot completed a forced landing on a nearby golf course. After an uneventful touchdown on a fairway, the airplane collided with a sand bunker that preceded the green. The airplane sustained substantial damage to the fuselage, empennage, and right wing during the impact sequence. Following the accident, the pilot and his passenger released their restraints and exited the airplane through the cabin doors uninjured.

The pilot reported that the airplane had been topped-off with automotive fuel (26 gallons total capacity) before the previous flight leg from Mount Vernon Airport (MVN), Mount Vernon, Illinois. He stated that the previous flight leg from MVN had consumed about 7 gallons of fuel during the approximately 2 hour flight. He reported that the airplane departed on the accident flight with about 18 gallons of fuel available and expected an average fuel consumption rate of about 3.5 gallons per hour.

An engine examination was completed by Federal Aviation Administration (FAA) inspectors after the wreckage had been recovered to a secured location. The engine, a Subaru model EA-81, was a converted automobile engine. The engine produced suction/compression at each cylinder in conjunction with crankshaft rotation. The engine was equipped with two ignition systems that combined at a common distributor before terminating at the spark plugs. Although both ignition-coils provided voltage while the engine crankshaft was rotated, a corresponding spark was not produced at the individual spark plugs. An internal examination of the distributor assembly revealed that the electrode contact had separated from the distributor rotor.

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	39
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):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	No
Medical Certification:	Class 2 Without waivers/limitations	**Last FAA Medical Exam:**	July 2, 2012
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	February 25, 2014
Flight Time:	3757 hours (Total, all aircraft), 40 hours (Total, this make and model), 3525 hours (Pilot In Command, all aircraft), 45 hours (Last 90 days, all aircraft), 41 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	LARSEN	**Registration:**	N87JL
Model/Series:	MARK V	**Aircraft Category:**	Airplane
Year of Manufacture:	1995	**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	.001
Landing Gear Type:	Tricycle	**Seats:**	2
Date/Type of Last Inspection:	February 11, 2014 Condition	**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	710 Hrs at time of accident	**Engine Manufacturer:**	Subaru
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	EA81
Registered Owner:	On file	**Rated Power:**	100 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:	LUK,482 ft msl	**Distance from Accident Site:**	8 Nautical Miles
Observation Time:	10:53 Local	**Direction from Accident Site:**	295°
Lowest Cloud Condition:	Few / 4600 ft AGL	**Visibility**	10 miles
Lowest Ceiling:		**Visibility (RVR):**	
Wind Speed/Gusts:	7 knots /	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:	170°	**Turbulence Severity Forecast/Actual:**	/ N/A
Altimeter Setting:	30.14 inches Hg	**Temperature/Dew Point:**	18°C / 11°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Batavia, OH (I69)	**Type of Flight Plan Filed:**	None
Destination:	French Lick, IN (FRH)	**Type of Clearance:**	None
Departure Time:	10:35 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	Clermont County Airport I69	**Runway Surface Type:**	Grass/turf
Airport Elevation:	843 ft msl	**Runway Surface Condition:**	Dry
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	Forced landing

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:**	39.04639,-84.270835(est)

Administrative Information

Investigator In Charge (IIC):	Fox, Andrew
Additional Participating Persons:	Michael A Puehler; Federal Aviation Administration - Cincinnati FSDO; Cincinnati, OH Michael A Bloom; Federal Aviation Administration - Cincinnati FSDO; Cincinnati, OH
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Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=89049