

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



WPR23FA044

AIRFRAME AND ENGINE EXAMINATION

March 7 - 8, 2023

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A. ACCIDENT

Location: Banning, California
Date: November 22, 2022
Time: 1824 PST
Airplane: Amateur-built Gallagher XLT-RG (Velocity); N101BH

B. AIRFRAME AND ENGINE EXAMINATION

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C. SUMMARY

On November 22, 2022, about 1824, Pacific standard time, an amateur-built XLT-RG (Velocity), N101BH, was destroyed when it was involved in an accident near Banning, California. The pilot was fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 cross-country personal flight.

A witness to the accident stated that he was driving on Interstate 10 (I10), when he noticed a trail of smoke and fire from the rear of the airplane. The witness said that the airplane appeared to be in a stable flight condition as it crossed the Interstate and there were no erratic movements. As the airplane continued its flight path toward the Banning Municipal Airport (BNG), the fire progressively got worse. Shortly after, the airplane entered a right bank and impacted terrain.

D. DETAILS OF THE EXAMINATION

Visual examination of the airframe revealed that the engine was intact with fire damage throughout.



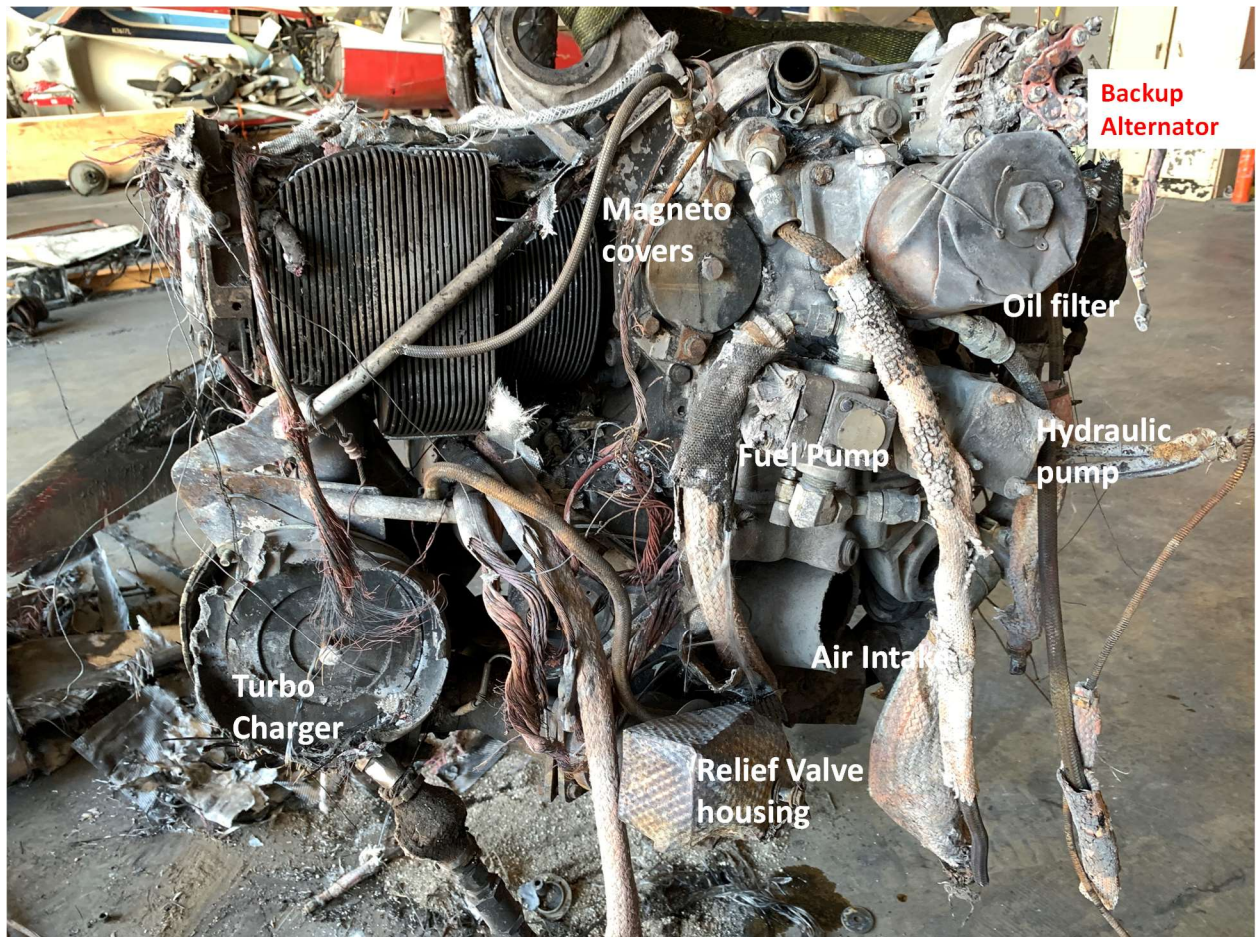
Picture 1. Rear View of Airplane

The logbooks were not available for review. It is believed that the logbooks burned in the postcrash fire. It was determined that an electronic ignition system was installed; it was not determined who the manufacturer was.

The 3-bladed composite propeller blades had varying degrees of fire damage as well as delamination of the composite material. Chordwise scratching was present and two of the blades were bent about mid span of the blade.

