



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	Columbia, SC	<b>Accident Number:</b>	ATL04LA088
<b>Date &amp; Time:</b>	04/02/2004, 1550 EST	<b>Registration:</b>	N271EP
<b>Aircraft:</b>	Cessna 172N	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	1 None
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Personal		

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## Analysis

While on visual approach to the airport, the engine sputtered then lost power. The pilot's attempts to restore engine power were not successful. The pilot maneuvered the airplane to avoid trees, and it touched down on a grass fairway and nosed over. Examination of the airplane revealed 18 ounces of fuel was recovered from the right wing tank, and no fuel was recovered from the left wing tank. Four ounces of fuel was recovered from the fuel supply line to the carburetor, and the carburetor bowl contained no fuel. No evidence of fuel system leakage or defects were observed. Examination of the engine revealed no evidence of malfunction. Per STC SA4428SW, the airplane was equipped with a Lycoming O-360-A4M, 180-horsepower engine. The airplane accumulated 3.7 hours on the hobbs meter during the flight.

## 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 resulted in fuel exhaustion. The pilot's preflight planning and uneven terrain were contributing factors.

## Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - NONMECHANICAL

Phase of Operation: APPROACH

### Findings

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

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Occurrence #2: FORCED LANDING

Phase of Operation: DESCENT - EMERGENCY

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Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER

Phase of Operation: EMERGENCY DESCENT/LANDING

### Findings

4. (F) TERRAIN CONDITION - ROUGH/UNEVEN
5. OBJECT - TREE(S)

## Factual Information

On April 2, 2004, at 1550 eastern standard time, a Cessna 172N, N271EP, registered to a private owner and operated by Avion Air Academy, collided with ground and nosed over following a loss of engine power during approach to Columbia Metropolitan Airport, Columbia, South Carolina. The personal flight was operated under the provisions of Title 14 CFR Part 91 with an instrument flight rules (IFR) plan filed. Visual meteorological conditions prevailed. The commercial pilot was not injured, and the airplane sustained substantial damage. The flight departed Orlando Sanford Airport, Sanford, Florida, at 1223 on April 2, 2004.

According to air traffic control records, the flight received its IFR clearance at 1214 and was cleared to taxi for takeoff from Orlando Sanford Airport at 1217. After takeoff at 1223, the flight was cleared to climb to 5,000 feet, and, at 1240, it was instructed to climb and maintain 7,000 feet. At 1354, the flight climbed to 9,000 feet. At 1517, the pilot requested a descent to avoid icing conditions, and a controller cleared the flight to descend to 7,000 feet. At 1522, the pilot requested a descent and was cleared to 5,000 feet. While in contact with Columbia Approach Control, the flight was cleared at 1532 to descend to 3,000 feet, and, at 1542, the controller advised the flight to maintain maximum forward airspeed, and the flight was handed off to the Columbia Metropolitan tower controller.

The pilot stated he was cleared for a visual approach to runway 29; according to air traffic control records, the clearance was issued at 1545. The pilot stated the engine began sputtering and did not respond when full throttle was applied. The pilot stated he notified the tower controller of the problem and began looking for a field for landing. During the descent, the engine regained power briefly. As the pilot continued toward the airport, the engine lost power again, and the pilot's attempts to restore engine power were not successful. The pilot stated he completed the emergency procedures and established a glide toward a golf course. As the airplane neared the ground, the pilot maneuvered the airplane to avoid trees. The airplane touched down on a grass fairway and nosed over.

Examination of the airplane revealed it came to rest upside down with damage to the landing gear, propeller, wings, and wing spar. Eighteen ounces of fuel was recovered from the right wing tank, and no fuel was recovered from the left wing tank. Four ounces of fuel was recovered from the fuel supply line to the carburetor, and the carburetor bowl contained no fuel. No evidence of fuel system leakage or defects were observed.

On April 23, 2004, the airplane was further examined at a recovery facility. The engine was provided an external fuel source, and the airplane's existing power supply and propeller were utilized. The cockpit controls for the engine were utilized, and the engine was observed to start and operate smoothly with the oil pressure within the green range on the gauge. Damage to the propeller precluded a full throttle test; engine rpm was limited to 2000 rpm for the safety of personnel. A magneto check was performed with a 100 rpm drop observed for each. Application of carburetor heat using the cockpit control produced a drop in engine rpm. No evidence of engine malfunction was observed.

A binder on board the airplane contained a Cessna Pilot's Operating Handbook for the 1978 Skyhawk Model 172N that listed the airplane's fuel capacity as 43 gallons with 40 gallons total usable fuel. Additional documents in the binder revealed the Cessna 172N was modified in 1989 with a Lycoming O-360-A4M, 180-horsepower engine under the provisions of Supplemental Type Certificate (STC) SA4428SW. The binder contained a copy of the STC and

the "FAA Approved Airplane Flight Manual Supplement" containing the amended weight and balance and engine performance information.

