



## Memorandum For Record

**Timothy W. Monville**  
**Sr. Air Safety Investigator**  
**Eastern Region**

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**Date: 10/24/2023**  
**NTSB Accident Number: ERA23FA067**

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The National Transportation Safety Board (NTSB), the Federal Aviation Administration (FAA), Piper Aircraft, Inc, and Lycoming Engines responded to the mishap location where an airframe and engine examination was conducted on November 20, 2022.

As first viewed, the left-hand engine remained partially attached to the airframe via the engine mounts. The propeller was impact separated and was found aft of the left-hand wing buried in soil. The firewall and engine mounts were crushed towards the accessory housing of the engine and had to be removed with a saw to facilitate the engine examination. The engine was rotated via the vacuum pump drive port. All four cylinders were undamaged, and thumb compressions were established on all cylinders. Camshaft to crankshaft continuity was established throughout the engine and valve action movement was observed on all cylinders. The cylinders were borescoped with no anomalies noted. The top spark plugs remained installed in their respective cylinder heads and were undamaged. The No. 2 top spark plug was visually observed to be “worn out” per the guidelines of Champion Aviation Check-A-Plug Card AV-27. All others were observed to be undamaged. The bottom spark plugs were not removed. Both impulse coupled magnetos – Slick model 4373 - remained secured to the engine accessory housing with minor impact damage. The units produced sparks at all leads when rotated.

Further examination of the left engine revealed the servo fuel injector was impact separated from the engine at the air inlet side of the unit. It remained with the engine via the control cables and a supporting mount. The fuel inlet hose remained attached to the unit. The injector was removed for further examination. The inlet screen was clean. A trace amount of liquid consistent with aviation fuel was found inside of the unit and the diaphragms were undamaged. The flow divider remained secured to the top of the engine with the fuel lines secured to the unit. Fluid consistent with aviation fuel flowed out of the unit. The divider was opened for further examination and the diaphragm was un undamaged. The fuel injector nozzles remained installed in their respective cylinder heads and were undamaged. The nozzles were removed and found to be unobstructed.

The engine-driven fuel pump remained secured to the accessory housing of the engine. It was removed for further examination. Fluid consistent with aviation fuel was present in the unit and the diaphragms were undamaged.

Examination of the right engine revealed it was partially attached to the right-hand wing but was displaced after and under the wing. The propeller remained attached to the crankshaft flange and the engine remained partially attached to the firewall. The engine was removed from the airframe mounts with a saw to facilitate the examination. The crankshaft rotated when the propeller was moved by hand and thumb compressions were established on all four cylinders. Camshaft to crankshaft continuity was established throughout the engine and valve action movement was observed on all cylinders. The cylinders were borescoped with no anomalies noted. The top spark plugs remained installed in their respective cylinder heads and were undamaged. The spark plugs displayed normal coloration when compared to the Champion AV-27 Check-A-Plug chart. The bottom spark plugs were not removed. Both impulse coupled magnetos – Slick model 4373 - remained secured to the engine accessory housing with minor impact damage. The units produced sparks at all leads when rotated.

Further examination of the right engine revealed the servo fuel injector (fuel servo) Model RSA5AD1, Parts List 2524145-11, serial number 4647 remained installed on the engine with minor impact damage. The fuel servo was removed and the fuel inlet screen was clear of obstructions. It was retained by the NTSB for further examination and not opened further at the mishap location. The fuel manifold remained secured to the top of the engine with the lines secured to the unit. Liquid consistent with aviation fuel was found in the unit and tested negative for water with a water finding paste. The diaphragm was undamaged. The fuel injector nozzles remained installed in their respective cylinder heads and were undamaged. The nozzles for cylinders 2 and 4 exhibited blue staining at the bases consistent with a fuel leak. The nozzles were unobstructed. The engine-driven fuel pump remained secured to the accessory housing of the engine. The diaphragms of the unit were undamaged.