The accessory section remained intact and secured to the crankcase but fire damaged. The oil filter remained attached but had suffered impact damage. The alternator remained attached and secured on its mount to the engine and sustained heat related damage; the outer casing was melted. The fuel pump remained attached and had thermal related damage to one side. The supply and return fuel lines

remained attached. The magneto mounting pads had been covered with plates; there were no magnetos.



Picture 2. View of Accessory Section

The oil sump remained attached to the engine and was undamaged. The oil sump was full of oil.

The exhaust and intake manifold exhibited impact damage throughout the length of the tubing and thermally discolored.

The rocker box covers on the right side of the engine were thermally discolored. The rocker box covers on the left side of the engine were sooted and had oil residue.

The cold side of the turbocharger was not found in the airplane wreckage and presumed destroyed by the pre and postcrash fires. The hot side of the turbocharger remained attached at its mounting pad on the engine and was intact. The relief valve for the turbocharger remained installed with the heat shroud still attached. The relief valve itself had sustained heat damage.

The right-wing spar had more fire damage to the wing root area than the left-wing spar.



Picture 3. Right Side Firewall and Wing Spar



Picture 4. Left Side of Firewall and Wing Spar

The firewall - the lower right quadrant had significant thermal damage compared to the rest of the firewall. The entire firewall sustained various amount of thermal discoloration.



Picture 5. View of Firewall

The kit manufacturer for the Velocity XL reported that typically the dual upper fuselage scoops would have been positioned forward of and interfaced into the top edge of the firewall. They are typically rectangular in shape, and direct fresh air over the top of the cylinders. Air circulation inside of the cowling would likely have been straight back over the cylinders, then down, and circulating forward underneath the engine block until it circulates out the rear cowling vents.

