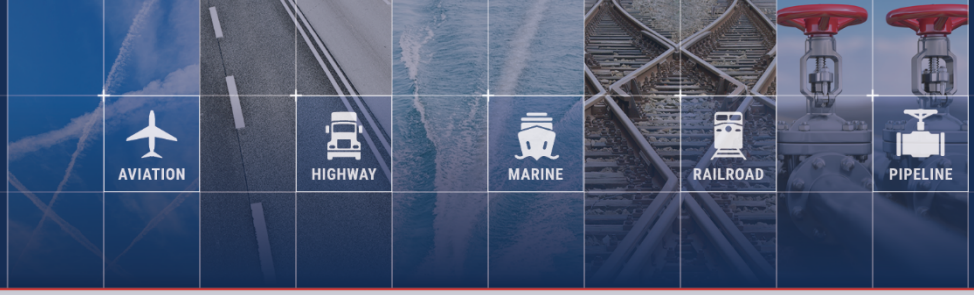

Aviation Investigation Final Report

Location:	Pinedale, Wyoming	**Accident Number:**	WPR20LA110
Date & Time:	March 16, 2020, 17:20 Local	**Registration:**	N4837Z
Aircraft:	Piper PA22	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control in flight	**Injuries:**	1 Serious, 1 Minor
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The student pilot reported that he was drifting to the right while on approach to land when the flight instructor took over controls. The flight instructor reported that he applied rudder control inputs; however, the rudder pedals didn't move for about 6 to 7 seconds and the airplane did not align with the runway.

The flight instructor reported that he thought that the glareshield mounted tachometer timing box could have been trapped behind the rudder pedals. The tachometer timing box was located at the accident site and had been thrown from the wreckage. A portion of the instrument panel mounted tachometer housing was found behind the rudder pedals. Further examination of the tachometer gauge revealed damage consisted with impact damage as a result of the accident and did not appear to have interfered with the movement of the rudder pedals.

Examination revealed no anomalies with the airframe that would have precluded normal operation. Multiple examinations of the rudder system did not reveal any evidence of a rudder malfunction or jam.

Probable Cause and Findings

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

A loss of airplane control during approach for reasons that could not be determined based on available evidence.

Findings

Personnel issues	Aircraft control - Pilot
Not determined	(general) - Unknown/Not determined

Factual Information

History of Flight

Approach-VFR pattern final	Loss of control in flight (Defining event)

On March 16, 2020, about 1720 mountain daylight time, a Piper PA-22-108, N4837Z, was substantially damaged when it was involved in an accident near Pinedale, Wyoming. The student pilot had minor injuries and the flight instructor was seriously injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 instructional flight.

The student pilot reported that the flight instructor took control of the airplane on final approach to runway 29 because the airplane was drifting to the right. The flight instructor later reported that after he took control of the airplane, he applied rudder control inputs. He reported that during a 6-to-7-second time period, the rudder pedals would not move. The airplane did not align with the runway and soon after impacted terrain near the runway.

Examination of the recovered airframe by an airframe and powerplant mechanic revealed substantial impact damage to both wings, fuselage and engine mount. The left wing, from the side strut to the tip was partially separated due to the impact with the ground during the accident sequence. The left aileron inboard attachment bracket separated from the left aileron bellcrank. Corrosion was noted between the aileron bracket and aileron bellcrank mounting surfaces. The remaining rivet material left in the aileron and bellcrank bracket exhibited overload necking signatures. The airplane's flight control cables were intact. The rudder control cable rear pulleys were unable to be rotated freely by hand. During the flight control cable continuity check, the cables moved past the pulleys with little resistance. Nothing was impeding the rudder pedals from their normal movement. In another follow-up examination, the pulleys were stiff when rotated by hand and the cables were undamaged.

The flight instructor reported that he thought that the glareshield mounted tachometer timing box could have been trapped behind the rudder pedals. The tachometer timing box was located at the accident site and had been thrown from the wreckage. A portion of the instrument panel mounted tachometer housing was found behind the rudder pedals. Further examination of the tachometer gauge revealed damage consisted with impact damage as a result of the accident.

An NTSB Form 6120.1 Pilot/Operator Aircraft Accident/Incident Report was not summited by the student pilot or the flight instructor.

Pilot Information

Certificate:	Airline transport	**Age:**	79,Male
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	Lap only
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	No
Medical Certification:	BasicMed With waivers/limitations	**Last FAA Medical Exam:**	November 1, 2018
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:			

Student pilot Information

Certificate:	Student	**Age:**	18,Male
Airplane Rating(s):	None	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Lap only
Instrument Rating(s):	None	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Unknown	**Last FAA Medical Exam:**	
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N4837Z
Model/Series:	PA22 108	**Aircraft Category:**	Airplane
Year of Manufacture:	1961	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	22-8411
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:		**Certified Max Gross Wt.:**	1649 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Lycoming
ELT:		**Engine Model/Series:**	O-235 SERIES
Registered Owner:	On file	**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:	KPNA,7086 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	10:15 Local	**Direction from Accident Site:**	110°
Lowest Cloud Condition:	Scattered / 6000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	Broken / 7500 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	4 knots /	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	300°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	30.05 inches Hg	**Temperature/Dew Point:**	-2°C / -3°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Pinedale, WY (PNA)	**Type of Flight Plan Filed:**	None
Destination:	Pinedale, WY (PNA)	**Type of Clearance:**	None
Departure Time:	17:15 Local	**Type of Airspace:**	

Airport Information

Airport:	Ralph Wenz Field PNA	**Runway Surface Type:**	Asphalt
Airport Elevation:	7096 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	29	**IFR Approach:**	None
Runway Length/Width:	8900 ft / 100 ft	**VFR Approach/Landing:**	Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 Serious, 1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Serious, 1 Minor	**Latitude, Longitude:**	42.796943,-109.810554(est)

Administrative Information

Investigator In Charge (IIC):	Swick, Andrew
Additional Participating Persons:	Bruce Hanson; FAA-FSDO; Casper, WY Kathryn Whitaker; Piper Aircraft; Phoenix, AZ
Original Publish Date:	March 30, 2022
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=101078