



Aviation Investigation Final Report

Location:	Palatka, Florida	Accident Number:	ERA22LA322
Date & Time:	July 18, 2022, 08:04 Local	Registration:	N910BW
Aircraft:	Vans RV10	Aircraft Damage:	Substantial
Defining Event:	Loss of engine power (total)	Injuries:	1 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

Shortly after takeoff, the experimental amateur-built airplane’s engine lost total power and the pilot made an off-airport forced landing, resulting in substantial damage to the fuselage, both wings, and the tail section. Postaccident examination of the engine revealed that a cannon plug-type circular connector that connected the engine’s electronic ignition system’s wire harness to the two electronic control units was not properly connected. The manufacturer of the ignition system stated that disengagement of the connector, which carried all electrical signals required to run the ignition system, “...would result in a single point failure of the entire ignition system.” Maintenance records showed that the ignition system had been installed about 21 months before the accident, with no other work to that system detailed between that time and the accident. Based on this information, it is likely that the connector had not been fully secured when the system was installed, and that over time, the partial connection had loosened, ultimately resulting in the loss of engine power.

Probable Cause and Findings

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

Total loss of engine power due to the improper installation of an electronic ignition system connector plug.

Findings

Personnel issues

Installation - Maintenance personnel

Aircraft

Ignition system wiring - Incorrect service/maintenance

Factual Information

History of Flight

Initial climb	Loss of engine power (total) (Defining event)
Emergency descent	Loss of engine power (total)
Emergency descent	Collision with terr/obj (non-CFIT)

On July 18, 2022, at 0804 eastern daylight time, an experimental amateur-built RV-10 airplane, N910BW, was substantially damaged when it was involved in an accident near Palatka, Florida. The pilot was seriously injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot stated that shortly after takeoff, the engine sputtered then lost total power. He was unable to return to the airport and made a forced landing to heavily wooded terrain, resulting in substantial damage to the fuselage, both wings, and the tail section.

Postaccident examination of the engine revealed that the cannon plug type circular connector that connected the electronic ignition wiring harness to the firewall was not locked, and the connector was partially engaged. The connector provided the connection between the wiring harness and the two electronic control units located on the cockpit side of the firewall. According to a representative of the manufacturer of the ignition system, if the firewall connector was not secure "...this would result in a single point failure of the entire ignition system."

A review of the airplane's maintenance records revealed that the electronic ignition system was installed in October 2020. There were no subsequent entries that discussed maintenance of the ignition system since that date.

Pilot Information

Certificate:	Private	Age:	55, Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Lap only
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	
Medical Certification:	Class 3 With waivers/limitations	Last FAA Medical Exam:	August 25, 2021
Occupational Pilot:	No	Last Flight Review or Equivalent:	May 5, 2021
Flight Time:	682.6 hours (Total, all aircraft), 56.8 hours (Total, this make and model), 638.5 hours (Pilot In Command, all aircraft), 56.8 hours (Last 90 days, all aircraft), 23.3 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Vans	Registration:	N910BW
Model/Series:	RV10	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	Yes
Airworthiness Certificate:	Experimental (Special)	Serial Number:	40929
Landing Gear Type:	Tricycle	Seats:	4
Date/Type of Last Inspection:	November 30, 2021 Annual	Certified Max Gross Wt.:	2700 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	195.6 Hrs as of last inspection	Engine Manufacturer:	Lycoming
ELT:	C126 installed, activated, did not aid in locating accident	Engine Model/Series:	IO-540-T4B5D
Registered Owner:	On file	Rated Power:	300 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:	28J,47 ft msl	Distance from Accident Site:	3 Nautical Miles
Observation Time:	11:35 Local	Direction from Accident Site:	45°
Lowest Cloud Condition:		Visibility	8 miles
Lowest Ceiling:		Visibility (RVR):	
Wind Speed/Gusts:	3 knots /	Turbulence Type Forecast/Actual:	None / None
Wind Direction:		Turbulence Severity Forecast/Actual:	N/A / N/A
Altimeter Setting:	30.07 inches Hg	Temperature/Dew Point:	22°C / 22°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Palatka, FL	Type of Flight Plan Filed:	IFR
Destination:	Gatlinburg, TN (GKT)	Type of Clearance:	VFR
Departure Time:		Type of Airspace:	Class G

Airport Information

Airport:	PALATKA MUNI - LT KAY LARKIN FLD 28J	Runway Surface Type:	
Airport Elevation:	47 ft msl	Runway Surface Condition:	Vegetation
Runway Used:		IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Serious	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:		Aircraft Explosion:	None
Total Injuries:	1 Serious	Latitude, Longitude:	29.658382,-81.689503(est)

Administrative Information

Investigator In Charge (IIC):	Read, Leah
Additional Participating Persons:	James Holmes; FAA/FSDO; Orlando, FL
Original Publish Date:	November 15, 2023
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=105519

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