



National Transportation Safety Board Aviation Accident Final Report

Location:	Columbus, OH	Accident Number:	IAD05LA093
Date & Time:	07/01/2005, 2330 EDT	Registration:	N2842D
Aircraft:	Piper PA-28-181	Aircraft Damage:	Substantial
Defining Event:		Injuries:	3 None
Flight Conducted Under:	Part 91: General Aviation - Instructional		

Analysis

According to the private pilot, she had begun flying 3 weeks earlier after a 5-year layoff. She took off, with a flight instructor in the right seat, on a cross country flight that landed uneventfully at the outbound destination. She did not note any mechanical anomalies during the landing or taxi. The return leg, at night, was also uneventful; however, when turning onto the downwind leg, the private pilot advised the flight instructor that he needed to land the airplane because she wasn't sure of the "perspective." The flight instructor took over, and the private pilot kept her hands and feet off the controls while observing the nighttime runway environment. The flight instructor turned onto the base leg, then onto the final leg. The airplane appeared to be lined up with the center of the runway, and the private pilot turned on the landing light. The airplane landed on both main landing gear, with the flight instructor "holding the nose wheel off." The private pilot could not see out the front window, but it appeared that the airplane was veering to the right. She then heard the flight instructor say "oh shoot" and "something about the rudder." The airplane then "hit something" and bounced, but veered back to the left and stopped in the center of the runway. According to the flight instructor, during the return cross country leg, he noticed a few times that the airplane was deviating left of the intended heading. At some point, the private pilot stated that she couldn't trim the airplane. The flight instructor tried to trim it, and with the maximum right trim set, he still had to hold right rudder to maintain heading. The flight instructor maintained a right rudder input for the rest of the flight. At the destination airport, the weather was "clear with light to nil wind." On final approach, the flight instructor set the power between 1,700 and 1,800 rpm, and the airplane was stabilized at 70 knots and aligned with the center of the runway, both visually, and with the glide slope and localizer. The flight instructor held right rudder input, and adjusted the airplane's heading by easing off right rudder or holding it as required to keep the airplane aligned with the center of the runway. The flight instructor thought about using flaps, but decided not to because he wasn't sure if it might exaggerate the left-turning tendency. Approaching the runway, the flight instructor noted that the airplane was turning to the right, so he eased off some right rudder. At some point, he "totally removed right rudder pressure and started "the transition approach to land," but "for whatever reason, the aircraft turned to the right suddenly and unexpected." To keep the airplane over the runway, the flight instructor turned the controls to the left, and applied full left rudder, but did

not notice any immediate response. He advised the private pilot and the passenger of what he was doing, and said, "the rudder is not responding" while initiating a go-around. The flight instructor then heard a "bang" as if the airplane had struck something, and the impact "forced the airplane more over and closer to the center of the runway." The flight instructor aborted the go-around, and landed. After landing, and while taxiing to the ramp, the flight instructor pressed the right and left rudder pedals several times, and noted that the right rudder pedal was much stiffer than the left. Photographs of the scene revealed three wheel tracks to the right of the runway, consistent with the width of the airplane's landing gear. The tracks veered off the runway, with the right main landing gear track passing next to the remnants of a 3,000-foot remaining sign. The tracks then gradually veered back toward the left, and on to a taxiway, toward the runway. The airplane was subsequently examined for proper rigging, with no significant anomalies noted.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The flight instructor's failure to maintain directional control during the landing rollout. A factor was the night lighting conditions.

Findings

Occurrence #1: ON GROUND/WATER COLLISION WITH OBJECT

Phase of Operation: LANDING - ROLL

Findings

1. (C) DIRECTIONAL CONTROL - NOT MAINTAINED - PILOT IN COMMAND(CFI)
2. OBJECT - SIGN
3. (F) LIGHT CONDITION - NIGHT

Factual Information

On July 1, 2005, about 2330 eastern daylight time, a Piper PA-28-181, N2842D, was substantially damaged during a landing at Ohio State University Airport (OSU), Columbus, Ohio. The certificated flight instructor, the certificated private pilot, and the passenger were not injured. Night visual meteorological conditions prevailed, and no flight plan had been filed for the instructional flight, from Romeo State Airport (D98), Romeo, Michigan, to Columbus, conducted under 14 CFR Part 91.

According to the private pilot, she had just started flying again 3 weeks earlier, with flight instructors, after a 5-year layoff. The accident flight was her first flight at night, and was the return leg of a cross country trip from Columbus to Romeo and back.

The private pilot initially took off from Ohio State about 1715, and the flight to Romeo was "uneventful." She "did not notice any problems on the landing or taxiing."

After about 2 hours at Romeo, the private pilot took off for Ohio State about 2145. The en route portion of the flight was "uneventful," and the private pilot flew most of the time, "with an occasional break from [the flight instructor]."

Approaching Columbus, the pilots were advised via ATIS that the winds were "350 at 09," and the private pilot subsequently announced over the Common Traffic Advisory Frequency (CTAF) that she intended to land on runway 09 Right.

As the private pilot turned to a left downwind, she advised the flight instructor that he needed to land the airplane because she wasn't sure of "the perspective," and the flight instructor took over the flight controls. The private pilot did not have her hands or feet on the controls, and was not watching the gauges so she could observe the runway "perspective" at night.

The flight instructor turned onto the base leg, then onto the final leg. The airplane appeared to be lined up with the "runway center," and the private pilot turned on the landing light. The airplane landed on both main landing gear, with the flight instructor "holding the nose wheel off." The private pilot could not see out the front window, but it appeared that the airplane was "moving to the right." She then heard the flight instructor say "oh shoot" and "something about the rudder." The airplane then "hit something" and bounced, but veered back to the left and stopped in the center of the runway.