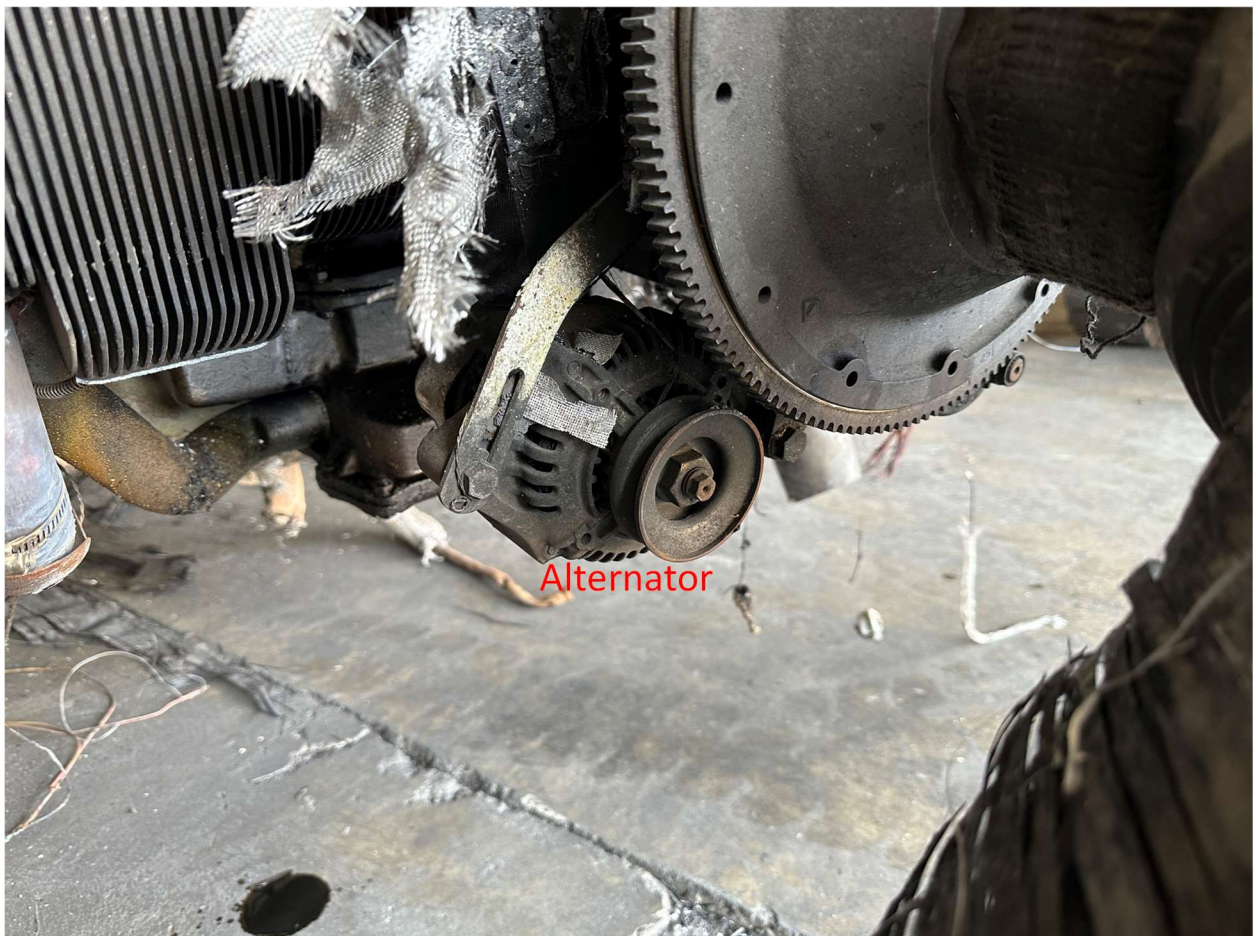
The intercooler was separated from the engine at the accident site with minimal fire and heat damage. It is likely that the intercooler was mounted to the upper left side of the firewall, vertically. According to the kit manufacturer, there was only one intercooler on the engine.

The accessory case along with the accessories were removed, the fuel pump, hydraulic pump, oil filter, back up alternator, fuel injector return line, turbo charger (hot side).

