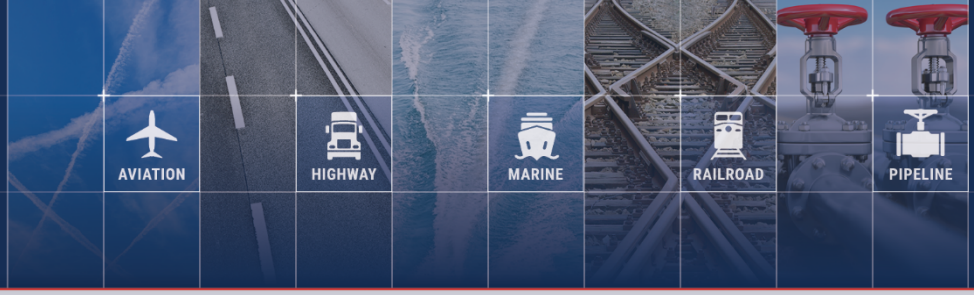

Aviation Investigation Final Report

Location:	Linden, North Carolina	**Accident Number:**	ERA11LA342
Date & Time:	June 14, 2011, 10:40 Local	**Registration:**	N8476B
Aircraft:	GRUMMAN AMERICAN AVN. CORP. AA-5A	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (partial)	**Injuries:**	4 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot stated that, during the initial climb, the airplane felt like the engine was not developing full power and was not going to clear a tree at the end of the runway. He lowered the nose, and the airplane settled into trees. The airplane subsequently impacted the ground and a postcrash fire ensued. Postcrash fire damage precluded an inspection of the fuel or ignition system; however, examination of the engine revealed that the No. 4 valves were seized, consistent with thermal damage from the fire. The examination also revealed that the compression was lower on the No. 1 cylinder. The examination could not determine if the lower compression was a preimpact condition or a result of the impact and fire damage.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A partial loss of engine power during initial climb for undetermined reasons.

Findings

Aircraft	(general) - Failure
Not determined	(general) - Unknown/Not determined

Factual Information

History of Flight

Initial climb	Loss of engine power (partial) (Defining event)
Initial climb	Collision with terr/obj (non-CFIT)

On June 14, 2011, about 1040 eastern daylight time, a Grumman American AA-5A, N8476B, operated by a private individual, was substantially damaged when it collided with trees during takeoff from Flyers Airport (9NC2), Linden, North Carolina. The certificated commercial pilot and three passengers sustained minor injuries. The personal flight was conducted under the provisions of 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed and no flight plan was filed for the planned local flight.

The pilot stated that he had been flying out of 9NC2 for over 20 years and was very familiar with the 2,850-foot-long turf runway. Additionally, he had departed many times with the three passengers onboard, who were his grandchildren, ages 10, 12, and 14. The pilot further stated that the takeoff weight was below the 2,200-pound maximum gross weight and he departed with an approximate 5-knot headwind. During the initial climb after takeoff from runway 04, the airplane felt like the engine was not developing full power, and was not going to clear a tree at the end of the runway. The pilot lowered the nose, rather than risking a stall, and the airplane settled into trees. The airplane subsequently impacted the ground and a postcrash fire ensued. All occupants were able to safely egress before the fire consumed the airplane.

The four-seat, low-wing, fixed-gear airplane was manufactured in 1979. It was equipped with a Lycoming O-320, 150-horsepower engine. The airplane's most recent annual inspection was completed on October 6, 2010. The airplane had accumulated 2,372.4 total hours of operation, including 15.9 hours since the annual inspection.

Postcrash examination of the engine after recovery from the accident site was performed by an NTSB investigator. The examination revealed that the engine was heavily fire damaged and fire damage precluded an inspection of the fuel or ignition system. The sparkplugs exhibited normal wear signatures when compared to a Champion Check-A-Plug chart. The valve covers were removed, which revealed the No. 4 valves were seized, consistent with thermal damage from the fire. Additionally, the No. 4 pushrods were warped, the magnetos had melted, and the accessory housing melted. After the accessory housing was removed, the crankshaft was rotated 360 degrees by hand. Camshaft, crankshaft, and valvetrain continuity was confirmed. Thumb compression was attained on cylinder Nos. 1 through 3; however, the compression on cylinder No. 1 was lower than the other two cylinders. Thumb compression could not be attained on cylinder No. 4 due to the seized valves. The examination could not determine if the lower compression on cylinder No. 1 was a preimpact condition, or a result of the impact and fire damage.

The 1055 recorded weather, at an airport located about 14 miles southwest of the accident site, included wind from 070 degrees at 8 knots, clear sky and temperature 79 degrees F.

The pilot provided weight and balance data, which revealed that the airplane weighed approximately 2,000 pounds during the accident takeoff. Review of a takeoff data chart, from the same make and model airplane owner's manual, revealed that at sea level, at maximum gross weight, at 79 degrees F, with a 5-knot headwind, the airplane required a ground run of approximately 800 feet for takeoff and 1,465 feet to clear a 50-foot obstacle. The data assumed a hard surface runway.

Pilot Information

Certificate:	Commercial	**Age:**	74,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	March 3, 2010
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	September 3, 2009
Flight Time:	1619 hours (Total, all aircraft), 696 hours (Total, this make and model), 1600 hours (Pilot In Command, all aircraft), 10 hours (Last 90 days, all aircraft), 5 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	GRUMMAN AMERICAN AVN. CORP.	**Registration:**	N8476B
Model/Series:	AA-5A	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	AA5A-0859
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	October 6, 2010 Annual	**Certified Max Gross Wt.:**	2200 lbs
Time Since Last Inspection:	16 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	2372 Hrs at time of accident	**Engine Manufacturer:**	LYCOMING
ELT:	Installed, not activated	**Engine Model/Series:**	O-320
Registered Owner:	GUYTON JOSEPH W	**Rated Power:**	150 Horsepower
Operator:	GUYTON JOSEPH W	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	FBG,244 ft msl	**Distance from Accident Site:**	14 Nautical Miles
Observation Time:	10:55 Local	**Direction from Accident Site:**	220°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	70°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.94 inches Hg	**Temperature/Dew Point:**	26°C / 13°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Linden, NC (9NC2)	**Type of Flight Plan Filed:**	None
Destination:	Linden, NC (9NC2)	**Type of Clearance:**	None
Departure Time:	10:40 Local	**Type of Airspace:**	

Airport Information

Airport:	Flyers Airpark 9NC2	**Runway Surface Type:**	Grass/turf
Airport Elevation:	115 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	04	**IFR Approach:**	None
Runway Length/Width:	2850 ft / 65 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:	3 Minor	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	4 Minor	**Latitude, Longitude:**	35.218055,-78.796386(est)

Administrative Information

Investigator In Charge (IIC):	Gretz, Robert
Additional Participating Persons:	Jerry Toms; FAA/FSDO; Greensboro, NC
Original Publish Date:	November 17, 2011
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=80757