



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	Stevensville, MD	<b>Accident Number:</b>	ERA16FA165
<b>Date &amp; Time:</b>	04/19/2016, 1244 EDT	<b>Registration:</b>	N276VA
<b>Aircraft:</b>	VANS RV12	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Loss of control in flight	<b>Injuries:</b>	2 Fatal
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Personal		

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## Analysis

The airline transport pilot of the light sport airplane was approaching the airport for landing in gusty front quartering crosswind conditions. Witnesses observed the airplane on final approach between 50 and 75 ft above ground level. The airplane's nose pitched up, followed by a roll to the right. The airplane then entered a nose-down attitude and descended to ground contact, impacting level terrain about 750 ft from the runway and slightly left of the extended runway centerline. Examination of the wreckage did not reveal any preimpact mechanical malfunctions that would have precluded normal operation.

Before the accident flight, the pilot had about 2.4 hours of experience in the accident airplane make and model but had been signed off to fly the airplane by an instructor. Witness observations of the final moments of flight are consistent with an aerodynamic stall. It is likely that the pilot failed to compensate for the gusty crosswind and turbulent conditions during the approach for landing, which resulted in an exceedance of the airplane's critical angle of attack, aerodynamic stall, and subsequent loss of control.

## 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 airplane control during approach for landing in gusting crosswind conditions, which resulted in an exceedance of the airplane's critical angle of attack and a subsequent aerodynamic stall.

## Findings

<b>Aircraft</b>	Angle of attack - Not attained/maintained (Cause) Airspeed - Not attained/maintained (Cause)
<b>Personnel issues</b>	Aircraft control - Pilot (Cause)
<b>Environmental issues</b>	Gusts - Effect on operation (Cause) Gusts - Awareness of condition

## Factual Information

### History of Flight

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

On April 19, 2016, about 1244 eastern daylight time, a Vans RV-12, N276VA, was substantially damaged when it impacted terrain during final approach for landing at Bay Bridge Airport (W29), Stevensville, Maryland. The airline transport pilot and passenger were fatally injured. The airplane was registered to Yoxford Air, LLC, and operated by Chesapeake Sport Pilot under the provisions of Title 14 *Code of Federal Regulations* Part 91. Visual meteorological conditions prevailed and no flight plan was filed for the personal flight, which originated from Easton/Newnam Field Airport (ESN), Easton, Maryland.

The flight departed W29 about 1210 and proceeded to ESN, about 16 nautical miles southeast, where the pilot performed a full-stop landing and subsequent takeoff. The flight then departed the ESN traffic pattern and returned to W29 at an altitude about 1,500 ft.

Witnesses at W29 reported that they heard no transmissions from the pilot to the airport's common traffic advisory frequency (CTAF) as the airplane approached the airport. Flight track data showed the airplane enter the traffic pattern on a left downwind leg for runway 29 and remain at an altitude about 1,000 ft mean sea level then initiate a left descending turn to the base leg.

Multiple witnesses located near the airport observed the airplane on final approach and reported that it seemed unusually low about 50 to 75 ft. Several witnesses described the right wing drop before the airplane pitched nose-down and descended to the ground. Another witness reported that the airplane's flight path "seemed normal," then "suddenly, its nose pitched up briefly" followed by a bank to the right, then a nose-dive into the ground." The airplane impacted terrain and cartwheeled about 75 ft before coming to rest upright about 750 ft short of runway 29 and slightly left of the extended runway centerline. A postimpact fire consumed the fuselage before it was extinguished by emergency responders about 10 minutes after the accident.

## Pilot Information

<b>Certificate:</b>	Airline Transport; Flight Instructor	<b>Age:</b>	63, Male
<b>Airplane Rating(s):</b>	Multi-engine Land; Single-engine Land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	3-point
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	Airplane Single-engine	<b>Toxicology Performed:</b>	Yes
<b>Medical Certification:</b>	None None	<b>Last FAA Medical Exam:</b>	04/24/2008
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	(Estimated) 5136 hours (Total, all aircraft), 2.8 hours (Total, this make and model)		

According to Federal Aviation Administration (FAA) records, the pilot, age 63, held an airline transport pilot certificate with ratings for airplane single- and multi-engine land. He also held a flight instructor certificate for airplane single engine. The pilot was issued an FAA first-class medical certificate in April 2008, which expired for all classes in April 2010. At the time of the accident, he did not possess an FAA medical certificate, nor was he required to for the accident flight in the light sport airplane. On the application for his last medical certificate, the pilot reported 5,136 total hours of flight experience. According to a review of the flight school's electronic records and correspondence with the owner of the school, the pilot completed two flights with a flight instructor in March and April 2016, totaling 2.4 hours of flight instruction and 3 hours of ground instruction. The pilot received an instructor signoff to fly the accident airplane on April 7, 2016. No pilot logbooks or additional flight records were recovered.