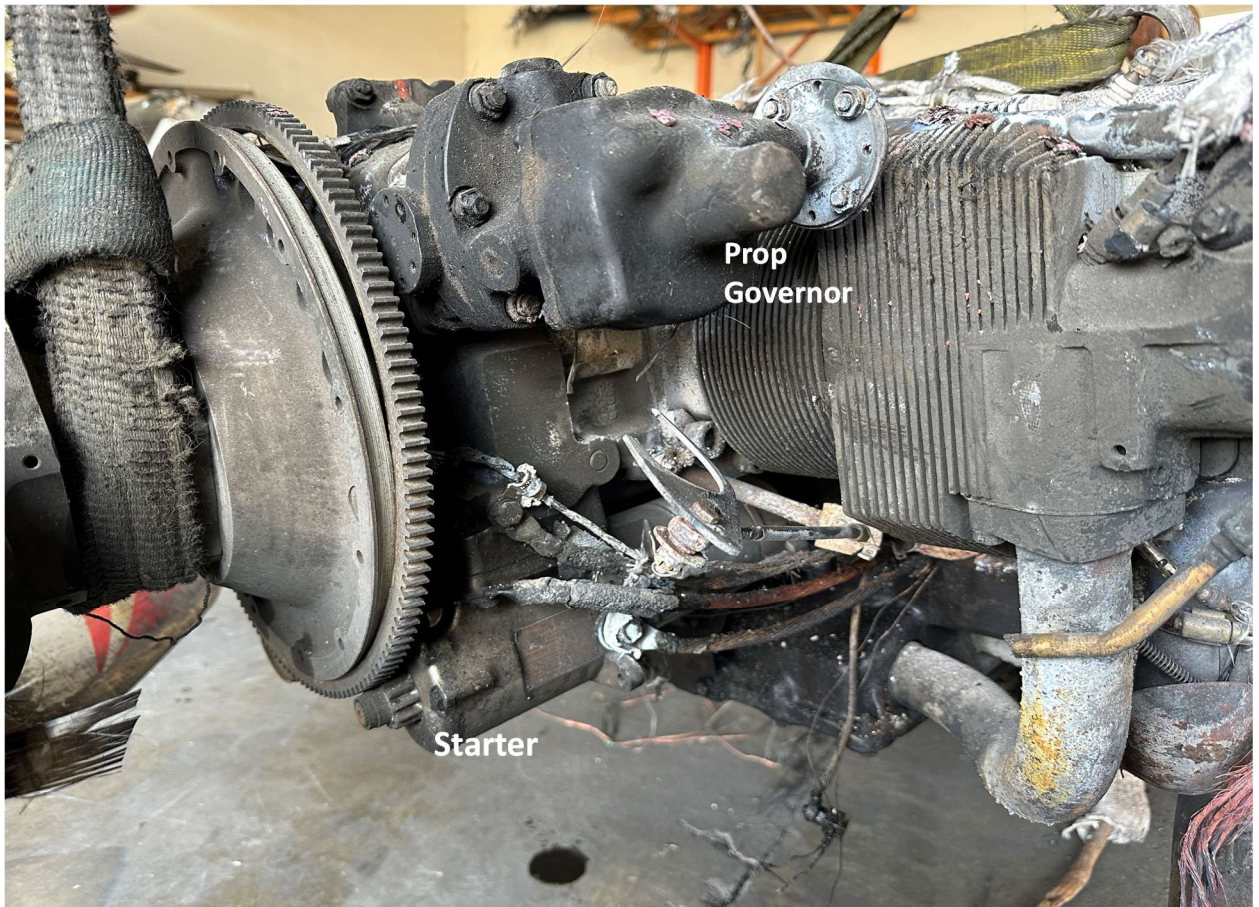
The in-flight fire started from an unknown fuel source near the turbocharger. Cold side of the turbocharger and associated hardware were likely thermally destroyed.

Hydraulic pump cover had some melting, but the internal components were intact and appeared undamaged.

