National Transportation Safety Board
Office of Aviation Safety
Central Region

CEN23LA068

WRECKAGE EXAMINATION SUMMARY

ACCIDENT

Location:	Reserve, Louisiana
Date:	December 21, 2022
Time:	1954 central standard time
Airplane:	Grumman American AA-5B, Registration No. N321GD

WRECKAGE EXAMINATION GROUP

Investigator-In-Charge	Andrew Todd Fox National Transportation Safety Board Denver, Colorado
Group Member	Alastair "Scottie" Burge Federal Aviation Administration – Baton Rouge FSDO Baton Rouge, Louisiana
Group Member	Robert Hardwick Federal Aviation Administration – Baton Rouge FSDO Baton Rouge, Louisiana

ACCIDENT SYNOPSIS

On December 21, 2022, about 1954 central standard time, a Grumman American AA-5B airplane, N321GD, was substantially damaged when it was involved in an accident at the Port of South Louisiana Executive Regional Airport (APS), Reserve, Louisiana. The pilot and his flight instructor were not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 instructional flight.

The airplane experienced a partial loss of engine power during initial climb after takeoff from APS while in night instrument meteorological conditions (IMC). The flight instructor immediately made a left turn back to return to the airport and land. The airplane's left wing impacted the ground and the nose landing gear collapsed in soft terrain during the forced landing.

AIRPLANE DESCRIPTION

The airplane was a 1977 Grumman American AA-5B (Tiger), serial number (s/n) AA5B0461. The airplane was powered by a Lycoming O-360-A4K reciprocating engine, s/n L-22850-36A, producing 180-horsepower at 2,700 rpm. The engine provided thrust through a fixed-pitch, 2-blade, Sensenich 76EM8S10-0-63 propeller,

s/n 105588K. The airplane was of conventional aluminum construction with a fixed-tricycle landing gear and wing flaps. The airplane was configured to seat 4 individuals. The airplane was equipped for operations in IMC.

MAINTENANCE SUMMARY

1.0 Inspections

The airplane's recording tachometer indicated 3,562.50 hours at the accident site. At the time of the accident, both the airframe and engine had accumulated 3,562.50 hours since new. The engine had accumulated 1,514.8 hours since the last overhaul. According to available maintenance documentation, the last annual inspection of the airplane was completed on April 5, 2022, at 3,123.8 total airframe hours. The last maintenance completed was a 100-hour inspection on November 22, 2022, at 3,525.3 total airframe hours. A review of the available maintenance documentation did not reveal any unresolved issues with the airplane.

1.1 Fueling

The airplane’s total fuel capacity of 51 gallons (49.4 gallons usable) was distributed between two wing fuel tanks. According to the flight instructor, the airplane was refueled (topped-off) two days before the accident, and that the airplane had about 50 gallons of fuel available before the flight. The flight instructor also reported that a fuel sample taken before the accident flight was not contaminated with water or debris.

DETAILS OF THE EXAMINATIONS

2.0 Onsite Examination

On the morning of December 22, 2022, FAA Inspector Burge conducted an on-scene examination of the airplane. The airplane came to rest upright in a grass area between runway 17 and the parallel taxiway about 600 ft from the end of the runway 17. The initial impact with the ground was about 32 yards northwest of the main wreckage. The left wingtip and portion of the left aileron separated during impact. The outboard 1/3 of the right-wing leading edge exhibited crush damage. The flaps were found fully extended. The airplane was facing 241° at the accident site. The engine and nose gear partially separated from the firewall during impact. There were no flight control anomalies observed during the onsite examination.

2.1 Follow-up Examination

On the morning of January 5, 2023, NTSB Investigator Fox and FAA Inspector Hardwick examined the recovered wreckage at Southern Aircraft Recovery, Baton Rouge, Louisiana.

The data card for the Insight Avionics G1 Graphic Engine Monitor was downloaded but did not include any engine parameter data. The airplane's two Garmin G5 Electronic Flight Instruments did not have SD-cards installed.

Upon arrival, the engine and propeller were found separated from the remaining wreckage. The carburetor heat valve position at the time of the accident could not be conclusively determined due to impact damage. Internal engine and valve train continuity were confirmed as the engine crankshaft was rotated, and compression and suction were noted on all cylinders. The mechanical fuel pump and oil pump discharged fuel and oil, respectively, as the crankshaft was rotated. The left magneto, equipped with an impulse coupling, produced spark as the engine crankshaft was rotated. The right magneto was not equipped with an impulse coupling, but it produced spark when removed from the engine and was rotated by hand. The spark plugs exhibited features consistent with normal engine operation. Movement of the throttle arm discharged fuel from the accelerator pump into the carburetor venturi. The carburetor bowl remained intact and contained uncontaminated fuel. There were no anomalies noted with the carburetor. The propeller remained attached to the engine crankshaft flange. Both propeller blades were relatively straight and partially covered in dried mud. Neither propeller blade exhibited any appreciable chordwise burnishing or leading-edge damage. The postaccident engine examination did not reveal any evidence of mechanical malfunction that would have precluded normal operation.

