

National Transportation Safety Board

Office of Aviation Safety



ERA22FA223

AIRFRAME AND ENGINE EXAMINATION

May 13, 2022

TABLE OF CONTENTS

A. ACCIDENT.....	3
B. WRECKAGE EXAMINATION.....	3
C. DETAILS OF THE INVESTIGATION	3
D. AIRFRAME EXAMINATION.....	3
E. ENGINE EXAMINATION	4
F. FUEL SERVO EXAMINATION.....	6

A. ACCIDENT

Location: Athens, Georgia
Date: May 11, 2022
Time: 1853 EDT
Airplane: Piper PA-24, N8007P

B. AIRFRAME AND ENGINE EXAMINATION

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C. DETAILS OF THE INVESTIGATION

On May 11, 2022, about 1853 eastern daylight time, a Piper PA-24-250, N8007P, was substantially damaged when it was involved in an accident near Athens, Georgia. The private pilot was fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The wreckage was recovered on May 12, and examined on May 13, 2022. Examination of the accident site revealed that the airplane impacted a wooded area on a residential property about 3/4 of a mile from the approach end of runway 27. The wreckage debris path was about 50 ft long and oriented on a magnetic heading of 070°. There was an extensive postimpact fire and all major structural components of the airplane were located within the debris field.

D. AIRFRAME EXAMINATION

Flight control cable continuity was established from the control inputs to the bellcranks, and then to the control surfaces. All flight control cables were continuous from the cockpit controls to the control surfaces. Manual manipulation of the aileron, stabilator and rudder cables operated their respective control surfaces. About 10 gallons of fuel was drained from the wing. The flap actuator exposed 10 jackscrew threads, indicative that flaps were in the UP position.

The empennage separated from the fuselage and came to rest behind the cabin, the elevator and rudder cables remained attached. The rudder was mostly intact and burned. The nose and main landing gear were separated, the landing gear was in the DOWN position. The lap belts were thermally destroyed, there were no shoulder harnesses.

The engine was partially separated, the fuel hoses, throttle and mixture control cables remained attached. The induction air filter was clear of debris, its duct was separated from the induction air box. The gascolator was thermally damaged and its filter screen was free of debris. The fuel selector was observed in between detents from the LEFT main tank and the OFF position. Disassembly of the fuel selector valve revealed the selector plate hole was not positioned to the LEFT main port. The throttle, mixture, and turbo control knobs were all in FORWARD/RICH positions. The propeller control knob was about mid-travel.

E. ENGINE EXAMINATION

Examination of the accident site revealed that the airplane impacted a wooded area on a residential property about 3/4 of a mile from the approach end of runway 27. The wreckage debris path was about 50 ft long and oriented on a magnetic heading of 070°. There was an extensive postimpact fire and all major structural components of the airplane were located within the debris field.

The engine was manually rotated and internal continuity was confirmed. The turbocharger system remained attached, the left turbocharger vane spun freely, the right turbocharger vane was impact damaged. The engine was an IO-540-C1B5 equipped with a twin-turbo Rayjay STC. The cylinders were examined using a lighted borescope, no anomalies were noted.



Photo 1 View of the engine suspended for examination.

The three-bladed constant speed propeller remained attached to the engine crankshaft flange, and minor scratches were present along the leading edge of the blades.

The fuel flow divider and fuel injector nozzles were all intact, unobstructed, and contained fuel. The fuel flow divider remained secured to the top of the engine, it was removed and disassembled for examination. The diaphragm appeared undamaged, a trace amount of a white substance was noted on the diaphragm. The engine driven fuel pump was impact damaged and remained partially attached to the engine accessory housing, the fuel lines contained fuel. The pump fell apart when it was removed from the accessory wall for examination.

The fuel servo remained attached to the airframe box and engine sump housing, and was minimally damaged. The mixture control cable was pulled away from the control lever at the unit. The throttle cable remained attached to the unit but was fractured aft about 8 inches. Excessive fuel staining was present on the unit, it was retained for further testing.

Both magnetos were removed and manually rotated. The left magneto produced spark on all leads. The right magneto failed to produce spark and the hold down nuts would grind when rotated; when disassembled the shaft was off center

due to impact. It was reassembled and produced spark on all leads. The spark plugs remained in their respective cylinder heads. The spark plugs in cylinder Nos. 1 and 3 appeared lean, Nos. 4 and 5 appeared rich, Nos. 2 and 6 appeared normal. The spark plugs in cylinder No. 6 appeared worn when compared to the Champion Check-A-Plug chart (AV-27).

