



National Transportation Safety Board Aviation Accident Final Report

Location:	Greeneville, TN	Accident Number:	MIA02FA162
Date & Time:	09/01/2002, 1650 EDT	Registration:	N9807U
Aircraft:	Gulfstream American AA-5A	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 Fatal
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

Witnesses reported observing the pilot repeatedly trying to start the engine for several minutes, and stated that after at least 5 minutes the engine started but immediately ceased operating. The witnesses further stated that the pilot then exited the airplane, did something to the engine, and then got back in the airplane and it started. It would not idle normally and required a higher power setting in order for it to remain operating. A witness said that the pilot maintained a high power setting to keep the engine operating, and taxied for takeoff. The witness further stated that he was about 50 to 75 feet away and he could hear the engine "struggling" to operate. During initial climb after takeoff, other witnesses reported hearing the airplane and stated that they heard three loud noises, each sounding like a "backfire", and after the last backfire there was silence. One witness reported looking up and seeing the propeller not rotating, and all witnesses said they saw the airplane enter a turn. They said there was no engine noise, and the airplane glided while turning as if to return to land at the airport, but they last sight of it as it descended below the trees. After the airplane disappeared from sight below the trees the witnesses stated that there was a loud "boom" and they saw smoke billow up in the air. Examination of the accident scene showed that the airplane struck trees and descended, impacting the ground, about 0.5 mile from the center of the airport, north of the departure end of runway 05. The airplane had come apart as it impacted the trees and the ground and a postcrash fire had ensued. The pilot received fatal injuries. Examination of the airframe, the flight controls and the engine did not reveal any pre-accident anomalies.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A loss of engine power for undetermined reasons and the pilot's decision to continue flight with a known equipment deficiency. Also causal was the pilot's failure to maintain airspeed which resulted in a stall.

Findings

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

Findings

1. (C) REASON FOR OCCURRENCE UNDETERMINED - PILOT IN COMMAND

Occurrence #2: FORCED LANDING
Phase of Operation: EMERGENCY LANDING AFTER TAKEOFF

Occurrence #3: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: MANEUVERING - TURN TO LANDING AREA (EMERGENCY)

Findings

2. (C) AIRSPEED(VS) - NOT MAINTAINED - PILOT IN COMMAND

3. STALL/MUSH - INADVERTENT - PILOT IN COMMAND

Occurrence #4: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: DESCENT - UNCONTROLLED

Findings

4. OBJECT - TREE(S)

Occurrence #5: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings

5. TERRAIN CONDITION - GROUND

Factual Information

HISTORY OF FLIGHT

On September 1, 2002, about 1650 eastern daylight time, a Gulfstream American AA-5A, N9807U, registered to and operated by a private individual, as a Title 14 CFR Part 91 personal flight, crashed shortly after takeoff at Greeneville, Tennessee. Visual meteorological conditions prevailed, and no flight plan was filed. The private-rated pilot received fatal injuries, and the airplane was destroyed. The flight was originating at the time of the accident.

The accident airplane struck trees and impacted the ground about 0.5 mile from the center of the airport, north of the departure end of runway 05, and a postcrash fire ensued.

A witness stated that she was in her back yard, and heard three loud noises each sounding like a "backfire", and she looked up and saw an airplane over a road near her home. The witness further stated that the engine was not operating, and it appeared that the airplane was gliding towards the airport, and it descended in a wooded area, followed by the sound of a loud "boom", after which she saw smoke.

Another witness stated that she was sitting outside and she heard an airplane engine "sputter", and the propeller was observed to have stopped turning. She said that when the engine "sputtered", the airplane turned toward the airport, and from that point on she did not hear the engine operating. She said the airplane started descending, and she heard a loud "boom" and saw smoke.

A third witness, a flight instructor, stated that he and his student were getting into a Cessna 172 for an instructional flight, and he heard the accident airplane being started. He said it sounded a little rough and was having a difficult time maintaining idle rpm. He stated that he focused on teaching his student and did not observe the accident airplane take off, and was next aware of the airplane when a crash was reported.

A fourth witness, a person working at the airport, stated that he observed the pilot/owner attempting to start the engine several times. He stated that the engine finally started then stopped, and the pilot/owner got out and "worked on the front of the aircraft" then got back in the aircraft. The witness said he then returned to his previous duties and did not observe anything else.

