Aviation Investigation Final Report

Location:	Ridgefield, Washington	**Accident Number:**	WPR19FA124
Date & Time:	April 29, 2019, 14:13 Local	**Registration:**	N90LK
Aircraft:	Vans RV 6	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control in flight	**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot and flight instructor were conducting a local flight as part of a flight review. Radar data showed that the airplane departed and proceeded to a nearby airport, where it entered the traffic pattern. The last recorded radar target was located abeam the end of the runway, at an altitude of about 500 ft above ground level. There were no known witnesses to the accident sequence.

The airplane came to rest upright, partially submerged within a pond, about 1,000 ft from the approach end of the runway. Wreckage and impact signatures from surrounding terrain were consistent with a near-vertical impact. Examination revealed no anomalies with the airframe or engine that would have precluded normal operation.

Bird remains were found on the right (outboard) arm/clothing of the flight instructor and within the engine compartment. The remains were identified as a species common to the accident locale. It is likely that a bird strike occurred while the airplane was maneuvering in the traffic pattern for landing, resulting in a breach of the canopy/windscreen. Given the lack of mechanical anomalies and the orientation of the wreckage, it is likely that the pilots became distracted and exceeded the airplane's critical angle of attack, which resulted in an aerodynamic stall/spin and loss of control.

Probable Cause and Findings

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

The pilots' inadvertent exceedance of the airplane's critical angle of attack following an inflight collision with a bird.

Findings

Environmental issues	Animal(s)/bird(s) - Contributed to outcome
Aircraft	Angle of attack - Capability exceeded
Personnel issues	Use of equip/system - Pilot
Personnel issues	Attention - Pilot
Personnel issues	Aircraft control - Pilot

Factual Information

History of Flight

Approach	Birdstrike
Approach-VFR pattern final	Loss of control in flight (Defining event)
Approach-VFR pattern final	Collision with terr/obj (non-CFIT)

On April 29, 2019, about 1413 Pacific daylight time, a Vans Aircraft RV-6 airplane, N90LK, was substantially damaged when it was involved in an accident near La Center, Washington. The pilot and flight instructor were fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 instructional flight.

According to the pilot's wife, the purpose of the flight was to conduct the pilot's flight review, and he was scheduled to meet the instructor at the airport about 1330. The instructor's daughter reported that it was common for him to fly to Daybreak Airport (WA46), La Center, Washington, for landing and takeoff practice.

About 1515, a pilot landing at WA46 saw airplane wreckage in a pond located under the final approach path to runway 31. A review of radar data at about the time of the accident and in the area of WA46 located two targets. One was determined to be the accident airplane, and the other was that of the airplane that located and reported the wreckage.

The first radar return with altitude data was recorded at 1404:33 at an altitude of 1,100 ft, about 1/2-mile northeast of Grove Field (1W1), Camas, Washington. The data showed that the airplane was on a northerly heading for about 11 miles before it turned west, directly toward W46. The data showed that the airplane flew parallel to the runway at WA46 at an altitude of 2,500 ft mean sea level (msl). As shown in figure 2, the airplane completed a descending 180° left turn and entered a left downwind for runway 31, where it leveled off at an altitude of about 500 ft above ground level (agl). The final radar target was captured at 1413:42 and depicted the airplane nearly abeam the runway 31 threshold, about 500 ft agl.

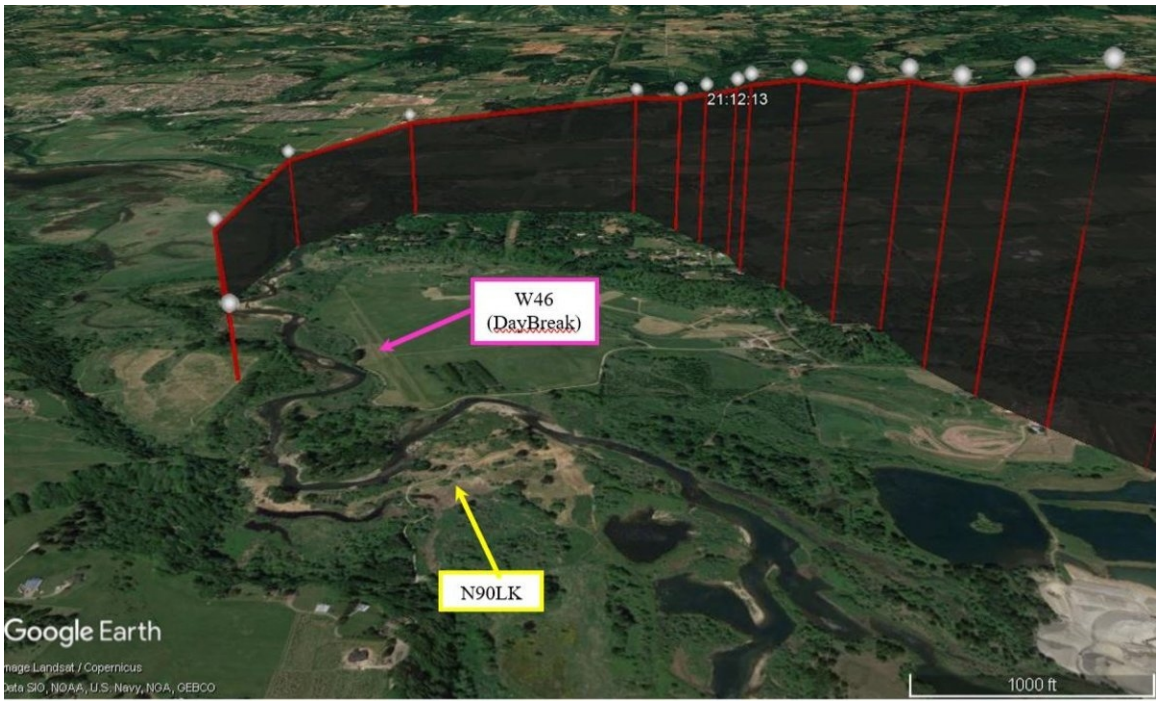

Figure 1. View of the last portion of radar data along with the airport location and accident site.

