

Lucas Winn
Aviation Accident Investigator
Aviation Safety, Eastern Region

Date: July 27, 2026

Subject: ERA24LA335, Engine exam notes

Contact: Russell Gait, Air Safety Supervisor, Lycoming Engines

The following is an excerpt from the engine exam notes submitted by Lycoming engines on June 20, 2026 for the accident involving Glasair-3, N121CH on August 3, 2024.

Engine Observations:

Ignition: Magnetos were timed at 23 BTC, data tag shows it should be 20 BTC. Ignition leads had been removed from sparkplugs prior to examination; caps were secure to mags. No damage observed on leads. Sparkplugs were all finger tight, all 12 were removed, electrodes were not worn, they were black in color and exhibited the carbon fouling condition per the Champion Aviation Check-A-Plug Chart AV-27. During engine run, mag drops were within limits, 86.5 - 94.2 on both sides.

Fuel System: Fuel injection servo remained attached to airframe ducting horn, the fuel outlet line remained attached to the servo, the fuel inlet line was not present. The ducting was partially attached to the engine induction plenum. The servo was removed from the ducting horn and installed directly on the induction plenum inlet to facilitate running in the test cell. The fuel inlet screen was secure, it was removed, no contamination observed and was then reinstalled. The fuel pump remained secure to the accessory house, the inlet and outlet fittings were in-place, no fuel lines were attached to the engine driven fuel pump. The engine driven fuel pump was not removed and created within limits fuel pressure during the engine run (range is 18-

28PSI). The flow divider was secure to the crankcase spine with the fuel injection nozzle lines attached to it and the fuel inlet line attached to it. The flow divider was not removed or disassembled. The fuel injection nozzles remained secure in the cylinders, with the nozzle lines secure to them. The nozzles were not removed.

Oil: The oil filter was secure to the oil filter adapter, safety wire was present on the filter, but it was cut. The oil filter was removed and cut open. No metal particles were observed in the pleats of the oil filter element. The oil suction screen was not removed for examination.

Engine Overview: The engine arrived in a Lycoming shipping crate on 6/12/2026. On 6/18/2026 the engine was installed on a Lycoming ring stand. The engine mounts were removed, the top two were fragmented from impact forces, slave engine mounts were installed to facilitate engine test run. The upper plugs were removed, the crankshaft was rotated a full 360 degrees multiple times, compression and suction was observed on all cylinders in the correct firing order, and the impulse coupling could audibly be heard snapping, confirming mechanical continuity throughout the engine. The #2 rockerbox cover was removed and then crankshaft to camshaft timing verified to be correct IAW SSP-475, by witnessing valve overlap on the #2 cylinder when #1 was at TDC on compression stroke. A run-out of the flange was performed with a dial indicator, crankshaft flange was straight, less than .001" of deflection. All 12 plugs were removed to photo document "As is" condition, and then all 12 plugs were reinstalled, and the ignition leads were reattached. The governor was removed and a plate was installed and then the engine was trimmed for test.

Two engine runs were performed, one on 6/18/26 and one on 6/19/26. Both runs passed production test. Fuel flow fluctuation was observed during full rated power operation, once the fuel tank pump was turned on, which applies 5 psi from the tank to the inlet of the engine driven fuel pump, the fuel flow stabilized. The fuel flow transducer remained installed during the first run, and during the second run it was replaced with a union. Air was blown through the transducer, it was unobstructed and the paddle wheel could be heard spinning.

The engine was de-trimmed for test and preserved by spraying preservation oil in the cylinders and ROYCO hydraulic fluid was pump into the fuel system. The engine was then placed back in the shipping crate, with all customer property.

According to Lycoming records, engine S/N: L-32801-48E was built as a YIO-540-K1H5, build code YENPL RT10505, sold to Glasair, with a final inspection date of 19-DEC-07.