



# National Transportation Safety Board Aviation Accident Final Report

---

<b>Location:</b>	Augusta, GA	<b>Accident Number:</b>	ATL03FA107
<b>Date &amp; Time:</b>	06/16/2003, 1302 EDT	<b>Registration:</b>	N577FS
<b>Aircraft:</b>	Piper PA-31P	<b>Aircraft Damage:</b>	Destroyed
<b>Defining Event:</b>		<b>Injuries:</b>	2 Fatal
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Personal		

---

## Analysis

A witness at the airport stated the airplane appeared to use half of the 8,000-foot runway on takeoff roll, and the climb out appeared "very flat." During climbout, the pilot reported to the tower controller the airplane "lost an engine," and he announced intentions to return to the runway. The controller stated he noticed the airplane continued straight out and appeared to be losing altitude. Witnesses north of the airport observed the airplane flying low and described its engine noises as "erratic," "skipping," "sputtering," and "some sort of backfire." One witness stated the airplane was moving slowly to the north with a high nose-up angle, and the airplane "appeared to stall" then dove vertically into the trees. Examination of the accident site revealed wreckage debris and broken trees were scattered approximately 120 feet. The airframe, engines, and the right propeller sustained fire damage. The left propeller, top forward portion of the left engine case, and the left propeller gear shaft and bearings were not located. Examination of recovered components revealed no evidence of mechanical malfunction could be determined. According to the Pilot's Operating Handbook for the Piper PA-31P, the stall speed for the airplane with the gear and flaps up is: "(7800 lbs) 80 KCAS, 81 KIAS."

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to maintain airspeed while maneuvering on initial take off climb resulting in an inadvertent stall, loss of control, and subsequent in-flight collision with trees and a swamp. A factor in the accident was a reported loss of engine power for undetermined reasons.

## Findings

---

Occurrence #1: LOSS OF ENGINE POWER  
Phase of Operation: TAKEOFF - INITIAL CLIMB

### Findings

1. 1 ENGINE
2. (F) REASON FOR OCCURRENCE UNDETERMINED

-----

Occurrence #2: LOSS OF CONTROL - IN FLIGHT  
Phase of Operation: MANEUVERING

### Findings

3. (C) AIRSPEED(VS) - NOT MAINTAINED - PILOT IN COMMAND
4. STALL - INADVERTENT - PILOT IN COMMAND

-----

Occurrence #3: IN FLIGHT COLLISION WITH OBJECT  
Phase of Operation: DESCENT - UNCONTROLLED

### Findings

5. OBJECT - TREE(S)
6. TERRAIN CONDITION - SWAMPY

## Factual Information

### HISTORY OF FLIGHT

On June 16, 2003, at 1302 eastern daylight time, a Piper PA-31P, N577FS, registered to Gold Wing Transportation, Inc., owned and operated by River Cross Investment Corp., collided with trees, a swamp, and caught fire shortly after takeoff from Augusta Regional at Bush Field, Augusta, Georgia. The personal flight was operated under the provisions of Title 14 CFR Part 91 with an instrument flight plan filed. Visual meteorological conditions prevailed. The commercial pilot and passenger received fatal injuries, and the airplane was destroyed. The flight departed Augusta Regional at Bush Field, Augusta, Georgia, at 1259 on June 16, 2003.

According to air traffic control records, at 1259:37, the Augusta tower controller cleared the flight for takeoff from runway 35. During the flight's climbout from the runway, the pilot stated to the controller at 1301:09, "tower seven foxtrot sierra we just lost an engine and will be making a return to the runway." The controller replied, "Navajo seven foxtrot sierra roger cleared to land whatever runway you'd like wind zero four zero at seven." According to a statement provided by the controller, he noticed the airplane was losing altitude as it continued straight out after departing the runway, and it did not appear to be turning back toward the airport. At 1301:35, the controller asked, "Navajo seven foxtrot sierra you coming back around." The controller stated he then observed the airplane "tilt over to the side and go into the trees," and he used a telephone to call for emergency response.