The flight instructor who provided the instruction and the signoff stated that the pilot had called several weeks earlier to receive a checkout in the RV-12 and stated that he did not have any experience in light sport aircraft. During the instruction flights, they performed various maneuvers, including steep turns, stalls, normal and soft field takeoffs, landings, and go-arounds. He stated that the pilot seemed "very comfortable" with the airplane and flew very well.

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	VANS	<b>Registration:</b>	N276VA
<b>Model/Series:</b>	RV12	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	2015	<b>Amateur Built:</b>	No
<b>Airworthiness Certificate:</b>	Special Light-Sport	<b>Serial Number:</b>	12056
<b>Landing Gear Type:</b>	Tricycle	<b>Seats:</b>	2
<b>Date/Type of Last Inspection:</b>	03/16/2016, 100 Hour	<b>Certified Max Gross Wt.:</b>	1320 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	314.8 Hours as of last inspection	<b>Engine Manufacturer:</b>	Rotax
<b>ELT:</b>	C126 installed, not activated	<b>Engine Model/Series:</b>	912
<b>Registered Owner:</b>	Yoxford Air LLC	<b>Rated Power:</b>	100 hp
<b>Operator:</b>	Yoxford Air LLC	<b>Operating Certificate(s) Held:</b>	None
<b>Operator Does Business As:</b>	Chesapeake Sport Pilot	<b>Operator Designator Code:</b>	

According to FAA records and the airframe manufacturer, the two-seat, low-wing, fixed landing gear airplane was manufactured by Van's Aircraft, Inc., and received its special airworthiness certificate for light sport on June 23, 2015. The airplane's most recent 100-hour inspection was completed on March 16, 2016. At the time of the inspection, the airplane had accrued 298.6 total hours of operation. The airplane was equipped with a Rotax 912-ULS-2 engine. The pilot's operating handbook stated that stall speed with the flaps extended at maximum gross weight was 41 knots; with the flaps retracted, the stall speed was 45 knots. The maximum direct crosswind was 11 knots.

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	ESN, 75 ft msl	Distance from Accident Site:	16 Nautical Miles
Observation Time:	1645 UTC	Direction from Accident Site:	130°
Lowest Cloud Condition:	Scattered / 25000 ft agl	Visibility	10 Miles
Lowest Ceiling:		Visibility (RVR):	
Wind Speed/Gusts:	10 knots / 16 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	320°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.02 inches Hg	Temperature/Dew Point:	26°C / 6°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	EASTON, MD (ESN)	Type of Flight Plan Filed:	None
Destination:	Stevensville, MD (W29)	Type of Clearance:	None
Departure Time:	1225 EDT	Type of Airspace:	Class G

At 1248, the weather recorded at W29 included 10 miles visibility, temperature 26°C, dew point 6°C, and altimeter 29.99 inches of mercury (inHg).

At 1245, the reported weather at ESN included wind from 320° at 10 knots gusting to 16 knots, 10 miles visibility, scattered clouds at 25,000 ft, temperature 26°C, dew point 6°C, and an altimeter setting of 30.02 inHg.

The closest upper air sounding site was from Aberdeen Proving Grounds (APG), Maryland, located about 32 miles north-northeast of the accident site on the western shore of the Chesapeake Bay. The 0800 sounding indicated a morning surface-based inversion to about 800 ft. Winds were from the northwest at 10 knots and increasing in speed to over 20 knots immediately above the inversion. The strong shear resulted in a potential low-level wind shear conditions and turbulence.

## Airport Information

Airport:	BAY BRIDGE (W29)	Runway Surface Type:	Asphalt
Airport Elevation:	14 ft	Runway Surface Condition:	Dry
Runway Used:	29	IFR Approach:	None
Runway Length/Width:	2713 ft / 60 ft	VFR Approach/Landing:	Traffic Pattern

W29 was a nontower-controlled airport. The field elevation was 15 feet msl and the airport was equipped with one asphalt runway. Runway 11/29 was 2,713 ft long by 60 ft wide and had

nonprecision markings. Runway 29 was equipped with a 2-light precision approach path indicator (PAPI) with a 3.00° glidepath. The airport property was on the eastern shore of the Chesapeake Bay.

## Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Substantial
Passenger Injuries:	1 Fatal	Aircraft Fire:	On-Ground
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 Fatal	Latitude, Longitude:	38.975000, -76.322222

The center fuselage and wings remained intact but were significantly damaged during the accident sequence. The wing spar remained attached to both wings and carried through the fuselage. Both wings remained attached to the U-channel with the spar pins locked in place. Fire consumed the center section of the airplane, where the 20-gallon fuel tank was located just aft of the cockpit seats, and also consumed the aft fuselage and empennage.

The left wing remained attached to the fuselage and carry-through wing spar. The outboard 90 inches remained intact to the wing root, where it was consumed by fire. The wing displayed very little compression and minor buckling on the forward outboard portion. The trailing edge displayed fire damage propagating outboard from the fuselage. The left flaperon remained attached and operated normally.

