



# Aviation Investigation Final Report

<b>Location:</b>	ROSELLE, Illinois	<b>Accident Number:</b>	CHI96FA237
<b>Date &amp; Time:</b>	July 13, 1996, 13:04 Local	<b>Registration:</b>	N25JP
<b>Aircraft:</b>	Piper PA-12	<b>Aircraft Damage:</b>	Destroyed
<b>Defining Event:</b>		<b>Injuries:</b>	1 Fatal
<b>Flight Conducted Under:</b>	Part 91: General aviation		

## Analysis

After making a banner pick-up, the pilot reported that he was having a rudder problem and that the airplane had a propensity to turn to the left. The pilot was able to maneuver the airplane back over the runway. According to a witness, the pilot initiated a go-around, when the airplane was 5 to 10 feet above the runway. The airplane entered a climbing left turn with the banner still attached. The airplane then stalled and impacted terrain south of the airport. Investigation revealed evidence that the tow line had become entangled on the right rudder horn, which resulted in the diminished aircraft control.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot's improper decision to perform a go-around, while there was restricted rudder movement and the banner was still attached to the airplane, which resulted in a loss of airspeed and an inadvertent stall. Factors relating to the accident were: the banner tow line becoming entangled on the rudder horn, and the pilot's inability (or failure) to jettison the banner.

## Findings

Occurrence #1: MISCELLANEOUS/OTHER  
Phase of Operation: MANEUVERING

Findings

1. (F) TOWING/ADVERTISING/EXTERNAL LOAD EQUIPMENT - ENTANGLED
2. (F) FLIGHT CONTROL,RUDDER - MOVEMENT RESTRICTED
3. (F) LOAD JETTISON - NOT ATTAINED - PILOT IN COMMAND

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Occurrence #2: LOSS OF CONTROL - IN FLIGHT  
Phase of Operation: GO-AROUND (VFR)

Findings

4. (C) IN-FLIGHT PLANNING/DECISION - IMPROPER - PILOT IN COMMAND
5. AIRSPEED - NOT MAINTAINED
6. (C) STALL - INADVERTENT - PILOT IN COMMAND

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Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER  
Phase of Operation: DESCENT - UNCONTROLLED

## Factual Information

### HISTORY OF FLIGHT

On July 13, 1996, at 1304 central daylight time, a Piper PA-12, N25JP, operated by Illinois Aerial Advertising, collided with the terrain following a loss of control during a banner tow operation. The accident occurred in Roselle, Illinois. The pilot received fatal injuries. The airplane was destroyed. The 14 CFR Part 91 flight was operating in visual meteorological conditions without a flight plan. The flight originated from Schaumburg, Illinois, at approximately 1240 central daylight time.

The itinerary for the flight was for the pilot to takeoff from the Schaumburg Regional Airport, circle the airport and come back to pick up the banner. Following the banner pick-up, he was going to make a local flight to the downtown Chicago area then return to the Schaumburg Regional Airport.

The owner of Illinois Aerial Advertising stated that normal procedure would be for the tow line to be connected to the tail hook prior to takeoff. The pilot would keep the hook end of the line in the airplane and would release the line after takeoff while on downwind. He stated he watched the pilot takeoff and come back around the traffic pattern to pick up the banner. He stated that the banner pick-up looked "good." He then noticed the pilot circling the airport (three times). He stated he borrowed a hand held radio from someone on the airport in order to contact the pilot. He stated the pilot replied that he was having a rudder problem and that the airplane could only make left turns. He stated he watched the pilot make two more turns at which time he went inside a building and he did not see the rest of the flight nor the accident. He stated that with four hours of fuel onboard he thought the pilot would continue circling until they could figure out a way to solve the problem.