A witness at the airport who observed the takeoff stated the airplane appeared to use half of the 8,000-foot runway on takeoff roll, and the climbout appeared "very flat." The witness stated the airplane was low over the trees off the departure end of the runway, then it pitched up, the right wing dropped, and the airplane dove straight down behind the trees. Witnesses north of the airport observed the airplane flying low and described its engine noises as "erratic," "skipping," "sputtering," and "some sort of backfire." One witness stated the airplane was moving slowly to the north with a high nose-up angle, and the airplane "appeared to stall," then dove vertically into the trees. Witnesses reported that, after the airplane disappeared into the trees, they heard an explosion and saw thick black smoke. Emergency response personnel and witnesses found the airplane in flames amid trees in the swamp, partially submerged in water.

### PERSONNEL INFORMATION

The pilot held a commercial pilot certificate issued August 24, 1989, for airplane single-engine land, airplane multi-engine land, and instrument airplane. The pilot also held a flight instructor certificate issued February 25, 2002, for airplane single-engine land. The pilot held a second-class medical certificate issued July 27, 2001, with the restriction, "must have available glasses for near vision." The pilot's logbook was not recovered for examination. On his most recent application for airman medical certificate, the pilot reported 8,000 total civilian flight hours.

### AIRCRAFT INFORMATION

The Piper PA-31P was manufactured in 1977 and was powered by two Lycoming TIGO-541-E1A, 425-horsepower engines. The maintenance logbooks for the airframe, propellers, left engine, and right engine were recovered from the wreckage and found damaged by water submersion with only portions legible. A maintenance facility provided copies of records that an annual inspection was completed on May 29, 2003, at a Hobbs meter reading of 2356. At

the time of the annual inspection, the airframe had accumulated 4,412 total hours. A review of the maintenance records revealed the left and right engines were overhauled on November 30, 1995, at an airframe total time of 3473.2. At the time of the annual inspection, the left engine had accumulated 938.6 hours since major overhaul, and the total time on the right engine was not recorded.

A fuel truck record supplied by a fueling facility at Augusta Regional at Bush Field revealed the airplane received 36.1 gallons of 100LL aviation fuel prior to departure. The lineman who serviced the airplane stated he topped off the inboard and outboard fuel tanks. A fuel sample retained from the fuel truck that serviced the accident airplane was submitted to Aviation Laboratories, Kenner, Louisiana, for testing. The laboratory reported no abnormalities with the fuel sample.

#### WRECKAGE AND IMPACT INFORMATION

Examination of the accident site revealed the airplane collided with trees and came to rest in a wooded swamp 1.7 nautical miles from the departure airport. Wreckage debris and broken tree limbs were scattered approximately 120 feet along a 353-degree magnetic heading. The tail section, empennage, and fuselage were upright, fire damaged, and partially submerged in three to four feet of water. The inboard sections of both wings were submerged in water, and were subsequently cut from the fuselage at the wing root by recovery personnel. The outboard sections of both wings were crushed and separated. The engines were submerged in water near the fuselage. The empennage was attached and subsequently cut from the fuselage by recovery personnel. The wreckage was transported to Griffin, Georgia, for further examination.

Examination of the airframe revealed the cabin roof and both sides of the fuselage were consumed by fire. The instrument panel was crushed and fire-damaged. The throttle quadrant and push-pull rods for the throttles, propeller controls, and mixture controls were fire-damaged. The push-pull rods were removed for examination, and their respective cables were attached to the rod ends and were cut approximately four feet from the rod ends.

The left fuel selector cockpit lever was positioned on the inboard tank, and continuity was established from the fuel selector lever to the rod assembly at the wing root. The right fuel selector cockpit lever was positioned to the inboard tank, and continuity was established from the fuel selector lever to the damaged and fractured rod assembly attachment at the wing root. The cross feed cockpit lever was selected to the off position, and the attachment bracket was damaged with the inner cable separated near the damaged bracket. The firewall fuel shutoff cockpit levers were in the off position; the inner cable was attached to left shutoff valve at the wing root, and the outer sleeve of the cable was cut at the wing root.

The left wing was crushed, fire-damaged, and was attached to the front and main spar. The outboard 10 feet of the outboard wing was separated and bent up and aft. The inboard and outboard wing fuel tanks were breached. The left engine was attached to the wing and submerged in swamp water. The engine case was fractured with the top forward portion of the case absent and not located. The propeller hub, spinner, blades, and propeller gear shaft and bearings were not located. The propeller governor remained attached to the engine case. The left propeller governor was removed from the engine, and engine was shipped to the manufacturer for further examination.

