



MEMORANDUM FOR RECORD

Todd Gunther
Air Safety Investigator
Eastern Region

Date: 06/30/2022
Subject: Wreckage Examination
NTSB Case Number: ERA24LA237

On June 28, 2022, the wreckage of N988JA was examined at Jake Arner Memorial Airport (22N), Lehigh, Pennsylvania, by investigators from the NTSB, FAA, Diamond Aircraft, and Lycoming Engines.

The following is the information that was garnered during the examination:

Airplane

Examination of the airplane revealed that it was substantially damaged, with large portions of the Plexiglas from the front canopy missing, the carbon fiber reinforced polymer molded fuselage displaying crushing of the nose section back in to the nose wheel well and nose baggage bay forward bulkhead, with an approximate 3 foot long crack above the nose baggage bay door on the top of the nose, and cracking mid fuselage aft of the forward canopy. Further examination of the airplane did not reveal any preimpact failures or anomalies which would have prevented normal operation.

Left Engine

As first viewed the left engine remained attached to the left wing and its respective engine mount. All three propeller blades were fractured midspan with two of the blades missing the outboard section. The aircraft remained on top of a recovery trailer during the exam.

The engine was deemed in a condition suitable for a ground run and each propeller blade was cut with a jig saw to provide clearance during engine operation the two trailer sides.

With the top spark plugs removed, the engine was rotated through by hand and strong suction and compression was noted on all cylinders. The sparkplugs were on the massive electrode type, and a mix of Tempest and Champion brands, REM38E.

The left-hand magneto was a Slick Model 4347 and serial number 14061030. The Right-hand magneto part number and serial number could not be ascertained due to location within the engine nacelle.

The oil filter showed to have been replaced on 1-11-22 at a tach time of 4506.3. The oil filter was not removed or inspected as part of this exam.

The engine had 24 volts applied from an external power source to the engine starter and an external fuel can with 100LL inside to attempt engine operation. The left engine started with the use of starter fluid to help draw fuel into the fuel system. The engine started and was brought up to normal operating temperatures and ran at low RPM ranges due to the short propeller blades. No anomalies were noted during the engine run and engine operated normally when the throttle was advanced and reduced. The engine was shutdown normally with no noted anomalies.

Right Engine

As first viewed, the aircraft remained on the recovery trailer and was being stored outside on the airport ramp. The right-hand engine remained attached to the aircraft firewall and appeared undamaged. The propeller remained attached to the crankshaft flange and the three blades of the propeller showed damage at the mid points on each blade and had to be cut similar to the left-hand propeller blades to facilitate clearance.

The magneto timing was checked prior to engine start attempts. Both magnetos were timed at 25 degrees, matching the engine data plate. The magnetos could not be run individually during the engine start-up because the keys for the ignition were not present.

The oil filter and suction screen were not removed during the investigation. The oil sump contained approximately 6.5 quarts of clean oil on the oil level gauge.

The engine was visually examined, magneto timing checked cylinders borescope through the top spark plug hole, and thumb compressions were established. The NTSB decided to attempt an engine start based on the minimal damage to the engine. The engine had 24 volts applied from an external power source to the engine starter and an external fuel can with 100LL inside to attempt engine operation. The right-hand engine started with the use of starter fluid to help draw fuel into the fuel system. The engine started and was brought up to normal operating temperatures and ran at low RPM ranges due to the short propeller blades. No anomalies were noted during the engine run and engine operated normally when the throttle was advanced and reduced. The engine was shutdown normally with no noted anomalies.

Nothing was found during the course of the examination that would have prevented the engine from making power.