Aviation Investigation Final Report

Location:	DANBURY, Connecticut	**Accident Number:**	IAD01LA068
Date & Time:	June 9, 2001, 08:47 Local	**Registration:**	N27221
Aircraft:	Grumman American AA-5A	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The airplane was in cruise flight at 6,500 feet, about 7 miles west of the airport, when the engine lost partial power. The pilot contacted Danbury tower, proceeded direct to the airport, and circled about 1 mile west of the runway to lose altitude. The controller provided weather information and asked the pilot if he would like to land on runway 26 or 35. The pilot opted for runway 26 because it was longer. Upon passing through 3,000 feet, the controller asked the pilot if he could make a left 270 degree turn, and the pilot acknowledged. About a minute later, the pilot reported that the engine was running rough, but still producing power. While on final approach, the pilot made s-turns, and the controller gave him the option to make another 270 degree turn to lose altitude. On final approach, witnesses observed the airplane in a "dramatic" slip, and that it was too high and fast to land on the 4,422 foot long runway. At mid-field, the airplane was still "extremely fast" at a height level with the control tower, about 62 feet. Near the end of the runway, the pilot applied power to go-around, but the engine did not respond. The airplane continued to descend and collided with a pole about a 1/4- mile from the end of runway 8. Examination of the engine revealed that the #3 exhaust stack exhibited a 3/4-inch wide horizontal crack along the rim of the weld line. Additionally, the pilot had a 3,135 foot long perpendicular runway available for landing.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot's misjudged altitude and excessive airspeed resulting in a collision with a pole. A factor was the cracked exhaust stack, which resulted in a partial loss of engine power.

Findings

Occurrence #1: LOSS OF ENGINE POWER(PARTIAL) - MECH FAILURE/MALF
Phase of Operation: CRUISE

Findings
1. (F) EXHAUST SYSTEM,STACK - CRACKED

Occurrence #2: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: EMERGENCY DESCENT/LANDING

Findings
2. OBJECT - POLE
3. (C) ALTITUDE - MISJUDGED - PILOT IN COMMAND
4. (C) AIRSPEED - EXCESSIVE - PILOT IN COMMAND
5. PRECAUTIONARY LANDING - PERFORMED - PILOT IN COMMAND

Factual Information

HISTORY OF FLIGHT

On June 9, 2001, at 0847 eastern daylight time, a Grumman American AA-5A, N27221, was substantially damaged during a go-around to runway 26 at Danbury Municipal Airport (DXR), Danbury, Connecticut. The certificated private pilot and pilot rated passenger sustained minor injuries. Visual meteorological conditions prevailed and no flight plan was filed for the personal flight conducted under 14 CFR Part 91.

The pilot and passenger departed Hartford, Connecticut, about 0820, destined for Reading, Pennsylvania. The airplane was level at 6,500 feet about 7 miles west of Danbury when the pilot felt a shimmy in the control yoke, and noticed a drop in engine rpm and exhaust gas temperature. The pilot set the engine power to 1,800 rpm, contacted Danbury tower, and requested that emergency equipment be standing by.

Danbury tower then informed the pilot that the winds were from 360 degrees at 7 knots, and that runways 35 and 26 were active.

The pilot elected to land on runway 26 because it was longer.

In a written statement, the pilot said:

"We proceeded to circle and descend about a mile East of the numbers of RY26. As we were making a turn perpendicular to the numbers of RY26, Tower told us to make a 270 degree turn to follow a Cessna on close-in left base. I was surprised by this instruction, since we thought we declared an emergency, but we still needed to lose a little more altitude, so we complied. We never thought that the Cessna would be a factor for us.

"Twice during the descent, we added power to see if the engine was still producing any power. Both times the RPM's did climb, so we thought we had partial power.

"As we turned final, the Controller asked if we could make another 270 degree turn to follow the Cessna, who had slowed down on final. The request for a 270 degree turn was confusing, since we were now on final, not base. I believe that we told the Controller unable, but did s-turns instead. The controller told the Cessna on final to keep it's speed up at least once, maybe twice.