The left main landing gear was in the retracted position. The left aileron was fire damaged with

the left inboard aileron attached to the push-pull rod, and the bell crank. Both aileron cables were attached to the bell crank. The primary aileron control cable was separated 10 feet from the bell crank, and the balance cable was cut near the wing root. The left flap was attached to the airframe and was in the retracted position. The left wing fuel selector valve was positioned to the inboard tank, and the valve ports were free of obstruction. The firewall shutoff valve at the left wing root was in the full aft position and was open and free of obstruction. The valve was observed to close when moved to the full forward position. The electric fuel pump at the left wing root was examined and supplied with external battery power; the pump motor operated. The left inboard submerged fuel pump was removed and supplied with external battery power; the pump motor did not operate. Disassembly examination of the pump revealed water and dirt inside the pump, and the fuel pump screen was free of obstruction. The electrical connections were attached and corroded. The fuel strainer bowl was removed, and the filter was free of obstruction.

The right wing was crushed, fire-damaged, and was separated at the wing root. The leading edge was crushed aft at the wing root. The leading edge of the wing outboard of the engine nacelle was bent aft and up. The middle section of the wing was separated and crushed from the leading edge aft. The remaining outboard section of the wing was crushed aft to the main spar. The inboard and outboard wing fuel tanks were breached. The right engine was separated from the wing and was partially submerged in swamp water. The propeller was attached to the crankshaft propeller flange. The right propeller hub, spinner, and blades, and the right propeller governor were removed from the engine, and the engine was shipped to the manufacturer for further examination. The right propeller components and the right and left propeller governors were shipped to the manufacturer further examination.

The right main landing gear was in the retracted position. The right aileron was not located. The bell crank was attached to the aileron bracket, and the push-pull rod was fractured and separated at the bell crank. Both aileron cables were attached to the bell crank, and both aileron cables were cut at the wing root. The flap was separated near the middle attachment point, the outboard portion was attached to separated wing skin, and the inboard hinge was attached. The flap was in the retracted position. The right wing fuel selector valve was positioned to the inboard tank, and the valve ports were free of obstruction. The firewall shutoff valve at the right wing root was in the full aft position and was open and free of obstruction. The valve was observed to close when moved to the full forward position. The electric fuel pump at the wing root was fire-damaged. The submerged electric fuel pump was removed and supplied with external battery power; the pump motor operated. The fuel pump screen was free of obstruction. The fuel strainer bowl was removed; water was found, a fuel odor was detected, and the filter was free of obstruction.

The empennage was fire-damaged, and the left and right sides of the horizontal stabilizer were removed by recovery personnel. The elevator was fire-damaged, crushed, and partially separated from the horizontal stabilizer. The left and right sides of the elevator and the elevator control cables were cut by recovery personnel. The leading edge of the vertical fin was fire-damaged with the rudder and rudder trim tab attached. Rudder cable continuity was established from the rudder pedals in the cabin to the cut cable ends in the empennage.

Examination of the left engine revealed compression developed on the Nos. 1, 3, 4, 5, and 6 cylinders when the engine was turned from the starter gear, and valve train continuity was observed. The No. 2 cylinder was removed, and water damage, mud, and plant debris were

observed between the valve heads and the valve seats. Orange-colored RTV or RTV-type sealant was observed at the No. 2 cylinder base o-ring seal. The oil suction screen and oil filter were free of debris. The oil cooler, oil cooler hoses, and oil filler cap were secure. The turbocharger was removed for examination, and rotation was obtained at the compressor and turbine impellers. Both magnetos were damaged by water. The left magneto was loose on the engine mount pad, and the flange was broken under the forward clamp and worn under the aft clamp. The clamps were worn and damaged. Both magnetos produced spark on all harness leads when run on a test assembly. The spark plugs were Champion RHB325E massive electrode type and displayed evidence of water submersion. No abnormalities were observed with the wear or electrode gaps.