Pilot Information

Certificate:	Private	**Age:**	73,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	4-point
Instrument Rating(s):	None	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 Without waivers/limitations	**Last FAA Medical Exam:**	March 16, 2017
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	1500 hours (Total, all aircraft)		

Flight instructor Information

Certificate:	Airline transport; Flight engineer; Flight instructor	**Age:**	Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):		**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	Yes
Medical Certification:	Class 2	**Last FAA Medical Exam:**	August 30, 2018
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	20000 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Vans	**Registration:**	N90LK
Model/Series:	RV 6 Undesignat	**Aircraft Category:**	Airplane
Year of Manufacture:	1990	**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	20147
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	July 3, 2018 Condition	**Certified Max Gross Wt.:**	1600 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	1147 Hrs as of last inspection	**Engine Manufacturer:**	Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	O-320 SERIES
Registered Owner:		**Rated Power:**	
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:	SPD,55 ft msl	**Distance from Accident Site:**	9.3 Nautical Miles
Observation Time:	13:53 Local	**Direction from Accident Site:**	232°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	5 knots /	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:		**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	30.04 inches Hg	**Temperature/Dew Point:**	19°C / -1°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Camas, WA (1W1)	**Type of Flight Plan Filed:**	None
Destination:	Ridgefield, WA	**Type of Clearance:**	None
Departure Time:	14:02 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	Daybreak W46	**Runway Surface Type:**	Grass/turf
Airport Elevation:	25 ft msl	**Runway Surface Condition:**	Unknown
Runway Used:	31	**IFR Approach:**	None
Runway Length/Width:	2200 ft / 60 ft	**VFR Approach/Landing:**	Traffic pattern

Wreckage and Impact Information

Crew Injuries:	2 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	45.789665,-122.69049(est)

The airplane came to rest in a shallow (1-2 ft) floodplain pond along the extended centerline of runway 31 and about 1,000 ft from the threshold. The airplane was upright, in an approximate 15° nose down attitude, on a heading of about 130°. All major structural components of the airplane remained attached or partially attached to the airplane.

The pond contained numerous upright flagged sticks which marked planted saplings. These sticks/flags were regularly and closely (3-5 ft) spaced. Almost all sticks surrounding the airplane, including some below the upraised empennage, were undisturbed.

The fuselage was fractured and buckled at both the firewall and the aft cockpit bulkhead. The engine and cowl were displaced up and to the right. The aft fuselage was also displaced to the right. The lower forward fuselage displayed significant upward crush damage direction, and the two fixed main landing gear legs and wheel assemblies were displaced aft and up.

Both wings remained attached to the fuselage, but with significant leading edge crush damage in the aft direction. The flaps were found in the fully-retracted position, as was the cockpit flap handle. The left aileron was separated from the wing at its outboard end but remained attached inboard. The right aileron remained completely attached to the wing. The left wing fuel tank cap was absent, but the right wing fuel cap was present and securely installed. The horizontal and vertical stabilizers, as well as their respective balance weights and control surfaces, remained attached and undamaged.

The engine was partly covered in mud, but no evidence of catastrophic mechanical failure was observed. The two-blade metal propeller remained attached to the engine. One blade was bent aft, and the other blade was essentially undamaged.

Bird remains were found on the right (outboard) arm/clothing of the flight instructor. Examination of the recovered wreckage revealed that a considerable amount of dry mud/dirt covered a majority of the engine. During removal of the dirt from the engine, evidence of bird remains was found in multiple areas, including feathers embedded into the upper right engine mount attachment bolt area and surrounding the engine-driven fuel pump.

Examination of the engine revealed no evidence of any preexisting mechanical malfunction. Flight control continuity was established throughout the airframe to all primary flight control surfaces.

Examination of the collected bird remains was conducted by the Feather Identification Lab of the Smithsonian Institution. The remains were consistent with an adult Green-Winged Teal, a species common to the geographic region as well as the specific accident locale (flooded field).

Medical and Pathological Information

Pilot

The Clark County Medical Examiner, Vancouver, Washington, performed an autopsy of the pilot. The cause of death was "multiple blunt force injuries."

The Federal Aviation Administration (FAA) Forensic Sciences Laboratory conducted forensic toxicology examinations on specimens from the pilot; no carbon monoxide or ethanol were detected. Salicylate and Ibuprofen were detected in the urine.

Instructor

The Clark County Medical Examiner, Vancouver, Washington, performed an autopsy of the instructor. The cause of death was "multiple blunt force injuries," and that the autopsy revealed no significant natural disease.

The FAA Forensic Sciences Laboratory conducted forensic toxicology examinations on specimens from the instructor; no carbon monoxide, ethanol, or tested-for drugs were detected.

Administrative Information

Investigator In Charge (IIC):	Huhn, Michael		
Additional Participating Persons:	Keith Ruconich; FAA FSDO; Hillsboro, OR		
Original Publish Date:	June 24, 2021	**Investigation Class:**	3
Note:			
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=99339		