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Subject: WPR23LA013, N7746Y, Examination Notes

On October 15, 2022, about 1200 mountain standard time, a Piper PA-30 airplane, N7746Y, was substantially damaged when it was involved in an accident near Tucson, Arizona. The pilot and passenger were not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot reported that when on short final to land at Ryan Field Airport (RYN) the airplane began yawing back and forth. He said he needed to hold full left rudder to keep it straight. He said at one point he thought he heard an engine surge. The airplane subsequently touched down hard on the runway and departed the right side of the runway. All three landing gear collapsed and the left wing was buckled, substantially damaging the airplane.

Initial Examination

The airplane was initially examined on 10/18/2022 at RYN. The airplane was positioned level on its belly on a parking tarmac. All six fuel tanks were dipped. Both tip tanks indicated about 1/3 full. Both auxiliary tanks indicated about 1/2 full, and both main fuel tanks indicated about 1/2 full. Both fuel tank selector switches were observed in the OFF position.

Right Engine - Oil was observed dripping from the right engine lower cowling. The cowling was removed and the source of the oil identified as a quick-drain plug on the bottom aft side of the engine. Impact damage was evident that resulted in contact between the lower engine cowling and the drain plug that activated the drain. There was no streaking of oil on the underside of the engine cowling. The engine oil quantity was checked, and four quarts of oil remained in the engine according to the oil dipstick. The oil appeared clean and was brownish in color, in like-new condition. The propeller rotated freely about 20° in both directions. Propeller rotation was

limited due to the airplane resting on its belly. About six inches of the tips of both propeller blades were bent aft about 45° and exhibited chordwise scratching and leading-edge gouging.

Left Engine - No anomalies were noted with the exterior of the left engine cowling. The cowling was removed and the engine oil quantity was checked. The oil dipstick measured six quarts of oil remained in the engine. The oil appeared clean and was brownish in color, in like-new condition. The propeller rotated freely about 20° in both directions. Propeller rotation was limited due to the airplane resting on its belly. About six inches of the tips of both propeller blades were bent aft about 45° and exhibited chordwise scratching and leading-edge gouging.

Engine control continuity was verified by manipulating the throttle, mixture, and propeller controls in the cockpit and observing the associated controls move at each engine. Each engine control manipulation was normal, except the constant speed propeller control for the right engine. Excessive resistance was felt while manipulating the right engine propeller control, but the control lever was able to move throughout the full range of motion. The source of the resistance was not identified.

A JPI engine data monitor was removed from the airplane and retained for data download.

Second Examination and Engine Run

A second examination and an engine run of both engines was accomplished on Nov 30, 2022. Prior to the second examination the airplane had been lifted and the landing gear secured. The nose gear remained in an unsafe position, so the nose of the airplane rested on a supporting block. The fuel had been removed from the airplane after the initial examination so 5 gallons of fuel was added to each of the inboard fuel tanks.

Prior to attempting the engine run of the right engine the propeller control cable was disconnected from the propeller governor control arm. The control arm on the propeller governor operated normally without restriction after the cable was disconnected. The resistance remained when the propeller control lever was manipulated while disconnected. The cable was then reconnected to the propeller control on the engine.

The left engine was started first using the onboard battery. The engine started normally and was subsequently run up to about 1700 RPM. Full power was not applied due to vibration from the impact damaged propeller. The left and right

magnetos were cycled and RPM dropped 100-150 RPM when each magneto was individually selected. The propeller cycled normally and increased and decreased pitch as commanded using the control lever. The engine shutdown normally using the engine mixture control.

The right engine was started using the onboard battery. The engine started normally and was subsequently run up to about 1700 RPM. Full power was not applied due to vibration from the impact damaged propeller. The left and right magnetos were cycled and RPM dropped 100-150 RPM when each magneto was individually selected. The resistance felt in the propeller control cable did not impede control of the propeller and the propeller cycled normally and increased and decreased pitch as commanded using the control lever. The engine shutdown normally using the engine mixture control.

Flight control continuity was verified to all flight controls and all flight control surfaces moved freely and as commanded when the aileron, elevator, and rudder controls were manipulated in the cockpit.