



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	Bradford, PA	<b>Accident Number:</b>	IAD03FA001
<b>Date &amp; Time:</b>	10/03/2002, 2233 EDT	<b>Registration:</b>	N700DJ
<b>Aircraft:</b>	Piper Aerostar 602P	<b>Aircraft Damage:</b>	Destroyed
<b>Defining Event:</b>		<b>Injuries:</b>	1 Fatal
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Personal		

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## Analysis

The pilot attempted an ILS approach during night, instrument meteorological conditions. The inbound course was 322 degrees magnetic, and the glideslope outer marker crossing altitude was 3,333 feet msl. The decision altitude was 2,370 feet msl and the airport elevation was 2,143 feet msl. A wreckage path, about 370 feet in length, along a track 320 degrees magnetic, commenced with a tree strike about 300 feet southeast of the outer marker, at an elevation of about 2,200 feet msl. Examination of the airplane revealed no mechanical anomalies.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to follow the published instrument approach procedure, which resulted in an early descent into trees and terrain. A factor was the night, instrument meteorological conditions.

## Findings

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Occurrence #1: IN FLIGHT COLLISION WITH TERRAIN/WATER  
Phase of Operation: APPROACH - IAF TO FAF/OUTER MARKER (IFR)

### Findings

1. OBJECT - TREE(S)
2. (C) IFR PROCEDURE - NOT FOLLOWED - PILOT IN COMMAND
3. (F) LIGHT CONDITION - NIGHT
4. (F) WEATHER CONDITION - LOW CEILING

## Factual Information

### HISTORY OF FLIGHT

On October 3, 2002, about 2133 eastern daylight time, a Piper Aerostar 602P, N700DJ, was destroyed when it impacted terrain while on the ILS Runway 32 approach to Bradford Regional Airport (BFD), Bradford, Pennsylvania. The certificated private pilot was fatally injured. Night instrument meteorological conditions prevailed, and the airplane was operating on an instrument flight rules (IFR) flight plan. The personal flight, which originated from Evansville Regional Airport (EVV), Evansville, Indiana, was conducted under 14 CFR Part 91.

According to the published instrument approach procedure for the ILS Runway 32 approach at Bradford, the final approach course was 322 degrees, and the decision altitude was 2,370 feet. The minimum descent altitude was 3,400 feet, until established on the glideslope. The glideslope crossing altitude at the outer marker was 3,333 feet. The outer marker was 3.7 nautical miles from the approach end of runway 32. The elevation of Bradford Airport was 2,143 feet.

A National Transportation Safety Board air traffic control specialist examined the radar data and voice recordings provided by the Federal Aviation Administration (FAA). According to a review of the information, the pilot contacted the Cleveland Air Route Traffic Control Center at 2109:24, and advised that he was level at 9,000 feet. The controller issued a Bradford altimeter setting of 30.11 inches of mercury, and provided the current weather conditions at Bradford. The pilot acknowledged the transmission.

At 2110:20, the controller stated, "what type of approach you looking for there ah i-l-s?" The pilot responded, "we probably ought to set up for an i-l-s." The controller instructed the pilot to fly heading 080 degrees. The pilot acknowledged the transmission.

At 2119:05, the controller instructed the pilot to descend and maintain 5,000 feet, and the pilot acknowledged the transmission.

At 2121:57, the controller instructed the pilot to fly a heading of 090 degrees, and the pilot acknowledged the transmission.

At 2122:19, the controller instructed the pilot to descend and maintain 4,000 feet, and the pilot acknowledged the transmission.

At 2124:32, the controller advised, "seven hundred delta juliet if you want to drop your speed back there a little bit I'm going to turn you on here in about another mile." The pilot responded, "seven hundred delta juliet will do." Radar data indicated that a target, which was later correlated to be N700DJ, was approximately 3.5 miles west of the final approach course for runway 32 on a track of about 070 degrees. Ground speed of the airplane was estimated at 200 knots.

At 2124:45, the controller instructed the pilot to fly a heading of 020 degrees and the pilot acknowledged the transmission. Radar data indicated that the airplane began a left turn at an altitude of 4,100 feet. The target was 2.3 miles from the final approach course for runway 32 and approximately 20 miles southeast of the airport.

At 2124:55, the controller stated, "seven hundred delta juliet continue ah left turn heading three five zero you're ah niner miles southeast of bradford airport maintain four til established

cleared i-l-s to bradford." The pilot's response was unintelligible. The controller repeated the approach clearance and the pilot stated, "three five zero cleared to bradford zero delta juliet." Radar data indicated that the airplane's track was approximately 050 degrees, and its altitude was 4,200 feet. The airplane was 1.7 miles from the final approach course for runway 32, and had an average airspeed of 200 knots.