A fifth witness, a pilot, stated that he was performing preflight checks on his airplane in preparation of a flight, and he noticed a man trying to start another airplane. The witness further stated that it took the man at least 5 minutes to get the engine started, and when the engine started, immediately it ceased operating. He said he observed the person again trying to start the airplane and the same result happened a few times more. After a little while he said the man got out of the airplane and did something to the engine, got back in the airplane and was able to start the engine. He said that the engine was then operated at a high power setting, because when reduced it sounded as if it was going to cease operating. The witness said that he was about 50 to 75 feet away and he could hear the engine "struggling", but the pilot still maintained a high power setting and taxied the airplane for takeoff.

PERSONEL INFORMATION

The pilot held an FAA private pilot certificate, last issued on March 24, 1999, with airplane single engine land and instrument ratings. He also held an FAA Class 3 medical with the stated

limitation , "must possess corrective lenses for near vision while exercising privileges of this certificate", issued on February 18, 2000. At the time of the accident, based on information obtained from the pilot's flight log, the pilot had accumulated about 695 total flying hours, of which about 280 flight hours in the same make and model airplane, about 7.0 flight hours were obtained in the last 90 days, and about 3.5 flight hours were obtained in the last 30 days.

AIRCRAFT INFORMATION

The airplane was a Gulfstream American, Model AA-5A Cheetah, serial number AA-5A-0207, Manufactured in 1976. It was equipped with a Textron Lycoming O-320-E2G, 150 horsepower engine, serial number L-45412-27A.

No tachometer or hour meter was recovered at the wreckage site, but a review of records did show that both an annual and 100-hour inspection had been completed on May 4, 2002, at which time the engine log showed that the recording tachometer reading was 3687.8 hours.

Airplane records also indicated that the airplane was equipped with a two-bladed metal McCauley model 1C172-BTM7359 fixed pitch propeller, whose serial number was M1007.

METEOROLOGICAL INFORMATION

According to a county official it had rained heavily, with about 4 inches of rain having fallen the day before the day of the accident. On the day of the accident, visual meteorological conditions prevailed, and the 1700, Greeneville-Greene County Municipal automated surface weather observation, was winds light, visibility 10 statute miles, sky clear, temperature 85 degrees F, dewpoint temperature 61 degrees F, altimeter setting 30.17 inHg.

WRECKAGE AND IMPACT INFORMATION

The airplane had departed from runway 05 and shortly thereafter struck a tree which was 60 to 70 feet in height, and located north of the departure end of runway 05. Several other trees were stuck at approximately the same height. A section of the right wing lay near the base of the fourth impact point, which was approximately 81 feet from the initial point of impact . The debris path from the initial impact point to the main wreckage site lay along a direction of approximately 255 degrees with an overall debris path length of about 150 feet.

The aircraft came to rest in an inverted position, and a postcrash fire had ensued, consuming about 90 percent of the airframe. The fuel tanks had been breached and the fuel lines had burned. Installed gauges and radios had incurred impact and/or heavy heat damage, and were not recognizable or readable. Damaged but readable gauges consisted of the VSI which indicated 2,000 feet downward, the suction gauge which indicated zero, and the attitude indicator which showed a nose down attitude and that it had tumbled. The fuel selector was found in the debris, and it was positioned in the "left" tank position, with the "D" part of the shaft at about the 1 o'clock position as compared with that belonging to a similar airplane. Most of the major sections of the airframe were identifiable, and flight control cable routing from the cockpit area back to the empennage was confirmed. Aileron flight control routing was confirmed for the left wing toward the aileron bellcrank and the right aileron cable system, to the wing root area.

One propeller blade had been bent back about 45 degrees, about 9 to 10 inches from the center of the hub, and the opposite blade was relatively straight with its face displaying rotational scuffing and minor leading edge nicks.

The engine was found in an inverted position, partially attached to the firewall by the engine mount and it had some discoloration as a result of the postcrash. An examination of the engine revealed no anomalies. The cylinder case halves, rear accessory housing, and air/oil sump housing remained relatively intact, but had sustained impact and fire damage. The carburetor upper body had remained attached to the air/oil sump housing. The metal float assembly sustained impact damage leaving one float attached to the bracket. The lower body was located in the wreckage area and it had sustained impact damage. A large section of the bowl was broken out and a small portion of the flange to the accelerator pump chamber was broken off. The main fuel nozzle stem was broken off and the accelerator pump nozzle was intact. The carburetor inlet fuel screen was clear of contamination, and the screen material was discolored. The throttle plate was in the open position and the mixture arm was in the mid range position.