The fuel pump for the left engine was secure with the drive shaft intact, and the pump rotated when turned by hand. The fuel injector inlet screen was free of debris, and an odor of fuel was detected at the fuel servo. The fuel hoses were fire-damaged. The fuel servo was removed and shipped to the manufacturer for examination. External, x-ray, flow test, and subsequent disassembly examinations of the fuel servo revealed no mechanical abnormalities were observed.

Examination of the left propeller governor revealed the control arm and drive gear were functional, and disassembly revealed no evidence of damage or abnormal wear.

Examination of the right engine revealed the engine and accessories were fire-damaged. The engine crankshaft could not be turned, and the engine was disassembled. Fretting was observed on the crank case main bearing saddles. The propeller drive gear front bearing displayed fretting and was damaged. Fire and heat damage was observed throughout the engine including the crankcase, main bearings, crankshaft, camshaft, tappets, connecting rods, rod bearings, and cylinders. The oil suction screen was not located, and the oil filter element was fire-damaged. The oil filler cap was fire-damaged. The turbocharger displayed fire and heat damage and was removed for examination. Rotation was obtained at the compressor and turbine impellers. Both magnetos and wiring harnesses were mostly consumed by fire. The spark plugs were Champion RHB325E fine-wire type, with the exception of the No. 5 cylinder top plug, which was a Champion RHB32P. The plugs displayed evidence of water submersion and varying degrees of wear. The worn plugs were classified as ranging from "normal" to "severe" based on comparison with the Champion Aviation Check-A-Plug Card. No abnormalities were observed with the electrode gaps.

The fuel pump and fuel injector nozzles of the right engine were heat and fire damaged. The fuel injector inlet screen for the right engine was blackened, and the fuel hoses were fire-damaged. The fuel servo was removed and shipped to the manufacturer for examination. External, x-ray, and subsequent disassembly examinations of the fuel servo revealed fire and heat damage. A portion of the throttle body mounting flange was melted and consumed by fire. The throttle rotated, and portions of the throttle body were found melted through the shaft bushings. The mixture control rotated, the levers and fittings were intact, and the idle mixture link clevises were melted. The fuel section o-rings, fuel diaphragm, air diaphragm, and venturi o-rings were consumed by fire.

The right propeller governor was fire-damaged and blackened in external appearance, the control arm could not be actuated, and the drive gear rotated but did not rotate smoothly. Disassembly revealed a blackened internal appearance with no damage or abnormal wear. A dark, hard residue was observed obstructing the inlet port to the gear pump. Examination of

the propeller blades revealed fire damage to all three blades with each blade counterweight intact. Two blades were bent aft approximately 45 degrees approximately mid-span with no twisting observed, the tip of one of these blades was absent, and both of these blades were loose in the hub. The third blade was melted and the outer two-thirds of the blade was absent. The spinner dome displayed impact marks from the counterweights of the two bent blades, and the marks corresponded with the blades at a low blade angle in proximity of the low pitch stop. The low pitch stop displayed an impact depression, the feather stop was intact, and the start lock was intact and operable. Examination of the preload plates of each blade revealed one blade displayed impact marks from contact with the pitch change knob at blade angles of 101, 66, and 27 degrees.

#### MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on the pilot on June 17, 2003, by the office of the Medical Examiner, Georgia Bureau of Investigation, Division of Forensic Sciences, Decatur, Georgia. The report stated the cause of death was "smoke inhalation." Forensic toxicology was performed on specimens from the pilot by the Federal Aviation Administration Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma. The report stated 22 percent carbon monoxide was detected in the blood, 1.74 ug/ml cyanide was detected in the blood, no ethanol was detected in the vitreous, and no drugs were detected in the blood.

An autopsy was performed on the passenger on June 17, 2003, by the office of the Medical Examiner, Georgia Bureau of Investigation, Division of Forensic Sciences, Decatur, Georgia. The report stated the cause of death was "smoke and soot inhalation." Forensic toxicology was not requested nor performed on the passenger.

#### ADDITIONAL INFORMATION

A review of aircraft registration records on file with the Federal Aviation Administration revealed an undated Aircraft Bill of Sale listing Gold Wing Transportation, Inc., as the "seller" and River Cross Investment Corp. as the "purchaser."