Another witness stated that he was inside the fixed base operator and was asked to go outside to assist with an airplane that was circling the east end of the airport. He stated he asked the pilot over the radio how he was doing. The pilot replied, "Having problems holding altitude and can't get out of left turns." The witness stated the airplane was approximately 800 feet above the ground (agl) at this time. He stated that the airplane made six left turns and on each turn it lost altitude. He stated that during the last turn, he lost site of the airplane as it traveled behind a water tower. He stated he then saw the airplane again near the end of runway 29 at an altitude of approximately 100 feet agl. The witness stated the airplane continued toward the runway and was 5 to 10 feet off the surface of the runway in a left bank when he heard the application of "full power" and the airplane started to go-around. He stated the airplane climbed to an altitude of approximately 300 feet agl and was in a left bank heading to the southeast when it "went 90 degrees knife edge to the left and then went straight down nose first with the banner still attached... ."

## PERSONAL INFORMATION

The pilot was the holder of a Commercial Pilot's Certificate issued on October 25, 1992. He held a second class medical, dated August 30, 1995. This medical certificate contained the limitation that the "Holder shall possess corrective glasses for near vision." The pilot also held a Repairman Certificate for Sonerai II aircraft.

The pilot's last logbook was reviewed. The first entry in the book was dated July 24, 1994. The total time carried over at the beginning of the logbook was 815.6 hours. The last entry was dated July 4, 1996. The logbook showed the pilot had a total of 161.3 hours of banner towing flight time. The logbook showed the pilot had a total of 9.5 hours of flight time in PA-12s, all in N25JP, and of which 8 hours was towing banners.

## AIRCRAFT INFORMATION

N25JP was a Piper PA-12, s/n 12-1885. The airplane had a Restricted Airworthiness Certificate for Aerial Advertising. The airplane was equipped with a Lycoming O-360-A4A. According to logbook records, the last engine and airframe annual inspections were dated June 29, 1996. The tach time at the time of inspection was 3979.96 hours. Total time on the aircraft was 5464.96 hours and engine total time was 5251.25 hours. A logbook entry dated April 15, 1996 indicates the left wing was removed and repaired following wind damage.

The airplane was equipped with a banner tow hook mounted between the tailwheel assembly and the lower rudder mounting bracket.

The airplane was last refueled on July 13, 1996, with 36.8 gallons of 100LL aviation fuel.

## WRECKAGE AND IMPACT INFORMATION

Located next to runway 29 at the Schaumburg Regional Airport is an open field. Four sets of railroad tracks border the south side of the airport approximately 400 feet from the runway. These railroad tracks parallel the runway. Powerlines parallel the south side of the tracks which in turn are paralleled by a small wooded area. This wooded area borders the north side of the field in which the airplane impacted. Several freight cars were sitting on the railroad tracks at the time of the accident. The banner was located in the field adjacent to the runway. The banner rope was draped over the top of the railroad freight cars, across the tracks, the powerlines, and the trees. The end of the rope was located approximately 40 feet from the airplane. The rope had been cut and moved by the Roselle Police Department prior to the NTSB arrival due to an oncoming train.

The airplane came to rest in a near vertical nose down attitude on a heading of 190 degrees. The entire airplane structure was located in the immediate area of the main wreckage.

The left wing sustained crush damage along its entire leading edge. The wing struts had collapsed at the fuselage attach point. The right wing was extensively damaged along the entire leading edge. The wing right was crushed and twisted with the structure buckled near the fuselage attach point. The engine was pushed back into the cockpit area and the fuselage was split open around its circumference near the rear seat. Buckling was visible along the right side of the fuselage. The empennage section of the airplane was not damaged.

All flight control surfaces functioned when the cables attached to the cockpit flight controls were manipulated.

The banner was measured to be 137 feet 10 inches in length. The length of the banner rope, including the four lines attaching the banner bar to the single rope, measured 217 feet 6 inches. The piece of rope attached to the tow hook measured 24 feet. This rope consisted of a metal "O" ring which connects to the tow hook on the airplane. The rope attached to this ring was covered with plastic tubing. At the end of the plastic tubing was another "O" ring followed by another section of rope. The first section of this rope was covered by a garden hose type tubing. The banner hook was attached to the end of this section of hose.

#### MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy examination of the pilot was conducted by the DuPage County Coroner's Office, Wheaton, Illinois.

