



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

# Aviation Investigation Final Report

<b>Location:</b>	Edgewater, Maryland	<b>Accident Number:</b>	ERA14CA334
<b>Date &amp; Time:</b>	July 8, 2014, 19:30 Local	<b>Registration:</b>	N7368F
<b>Aircraft:</b>	Cessna 172N	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Windshear or thunderstorm	<b>Injuries:</b>	2 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Instructional		

## Analysis

The flight instructor reported that she and the student pilot checked the weather conditions prior to departing on an instructional flight, and noted thunderstorms were forecast for the area about 1 hour after their flight was scheduled to be completed. While returning from the flight as scheduled, the flight instructor noted thunderstorm activity to the northwest and strong winds at an airport located about 15 miles north of their destination airport. While on final approach to land on runway 30, the flight instructor noted that the reported winds were from 260 degrees at 10 knots. She continued the approach normally; however, during the landing flare a significant change in headwind caused the airplane to climb. The flight instructor added engine power and pitched up, with the intention of aborting the landing; however, the airplane quickly descended uncontrollably onto the runway. The airplane landed hard and sustained substantial damage to the left wing. Review of weather radar around the time of the accident revealed a line of approaching echos, with a defined gust front ahead of the system. Winds reported at a nearby airport, about 30 minutes before the accident were from 210 degrees at 10 knots, and from 300 degrees at 18 knots, gusting to 29 knots, about 30 minutes after the accident.

## Probable Cause and Findings

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

The pilot's inadvertent encounter with an unanticipated convective gust front or low-level wind shear while landing, which resulted in a loss of control and subsequent hard landing.

## Findings

<b>Aircraft</b>	Landing flare - Attain/maintain not possible
<b>Environmental issues</b>	Windshear - Effect on operation
<b>Environmental issues</b>	Gusts - Effect on operation
<b>Personnel issues</b>	Decision making/judgment - Instructor/check pilot
<b>Environmental issues</b>	Thunderstorm - Effect on operation

## Factual Information

### History of Flight

<b>Landing-flare/touchdown</b>	Windshear or thunderstorm (Defining event)
<b>Landing-flare/touchdown</b>	Hard landing

### Flight instructor Information

<b>Certificate:</b>	Commercial; Flight instructor	<b>Age:</b>	23
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land	<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	3-point
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	Airplane single-engine; Instrument airplane	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	July 1, 2013
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	April 10, 2014
<b>Flight Time:</b>	600 hours (Total, all aircraft), 473 hours (Total, this make and model), 500 hours (Pilot In Command, all aircraft), 61 hours (Last 90 days, all aircraft), 35 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

### Student pilot Information

<b>Certificate:</b>	Student	<b>Age:</b>	36
<b>Airplane Rating(s):</b>	None	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	3-point
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 3 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	September 13, 2013
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	77 hours (Total, all aircraft), 77 hours (Total, this make and model), 8 hours (Pilot In Command, all aircraft), 20 hours (Last 90 days, all aircraft), 10 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Cessna	<b>Registration:</b>	N7368F
<b>Model/Series:</b>	172N	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	1979	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	17273257
<b>Landing Gear Type:</b>	Tricycle	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>	May 1, 2014 AAIP	<b>Certified Max Gross Wt.:</b>	2299 lbs
<b>Time Since Last Inspection:</b>	60 Hrs	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	12295 Hrs as of last inspection	<b>Engine Manufacturer:</b>	LYCOMING
<b>ELT:</b>	C91 installed, not activated	<b>Engine Model/Series:</b>	O-320-H2AD
<b>Registered Owner:</b>	W TECH CONSULTING INC	<b>Rated Power:</b>	160 Horsepower
<b>Operator:</b>	Navy Annapolis Flight Center	<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	NAK, 15 ft msl	<b>Distance from Accident Site:</b>	5 Nautical Miles
<b>Observation Time:</b>	19:54 Local	<b>Direction from Accident Site:</b>	60°
<b>Lowest Cloud Condition:</b>		<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>		<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	18 knots / 29 knots	<b>Turbulence Type Forecast/Actual:</b>	/ Convective
<b>Wind Direction:</b>	300°	<b>Turbulence Severity Forecast/Actual:</b>	/ Unknown
<b>Altimeter Setting:</b>	29.8 inches Hg	<b>Temperature/Dew Point:</b>	
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Easton, MD (ESN )	<b>Type of Flight Plan Filed:</b>	VFR
<b>Destination:</b>	Edgewater, MD (ANP )	<b>Type of Clearance:</b>	VFR
<b>Departure Time:</b>	19:20 Local	<b>Type of Airspace:</b>	

## Airport Information

<b>Airport:</b>	LEE ANP	<b>Runway Surface Type:</b>	Asphalt
<b>Airport Elevation:</b>	34 ft msl	<b>Runway Surface Condition:</b>	Unknown
<b>Runway Used:</b>	30	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	2500 ft / 48 ft	<b>VFR Approach/Landing:</b>	Full stop;Straight-in

## Wreckage and Impact Information

<b>Crew Injuries:</b>	2 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	2 None	<b>Latitude, Longitude:</b>	38.942779,-76.568336(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Schiada, Luke
<b>Additional Participating Persons:</b>	Jack W Callahan; FAA/FSDO; Baltimore, MD
<b>Original Publish Date:</b>	September 2, 2014
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	This accident report documents the factual circumstances of this accident as described to the NTSB.
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=89631">https://data.nts.gov/Docket?ProjectID=89631</a>

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