National Transportation Safety Board
Aviation Accident Final Report

Location:	Grand Forks, ND	**Accident Number:**	CEN12LA516
Date & Time:	08/01/2012, 2345 CDT	**Registration:**	N586ND
Aircraft:	PIPER PA-44-180	**Aircraft Damage:**	Substantial
Defining Event:	Runway excursion	**Injuries:**	2 None
Flight Conducted Under:	Part 91: General Aviation - Instructional		

Analysis

The student and the instructor pilot were conducting a night local training flight. Upon return from the practice area, with the student at the controls, the airplane entered a right downwind for a full stop landing. The landing gear was confirmed down and locked verbally by the student and instructor. The final approach was uneventful, but the touchdown point was long, and the airspeed was fast. Because of the extra speed on landing, the instructor elected to continue to the next runway exit beyond the one he planned to use. The student had initially applied the brakes evenly for the planned runway exit, but the instructor told him to continue to the next exit and to release the brakes to continue without stopping on the active runway. As the student released the brakes, the airplane began to yaw abruptly to the right. The student said that he was not applying any right brake pressure and that the instructor was not on the brakes. Both the instructor and the student added left rudder and left brake pressure in an attempt to maintain directional control and to keep the airplane on the runway. They said that they did not have enough control authority to keep the airplane on the runway. The airplane continued to the right, turned into the grass, and the left main gear collapsed. Examination of the airplane's flight controls, landing gear system, and brake system did not reveal any evidence of mechanical malfunction or preaccident abnormalities. A review of maintenance activity on the airplane revealed two work orders related to the brake system. On November 28, 2011, both brake discs and linings were replaced. On December 13, 2011, the airplane was inspected because the right brake was reportedely sticking intermittently during takeoff roll and taxi. The student and instructor did not state that there was any crosswind while landing. The reason for the loss of control could not be determined.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The loss of directional control during landing roll, which resulted in a runway excursion. The reason for the loss of directional control could not be determined because postaccident examination did not reveal any malfunctions or anomalies that would have precluded normal operation.

Findings

Aircraft	Landing gear brakes system - Malfunction
Not determined	Not determined - Unknown/Not determined (Cause)

Factual Information

On August 1, 2012, approximately 2345 central daylight time, a Piper PA44-180, N586ND, registered to the University of North Dakota, sustained substantial damage when it veered off the runway after landing on runway 17R at the Grand Forks International Airport (GFK), Grand Forks, North Dakota. Both occupants, the certified flight instructor and the pilot under instruction, were not injured. Night visual meteorological conditions prevailed and no flight plan was filed for the local instructional flight. The flight was being conducted under the provisions of 14 Code of Federal Regulations Part 91, and had originated from GFK at 2150.

The student and instructor pilot were conducting a night local training flight. Prior to flying to their practice area, after they conducted several successful landings and takeoffs in the pattern, they proceeded to conduct their planned in-flight training. Upon return from the flight, with the student at the controls, the crew entered a right downwind for runway 17R for a full stop landing. The wind was light on the surface, but stronger from the west at pattern altitude. Landing gear was confirmed down and locked verbally by the student and instructor. During the turn to final, and due to the west wind at altitude, there was a slight overshoot, but the crew was able to become established on final and stabilized. The final approach and touchdown were uneventful, other than the touchdown point was long and the airspeed was fast. The flight instructor had planned to exit the runway at the Bravo exit, but with the extra speed he elected to continue to the next exit. The student had initially applied the brakes evenly for an exit at Bravo, but the instructor told him to continue to the next exit, and release the brakes to continue without stopping on the active runway. As the student released the brakes the aircraft began to yaw abruptly to the right. The student said that he was not applying any right brake pressure and the instructor was not on the brakes. Both instructor and student added left rudder and left brake pressure in an attempt to maintain directional control and keep the airplane on the runway. They said that they did not have enough control authority to keep the aircraft on the runway. The aircraft continued to the right and turned into the grass until the left main gear collapsed. Both throttles were at idle and the gear was confirmed down and locked just prior to landing. After the airplane came to a stop the crew exited uninjured. Structural damage was incurred to the left wing and fuselage behind the cabin bulkhead.

