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Kristyn Blocher
Air Safety Investigator
Western Pacific Region

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Subject: WPR22FA011

Contact: Mark Platt, Lycoming Engines

According to an engine examination and operational check that was conducted by Lycoming Engines, on 4/27/2022:

The engine remained attached to the airframe by the engine mount. The engine had sustained no significant impact energy damage. The number two cylinder rocker box cover was slightly dented. Visual examination of the engine revealed no evidence of pre-impact catastrophic mechanical malfunction or fire.

The metal two bladed constant speed propeller remained attached at the crankshaft flange. The spinner was attached to the propeller. The propeller blades remained attached to the propeller hub. The propeller blades displayed leading edge gouging, torsional twisting, chordwise striations across the cambered surface and trailing edge "S" bending. The propeller governor was securely attached at the mounting pad with the pitch control rod securely attached at the control arm. The governor was observed to control propeller pitch angles during the engine operational check.

All engine compartment fuel lines were found to be in place and secure at their respective fitting of each fuel system component. The carburetor remained undamaged and securely attached at the mounting flange. The throttle/mixture controls were found securely attached at their respective control arms of the carburetor. Engine control continuity to the cockpit was established. The fuel pump was attached to the engine at the mounting pad. The fuel lines remained secure at their respective fittings. The fuel system forward of the firewall was pressurized utilizing the aircraft electric boost pump. There were no fuel leaks observed.

The induction system was examined and observed to be free of obstruction.

The left and right magnetos remained securely clamped at their respective mounting pads. The ignition harness was secure at each magneto. The spark plugs were secure at each position with their respective spark plug lead attached. The ignition harness was attached at the respective magnetos and each spark plug. The starter was securely attached at the mounting pad, with the electrical connection secure at the post. The starter was utilized to start the engine during the operational (run-up) check. The alternator was securely attached at the mounting pad with the electrical connections secure at each post. The rear-mounted vacuum pump was secure at the mounting pad. The oil filter and oil suction screen were secure at their respective mountings.

A remote fuel source was attached at the inlet fitting of the left wing. The electric fuel boost pump was energized. Fuel pressure indication within the normal operating range was observed at the cockpit mounted fuel pressure gauge. Once the engine stabilized at above idle, the electric fuel boost pump was de-energized at which time the engine continued to run smoothly. Once the engine was at operating temperature, the throttle was advanced to about 1700 rpm, at which time the magnetos were checked utilizing the cockpit mounted ignition switch. Both magnetos operated at each of their respective switch detents and within manufacturers specifications. The throttle was advanced to about 2000 rpm and [the engine] ran smoothly during the operational check.