According to the Flight Manual Supplement's performance table, fuel consumption for cruise flight at 72 percent brake horsepower at 10,000 feet was listed as 9.6 gallons per hour. Fuel consumption during cruise at 76 percent brake horsepower at 6,000 and 8,000 feet was listed as 10.1 gallons per hour. Fuel consumption during cruise flight at 76 percent brake horsepower at 2,000 and 4,000 feet was listed as 10.2 gallons per hour.

The dispatch log for the airplane recorded the hobbs meter and tachometer hours at the time of departure as 3611.4 and 848.3, respectively. The hobbs meter reading and tachometer reading on the airplane at the accident site were 3615.1 and 851.7, respectively.

A review of published forecast winds aloft data for April 2, 2004, valid from 1300 to 1700 eastern daylight time, revealed wind forecasts for the route of flight were as follows: Melbourne, Florida, at 3,000 feet mean sea level (MSL) winds from 290 degrees at 15 knots; at 6000 feet MSL winds from 290 degrees at 25 knots; and at 9000 feet MSL winds from 290 degrees at 31 knots. Savannah, Georgia, at 3000 feet MSL winds from 290 degrees at 28 knots; at 6000 feet MSL winds from 310 degrees at 30 knots; and at 9000 feet winds from 300 degrees at 29 knots. Columbia, South Carolina, at 3000 feet MSL winds from 300 degrees at 20 knots; at 6000 feet MSL winds from 320 degrees at 25 knots; and at 9000 feet MSL winds from 300 degrees at 32 knots.

## Pilot Information

<b>Certificate:</b>	Flight Instructor; Commercial	<b>Age:</b>	33, Male
<b>Airplane Rating(s):</b>	Multi-engine Land; Single-engine Land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	Seatbelt, Shoulder harness
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	Airplane Single-engine; Instrument Airplane	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 Without Waivers/Limitations	<b>Last Medical Exam:</b>	07/25/2002
<b>Occupational Pilot:</b>		<b>Last Flight Review or Equivalent:</b>	03/30/2004
<b>Flight Time:</b>	386 hours (Total, all aircraft), 285 hours (Total, this make and model), 261 hours (Pilot In Command, all aircraft), 31 hours (Last 90 days, all aircraft)		

## Aircraft and Owner/Operator Information

Aircraft Manufacturer:	Cessna	Registration:	N271EP
Model/Series:	172N	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	17273207
Landing Gear Type:	Tricycle	Seats:	4
Date/Type of Last Inspection:	02/25/2004, 100 Hour	Certified Max Gross Wt.:	2550 lbs
Time Since Last Inspection:	67 Hours	Engines:	1 Reciprocating
Airframe Total Time:	12525 Hours	Engine Manufacturer:	Lycoming
ELT:	Installed, activated, aided in locating accident	Engine Model/Series:	O-360-A4M
Registered Owner:	Patrick Kreuzsch	Rated Power:	180 hp
Operator:	Avion Air Academy	Air Carrier Operating Certificate:	None

## Meteorological Information and Flight Plan

Observation Facility, Elevation:	KCAE, 236 ft msl	Observation Time:	1556 EST
Distance from Accident Site:	1 Nautical Miles	Condition of Light:	Day
Direction from Accident Site:	315°	Conditions at Accident Site:	Visual Conditions
Lowest Cloud Condition:		Temperature/Dew Point:	19° C / 17° C
Lowest Ceiling:	Broken / 2100 ft agl	Visibility	4 Miles
Wind Speed/Gusts, Direction:	9 knots/ 16 knots, 230°	Visibility (RVR):	
Altimeter Setting:	29.86 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:			
Departure Point:	Orlando Sanford, FL (KSF)	Type of Flight Plan Filed:	IFR
Destination:	Columbia Metro, SC (KCAE)	Type of Clearance:	VFR
Departure Time:	1230 EST	Type of Airspace:	Class C

## Airport Information

Airport:	Columbia Metropolitan (KCAE)	Runway Surface Type:	Grass/turf
Airport Elevation:	236 ft	Runway Surface Condition:	Dry
Runway Used:	NA	IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	Forced Landing; Straight-in

## Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 None		

## Administrative Information

**Investigator In Charge (IIC):** Catherine E Gagne **Adopted Date:** 02/24/2005

**Additional Participating Persons:** Dwayne S Pittsenbarger; FAA Columbia FSDO-13; Columbia, SC

**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](mailto: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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