The flight instructor stated that during the flight back from Romeo, the private pilot was in the left seat, and he was in the right seat. The flight appeared to be uneventful; however, he noticed a few times that the airplane was turning left, and deviating from the intended heading. At some point, the private pilot stated, "It seems I cannot trim the airplane." The flight instructor tried to trim it, and with the maximum right trim set, he still had to hold right rudder to maintain heading. The flight instructor maintained a right rudder input for the rest of the flight.

At the airport, "the weather condition was and reported clear with light to nil wind." On final approach, the power was set between 1,700 and 1,800 rpm, "that we carried all the way down to the runway." The airplane was stabilized at 70 knots on final approach, and aligned with the center of the runway, both visually, and with the glide slope and localizer. The flight instructor was "holding the right rudder in, and adjusting the airplane heading by easing off right rudder or holding it as required to keep the airplane aligned with the center of the runway." The flight

instructor thought about using flaps, but decided not to because he wasn't sure it might exaggerate the left-turning tendency.

Approaching the runway, the flight instructor noted that the airplane was turning to the right, so he eased off some right rudder. At some point, he "totally removed right rudder pressure. He started "the transition approach to land," but "for whatever reason, the aircraft turned to the right suddenly and unexpected." To keep the airplane over the runway, the flight instructor turned the controls to the left, and applied full left rudder, but did not notice any immediate response. He advised the private pilot and the passenger of what he was doing, and said, "the rudder is not responding" while initiating a go-around. The flight instructor then heard a "bang" as if the airplane had struck something.

It then appeared that the impact "forced the airplane more over and closer to the center of the runway." The flight instructor realized he had enough runway ahead, aborted the go-around, and landed on the runway.

After landing, and while taxiing to the ramp, the flight instructor pressed the right and left rudder pedals several times, and noted that although they worked, the right rudder pedal was much stiffer than the left.

After parking the airplane, the flight instructor noted damage to the right wing. He returned to the cockpit and checked behind the rudder pedals for any obstruction, but found none. He also checked the rudder trim tab by moving it left and right, with the indicator confirming the corresponding movement.

Photographs of the scene revealed three wheel tracks to the right of the runway, consistent in width to a PA-28. The tracks appeared to veer off the runway, with the right main landing gear track passing next to the remnants of a 3,000-foot remaining sign, then gradually transitioned back to the left, and on to taxiway "Charlie", toward the runway.

The airplane was subsequently examined for proper rigging per Chapter 27-10-00 of the Piper Maintenance Manual (PMM). The examination revealed that both ailerons were "a few degrees out of neutral, both left and right aileron travel was within limits...[and] cable tension was normal."

Stabilator and trim system rigging was checked per Chapter 27-30-00 of the PMM. Stabilator cable tension was within range, and trim cable tension was 11 pounds low. Stabilator up travel was 2.2 degrees short, and down travel was 1.7 degrees over. Trim travel was within range.

The rudder system rigging was checked per Chapter 27-20-00 of the PMM. Rudder cable tension was within range, and rudder travel was "a few degrees off" rudder pedal movement. The rudder stops were missing, and the bottom of the was found to be rubbing on the tail cone, "but did not appear to restrict rudder movement in any way."

Weather, reported at the airport at 2353, included clear skies and winds from 360 degrees true at 8 knots. Winds reported at 2253, were from 350 degrees at 12 knots.

Flight Instructor Information

Certificate:	Flight Instructor; Commercial	Age:	52, 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 Single-engine	Toxicology Performed:	No
Medical Certification:	Class 2	Last Medical Exam:	01/01/2005
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	900 hours (Total, all aircraft), 25 hours (Total, this make and model), 800 hours (Pilot In Command, all aircraft)		

Co-Pilot Information

Certificate:	Private	Age:	, Female
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Unknown	Last Medical Exam:	
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	Piper	Registration:	N2842D
Model/Series:	PA-28-181	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	28-7990488
Landing Gear Type:	Tricycle	Seats:	4
Date/Type of Last Inspection:	04/01/2005, Annual	Certified Max Gross Wt.:	2550 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	5293 Hours	Engine Manufacturer:	Lycoming
ELT:	Installed, not activated	Engine Model/Series:	O-360
Registered Owner:	Four Two Delta, LLC	Rated Power:	181 hp
Operator:	National Flyer's Association	Air Carrier Operating Certificate:	None

Meteorological Information and Flight Plan

Observation Facility, Elevation:	OSU, 905 ft msl	Observation Time:	2353 EDT
Distance from Accident Site:		Condition of Light:	Night
Direction from Accident Site:		Conditions at Accident Site:	Visual Conditions
Lowest Cloud Condition:	Clear	Temperature/Dew Point:	20° C / 15° C
Lowest Ceiling:		Visibility	10 Miles
Wind Speed/Gusts, Direction:	8 knots, 360°	Visibility (RVR):	
Altimeter Setting:	29.89 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Romeo, MI (D98)	Type of Flight Plan Filed:	None
Destination:	Columbus, OH (OSU)	Type of Clearance:	None
Departure Time:	2145	Type of Airspace:	

Airport Information

Airport:	Ohio State University (OSU)	Runway Surface Type:	Asphalt
Airport Elevation:	905 ft	Runway Surface Condition:	Dry
Runway Used:	09L	IFR Approach:	None
Runway Length/Width:	2994 ft / 100 ft	VFR Approach/Landing:	Full Stop; Traffic Pattern

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		

Administrative Information

Investigator In Charge (IIC):	Paul R Cox	Adopted Date:	03/28/2006
Additional Participating Persons:	Paul A Virgin; FAA/FSDO; Columbus, OH		
Publish Date:			
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .		

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