



993 River Currents Drive • Memphis, TN 38103

June 26, 2020

Post Accident Engine Inspection Bell 47 Helicopter Engine – Lycoming VO435-A1F SN-L1630-52 MCHC - 1,100 HRS

9:15am – Dan Merrell – Memphis FSDO
Allen Burnett – Pilot
Jeff Martin – Helicopter Owner
Tom Faires – A&P IA – DOM Helicopters, Inc.
Wayne M. Breeden – President – Chief Pilot – Helicopters, Inc.

Location – Helicopter Maintenance Hangar
590 Hughes Road
Brighton, TN 38011

The hydraulic pump was removed for access to the drive so the crankshaft could be turned. One spark plug was removed in each cylinder for a compression check.

10:07 am - The alignment pin cover was removed to determine the #1 TDC.
#1 = 72psi - #3 = 78psi - #5 = 75psi - #2 = 78psi - #4 = 75psi
#6 = 78psi (The compression test was obviously on cold cylinders)
The valve train operated normally when the crankshaft was turned.
A bore scope inspection of the cylinders indicated no anomalies in in any of the cylinders.

10:56 am Magneto check – Both magnetos are rotating normally and the timing was found to be in normal limits. The operation of the timing light indicated a correctly functioning ignition switch. All ignition leads and spark plugs appear to be completely functional. The air filter and induction system inspection indicated no obstruction to air flow.

11:34 am The throttle action was found to have a normal operating range. The mixture on this engine is wired in the full rich position. The fuel shut-off valve functioned correctly.

11:58 am Lunch

1:00 pm We returned to the hangar to continue the inspection.

1:12 pm I went to Memphis International Airport to take delivery of a fuel test kit.

3:12 pm I returned to find that the team had discovered a collapsed fuel line inside a fire sleeve. When the line was initially disconnected, only about four ounces of fuel drained from the system. When the line is disconnected to check the fuel screen, it usually discharges a much greater amount of fuel. When the thirty-inch long #8 line was inspected, no light passed through the fuel line. A bore scope was pushed through the line and no contamination was found. The current conclusion is that the line did collapse and the bore scope opened the collapsed portion. The fuel line is being returned to the NTSB for analysis. The carburetor was removed and disassembled for inspection. All components of the carburetor were found to function normally. The float was buoyant and the accelerator pump discharged fuel.

3:22 pm The left and right fuel tanks tested normal for 100LL fuel with no contamination. The fuel sample obtained from the fuel supply system on the support truck was found to be uncontaminated. (Shell fuel sample kit)

4:00 pm Tom Faires is replacing the valve covers.

The team conclusion is that the collapsed fuel line is the most likely cause of this engine failure. We eagerly await the NTSB analysis of the fuel line.

A black rectangular redaction box covering a signature.

Wayne M. Breeden – President
Helicopters, Inc.