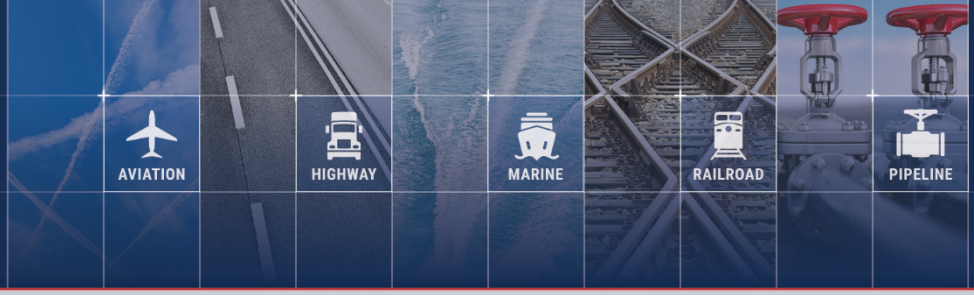


# Aviation Investigation Final Report

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|---|---|---|---|
| **Location:** | Carmi, Illinois | **Accident Number:** | CEN10LA334 |
| **Date & Time:** | June 20, 2010, 20:07 Local | **Registration:** | N47PD |
| **Aircraft:** | DRONE PAUL E PULSAR III | **Aircraft Damage:** | Substantial |
| **Defining Event:** | Aerodynamic stall/spin | **Injuries:** | 1 Fatal |
| **Flight Conducted Under:** | Part 91: General aviation - Personal | | |

## Analysis

The accident airplane was the third airplane in a formation flight of four airplanes that was in the process of landing when the accident occurred. The pilot of the fourth airplane in the flight reported that the airplanes flew for about 40 minutes practicing formation flying before they returned for landing. They did a formation left break using 5-second intervals in order to land in trail. The first two airplanes landed uneventfully and the accident airplane appeared to be flying fast down the runway prior to touching down. The second airplane had not taxied off the runway yet and the accident airplane was quickly approaching. The accident airplane aborted the landing and made a go-around maneuver. It then lifted off the runway abruptly with an unusually nose-high attitude. The pilot of the fourth airplane stated that the accident airplane appeared to stall and roll to the left. The airplane impacted the ground about 300 feet east of the runway. Witnesses on the ground reported that they heard a squeal, like brakes being applied, followed by an increase in engine noise as though the pilot had advanced the throttle. One witness observed the airplane lift from the ground and enter into a left arcing turn before impacting with the terrain.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to maintain adequate airspeed after an aborted landing, which resulted in an aerodynamic stall and impact with terrain.

## Findings

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| **Aircraft** | Airspeed - Not attained/maintained |
| **Personnel issues** | Aircraft control - Pilot |

# Factual Information

## History of Flight

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|---|---|
| **Landing-flare/touchdown** | Abrupt maneuver |
| **Takeoff** | Aerodynamic stall/spin (Defining event) |
| **Takeoff** | Loss of control in flight |
| **Takeoff** | Collision with terr/obj (non-CFIT) |

On June 20, 2010, at 2007 central daylight time, an experimental, amateur-built Drone Pulsar III, N47PD, sustained substantial damage when it impacted a bean field during an aborted landing from runway 18 (4,001 feet by 75 feet, asphalt) at the Carmi Municipal Airport (CUL), Carmi, Illinois. The commercial pilot received fatal injuries. The 14 Code of Federal Regulations Part 91 personal flight departed from CUL as part of a four airplane formation flight. The flight of four airplanes was in the process of landing at CUL when the accident occurred. Visual meteorological conditions prevailed. No flight plan was filed.

The pilot of the fourth airplane in the flight reported that the airplanes were in a practice formation flight. After they departed from CUL, they joined in an echelon formation. He reported that they flew for about 40 minutes before they returned to CUL for landing. They flew over the runway at CUL and did a formation left break using 5-second intervals in order to land in trail on runway 18. The first two airplanes, which were Cessna 172's, landed uneventfully. The third airplane in the formation was the Pulsar III. The pilot of the fourth airplane, a Piper PA-28, reported that the accident airplane appeared to be fast and was floating down the runway prior to touching down. The second airplane had not taxied off the runway yet and the accident airplane was closing in on its position. The PA-28 pilot reported that the accident airplane aborted the landing and "made a go-around maneuver." He reported that the Pulsar III lifted off the runway abruptly with an unusually high nose attitude. The PA-28 pilot stated, "When he pitched up, the Pulsar seemed to stall and torque roll to the left." The airplane impacted the ground about 300 feet east of runway 18.

Witnesses on the ground reported that they heard a squeal, like brakes being applied, followed by an increase in engine noise as though the pilot had advanced the throttle. One witness observed the airplane lift from the ground and enter into a left arcing turn before impact with the terrain.

The PA-28 pilot reported that the pilots had flown 3 – 4 formation flights in the past. The pilots briefed the flights before takeoff and debriefed when they returned. He reported that the accident pilot had been flying for about 7 – 8 years and had flown the accident airplane to Florida, Michigan, and "all over." He reported that the accident airplane did not have any problems that he knew of.