"When we originally turned final, we still appeared to be a little high, but I didn't think we were high enough to make a 360 degree turn back around to final. That's when the Controller asked us to make second 270 degree turn. My plan was to make two s-turns, and then perform a slip,

adding flaps as necessary. I made two s-turns, but unfortunately they were ineffective. I was still a little high, and actually picked up a little airspeed. As I came out of the second s-turn, I started to slip, and my partner added some flaps. Our projectory for landing was about halfway down RY26. I felt things were in control, and that we would make a safe landing. That's when I looked up and saw that the Cessna was still on the runway, at the point we were aiming to land. It appeared the Cessna had stopped on the runway!

"At that moment, we thought it was too dangerous to try and land with the Cessna still on the runway. I leveled out , and attempted to go around. I thought the partial power that we believed we had, was enough to circle around again and land RY26. When we added power, however, we got no response from the engine. We were a glider at that point! My partner retracted the partial flaps. I lowered the nose and looked for a spot to land. We didn't have enough altitude to circle to another runway. There were trees straight ahead, so we turned approximately 15 degrees to the right, and headed for a small portion of a road that we could see. We impacted the ground, and the plane started turning to the left.

"I believe the Cessna and the actions of the Controller was a major distraction. Trying to land an aircraft with no power is trying enough, but having to deal with another aircraft in the picture was more than I needed at that time."

Three witnesses were interviewed by two Safety Board air traffic control (ATC) specialists. According to the ATC specialists' factual report, the first witness, a flight instructor, was in the right seat of a Cessna 172 at the departure end of runway 26. The nose of the airplane was pointed southeast, and a student was seated in the left seat.

The witness observed the Grumman performing s-turns, and stated that the airplane appeared to be "too high" and "fast" to land.

As the Grumman crossed over the displaced threshold for runway 26, the witness told his student that the airplane was not going to land because it was "too high." He also observed the Grumman in a "very dramatic left slip" about 100-150 feet above the runway as it passed over intersection C2. The witness then saw the Grumman level out and collide with trees located beyond airport property.

A second witness, who was also a flight instructor, was seated in a low wing Piper airplane at the hold-short line for runway 26. The airplane was facing east, which was perpendicular to the runway.

The witness heard the pilot of the Grumman broadcast "something about a rough engine." He then observed a Cessna on final approach with the Grumman following behind it, but explained that they were not too close together.

The witness heard the Grumman pilot request s-turns, after which he observed the airplane executing "tight" s-turns. He then observed the Grumman turn to a 270 degree heading, and

stated that the pilot "really racked it around." The witness estimated that the Grumman had exceeded 45 degree bank angles and was concerned that it would stall and spin.

The witness also reported that the Grumman was "really high and really fast" on approach, and that there was no way that it could have landed at the airport based on it's height and rapid speed.

A third witness was seated in a low wing Piper airplane at the east end of runway 26. He had just taxied to the ramp, when he heard the tower controller communicating with the pilot of the Grumman. He also heard the controller state that there was a Cessna in the pattern. At that time, the witness turned his attention to runway 26, because he was the owner of the Cessna and the pilot was his employee.

The witness observed the Grumman flying "high and fast", and catching up to the Cessna. He said that when the Cessna was on a "normal" climb out, the Grumman had just crossed the runway 26 threshold. He believed that the Grumman was going to land around intersection "A", which was located at the departure end of runway 26.

PERSONNEL INFORMATION

The pilot held a private pilot certificate with a rating for airplane single-engine land. His most recent Federal Aviation Administration (FAA) second class medical certificate was issued on January 17, 2001. The pilot was also a certificated FAA control tower operator at Bradley International Airport (BDL), Windsor Locks, Connecticut .

The pilot reported a total of 455 flight hours, of which 270 hours were in make and model.

AIRPORT INFORMATION

Danbury Municipal Airport was a controlled airport with two intersecting runways; runway 8/26 and runway 17/35. There were trees obstructing the approach paths to runways 8, 26, and 35, and a pole obstructing the approach path to runway 17. Runway 26 was 4,422 feet long and 150 feet wide with a displaced threshold 734 feet from the approach end of the runway. Runway 35 was 3,135 feet long and 100 feet wide with a displaced threshold 231 feet from the approach end of the runway.