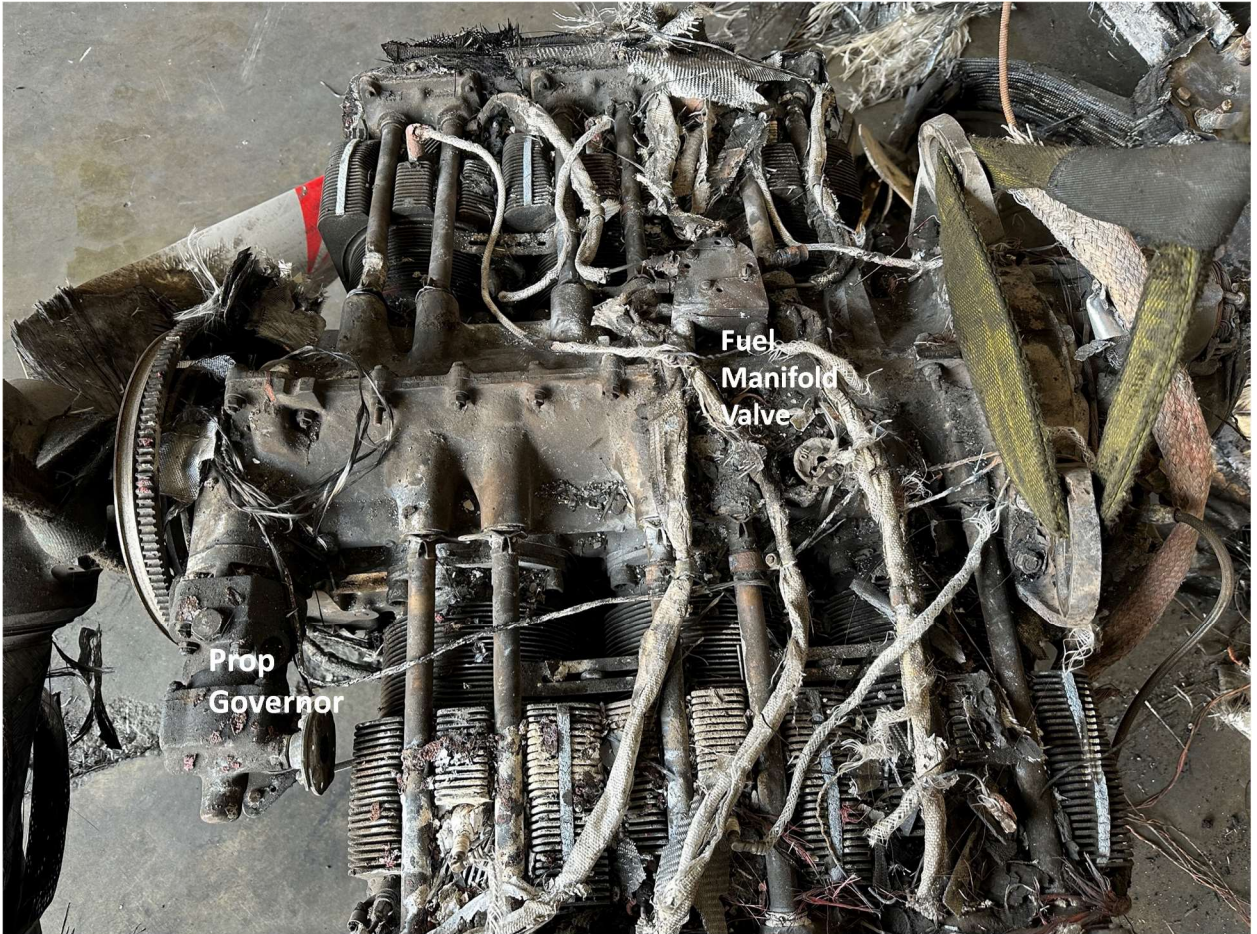
Turbocharger intake tube remained attached to the hot side of the turbocharger and had sooting internally but was not thermally damaged.