At 2125:30, the controller stated, "cancel i-f-r this frequency if unable altoona radio and i can hear you on the ground as well frequency change approved." The pilot acknowledged the transmission.

Radar data indicated that the airplane continued on an approximate track of 320 degrees, while maintaining a distance about 1 mile west of the final approach course, for about 1 minute and 20 seconds. During that time, the airplane descended from 3,500 feet to 2,900 feet, and maintained an average groundspeed of 165 knots.

At 2127:35, the pilot transmitted, "seven hundred delta juliet" The remainder of the transmission was unintelligible. The controller made several attempts to contact the pilot; however, no further transmissions were received.

The last radar return was received at 2127:24, at 3,100 feet, on a heading of 320 degrees, 1 mile west of the final approach course.

An alert notice (ALNOT) was issued for the airplane at 2233, and search and rescue operations were initiated. The airplane was located on October 5, 2002, at 1530, in a heavily wooded area of the Kinzu Bridge State Park, about 4 miles from the airport.

#### PILOT INFORMATION

The pilot held a private pilot certificate with ratings for airplane single and multi-engine land, instrument airplane, and rotorcraft-helicopter. His most recent FAA second class medical certificate was issued on April 1, 2002, at which time he reported 1,300 hours of total flight experience.

The pilot's logbook was located in the airplane wreckage. The logbook was identified as "logbook number 3," and contained entries from July 2, 2000 to October 3, 2002. Examination of the entries revealed that since July 2, 2000, the pilot had accumulated 198.2 hours of total flight experience, 6.1 hours of which were at night and 53.8 hours were in actual instrument meteorological conditions.

In the previous 90 days, the pilot had accumulated 27.1 hours of total flight experience, and 6.5 hours of actual instrument experience.

#### AIRCRAFT INFORMATION

Examination of fuel records from Evansville Regional Airport revealed that the airplane was "topped off" with 77.6 gallons of fuel on October 3, 2002.

The maintenance logbooks for the airplane were not located. However, according to an invoice provided by the airplane's mechanic, the airplane's last annual inspection was performed on April 29, 2002.

#### METEOROLOGICAL INFORMATION

The weather reported at Bradford, at 2053, included winds from 100 degrees true at 6 knots, 8 miles visibility, a broken cloud layer at 400 feet, an overcast cloud layer at 1,400 feet,

temperature 61 degrees Fahrenheit, dew point 59 degrees Fahrenheit, and barometric pressure of 30.11 inches of mercury.

#### AIDS TO NAVIGATION

A flight check of the ILS Runway 32 approach was performed on October 9, 2002, by the FAA. No anomalies were noted.

#### WRECKAGE INFORMATION

The initial impact point was located at 41 degrees, 45 minutes north latitude, 78 degrees, 34 minutes west longitude.

The initial impact point was a tree strike about 300 feet south east of the outer marker, at an elevation of about 2,200 feet msl. A second impact point was observed on a tree 12 inches in diameter, about 220 feet from the initial impact. The left wing tip was observed at the base of the tree.

The wreckage path was oriented along a track of 320 degrees magnetic and extended about 370 feet to the main wreckage. Located along the wreckage path were sections of both wings, horizontal stabilizers, elevators, and the center fuselage section. Also located along the wreckage path were branches and sections of trees, of varying diameters, cut at 45-degree angles with black paint transfer.

The main wreckage came to rest on a heading of 320 degrees magnetic and was consumed by a post-crash fire. That section contained the main wing spar, the inboard section of the right wing, a section of the left inboard flap, and the aft fuselage section with portions of both the left and right horizontal stabilizer still attached. The entire vertical stabilizer was observed with the rudder still attached.

Flight control continuity could not be confirmed; however, portions of all flight control surfaces were accounted for, and the control push/pull tubes were observed along the wreckage path.

The left and right engines were separated from the main fuselage, and both propeller assemblies were separated from their respective engines. One propeller assembly was located along the wreckage path, prior to the main wreckage. Two of the three blades remained attached to the propeller hub and one blade had separated. All three blades displayed S-bending and chordwise scratching. The second propeller assembly was located about 20 feet in front of the main wreckage, at the base of a tree. All three blades remained attached to the propeller hub and also displayed S-bending and chordwise scratching.

The left engine was located about 40 feet in front of the main wreckage. The left and right magnetos were both separated from the engine and one magneto was not located. The vacuum pump remained attached to the engine. Examination of the pump revealed its vanes were intact, with no anomalies noted.

