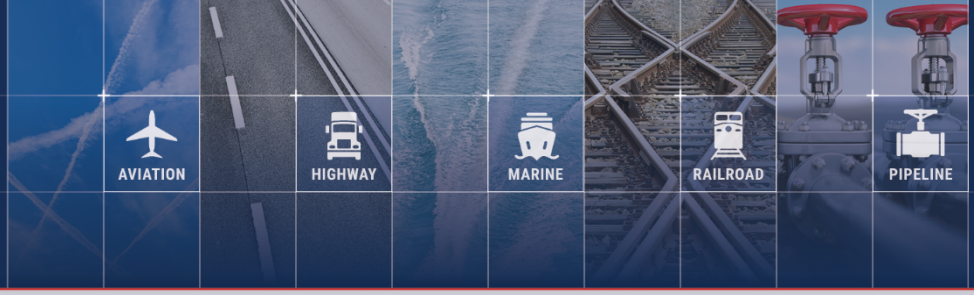

Aviation Investigation Final Report

Location:	Burlington, Vermont	**Accident Number:**	CEN23LA292
Date & Time:	July 5, 2023, 15:45 Local	**Registration:**	N64AF
Aircraft:	Cessna 172R	**Aircraft Damage:**	Substantial
Defining Event:	Hard landing	**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

According to the flight instructor, the student pilot was a little high on the final approach for the short field landing, which resulted in a steeper approach. Before touch down, the student decreased the pitch attitude, and there was little to no flare. The airplane landed flat, bounced, then hit the nosewheel first as they touched down and bounced a second time. During the second bounce, both pilots heard a noise, the student felt a vibration in the rudder pedals, and initiated a go-around. The flight instructor assumed control of the airplane during climb out and confirmed there were no anomalies with the rudder system before transferring the controls back to the student.

During the next landing, the flight instructor stated that the student flared a little high and the airplane ballooned before touchdown. During the landing roll, the airplane veered to the right and neither pilot was able to maintain directional control. The nose landing gear collapsed as both pilots applied the brakes. The airplane impacted a taxiway light and came to rest on the runway. The airplane sustained substantial damage to the firewall and lower fuselage at the nose landing gear support structure. Based on the pilot's statements it is likely the nose landing gear was compromised during the first landing attempt.

The flight instructor reported that there were no anomalies with the airplane before the first landing. He added that the accident could have been prevented if they had performed a go-around if a stabilized approach was not established.

Probable Cause and Findings

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

The student pilot's improper landing flare, which resulted in a hard, bounced landing and the flight instructor's delayed remedial action.

Findings

Personnel issues	Training with equipment - Student/instructed pilot
Aircraft	(general) - Incorrect use/operation
Environmental issues	(general) - Ability to respond/compensate
Personnel issues	Decision making/judgment - Instructor/check pilot

Factual Information

History of Flight

Landing-flare/touchdown	Hard landing (Defining event)

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	20,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	3-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine	**Toxicology Performed:**	
Medical Certification:	Class 1 Without waivers/limitations	**Last FAA Medical Exam:**	July 13, 2022
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	April 10, 2023
Flight Time:	(Estimated) 261 hours (Total, all aircraft), 122 hours (Total, this make and model), 172 hours (Pilot In Command, all aircraft), 25 hours (Last 90 days, all aircraft), 12 hours (Last 30 days, all aircraft)		

Student pilot Information

Certificate:	Student	**Age:**	56,Male
Airplane Rating(s):	None	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	3-point
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	May 16, 2022
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	(Estimated) 81 hours (Total, all aircraft), 79 hours (Total, this make and model), 8 hours (Pilot In Command, all aircraft), 16 hours (Last 90 days, all aircraft), 6 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N64AF
Model/Series:	172R	**Aircraft Category:**	Airplane
Year of Manufacture:	1997	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	17280069
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	May 31, 2023 Annual	**Certified Max Gross Wt.:**	2550 lbs
Time Since Last Inspection:	78.3 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	13302.5 Hrs at time of accident	**Engine Manufacturer:**	Lycoming
ELT:	C126 installed, not activated	**Engine Model/Series:**	IO-360-L2A
Registered Owner:	Vermont Flight Academy Inc	**Rated Power:**	180 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	Pilot school (141)

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KBTV,332 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	15:54 Local	**Direction from Accident Site:**	149°
Lowest Cloud Condition:	Few / 5500 ft AGL	**Visibility**	10 miles
Lowest Ceiling:		**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:		**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	29.93 inches Hg	**Temperature/Dew Point:**	33°C / 19°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	South Burlington, VT (KBTV)	**Type of Flight Plan Filed:**	None
Destination:	Burlington, VT	**Type of Clearance:**	Traffic advisory
Departure Time:	14:17 Local	**Type of Airspace:**	Class C

Airport Information

Airport:	Burlington International Airport KBVT	**Runway Surface Type:**	Asphalt
Airport Elevation:	335 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	01	**IFR Approach:**	None
Runway Length/Width:	4112 ft / 75 ft	**VFR Approach/Landing:**	Traffic pattern

Wreckage and Impact Information

Crew Injuries:	2 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	N/A	**Aircraft Fire:**	None
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	44.471955,-73.153276(est)

Administrative Information

Investigator In Charge (IIC):	Galbraith, Damian
Additional Participating Persons:	Thomas Cote; FAA; Portland, ME
Original Publish Date:	November 16, 2023
Last Revision Date:	
Investigation Class:	Class 4
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=192579