F. FUEL SERVO EXAMINATION

The fuel servo was retained for further testing. The fuel servo was examined and placed on a test bench. Initially the fuel servo test results were slightly rich. When the test was repeated the second check was in normal range.

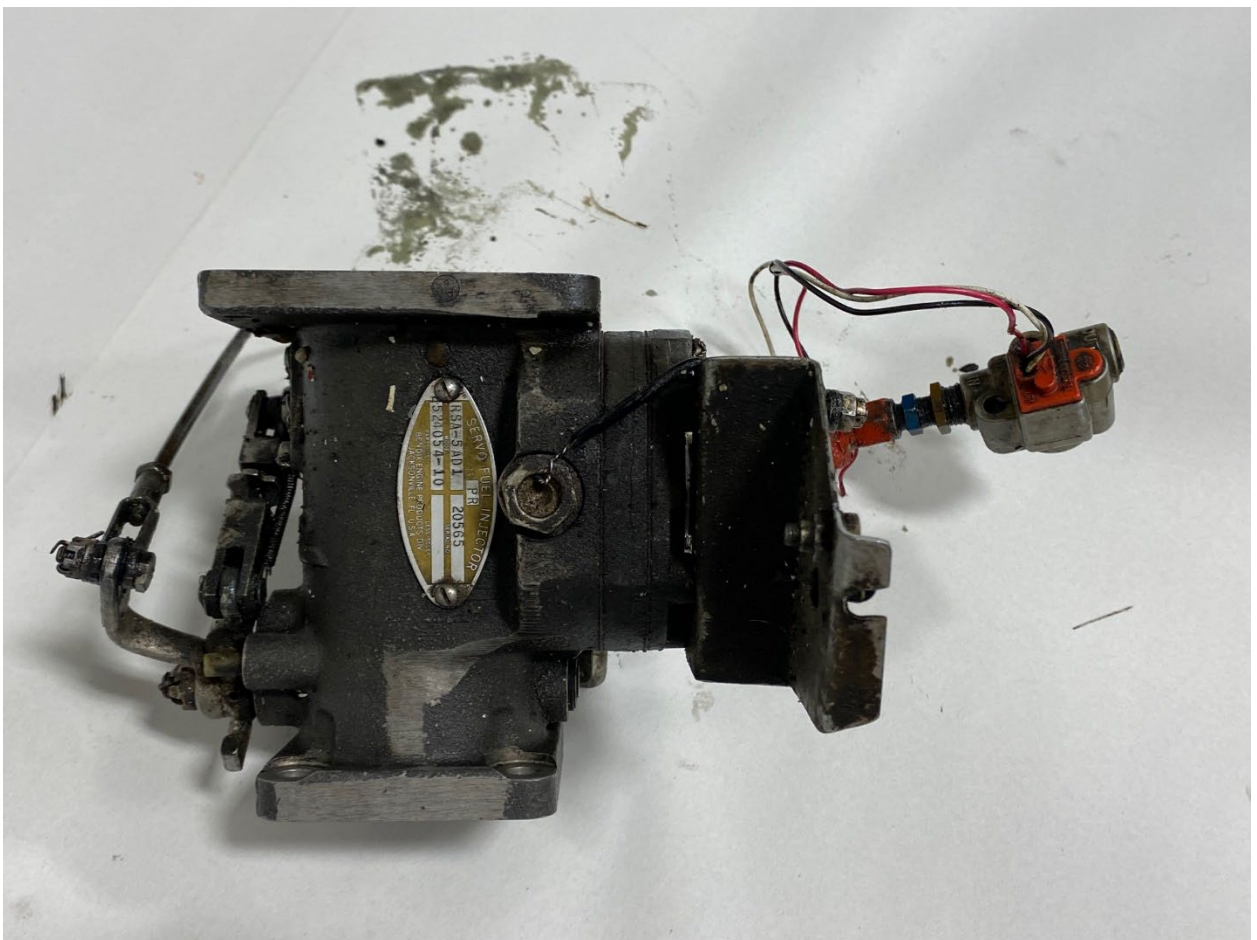


Figure 2 View of the fuel servo. (Photo provided by Precision Airmotive)

Submitted by:

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