Toxicological specimens were examined by the Civil Aeromedical Institute of the Federal Aviation Administration, Oklahoma City, Oklahoma. Tests results were negative for those substances screened.

#### TESTS AND RESEARCH

The tow hook on the airplane was inspected. It functioned normally and released properly when operated from inside the airplane. Inspection of the right side of the rudder horn revealed an area of shiny worn metal. This area was located on the front of the rudder horn near the spring attach hole.

The wreckage was removed from the accident site and was inspected in a hangar at the Schaumburg Regional Airport. One propeller blade contained numerous chordwise scratches. An inspection of the engine failed to reveal any anomalies which would have resulted in the accident.

#### ADDITIONAL INFORMATION

The owner of Illinois Aerial Advertising stated that with tailwheel airplanes pilots have to be careful that the tow line does not go over the elevator or get hooked on the rudder horn when it is dropped from the airplane prior to banner pick-up. He stated that normal procedure would

be for the pilot to look outside the airplane and make sure that the tow line is properly in place prior to picking up the banner. He stated that he was sure the accident pilot would have looked outside the airplane to check the line; however, he was uncertain if the rudder horn could be seen by the pilot from inside the airplane.

## Pilot Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	56, Male
<b>Airplane Rating(s):</b>	Single-engine land	<b>Seat Occupied:</b>	Front
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	Yes
<b>Medical Certification:</b>	Class 2 Valid Medical-w/ waivers/lim	<b>Last FAA Medical Exam:</b>	August 30, 1995
<b>Occupational Pilot:</b>	UNK	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	1104 hours (Total, all aircraft), 10 hours (Total, this make and model), 973 hours (Pilot In Command, all aircraft), 55 hours (Last 90 days, all aircraft), 32 hours (Last 30 days, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Piper	<b>Registration:</b>	N25JP
<b>Model/Series:</b>	PA-12 PA-12	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Restricted (Special)	<b>Serial Number:</b>	12-1885
<b>Landing Gear Type:</b>	Tailwheel	<b>Seats:</b>	2
<b>Date/Type of Last Inspection:</b>	June 29, 1996 Annual	<b>Certified Max Gross Wt.:</b>	1750 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>		<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	O-360-A4A
<b>Registered Owner:</b>	STEVE FRIED	<b>Rated Power:</b>	180 Horsepower
<b>Operator:</b>		<b>Operating Certificate(s) Held:</b>	None
<b>Operator Does Business As:</b>	ILLINOIS AERIAL ADVERTISING	<b>Operator Designator Code:</b>	

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	DPA ,758 ft msl	<b>Distance from Accident Site:</b>	10 Nautical Miles
<b>Observation Time:</b>	12:50 Local	<b>Direction from Accident Site:</b>	235°
<b>Lowest Cloud Condition:</b>	Unknown	<b>Visibility</b>	30 miles
<b>Lowest Ceiling:</b>	Broken / 4900 ft AGL	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	10 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	250°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	29 inches Hg	<b>Temperature/Dew Point:</b>	28°C / 16°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	SCHAUMBURG , IL (06C)	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>		<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	12:40 Local	<b>Type of Airspace:</b>	Class E

## Airport Information

<b>Airport:</b>	SCHAUMBURG REGIONAL 06C	<b>Runway Surface Type:</b>	
<b>Airport Elevation:</b>	801 ft msl	<b>Runway Surface Condition:</b>	
<b>Runway Used:</b>	29	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	3800 ft / 100 ft	<b>VFR Approach/Landing:</b>	Forced landing;Go around

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 Fatal	<b>Aircraft Damage:</b>	Destroyed
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 Fatal	<b>Latitude, Longitude:</b>	41.979404,-88.079994(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Sullivan, Pamela
<b>Additional Participating Persons:</b>	DONALD W BRIGHAM; W. CHICAGO , IL MICHAEL MCCLURE; ARLINGTON , TX
<b>Original Publish Date:</b>	April 3, 1997
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=10094">https://data.nts.gov/Docket?ProjectID=10094</a>

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