



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

# Aviation Investigation Final Report

<b>Location:</b>	CHATTANOOGA, Tennessee	<b>Accident Number:</b>	MIA99FA031
<b>Date &amp; Time:</b>	November 7, 1998, 17:08 Local	<b>Registration:</b>	N44240
<b>Aircraft:</b>	Piper PA-28-151	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	2 Minor, 1 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

## Analysis

The pilot did not obtain a preflight weather briefing or determine the true airspeed for the 593 statute mile 2 leg cross country flight; he assumed indicated airspeed was the ground speed. The flight departed on the first leg with fuel tanks slightly less than full and arrived uneventfully 3.5 hours later. Fuel was not purchased and the flight departed on the second leg. While near the destination airport, the engine quit due to fuel exhaustion. At that time the fuel gauges each indicated approximately 2-3 gallons remaining. While descending for the forced landing, the airplane collided with trees then the ground. Examination of the airplane revealed no evidence of fuel leakage in flight. Approximately 4 ounces of fuel were drained from the carburetor and from the gascolator. Fuel lines in the engine compartment were empty. Approximately 1/2 ounce of fuel was drained from the right wing fuel tank. No engine failure or malfunction noted. The pilot further stated that during the entire flight time, the mixture control was in the full rich position. Fuel consumption calculations performed for the flight by FAA personnel revealed 47.79 gallons of fuel used out of a total of 48 gallons of usable fuel.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's inadequate in-flight planning/decision which led to fuel exhaustion.

## Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - NONMECHANICAL  
Phase of Operation: DESCENT - NORMAL

Findings

1. FLUID,FUEL - EXHAUSTION
2. (C) IN-FLIGHT PLANNING/DECISION - INADEQUATE - PILOT IN COMMAND
3. (C) FUEL MANAGEMENT - INADEQUATE - PILOT IN COMMAND

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Occurrence #2: IN FLIGHT COLLISION WITH OBJECT

Phase of Operation: EMERGENCY DESCENT/LANDING

Findings

4. OBJECT - TREE(S)

## Factual Information

### HISTORY OF FLIGHT

On November 7, 1998, about 1708 eastern standard time, a Piper PA-28-151, N44240, registered to P & N Corporation, collided with trees and an apartment building during an emergency descent for a forced landing near the Lovell Field, Chattanooga, Tennessee. Visual meteorological conditions prevailed at the time and no flight plan was filed for the 14 CFR Part 91 personal flight. The airplane was substantially damaged and the private-rated pilot, and one passenger sustained minor injuries. One passenger was not injured. The flight originated at 1349 central standard time, from the Evansville Regional Airport, Evansville, Indiana.

The pilot stated that the initial departure point was Marion, Iowa, and before departure of the planned 2 leg cross-country flight of 593 statute miles, he did not receive a preflight weather briefing and as a result, he did not obtain the winds aloft for the flight, but he did determine the distances, headings, and an estimated time en route. He used the indicated air speed as ground speed and did not calculate the true air speed. Additionally, he did not perform fuel consumption calculations. Review of the flight planning paperwork provided by the pilot revealed that the estimated time en route for the first leg was 3.2 hours. The flight departed Marion at approximately 1000 central standard time with the fuel level in each fuel tank 1-1.5 inches below the fuel cap, and landed uneventfully at 1311, as documented by Air Traffic Control (ATC). No fuel was purchased while at Evansville; the fuel gauges were indicating 12 gallons each, and the hour meter difference from takeoff to landing was recorded to be 3.5 hours. The flight departed VFR on a heading of 145 degrees and while flying at 3,500 feet, he reported that he was unable to obtain VOR reception from the Bowling Green VORTAC which was located 97 statute miles from the departure airport. The flight continued, arrived over the Bowling Green VORTAC, then proceeded on a heading towards the Lovell Field Airport, Chattanooga, Tennessee. When the flight was approximately 20 miles away from his destination airport, at 1653 eastern standard time as determined by ATC, he contacted Chattanooga Approach and advised that the flight was inbound for landing. The flight continued and after clearing Signal mountain, he reduced power to idle to descend to traffic pattern altitude. At 1,400 feet msl, he applied power to level off but the engine quit. At that time the fuel gauges indicated 2-3 gallons of fuel remaining per tank. He attempted to restart the engine but was unable and at 1806.24, he declared an emergency and advised the controller that he "...lost the engine." While descending for the forced landing, the propeller stopped. He maneuvered the airplane for a forced landing, extended 10 degrees of flaps, and while descending on a heading of 360 degrees, the left wing of the airplane collided with a tree approximately 24 feet above ground level. The airplane continued and 21 feet later, the right wing collided with a tree at the same height. The airplane then rotated to the right about 100 degrees, collided with the side of an apartment building near the ground, and came to rest on a magnetic heading of 108 degrees adjacent to the building with both wings separated.

