



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

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

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|----------------------------------|----------------------------------|---|------------------|
| 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 / None | 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

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|----------------------|---|---------------------------|----------------|
| 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

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|------------------------|-----------|-------------------------|---------------------------|
| 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.nts.gov/Docket?ProjectID=105519>

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

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](#).