The 62-year-old pilot held a commercial pilot certificate with single-engine land and airplane instrument ratings. He held a third class medical certificate. His total flight time was about 980 hours with about 327 hours in make and model.

The accident airplane was an amateur-built Drone Pulsar III which received its special airworthiness certificate in June 2002. The engine was a 100-horsepower Rotax 912S. The maintenance logbooks indicated that engine and airframe had 327 hours of total time as of May 2009.

A Federal Aviation Administration (FAA) inspector examined the airplane at the accident site. The flight control surfaces were connected to the control cables. The composite propeller blades were all sheared from the propeller hub.

An autopsy of the pilot was conducted on June 21, 2010, at the White County Coroner's Office Morgue Facility in Carmi, Illinois. The autopsy revealed evidence of multiple blunt force injuries. A Forensic Toxicology Fatal Accident Report was prepared by the FAA Civil Aeromedical Institute. The results of the tests were negative for all substances tested.

## Pilot Information

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|---|---|---|---|
| **Certificate:** | Commercial | **Age:** | 62,Male |
| **Airplane Rating(s):** | Single-engine land | **Seat Occupied:** | Left |
| **Other Aircraft Rating(s):** | None | **Restraint Used:** | |
| **Instrument Rating(s):** | Airplane | **Second Pilot Present:** | No |
| **Instructor Rating(s):** | None | **Toxicology Performed:** | Yes |
| **Medical Certification:** | Class 3 With waivers/limitations | **Last FAA Medical Exam:** | March 15, 2010 |
| **Occupational Pilot:** | No | **Last Flight Review or Equivalent:** | |
| **Flight Time:** | 980 hours (Total, all aircraft), 327 hours (Total, this make and model) | | |

## Aircraft and Owner/Operator Information

| | | | |
|---|---|---|---|
| **Aircraft Make:** | DRONE PAUL E | **Registration:** | N47PD |
| **Model/Series:** | PULSAR III | **Aircraft Category:** | Airplane |
| **Year of Manufacture:** | | **Amateur Built:** | Yes |
| **Airworthiness Certificate:** | Experimental (Special) | **Serial Number:** | P97070536 |
| **Landing Gear Type:** | Tricycle | **Seats:** | 2 |
| **Date/Type of Last Inspection:** | March 29, 2009 Annual | **Certified Max Gross Wt.:** | 1200 lbs |
| **Time Since Last Inspection:** | | **Engines:** | 1 Reciprocating |
| **Airframe Total Time:** | 327 Hrs as of last inspection | **Engine Manufacturer:** | Rotax |
| **ELT:** | | **Engine Model/Series:** | 912S |
| **Registered Owner:** | DRONE PAUL E | **Rated Power:** | 100 Horsepower |
| **Operator:** | DRONE PAUL E | **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:** | CUL,388 ft msl | **Distance from Accident Site:** | 0 Nautical Miles |
| **Observation Time:** | 20:05 Local | **Direction from Accident Site:** | |
| **Lowest Cloud Condition:** | Clear | **Visibility** | 10 miles |
| **Lowest Ceiling:** | None | **Visibility (RVR):** | |
| **Wind Speed/Gusts:** | 4 knots / | **Turbulence Type Forecast/Actual:** | / |
| **Wind Direction:** | 190° | **Turbulence Severity Forecast/Actual:** | / |
| **Altimeter Setting:** | 29.98 inches Hg | **Temperature/Dew Point:** | 29°C / 25°C |
| **Precipitation and Obscuration:** | | | |
| **Departure Point:** | Carmi, IL (CUL ) | **Type of Flight Plan Filed:** | None |
| **Destination:** | Carmi, IL (CUL ) | **Type of Clearance:** | None |
| **Departure Time:** | 17:25 Local | **Type of Airspace:** | Class G |

## Airport Information

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|---|---|---|---|
| **Airport:** | Carmi Municipal Airport CUL | **Runway Surface Type:** | Asphalt |
| **Airport Elevation:** | 388 ft msl | **Runway Surface Condition:** | Dry |
| **Runway Used:** | 18 | **IFR Approach:** | None |
| **Runway Length/Width:** | 4001 ft / 75 ft | **VFR Approach/Landing:** | None |

## Wreckage and Impact Information

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|---|---|---|---|
| **Crew Injuries:** | 1 Fatal | **Aircraft Damage:** | Substantial |
| **Passenger Injuries:** | | **Aircraft Fire:** | None |
| **Ground Injuries:** | N/A | **Aircraft Explosion:** | None |
| **Total Injuries:** | 1 Fatal | **Latitude, Longitude:** | 38.089443,-88.123054(est) |

## Administrative Information

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|---|---|
| **Investigator In Charge (IIC):** | Silliman, James |
| **Additional Participating Persons:** | William Cooley; FAA Springfield FSDO; Springfield, IL |
| **Original Publish Date:** | May 11, 2011 |
| **Last Revision Date:** | |
| **Investigation Class:** | Class |
| **Note:** | |
| **Investigation Docket:** | https://data.ntsb.gov/Docket?ProjectID=76383 |