The right wingtip was deformed from the impact and the wing exhibited numerous compression bends along the entire span. It also exhibited fire damage at the root. The fire propagated outward from the midpoint of the wing aft and outboard of the trailing edge about 50% of its span. The right flaperon was ripped from its mounts and separated from the airplane during the accident sequence; it was found about 30 ft east of the main wreckage.

The aft root portions of the wings were destroyed by the fire. The flaperon handle was secured in the retracted position and the left flaperon displayed a neutral position. The right flaperon separated from the wing during the accident sequence and was found about 20 ft left of and behind the main wreckage. The push-pull tubes from the mixing box aft were broken and severed. The mixing box was not retrievable due to thermal damage.

The rudder was mostly destroyed by fire, but the lower attach point was functional and remained connected to the frame. Both rudder control cables remained attached. The stabilator remained intact and attached to the aft bulkhead. The counterweight and rod remained attached to the stabilator. The vertical stabilizer fractured just above the rear fuselage attach point. The forward attach point and lower and top ribs were consumed in the fire. The fiberglass tip was burned down to flexible cloth and the tail cone was consumed by fire.

Flight control continuity was established from the rudder and stabilator through the fuselage to the left and right tubular guides. Continuity to the rudder pedals could not be established due to impact and fire damage. All the cables were continuous and displayed minimal fire damage.

The engine, along with the mount and firewall, separated from the airframe and came to rest about 18 inches behind the cockpit. It was inverted and thermally damaged.

The crankshaft was turned via the aft accessory section of the engine and compression and suction were observed on all 4 cylinders. The spark plugs were examined; when compared to a Champion Spark Plug "Check-A-Plug" chart, the spark plugs appeared to be "normal" with light coloration signatures. Visual inspection of the valves and inside the cylinders at the exhaust pipes showed that they were clean, lubricated, and exhibited normal combustion signatures with no visible scoring or grooves.

There were two propeller witness marks in the ground leading up to the main wreckage, with one highly distinct gash 20 inches long and 8 inches deep in the ground. One blade separated at the hub. The other blade remained connected to the hub and was damaged by fire.

## Medical And Pathological Information

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The Office of the Chief Medical Examiner, State of Maryland, Baltimore, Maryland, performed an autopsy of the pilot; the cause of death was multiple injuries. In addition, evidence of a scar from a previous stroke was identified, as well as significant heart disease. The pilot had an intact artificial aortic heart valve, severe coronary artery disease with 75% stenosis of the left anterior descending artery and 30% in the right coronary artery. No gross evidence of scarring from a previous heart attack was described. The medical examiner's toxicology testing identified amlodipine in the pilot's urine but not in blood.

The FAA's Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma, performed toxicology testing and identified losartan, rosuvastatin, carvedilol, and salicylate in urine, amlodipine in liver and cavity blood, and rosuvastatin in blood. Losartan, carvedilol, and amlodipine are prescription blood pressure medications. Salicylate is a metabolite of aspirin; rosuvastatin is a prescription cholesterol lowering agent. None of these medications are generally considered impairing.

Records from the pilot's primary care doctor between April 2013 and April 2016 indicated that the pilot had undergone an aortic valve and aortic root replacement in 2012, and that he had longstanding hypertension and high cholesterol. He had also been diagnosed with a transient ischemic attack sometime before 2013. A list of regular medications was not included in the records after 2014.

## Additional Information

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According to the VANS RV-12 Pilot Operating Handbook. "During gusty wind conditions, fly the landing approach at approximately 5 knots above normal and touch down with the nose slightly lower than for a normal landing. Crosswind approaches can best be accomplished by using the wing down top rudder method touching first on the down wing side main wheel, followed by the other main wheel, and finally lowering the nose wheel all the while keeping the stick into the wind."

The Airplane Flying Handbook (FAA-H-8083-3B), Chapter 8, " Crosswind Approach and Landing," stated in part: The wing-low (sideslip) method compensates for a crosswind from any angle, but more important, it keeps the airplane's ground track and longitudinal axis aligned with the runway centerline throughout the final approach.

For landing in turbulent conditions, use a power-on approach at an airspeed slightly above the normal approach speed. This provides for more positive control of the airplane when strong horizontal wind gusts, or up and down drafts, are experienced. Like other power-on approaches, a coordinated combination of both pitch and power adjustments is usually required.

## Administrative Information

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<b>Investigator In Charge (IIC):</b>	Lawrence A Mccarter	<b>Report Date:</b>	05/09/2018
<b>Additional Participating Persons:</b>	Stephen O'Rourke; FAA FSDO; Baltimore, MD Mitchell Lock; Vans Aircraft; California, MD		
<b>Publish Date:</b>	05/09/2018		
<b>Note:</b>	The NTSB traveled to the scene of this accident.		
<b>Investigation Docket:</b>	<a href="http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=93035">http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=93035</a>		

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The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).