According to the Pilot's Operating Handbook for the Piper PA-31P, Section 3.3 Emergency Check List, the procedures for "ENGINE FAILURE DURING TAKEOFF (101 KIAS or above)" are: "Abort if possible, and follow the [engine failure during takeoff, below 101 KIAS] procedures. If unable to abort: Continue - maintain in ground effect and follow the procedures below. WARNING - Negative climb performance may result from an engine failure occurring after lift off and before the gear and flaps have been retracted, the failed engine propeller has been feathered, the cowl flap on the failed engine is closed and a speed of 101 KIAS has been attained. Airspeed - 101 KIAS minimum, Directional control - maintain, Power - maximum, Gear - RETRACT, Prop. (inop. eng.) - FEATHER, Flaps - (in steps) UP, Cowl flap (inop. eng.) - CLOSE, Airspeed - accelerate to 109 KIAS, Airspeed - when clear of obstacles 112 KIAS, Trim - 5 degrees toward oper. eng., Cowl flap (operative engine - CLOSE (as much as possible), Climb - straight ahead (avoiding obstacles and attain sufficient altitude to execute single engine landing procedure), Inop. engine - complete Engine Securing Procedure, Land as soon as practical at nearest suitable airport."

According to the Pilot's Operating Handbook for the Piper PA-31P, Section 2 Limitations, the stall speed for the airplane with the gear and flaps up is: "(7800 lbs) 80 KCAS, 81 KIAS."

The wreckage was released to a representative of CTC Services, Aviation (LAD, Inc.), Orlando, Florida, on August 27, 2004.

## Pilot Information

<b>Certificate:</b>	Flight Instructor; Commercial	<b>Age:</b>	49, 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>	
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	Airplane Single-engine	<b>Toxicology Performed:</b>	Yes
<b>Medical Certification:</b>	Class 2 With Waivers/Limitations	<b>Last FAA Medical Exam:</b>	07/27/2001
<b>Occupational Pilot:</b>		<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	8000 hours (Total, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Piper	<b>Registration:</b>	N577FS
<b>Model/Series:</b>	PA-31P	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	No
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	31P-7730008
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	6
<b>Date/Type of Last Inspection:</b>	05/29/2003, Annual	<b>Certified Max Gross Wt.:</b>	7800 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	2 Reciprocating
<b>Airframe Total Time:</b>	4412 Hours as of last inspection	<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>	Installed	<b>Engine Model/Series:</b>	TIGO-541-E1A
<b>Registered Owner:</b>	Gold Wing Transportation, Inc.	<b>Rated Power:</b>	425 hp
<b>Operator:</b>	On file	<b>Operating Certificate(s) Held:</b>	None



## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	KAGS, 145 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	1300 EDT	Direction from Accident Site:	
Lowest Cloud Condition:	Few / 4500 ft agl	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	8 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	40°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.02 inches Hg	Temperature/Dew Point:	30° C / 21° C
Precipitation and Obscuration:			
Departure Point:	Augusta, GA (KAGS)	Type of Flight Plan Filed:	IFR
Destination:	Belmont, MS (K01M)	Type of Clearance:	IFR
Departure Time:	1259 EDT	Type of Airspace:	Class D

## Airport Information

Airport:	Augusta Regional at Bush Field (KAGS)	Runway Surface Type:	Asphalt
Airport Elevation:	145 ft	Runway Surface Condition:	
Runway Used:	35	IFR Approach:	None
Runway Length/Width:	8001 ft / 150 ft	VFR Approach/Landing:	Precautionary Landing

## Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	1 Fatal	Aircraft Fire:	On-Ground
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 Fatal	Latitude, Longitude:	33.369722, -81.964444

## Administrative Information

**Investigator In Charge (IIC):** Phil Powell **Report Date:** 01/24/2005

**Additional Participating Persons:** Randall P Gibson; Atlanta FSDO-11; College Park, GA  
Robert P Martellotti; New Piper Aircraft; Vero Beach, FL  
Edward G Rogalski; Textron Lycoming; Bellview, FL  
Tom McCreary; Hartzell Propeller, Inc.; Piqua, OH  
Peter Nielson; Precision Airmotive Corp.; Marysville, WA  
Aaron L Spotts; Tetron Lycoming; Williamsport, PA

**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/>.

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).