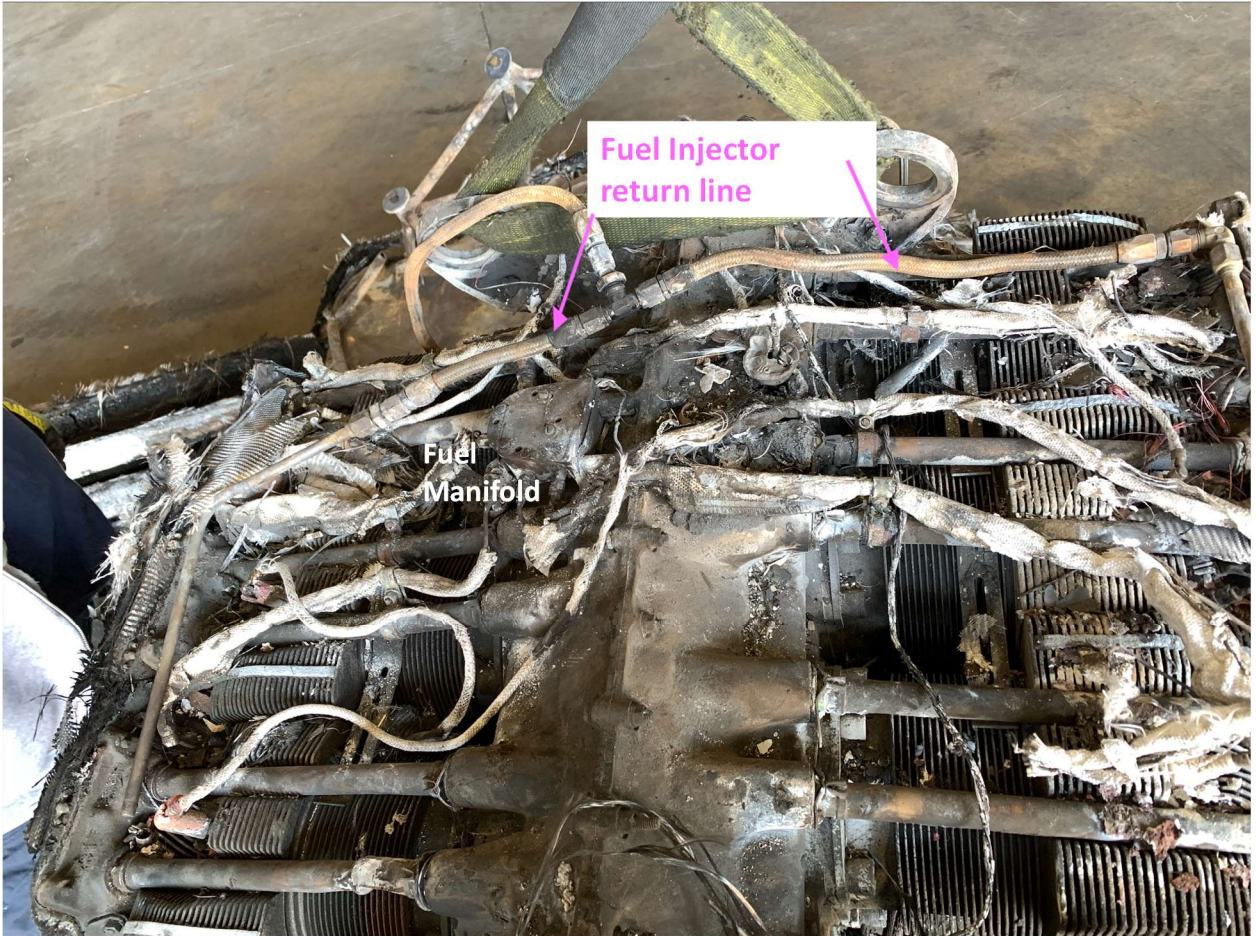
Picture 6. View of Alternator



Picture 7. View of Starter and Propeller Governor



Picture 8. Top View of Engine



Picture 9. Top view of Engine