The air traffic control tower was located to the west of runway 17/35 and to the north of runway 08/26. The height of the control tower was 62 feet agl.

WRECKAGE AND IMPACT INFORMATION

An FAA inspector performed an on scene examination of the airplane. According to the inspector, the airplane crossed a road, collided with a light pole about 1/4-mile from the approach end of runway 8. The airplane also missed colliding with a FedEx building by several

feet. The airplane separated into three sections and came to rest on residential property.

COMMUNICATIONS

A review of the Danbury air traffic control tower transcripts and voice communications revealed that at 0840, the pilot contacted Danbury tower and reported that he was descending out of 6,000 feet with a rough running engine, needed a full stop landing, and requested emergency equipment standing by. The pilot did not declare an emergency. The tower controller then issued the pilot weather information, and instructed him to proceed direct to the airport and to report overhead. The pilot acknowledged.

At the time the pilot contacted Danbury tower, a Cessna 172 was in the runway 26 traffic pattern practicing touch-and-go's.

At 0842, the tower controller asked, "N27221, what's your position now?" The pilot reported, "One mile west [of DXR] at five thousand feet." The tower controller asked, "N27221, what's your intention? Would you like to land [runway] two six or [runway] three five?" The pilot responded, "Land runway two six. Give us a little more room, we are going to circle east of the field till we get down." The tower controller advised, "Report leaving three thousand feet."

At 0844, the pilot of N27221 broadcast, "N221, coming out of three thousand feet." The tower controller responded, "Number one traffic is left base to final below you. Do you have him in sight?" The tower controller then asked the pilot, "Can you make a left two seventy back to one mile final to follow the traffic at one mile final?" The pilot replied, "N221, making a left two seventy to final.
Looking for the traffic."

At 0845, the controller queried the pilot on how his engine was running. The pilot responded that it is "still running rough, we do have power, but again it was running rough." The pilot then reported that he had the Cessna traffic in sight, and the controller informed the pilot that he was "number 2, runway 26, cleared to land." The pilot then told the controller that he was "making a couple of s-turns on final here", which the controller approved. The controller then suggested "if you need to, you can continue on a left 270 to final to lose altitude." The pilot responded, "N221 roger."

At 0846, the pilot broadcasted that he was "going to go around here", and the tower acknowledged. The pilot then said, "instead of going around we're going to land on the - hold on here", followed by "pull up."

AIR TRAFFIC CONTROL

Two tower controllers were on duty at the time of the accident, but only one was in the tower cab when the pilot reported that he had a rough running engine. Therefore, the controller-in-charge (CIC) was working both the ground and local control positions.

Both controllers were interviewed by two Safety Board air traffic control (ATC) specialists. According to the specialist's record of conversation, the CIC said that the pilot reported inbound from the west, descending out of 6,000 feet with a rough running engine. The CIC acknowledged, and asked the pilot to report passing the field.

The CIC's initial visual contact with the airplane occurred when the pilot reported overhead of the field. The pilot wanted to circle to the east, and the CIC issued him traffic advisories, since there was a Cessna 172 practicing touch-and-go's on runway 26.

When the airplane was northeast of the field, the CIC again issued traffic advisories, and asked the pilot if he could make a left 270 degree turn. The pilot acknowledged and executed the turn. The CIC then watched as the airplane re-entered the final approach course in an "awkward 45 degree angle to the runway."

The CIC reported that he did not consider breaking the Cessna 172 out of the traffic pattern because the Grumman was too high to land and he was confident that there would be plenty of spacing between the two airplanes.

He said that when the Grumman reached the arrival threshold of runway 26, the Cessna was beyond the departure end of runway 26.
When the Grumman was over the threshold, the CIC described it "high," "fast," and "offset from the runway center line". The airplane flew passed the control tower at tower height, and he surmised that the airplane would not be able to land on runway 26.

When the pilot broadcasted that he was going around, the CIC "knew the pilot wasn't gonna make it." He then observed the airplane turn slightly to the left and disappear behind the trees.

The second controller returned to the tower cab, and heard the CIC say the word "trouble." At which point he observed the Grumman on final approach about 1/4 to 1/2-mile final from the end of runway 26, and a Cessna over the threshold. He described the Grumman as being in a slip, "real high and extremely fast."

