



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

Aviation Investigation Final Report

Location:	Wheatland, Wyoming	Accident Number:	GAA17CA141
Date & Time:	February 13, 2017, 14:50 Local	Registration:	N1421D
Aircraft:	Cessna 170	Aircraft Damage:	Substantial
Defining Event:	Loss of control on ground	Injuries:	3 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The flight instructor in the tailwheel-equipped airplane reported that, during the landing roll, as soon as the tailwheel touched the runway, the airplane veered to the right. He added that he attempted to recover by applying full left rudder, left brake, and right aileron, but the left wing impacted the ground as the airplane exited the runway to the right. Subsequently, the airplane nosed over.

The airplane sustained substantial damage to the right wing lift strut, both wings, and empennage.

The flight instructor reported that skid marks on the runway indicated that the tailwheel was not rolling freely. He added that, during a postaccident inspection, the left brake pedal went to the lower limit on an initial depression, but later held brake pressure during a second depression. He reported that he would not have been able to recover the airplane back to centerline because of the initial brake pressure response.

Further, the flight instructor reported that, about 10 minutes before the accident, the wind was 310° at 13 knots, gusting to 19 knots.

In a followup e-mail, the flight instructor reported that there were no brake or tailwheel anomalies noted during the run-up or departure. He also reported that the student pilot did not make any noticeable control inputs during the landing sequence.

The Federal Aviation Administration inspector reported that, during a postaccident examination of the airplane 2 days after the accident, he "saw nothing abnormal with the brakes," and he added that the tailwheel was turning.

The airplane landed on runway 26. An online commercial weather service provider reported that a nearby station, about 2 minutes before the accident, reported wind 010° at 21 mph, gusting to 24 mph.

The passenger in the rear seat provided a video showing the landing roll from the rear seat looking forward. Both the right and left control yokes can be seen, but the rudder pedals cannot be seen. During the beginning of the sequence, the instructor, in the right seat, had his right hand on the control yoke, and the student, in the left seat, had his left hand on the control yoke. Right aileron was applied. During the landing roll, the student added his right hand to the control yoke, and as the airplane veered to the right, left aileron was applied. The camera panned to the left as the right wing lifted and the left wing impacted the ground. The airplane veered left, then nosed over.

Probable Cause and Findings

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

The flight instructor's incorrect compensation for the gusting crosswind during the landing roll, which resulted in a loss of directional control and runway excursion.

Findings

Aircraft	Directional control - Not attained/maintained
Environmental issues	Crosswind - Response/compensation
Environmental issues	Gusts - Response/compensation
Personnel issues	Aircraft control - Instructor/check pilot
Aircraft	Brake - Malfunction

Factual Information

History of Flight

Landing-landing roll	Loss of control on ground (Defining event)
Landing-landing roll	Attempted remediation/recovery
Landing-landing roll	Runway excursion
Landing-landing roll	Nose over/nose down

Flight instructor Information

Certificate:	Airline transport; Flight instructor	Age:	67,Male
Airplane Rating(s):	Single-engine land; 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 single-engine; Instrument airplane	Toxicology Performed:	No
Medical Certification:	Class 2 With waivers/limitations	Last FAA Medical Exam:	April 1, 2016
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	June 3, 2015
Flight Time:	(Estimated) 31000 hours (Total, all aircraft), 35 hours (Total, this make and model), 29750 hours (Pilot In Command, all aircraft), 46 hours (Last 90 days, all aircraft), 23 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Student pilot Information

Certificate:	Student	Age:	61,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:	None None	Last FAA Medical Exam:	
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	(Estimated) 37 hours (Total, all aircraft), 31 hours (Total, this make and model), 31 hours (Last 90 days, all aircraft), 14 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Passenger Information

Certificate:		Age:	Male
Airplane Rating(s):		Seat Occupied:	Rear
Other Aircraft Rating(s):		Restraint Used:	Lap only
Instrument Rating(s):		Second Pilot Present:	Yes
Instructor Rating(s):		Toxicology Performed:	No
Medical Certification:		Last FAA Medical Exam:	
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N1421D
Model/Series:	170 A	Aircraft Category:	Airplane
Year of Manufacture:	1951	Amateur Built:	
Airworthiness Certificate:	Normal; Utility	Serial Number:	20134
Landing Gear Type:	Tailwheel	Seats:	4
Date/Type of Last Inspection:	October 13, 2016 Annual	Certified Max Gross Wt.:	2200 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	2618.9 Hrs at time of accident	Engine Manufacturer:	CONT MOTOR
ELT:	C91 installed, not activated	Engine Model/Series:	C-145-2
Registered Owner:		Rated Power:	145 Horsepower
Operator:	On file	Operating Certificate(s) Held:	Fractional ownership

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	KTOR,4199 ft msl	Distance from Accident Site:	34 Nautical Miles
Observation Time:	21:53 Local	Direction from Accident Site:	89°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	12 knots / 27 knots	Turbulence Type Forecast/Actual:	/ None
Wind Direction:	350°	Turbulence Severity Forecast/Actual:	/ N/A
Altimeter Setting:	30.13 inches Hg	Temperature/Dew Point:	12°C / -13°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	GUERNSEY, WY (GUR)	Type of Flight Plan Filed:	None
Destination:	Wheatland, WY (KEAN)	Type of Clearance:	Unknown
Departure Time:	13:59 Local	Type of Airspace:	Class G

Airport Information

Airport:	Phiefer Airfield KEAN	Runway Surface Type:	Asphalt
Airport Elevation:	4776 ft msl	Runway Surface Condition:	Dry
Runway Used:	26	IFR Approach:	None
Runway Length/Width:	5900 ft / 75 ft	VFR Approach/Landing:	Full stop

Wreckage and Impact Information

Crew Injuries:	2 None	Aircraft Damage:	Substantial
Passenger Injuries:	1 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	3 None	Latitude, Longitude:	42.055831,-104.92472(est)

Administrative Information

Investigator In Charge (IIC):	Benhoff, Kathryn
Additional Participating Persons:	Michael J Maglione; FAA; Casper, WY
Original Publish Date:	April 10, 2017
Note:	This accident report documents the factual circumstances of this accident as described to the NTSB.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=94728

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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](#).