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Date: February 2, 2024

Subject: CEN23LA370

Contact: Troy Helgeson, Lycoming Engines Air Safety Investigator

On February 2, 2024, Troy Helgeson, an Air Safety Investigator with Lycoming Engines traveled to Durant, Oklahoma, to assist in the examination of the right engine from N3589X, under the auspices of Federal Aviation Administration Inspector Thomas LaNou. Below is a summary of the findings:

- The number 2 cylinder was found displaced from the engine case, with just the injector manifold vent tube and injector lines holding it in place.
- All eight cylinder attach bolts were broken off at the case.
- The piston and connecting rod were found attached together just below the number two cylinder.
- The connecting rod cap was found lodged in the bottom of the piston.
- One connecting rod bolt was found broken off flush in the connecting rod with the top portion of it missing.



Figure 1 Connecting Rod Arm with Bolt

- The other connecting rod bolt remained in the connecting rod cap with the nut missing.



Figure 2 Connecting Rod Cap with Bolt

- The threads on the bolt only exhibited minor damage.



Figure 3 Closeup of Bolt Thread

- One side of the lower connecting rod flange was bent back towards the piston capturing the nut and remaining portion of the broken bolt.
- Both bearing halves were found missing.
- Numerous impact marks were noted on the piston, cylinder, and case.
- The cylinder was partially deformed by fire.

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