



# Aviation Investigation Factual Report

<b>Location:</b>	Columbus, Ohio	<b>Accident Number:</b>	IAD05LA093
<b>Date &amp; Time:</b>	July 1, 2005, 23:30 Local	<b>Registration:</b>	N2842D
<b>Aircraft:</b>	Piper PA-28-181	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	3 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Instructional		

## 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 if 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

<b>Certificate:</b>	Commercial; Flight instructor	<b>Age:</b>	52, Male
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land	<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	Airplane single-engine	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2	<b>Last FAA Medical Exam:</b>	January 1, 2005
<b>Occupational Pilot:</b>	UNK	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	900 hours (Total, all aircraft), 25 hours (Total, this make and model), 800 hours (Pilot In Command, all aircraft)		

### Co-pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	Female
<b>Airplane Rating(s):</b>	Single-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Unknown	<b>Last FAA Medical Exam:</b>	
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>			

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Piper	<b>Registration:</b>	N2842D
<b>Model/Series:</b>	PA-28-181	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	28-7990488
<b>Landing Gear Type:</b>	Tricycle	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>	April 1, 2005 Annual	<b>Certified Max Gross Wt.:</b>	2550 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	5293 Hrs at time of accident	<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	O-360
<b>Registered Owner:</b>	Four Two Delta, LLC	<b>Rated Power:</b>	181 Horsepower
<b>Operator:</b>	National Flyer's Association	<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Night
<b>Observation Facility, Elevation:</b>	OSU, 905 ft msl	<b>Distance from Accident Site:</b>	
<b>Observation Time:</b>	23:53 Local	<b>Direction from Accident Site:</b>	
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>		<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	8 knots / None	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	360°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	29.88 inches Hg	<b>Temperature/Dew Point:</b>	20°C / 15°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Romeo, MI (D98 )	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Columbus, OH (OSU )	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	21:45 Local	<b>Type of Airspace:</b>	

## Airport Information

<b>Airport:</b>	Ohio State University OSU	<b>Runway Surface Type:</b>	Asphalt
<b>Airport Elevation:</b>	905 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	09L	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	2994 ft / 100 ft	<b>VFR Approach/Landing:</b>	Full stop;Traffic pattern

## Wreckage and Impact Information

<b>Crew Injuries:</b>	2 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	1 None	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	3 None	<b>Latitude, Longitude:</b>	40.079723,-83.073059

## Administrative Information

**Investigator In Charge (IIC):** Cox, Paul

**Additional Participating Persons:** Paul A Virgin; FAA/FSDO; Columbus, OH

**Report Date:** January 11, 2006

**Last Revision Date:**

**Investigation Class:** [Class](#)

**Note:**

**Investigation Docket:** <https://data.nts.gov/Docket?ProjectID=61897>

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