Examination of the airplane's flight controls, landing gear system, and brake system did not show any evidence of mechanical malfunction or preaccident abnormalities. A review of maintenance activity on the airplane revealed two work orders related to the brake system. On November 28, 2011, both brake discs and linings were replaced. On December 13, 2011, the airplane was inspected for reported right brake sticking intermittently during takeoff roll and taxi. A review of maintenance activity on the airplane revealed two work orders related to the brake system. The operator's maintenance personnel performed a thorough inspection after the accident, but were not able to identify a problem. They inspected the right brake system, which included removal and disassembly of the pilot's right master cylinder and brake hoses and inspection of the right wheel cylinder piston and linings for possible binding. There was no indication of blockage found within the master cylinder or connecting hoses, and no evidence of scoring of the shaft. The brake disc was true and showed no indication of overheating, and the linings were even with no indication of binding on the pins. The piston moved smoothly with no indication of binding. The copilot's right master cylinder was not removed for inspection because it had been replaced due to leaking seals since the previous reported occurrence of brake drag on December 13, 2011.

The student and instructor did not state that there was any crosswind while landing.

History of Flight

Landing	Runway excursion (Defining event)

Flight Instructor Information

Certificate:	Flight Instructor; Commercial	**Age:**	23, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane Multi-engine; Airplane Single-engine	**Toxicology Performed:**	No
Medical Certification:	Class 1 With Waivers/Limitations	**Last Medical Exam:**	07/25/2012
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	05/30/2011
Flight Time:	(Estimated) 957 hours (Total, all aircraft), 189 hours (Total, this make and model), 736 hours (Pilot In Command, all aircraft), 167 hours (Last 90 days, all aircraft), 37 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Student Pilot Information

Certificate:	Private	**Age:**	27, Male
Airplane Rating(s):	Single-engine Land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Seatbelt, Shoulder harness
Instrument Rating(s):	None	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 1 Without Waivers/Limitations	**Last Medical Exam:**	
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	05/26/2011
Flight Time:	(Estimated) 147 hours (Total, all aircraft), 6 hours (Total, this make and model), 30 hours (Pilot In Command, all aircraft), 20 hours (Last 90 days, all aircraft), 7 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	PIPER	**Registration:**	N586ND
Model/Series:	PA-44-180	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Normal	**Serial Number:**	4496281
Landing Gear Type:		**Seats:**	4
Date/Type of Last Inspection:	07/20/2012, Annual	**Certified Max Gross Wt.:**	3800 lbs
Time Since Last Inspection:		**Engines:**	2 Reciprocating
Airframe Total Time:	1148 Hours	**Engine Manufacturer:**	LYCOMING
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	O-360-A1H6
Registered Owner:	UNIVERSITY OF NORTH DAKOTA	**Rated Power:**	180 hp
Operator:	UNIVERSITY OF NORTH DAKOTA	**Air Carrier Operating Certificate:**	None

Meteorological Information and Flight Plan

Observation Facility, Elevation:	GFK, 845 ft msl	**Observation Time:**	2353 CDT
Distance from Accident Site:		**Condition of Light:**	Night
Direction from Accident Site:		**Conditions at Accident Site:**	Visual Conditions
Lowest Cloud Condition:	Few / 11000 ft agl	**Temperature/Dew Point:**	29°C / 8°C
Lowest Ceiling:	None	**Visibility**	10 Miles
Wind Speed/Gusts, Direction:	8 knots, 190°	**Visibility (RVR):**	
Altimeter Setting:	29.82 inches Hg	**Visibility (RVV):**	
Precipitation and Obscuration:			
Departure Point:	Grand Forks, ND (GFK)	**Type of Flight Plan Filed:**	None
Destination:	Grand Forks, ND (GFK)	**Type of Clearance:**	None
Departure Time:	2150 CDT	**Type of Airspace:**	Class E

Airport Information

Airport:	Grand Forks International (GFK)	**Runway Surface Type:**	Concrete
Airport Elevation:	845 ft	**Runway Surface Condition:**	Dry
Runway Used:	17R	**IFR Approach:**	None
Runway Length/Width:	7351 ft / 150 ft	**VFR Approach/Landing:**	Full Stop; Traffic Pattern

Wreckage and Impact Information

Crew Injuries:	2 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	N/A	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 None		

Administrative Information

Investigator In Charge (IIC):	Alexander Lemishko	**Adopted Date:**	08/13/2013
Additional Participating Persons:	Karmen C Johnson; FAA FSDO Fargo; Fargo, ND		
Publish Date:	08/13/2013		
Investigation Docket:	http://dms.ntsb.gov/pubdms/search/dockList.cfm?mKey=84572		

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