The number 2, 4, 5, and 6 top spark plugs were removed from the engine, and their electrodes were intact and light gray in color. The number 1 and 3 spark plugs were separated from the engine and not located. Borescope examination of the cylinders and pistons revealed no anomalies. The left engine was rotated by hand at the propeller flange, and thumb compression was obtained on the number 2, 4, 5, and 6 cylinders. Compression could not be obtained on the number 1 and number 3 cylinders due to impact damage. Valve train

continuity was confirmed to the rear accessory drive.

The right engine was located about 600 feet in front of, and to the right of the main wreckage. The right magneto remained attached to the engine and the left magneto was separated, and sustained impact damage. The vacuum pump remained attached to the engine, and examination of its vanes revealed they were intact with no anomalies noted.

Examination of all of the top spark plugs, with the exception of the number 5 spark plug, revealed the electrodes were intact and light gray in color. The number 5 spark plug was separated from the cylinder, and not located. Borescope examination of the cylinders and pistons revealed no anomalies.

The right engine was rotated by hand at the propeller flange, and thumb compression was obtained to all cylinders except the number 1 cylinder due to impact damage. Valve train continuity was also confirmed to the rear of the accessory drive.

#### MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on the pilot by the McKean County Coroner's Office, Bradford, Pennsylvania.

Toxicological testing was performed by the FAA Toxicology Accident Research Laboratory, Oklahoma City, Oklahoma.

#### ADDITIONAL INFORMATION

According to the Pilot's Operating Handbook for the Piper Aerostar 602P, the recommended approach speed with 0-degrees of flaps selected, was 98-111 knots. The recommended approach speed with 45-degrees of flaps selected was 86-96 knots.

On October 10, 2002, the airplane wreckage was released to a representative of the owner's insurance company.

#### Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	59, Male
<b>Airplane Rating(s):</b>	Multi-engine Land; Single-engine Land	<b>Seat Occupied:</b>	
<b>Other Aircraft Rating(s):</b>	Helicopter	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	Airplane	<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>	04/01/2002
<b>Occupational Pilot:</b>		<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	1300 hours (Total, all aircraft), 27 hours (Last 90 days, all aircraft)		

## Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N700DJ
Model/Series:	Aerostar 602P	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	62P09238165047
Landing Gear Type:	Retractable - Tricycle	Seats:	6
Date/Type of Last Inspection:	04/29/2002, Annual	Certified Max Gross Wt.:	
Time Since Last Inspection:	911 Hours	Engines:	2 Reciprocating
Airframe Total Time:		Engine Manufacturer:	Lycoming
ELT:	Installed	Engine Model/Series:	IO-540
Registered Owner:	Poke Aire Inc	Rated Power:	300 hp
Operator:	On file	Operating Certificate(s) Held:	None

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument Conditions	Condition of Light:	Night
Observation Facility, Elevation:	BFD, 2143 ft msl	Distance from Accident Site:	4 Nautical Miles
Observation Time:	2053	Direction from Accident Site:	140°
Lowest Cloud Condition:		Visibility	8 Miles
Lowest Ceiling:	Broken / 400 ft agl	Visibility (RVR):	
Wind Speed/Gusts:	4 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	100°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.11 inches Hg	Temperature/Dew Point:	16° C / 15° C
Precipitation and Obscuration:			
Departure Point:	Evansville, IN (EVV)	Type of Flight Plan Filed:	IFR
Destination:	Bradford, PA (BFD)	Type of Clearance:	IFR
Departure Time:	1809 CDT	Type of Airspace:	Class E

## Airport Information

Airport:	Bradford Regional Airport (BFD)	Runway Surface Type:	Asphalt
Airport Elevation:	2208 ft	Runway Surface Condition:	Dry
Runway Used:	32	IFR Approach:	ILS
Runway Length/Width:	6499 ft / 150 ft	VFR Approach/Landing:	None

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 Fatal	<b>Aircraft Damage:</b>	Destroyed
<b>Passenger Injuries:</b>	N/A	<b>Aircraft Fire:</b>	On-Ground
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 Fatal	<b>Latitude, Longitude:</b>	41.750556, -78.567778

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Jill M Andrews	<b>Report Date:</b>	11/25/2003
<b>Additional Participating Persons:</b>	Joe McBride; FAA/FSDO; Allegheny, PA Michael McClure; The New Piper Aircraft; Prosper, TX Aaron Spotts; Lycoming Engines; Williamsport, PA		
<b>Publish Date:</b>			
<b>Investigation Docket:</b>	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 <a href="mailto:pubinq@ntsb.gov">pubinq@ntsb.gov</a> , or at 800-877-6799. Dockets released after this date are available at <a href="http://dms.nts.gov/pubdms/">http://dms.nts.gov/pubdms/</a> .		

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