## PERSONNEL INFORMATION

Information pertaining to the pilot is contained on page 2 of the Factual Report-Aviation.

## AIRCRAFT INFORMATION

According to the airplane type certificate data sheet, the usable fuel quantity is 48 gallons, and the unusable fuel quantity is 2 gallons.

## COMMUNICATIONS

The pilot was in contact with Chattanooga Air Traffic Control Tower. A transcript of communications is an attachment to this report.

## WRECKAGE AND IMPACT INFORMATION

Examination of the accident site revealed no evidence of fuel leakage from the separated wings. Approximately 1/2 ounce of fuel was drained from the right wing fuel tank. The airplane was recovered to Lovell Field Airport for further examination which revealed a total of 4 ounces of fuel drained from the carburetor bowl and from the gascolator. No fuel was found in the fuel line from the engine driven fuel pump to the carburetor or in the fuel line from the auxiliary fuel pump to the engine driven fuel pump. Examination of the engine revealed crankshaft, camshaft, and valve train continuity. Both magnetos were tightly installed and both sparked when rotated by hand.

## MEDICAL AND PATHOLOGICAL INFORMATION

Toxicology screen of specimens of the pilot performed at the hospital of admittance was negative for tested drugs.

## ADDITIONAL INFORMATION

The airplane had been operated for 5.9 hours as determined by the hour meter since departure on the initial flight. The pilot further stated that during the entire flight time, the mixture control remained in the "full rich" position. Review of the cruise performance charts regarding range and true airspeed revealed they are predicated with having the mixture leaned per Lycoming instructions.

According to FAA personnel, on the day of the accident there was no report of a failure or malfunction of the Bowling Green VOR. Additionally, fuel consumption calculations were performed by FAA personnel using the route of flight described by the pilot and the altitudes flown, winds aloft data obtained for the route of flight, and performance charts for the airplane. The calculations revealed 47.79 gallons of fuel consumed for the flight.

The wreckage was released to Mr. R.B. "Rusty" Romito of Chattanooga Aero Service, Inc., on November 8, 1998. No components were retained.

### Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	46,Male
<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>	None	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	Yes
<b>Medical Certification:</b>	Class 3 Valid Medical--w/ waivers/lim	<b>Last FAA Medical Exam:</b>	October 25, 1996
<b>Occupational Pilot:</b>	UNK	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	152 hours (Total, all aircraft), 17 hours (Total, this make and model), 103 hours (Pilot In Command, all aircraft), 8 hours (Last 90 days, all aircraft), 7 hours (Last 30 days, all aircraft), 6 hours (Last 24 hours, all aircraft)		

### Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Piper	<b>Registration:</b>	N44240
<b>Model/Series:</b>	PA-28-151 PA-28-151	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal; Utility	<b>Serial Number:</b>	28-7415607
<b>Landing Gear Type:</b>	Tricycle	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>	September 2, 1998 Annual	<b>Certified Max Gross Wt.:</b>	2325 lbs
<b>Time Since Last Inspection:</b>	98 Hrs	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	5522 Hrs	<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>	Installed, activated, did not aid in locating accident	<b>Engine Model/Series:</b>	O-320-E2D
<b>Registered Owner:</b>	P & N CORP.	<b>Rated Power:</b>	150 Horsepower
<b>Operator:</b>		<b>Operating Certificate(s) Held:</b>	None
<b>Operator Does Business As:</b>		<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>	CHA ,682 ft msl	<b>Distance from Accident Site:</b>	3 Nautical Miles
<b>Observation Time:</b>	17:05 Local	<b>Direction from Accident Site:</b>	59°
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	/ None	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	0°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30 inches Hg	<b>Temperature/Dew Point:</b>	14°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	EVANSVILLE (EVV )	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	(CHA )	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	13:49 Local	<b>Type of Airspace:</b>	Class C

## Airport Information

<b>Airport:</b>	LOVELL FIELD CHA	<b>Runway Surface Type:</b>	
<b>Airport Elevation:</b>		<b>Runway Surface Condition:</b>	
<b>Runway Used:</b>	0	<b>IFR Approach:</b>	
<b>Runway Length/Width:</b>		<b>VFR Approach/Landing:</b>	Forced landing

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 Minor	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	1 Minor, 1 None	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	2 Minor, 1 None	<b>Latitude, Longitude:</b>	35.02956,-85.229309(est)

## Administrative Information

**Investigator In Charge (IIC):** Monville, Timothy

**Additional Participating Persons:** PAMELA CHARLES; NASHVILLE , TN

**Original Publish Date:** March 31, 2000

**Last Revision Date:**

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

**Note:**

**Investigation Docket:** <https://data.nts.gov/Docket?ProjectID=45258>

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

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](#).