The magnetos and the engine-driven fuel pump also sustained fire damage, and were removed to facilitate the rotation of the crankshaft. The fire had melted both magneto internal plastic parts, and they were relatively intact but discolored. The impulse coupling of the left magneto could only be rotated until the pawls contacted the stop pins. The drive shaft did not rotate due to the internal parts of the magneto having melted. The drive shaft of the right magneto had similar fire damage and its drive shaft also would not rotate. Spark plug electrodes were intact and they displayed a gray color, when compared to Champion chart AV-27. The ignition harness had incurred fire damage.

After the magnetos and engine driven fuel pump were removed, the crankshaft was free to rotate, and compression and suction were obtained on all cylinders. There was valve train continuity at all eight rocker arms and the rear accessory gears. Oil was present in the rocker arm/ valve spring areas. The rear mounted oil cooler was intact and the hose fittings were tight. The oil filter element had also sustained heat damage, and when the folds of the element were separated, no metal contamination was found. In addition, the oil suction screen was also examined and no contamination was found.

Each of the cylinder combustion chambers were visually examined with a borescope, revealing that the top of the pistons, the combustion chamber walls and the valve heads were intact and coated with a dark tan colored deposit. The muffler was examined for blockage through the exhaust pipe and none were noted.

MEDICAL AND PATHOLOGICAL INFORMATION

Postmortem examination of the pilot was performed by a Forensic Pathologist, Johnson City, Tennessee, and the cause of death was attributed to multiple injuries, burns and inhalation of smoke and superheated gases. No findings which could be considered causal to the accident were reported.

The autopsy report noted containers of medications which were received with the body: One container had Altace (Ramipril), 10 mg #30, to be taken one capsule daily, which had been filled on August 23, 2002, and had 24 capsules remaining. The other container had Paxil (Paroxetine), 20 mg #30, to be taken one tablet each day, and which had been filled on August 23, 2002, and there were 23 tablets remaining.

Postmortem toxicology studies on specimens obtained from the pilot were performed by the FAA Toxicology Laboratory, Oklahoma City, Oklahoma. The specimens were tested for carbon monoxide, cyanide, volatiles and drugs, and 0.279 (ug/ml, ug/g) paroxetine was detected in

blood. In addition, paroxetine was detected in urine.

Paroxetine is a prescription antidepressant, often known by the trade name Paxil. In addition to depression, the medication is used to treat obsessive-compulsive disorder, panic attacks, and social anxiety disorder.

ADDITIONAL INFORMATION

The NTSB released the airplane wreckage on September 3, 2002 to Detective Daniel Ricker, Greene County Sheriff's Department.

Pilot Information

Certificate:	Private	Age:	, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	
Medical Certification:	Class 3 Valid Medical--w/ waivers/lim.	Last FAA Medical Exam:	03/04/2002
Occupational Pilot:		Last Flight Review or Equivalent:	01/07/2001
Flight Time:	694 hours (Total, all aircraft), 300 hours (Total, this make and model), 6 hours (Last 90 days, all aircraft), 3 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Gulfstream American	Registration:	N9807U
Model/Series:	AA-5A	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	AA-5A-0207
Landing Gear Type:	Tricycle	Seats:	4
Date/Type of Last Inspection:	05/04/2002, 100 Hour	Certified Max Gross Wt.:	2200 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:		Engine Manufacturer:	Textron Lycoming
ELT:		Engine Model/Series:	O-320-E2G
Registered Owner:	Clyda A. Cash & Vivian Cash	Rated Power:	150 hp
Operator:	Clyda A. Cash & Vivian Cash	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	TRI, 1519 ft msl	Distance from Accident Site:	30 Nautical Miles
Observation Time:	1653 EDT	Direction from Accident Site:	240°
Lowest Cloud Condition:	Few / 4600 ft agl	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	3 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	Variable	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.14 inches Hg	Temperature/Dew Point:	29° C / 17° C
Precipitation and Obscuration:			
Departure Point:	Greeneville, TN (GCY)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	1649 EDT	Type of Airspace:	Class E

Airport Information

Airport:	Greeneville MuniPal (GCY)	Runway Surface Type:	Asphalt
Airport Elevation:	1608 ft	Runway Surface Condition:	Dry
Runway Used:	05	IFR Approach:	Unknown
Runway Length/Width:	6302 ft / 100 ft	VFR Approach/Landing:	Unknown

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	On-Ground
Ground Injuries:	N/A	Aircraft Explosion:	On-Ground
Total Injuries:	1 Fatal	Latitude, Longitude:	36.203333, -82.805000

Administrative Information

Investigator In Charge (IIC):	John W Lovell	Report Date:	03/30/2005
Additional Participating Persons:	Lynn W La Fever; FAA FSDO; Nashville, TN David C Moore; Textron Lycoming; Ardsley, 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 , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .		

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