



# Aviation Investigation Final Report

<b>Location:</b>	Crystal, Minnesota	<b>Accident Number:</b>	CEN23LA398
<b>Date &amp; Time:</b>	September 3, 2023, 19:00 Local	<b>Registration:</b>	N321BT
<b>Aircraft:</b>	Van's Aircraft RV-12	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Abnormal runway contact	<b>Injuries:</b>	1 Minor, 1 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

## Analysis

The pilot was landing the light-sport airplane on the runway when it bounced two times. The nose gear collapsed, the propeller struck the ground, and the airplane came to rest upright on the runway in a nose-down attitude. The two occupants were able to exit the airplane without further incident. The airplane sustained substantial damage to the lower fuselage.

A postaccident metallurgical examination of the fractured nose landing gear strut revealed features consistent with ductile overstress fracture. There was no evidence of any pre-existing damage to the nose landing gear strut.

It is likely the pilot did not attain a proper landing flare, which resulted in the airplane bouncing twice and subsequently sustaining an overstress fracture of the nose landing strut.

## Probable Cause and Findings

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

The pilot's improper landing flare, which resulted in a bounced landing and an overstress fracture of the nose landing gear strut.

## Findings

<b>Personnel issues</b>	Aircraft control - Pilot
<b>Personnel issues</b>	Incorrect action performance - Pilot
<b>Aircraft</b>	Landing flare - Not attained/maintained
<b>Aircraft</b>	Nose/tail landing gear - Failure
<b>Aircraft</b>	Nose/tail landing gear - Capability exceeded

# Factual Information

## History of Flight

Landing-flare/touchdown	Abnormal runway contact (Defining event)
Landing-flare/touchdown	Part(s) separation from AC
Landing-flare/touchdown	Landing gear collapse
Landing-flare/touchdown	Loss of control on ground
Landing-flare/touchdown	Nose over/nose down
Post-impact	Evacuation

On September 3, 2023, about 1900 central daylight time, a Van’s Aircraft RV-12iS airplane, N321BT, sustained substantial damage when it was involved in an accident near Crystal, Minnesota. The pilot sustained minor injuries and the passenger sustained no injury. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The light-sport airplane departed from the Major Gilbert Field Airport (4R5), La Pointe, Wisconsin, about 1725, for the cross-country flight. The intended destination was the Crystal Airport (MIC), Minneapolis, Minnesota. During the landing at MIC, the airplane touched down on runway 24R, which was a dry asphalt runway, and bounced two times. The nose gear collapsed, the propeller struck the ground, and the airplane came to rest upright on the runway in a nose-down attitude. The two occupants were able to exit the airplane without further incident. The airplane sustained substantial damage to the lower fuselage.

A postaccident metallurgical examination of the fractured nose landing gear strut revealed features consistent with ductile overstress fracture. There was no evidence of any pre-existing damage to the nose landing gear strut.

The Federal Aviation Administration has published the Airplane Flying Handbook (FAA-H-8083-3C), which discusses bounced landings and states in part:

*Since a bounce occurs when the airplane makes contact with the ground before the proper touchdown attitude is attained, it is almost invariably accompanied by the application of excessive back-elevator pressure. This is usually the result of the pilot realizing too late that the airplane is not in the proper attitude and attempting to establish it just as the second touchdown occurs.*

## Pilot Information

<b>Certificate:</b>	Sport Pilot	<b>Age:</b>	46,Male
<b>Airplane Rating(s):</b>	None	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	5-point
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	
<b>Medical Certification:</b>	Sport pilot None	<b>Last FAA Medical Exam:</b>	
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	July 21, 2023
<b>Flight Time:</b>	(Estimated) 193 hours (Total, all aircraft), 193 hours (Total, this make and model), 114 hours (Pilot In Command, all aircraft), 55 hours (Last 90 days, all aircraft), 14 hours (Last 30 days, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Van's Aircraft	<b>Registration:</b>	N321BT
<b>Model/Series:</b>	RV-12 iS	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	2022	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Experimental light sport (Special)	<b>Serial Number:</b>	12110
<b>Landing Gear Type:</b>	Tricycle	<b>Seats:</b>	2
<b>Date/Type of Last Inspection:</b>	April 18, 2023 Annual	<b>Certified Max Gross Wt.:</b>	1320 lbs
<b>Time Since Last Inspection:</b>	77.2 Hrs	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	206.6 Hrs at time of accident	<b>Engine Manufacturer:</b>	Rotax Aircraft Engines
<b>ELT:</b>	C91A installed, not activated	<b>Engine Model/Series:</b>	912iS
<b>Registered Owner:</b>	LIGHT SPORT AVIATION SERVICES LLC	<b>Rated Power:</b>	100 Horsepower
<b>Operator:</b>	On file	<b>Operating Certificate(s) Held:</b>	None
<b>Operator Does Business As:</b>	None	<b>Operator Designator Code:</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>	KMIC, 864 ft msl	<b>Distance from Accident Site:</b>	0 Nautical Miles
<b>Observation Time:</b>	19:06 Local	<b>Direction from Accident Site:</b>	153°
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	6 knots /	<b>Turbulence Type Forecast/Actual:</b>	None / None
<b>Wind Direction:</b>	180°	<b>Turbulence Severity Forecast/Actual:</b>	N/A / N/A
<b>Altimeter Setting:</b>	29.71 inches Hg	<b>Temperature/Dew Point:</b>	33°C / 19°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	La Pointe, WI (4R5)	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Crystal, MN	<b>Type of Clearance:</b>	VFR
<b>Departure Time:</b>	17:25 Local	<b>Type of Airspace:</b>	Class D

## Airport Information

<b>Airport:</b>	CRYSTAL MIC	<b>Runway Surface Type:</b>	Asphalt
<b>Airport Elevation:</b>	869 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	06L/24R	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	2500 ft / 75 ft	<b>VFR Approach/Landing:</b>	Full stop; Straight-in

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 Minor	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	1 None	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 Minor, 1 None	<b>Latitude, Longitude:</b>	45.064506, -93.352806(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Hodges, Michael
<b>Additional Participating Persons:</b>	Edward Martin; FAA Minneapolis FSDO; Minneapolis, MN Rian Johnson; Van's Aircraft; Aurora, OR Bernhard Kobylak (Accredited Representative); Federal Safety Investigation Authority; Vienna, OF Jordan Paskevich (Technical Advisor); Rotax Aircraft Engines; Vernon, OF
<b>Original Publish Date:</b>	May 14, 2024
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class 3</a>
<b>Note:</b>	The NTSB did not travel to the scene of this accident.
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=193009">https://data.nts.gov/Docket?ProjectID=193009</a>

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](#).