Picture 10. Back up Alternator



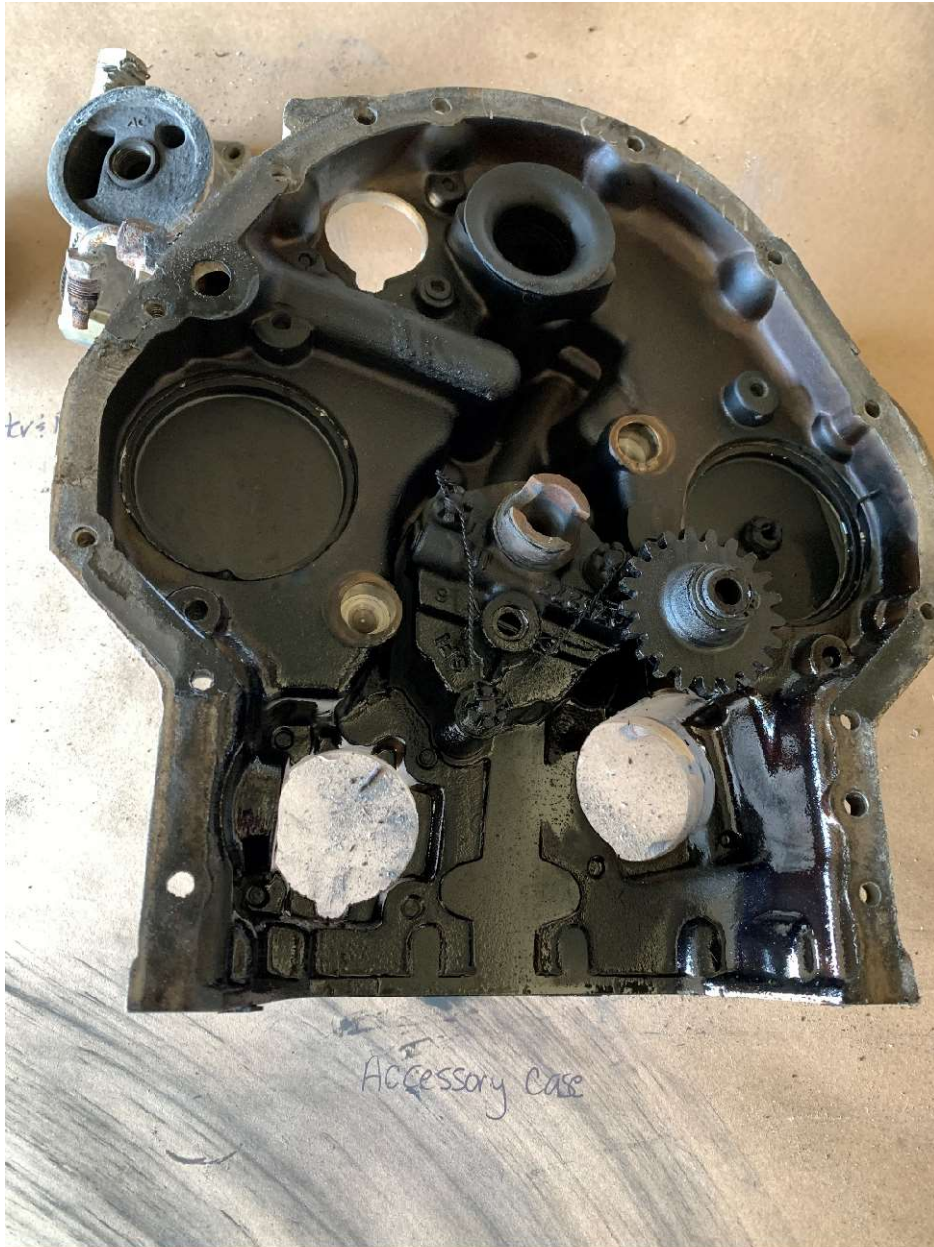
Picture 11. Oil Filter and Brackett



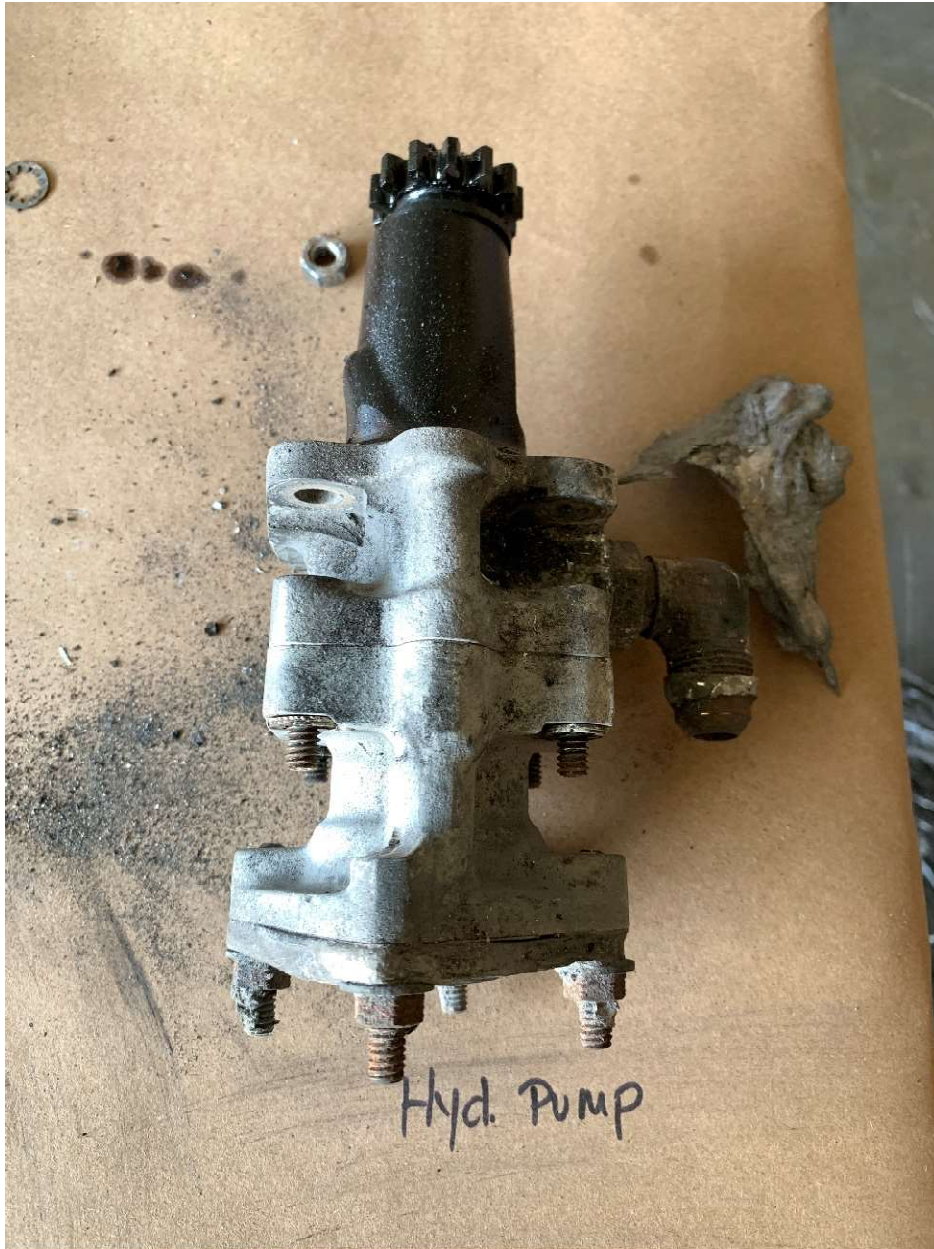
Picture 12. Fuel Injector Return Line



Picture 13. Fuel Pump



Picture 14. Accessory Case



Picture 15. Hydraulic Pump

Submitted by:

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