



## **Memorandum For Record**

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**Date: March 19, 2019**  
**NTSB Accident Number: ERA17FA339**

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Excerpts from On-Site Examination.

Examination of the gyroplane at the accident site revealed the flight control push-pull tubes were wrapped around the pine tree, the mast was displaced, and the hub bar associated with the missing main rotor blade was buried about 2 ft in the ground. The engine was resting on its right side and the propeller was partially buried; two visible propeller blades were shattered.

There was no evidence of fire on any of the observed components. A strong smell of fuel was noted at the accident site.

The separated section of main rotor blade, and wreckage were located about 245 ft and 348° and 565 ft and 003°, respectively, from the farthest identified piece.

Examination of the main rotor mast revealed it was displaced 90° to the right. The rotor brake cable was fractured. Damage to both teter stops was noted. The phenolic “flapper stopper” were not fractured. One “flapper stopper” retention clevis was not locked, but the clevis and pin remained in position. Both bolts that secure the main rotor to the bearing block exhibited shear or tension overload fracture, with no evidence of preimpact failure or malfunction. There were no missing teeth of the prerotator flywheel or bendix. Continuity of the prerotator was noted from the driven pulley to the bendix, which was noted to rotate freely. One side of the bearing block was displaced down about 20°. Correlation of damage to the bottom of each hub bar and the damage to one side of the bearing block revealed the damage was associated with the red tipped blade.

Both seats remained attached and the pilot’s lapbelt and shoulder harness were not connected. The pilot’s control stick was broken and the cable for the prerotater was not connected to the stick, but it remained connected at its attach point in the engine compartment, though slack in the cable was noted.

The propeller drive belt was around the engine and propeller pulley, and the left and right engine timing belts were in-place. The prerotator belt was located; however, it was broken.

All spark plug wires remained connected at each respective spark plug.

Examination of the cockpit revealed the following:

Master Switch – Off switch separated

Fuel Gauge – Separated from panel. Needle moves freely and was 3/4 when first viewed, and moved to just above empty when moved to be photographed

Altimeter – 320 ft and 29.96 inches of Mercury

Oil Pressure Gauge – Gauge separated from the panel and was off scale low

Voltmeter – Gauge separated from the panel and was off scale low

Switches – All switch backs were separated from the panel. The following switches were in the off position; avionics, fuel pump #1, fuel pump, strobe light, navigation and landing lights, ignition switch, radio, and intercom.

Airspeed – 116 mph

VSI -1,300 fpm descent

Carburetor Temperature – minus 35

Water Temperature – Off scale low

Fuel Pressure – Off scale low

Exhaust Temperature – Off scale low

Coolant Temperature – Off scale low

Main Rotor Brake Handle - Forward

Examination of the fuel system revealed the fuel tank was breached in several areas, and the fuel filler tube was separated from the top of the tank. Fuel lines remained connected to the left and right fuel tank outlets and also to fittings at the fuel manifold, but the fittings at the fuel manifold were fractured rendering the fuel manifold open to environmental conditions. Further inspection of the manifold valve revealed both fittings for each auxiliary fuel pump were fractured and the fuel pressure fitting boss at the manifold was fractured. Continuity of the fuel supply hose was noted from the fuel pumps to the carburetor inlet.