FIGURES

Figure 1 – Accident Site Overview (FAA Photo)

Figure 2 – Main Wreckage (FAA Photo)

Figure 3 – Left Wing (FAA Photo)

Figure 4 – Right Wing (FAA Photo)

Figure 5 – Engine Controls (FAA Photo)

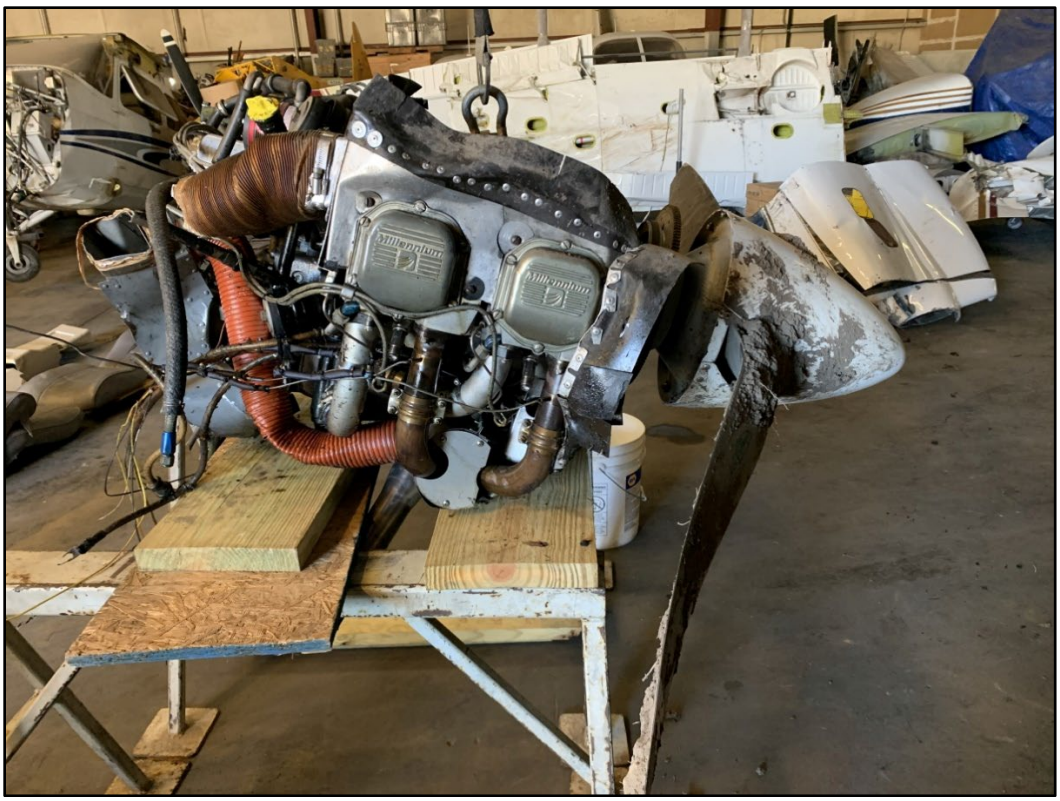

Figure 6 – Engine and Propeller (NTSB Photo)

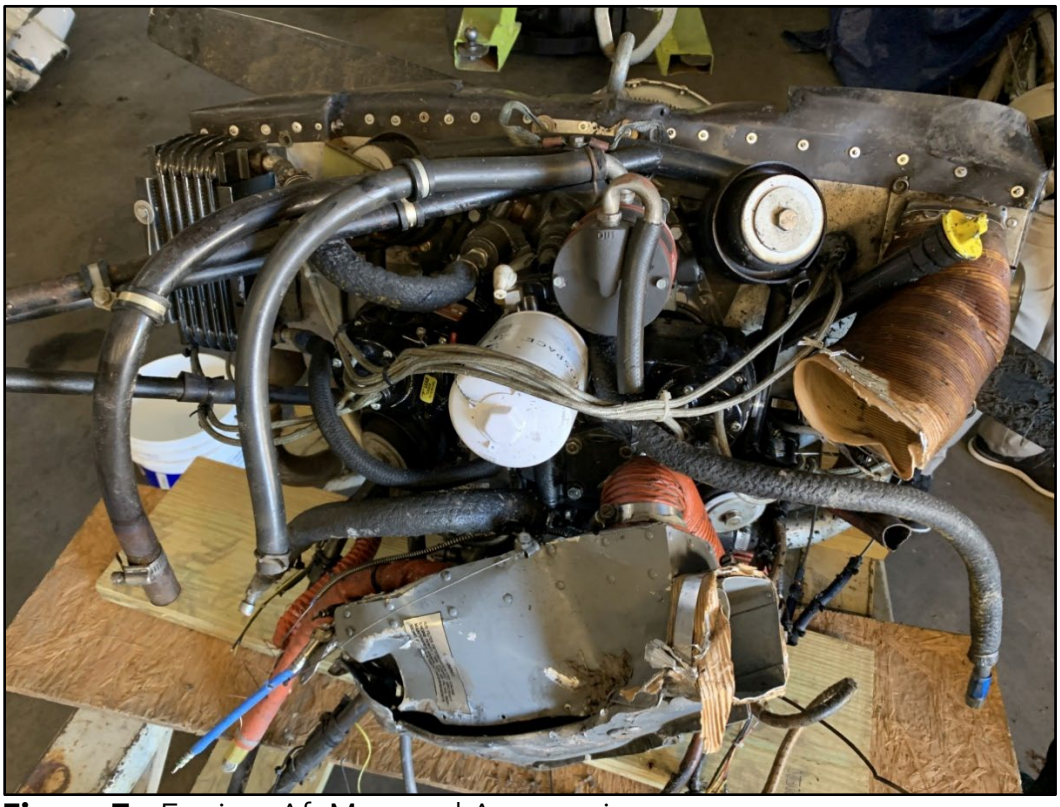

Figure 7 – Engine, Aft Mounted Accessories

Figure 8 – Carburetor

Figure 9 – Fuel Drained from Carburetor Bowl