The controller stated that the Cessna did a touch-and-go and was airborne over the departure end of the runway when the Grumman crossed the runway threshold. At the time, he said the airplane was still "high, fast, and in a slip."

At mid-field, the controller described the Grumman's flight attitude as "completely sideways", "extremely fast" and" not descending very quickly." The airplane flew passed the tower at tower height, and continued to descend beyond the departure end of runway 26.

At that point, the pilot broadcasted that he was going around. The controller then observed the airplane "just miss" a FedEx building in "slow flight".

The controller reported that the Grumman could not have landed on the runway given it's speed and height when it crossed the arrival threshold to runway 26.

The Safety Board submitted a radar request to the FAA within 15 days of the accident. However, the FAA did not retain this information, and the data was not available for use in this investigation.

TESTS AND RESEARCH

An FAA inspector examined the engine on June 26, 2001. The engine was manually rotated by the propeller, but compression could not be established to the #3 cylinder. Examination of the cylinder revealed that the #3 exhaust stack exhibited a 3/4-inch wide horizontal crack along the rim of the weld line. Soot was noted around the open area of the crack. Also, the #3 top spark plug boss was cracked. The spark plugs and magnetos functionally tested okay.

AIRCRAFT INFORMATION

Examination of the maintenance records revealed that the engine was overhauled on May 2, 1991, and the last annual inspection was performed on March 15, 2001. The engine had accrued 1,194.07 hours since the last overhaul and 3,514.07 hours time since new. There were no entries which referenced that the #3 cylinder or its related components had been replaced or repaired since the engine was last overhauled.

METEOROLOGICAL INFORMATION

Weather at Danbury Airport at 0845 was reported as winds from 330 degrees at 6 knots, visibility 10 statute miles, sky clear, temperature 67 degrees F, dewpoint 44 degrees F, and altimeter setting 29.90 inches HG.

Pilot Information

Certificate:	Private	**Age:**	36,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	January 17, 2001
Occupational Pilot:		**Last Flight Review or Equivalent:**	October 15, 2000
Flight Time:	455 hours (Total, all aircraft), 270 hours (Total, this make and model), 400 hours (Pilot In Command, all aircraft), 21 hours (Last 90 days, all aircraft), 5 hours (Last 30 days, all aircraft)		

Information

Certificate:		**Age:**	
Airplane Rating(s):		**Seat Occupied:**	
Other Aircraft Rating(s):		**Restraint Used:**	
Instrument Rating(s):		**Second Pilot Present:**	No
Instructor Rating(s):		**Toxicology Performed:**	No
Medical Certification:		**Last FAA Medical Exam:**	
Occupational Pilot:		**Last Flight Review or Equivalent:**	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Grumman American	**Registration:**	N27221
Model/Series:	AA-5A	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	AA5A-80891
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	March 15, 2001 Annual	**Certified Max Gross Wt.:**	2200 lbs
Time Since Last Inspection:	49 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	2488 Hrs as of last inspection	**Engine Manufacturer:**	Lycoming
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	0360-A4K
Registered Owner:	TIGER ONE LLC	**Rated Power:**	180 Horsepower
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	DXR,458 ft msl	**Distance from Accident Site:**	
Observation Time:	08:40 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	330°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.89 inches Hg	**Temperature/Dew Point:**	20°C / 8°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	HARTFORD, CT (HFD)	**Type of Flight Plan Filed:**	None
Destination:	READING, PA (RDG)	**Type of Clearance:**	None
Departure Time:	16:00 Local	**Type of Airspace:**	Class D

Airport Information

Airport:	DANBURY MUNICIPAL AIRPORT DXR	**Runway Surface Type:**	Asphalt
Airport Elevation:	458 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	26	**IFR Approach:**	None
Runway Length/Width:	4422 ft / 150 ft	**VFR Approach/Landing:**	Precautionary landing

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Minor	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Minor	**Latitude, Longitude:**	

Administrative Information

Investigator In Charge (IIC):	Yeager, Leah
Additional Participating Persons:	STEVEN LEVINE; WINDSOR LOCKS, CT
Original Publish Date:	August 26, 2003
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=52452