



Aviation Investigation Final Report

Location:	Spring, Texas	Accident Number:	CEN14LA220
Date & Time:	April 25, 2014, 18:25 Local	Registration:	N56755
Aircraft:	Piper PA 34-200	Aircraft Damage:	Substantial
Defining Event:	Loss of control on ground	Injuries:	4 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The flight instructor was flying the airplane and demonstrating a short-field landing during the instructional flight. The flight instructor reported that, after the airplane touched down about 90 mph, the right brake pedal went full forward, and the brakes were not slowing the airplane. He pumped the brake pedal several times to build pressure in the lines but was not successful. The pilot receiving instruction checked his brake pedals and confirmed that the right brake was not working. The flight instructor then shut down both engines when the airspeed was about 60 mph and subsequently lost directional control of the airplane. The airplane then drifted off the left side of the runway and impacted a ditch, which resulted in substantial damage to the lower aft fuselage and lower forward empennage.

An examination of the brakes the day after the accident did not reveal any problems with the right brake; however, it could not be determined whether the brake system had been serviced or repaired following the accident. A photograph of skid marks on the runway showed that the skid marks for the left main landing gear (MLG) tire seemed to be darker than the skid marks for the right MLG tire. The evidence indicates that the right brake likely lost effectiveness during the landing, which resulted in a loss of directional control; however, the reason for the brake's loss of effectiveness 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 right brake effectiveness during landing for reasons that could not be determined based on the available evidence, which resulted in a loss of directional control.

Findings

Aircraft

Brake - Malfunction

Aircraft

Directional control - Attain/maintain not possible

Factual Information

History of Flight

Landing-landing roll	Sys/Comp malf/fail (non-power)
Landing-landing roll	Loss of control on ground (Defining event)
Landing-landing roll	Runway excursion
Landing-landing roll	Collision with terr/obj (non-CFIT)
Landing-landing roll	Nose over/nose down
Post-impact	Cabin safety event

On April 25, 2014, about 1825 central daylight time, a Piper PA-34-200 multi-engine airplane, N56755, was substantially damaged during landing at David Wayne Hooks Airport (DWH), Spring, Texas. The three occupants were not injured. The airplane was registered to BAT Aviation, Inc.; Spring, Texas, and was being operated by United Flight Systems, Inc.; Spring, Texas. Day visual meteorological conditions (VMC) prevailed at the time of the accident and a flight plan had not been filed for the 14 Code of Federal Regulations Part 91 instructional flight.

The flight instructor was manipulating the flight controls and demonstrating a short-field landing. After the airplane touched down at about 90 mph, the flight instructor retracted the flaps and then discovered the right brake pedal went full forward and was not slowing the airplane. He proceeded to pump the brake several times to try and build pressure in the lines, but was not successful. The pilot receiving instruction checked his brake pedals and confirmed the right brake failure. The flight instructor reported that he then shut down both engines when the airplane's speed was about 60 mph. Directional control was lost and the airplane drifted off the left side of the runway and impacted a ditch at an estimated impact speed of about 20 mph resulting in substantial damage to the lower aft fuselage and lower forward empennage.

A photograph of skid marks of the main gear tires over the asphalt pavement showed that the skid marks for the left main gear tire seemed to be darker than the skid marks for the right main gear tire which were lighter in intensity. An examination of the brakes on the following day by a Federal Aviation Administration Inspector did not disclose a problem with the right brake, however it was unclear whether the brake system had been serviced or repaired following the accident.

At 1753, the official surface weather observation site at DWH, reported wind from 120 degrees at 5 knots, visibility of 10 miles, and few clouds at 6,500 feet. Data from the National Oceanic and Atmospheric Administration showed that, at the accident location, at 1825, the altitude of the sun was about 18 degrees above the horizon and the azimuth of the sun was about 275 degrees. Apparent sunset occurred at 1956.

Flight instructor Information

Certificate:	Commercial; Flight instructor	Age:	25, 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:	Yes
Instructor Rating(s):	Airplane multi-engine; Instrument airplane	Toxicology Performed:	No
Medical Certification:	Class 1 With waivers/limitations	Last FAA Medical Exam:	April 11, 2014
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	December 3, 2013
Flight Time:	(Estimated) 1045 hours (Total, all aircraft), 10 hours (Total, this make and model), 970 hours (Pilot In Command, all aircraft), 200 hours (Last 90 days, all aircraft), 80 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Pilot Information

Certificate:	Private	Age:	20, Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	3-point
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 3 With waivers/limitations	Last FAA Medical Exam:	June 20, 2013
Occupational Pilot:	No	Last Flight Review or Equivalent:	February 13, 2014
Flight Time:	(Estimated) 218 hours (Total, all aircraft), 0 hours (Total, this make and model), 143 hours (Pilot In Command, all aircraft), 70 hours (Last 90 days, all aircraft), 30 hours (Last 30 days, all aircraft)		

Passenger Information

Certificate:		Age:	Male
Airplane Rating(s):		Seat Occupied:	Rear
Other Aircraft Rating(s):		Restraint Used:	Unknown
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:	Piper	Registration:	N56755
Model/Series:	PA 34-200	Aircraft Category:	Airplane
Year of Manufacture:	1973	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	34-7450029
Landing Gear Type:	Retractable - Tricycle	Seats:	4
Date/Type of Last Inspection:	April 4, 2014 Annual	Certified Max Gross Wt.:	4000 lbs
Time Since Last Inspection:	7 Hrs	Engines:	2 Reciprocating
Airframe Total Time:	11348 Hrs at time of accident	Engine Manufacturer:	LYCOMING
ELT:	C91A installed, not activated	Engine Model/Series:	IO360 SER
Registered Owner:	BAT AVIATION INC	Rated Power:	200 Horsepower
Operator:	UNITED FLIGHT SYSTEMS INC	Operating Certificate(s) Held:	Pilot school (141)
Operator Does Business As:	UNITED FLIGHT SYSTEMS INC	Operator Designator Code:	IUFS

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	KDWH, 152 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	17:53 Local	Direction from Accident Site:	360°
Lowest Cloud Condition:	Few / 6500 ft AGL	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	5 knots /	Turbulence Type Forecast/Actual:	/ None
Wind Direction:	120°	Turbulence Severity Forecast/Actual:	/ N/A
Altimeter Setting:	29.88 inches Hg	Temperature/Dew Point:	29°C / 16°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Spring, TX (DWH)	Type of Flight Plan Filed:	None
Destination:	Spring, TX (DWH)	Type of Clearance:	VFR
Departure Time:	17:15 Local	Type of Airspace:	Class D

Airport Information

Airport:	DAVID WAYNE HOOKS MEMORIAL DWH	Runway Surface Type:	Asphalt
Airport Elevation:	152 ft msl	Runway Surface Condition:	Dry
Runway Used:	17L	IFR Approach:	None
Runway Length/Width:	3987 ft / 35 ft	VFR Approach/Landing:	Full stop;Straight-in

Wreckage and Impact Information

Crew Injuries:	2 None	Aircraft Damage:	Substantial
Passenger Injuries:	2 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	4 None	Latitude, Longitude:	30.063333,-95.553054

Administrative Information

Investigator In Charge (IIC):	Latson, Thomas
Additional Participating Persons:	Justin Kelly; FAA Houston FSDO; Houston, TX
Original Publish Date:	March 2, 2016
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=89127

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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](#).