

Inspector Statement (FAA IIC)

On December 21 and December 23, 2019, I responded to investigate the accident of N4726S, a 1969 Piper PA32-260 S/N 32-1165 that occurred the evening before on December 20, 2019 approximately around 6:00 pm EST. Initial inspection performed on December 21, 2019, of N4726S and the crash site revealed wreckage with a fuselage split in half, leaning against trees in a westward downhill sloping direction. The engine and cockpit, severed behind the pilot and co-pilot's seats was facing 180 degrees into the remainder of the aircraft fuselage. All fuel tanks had been ruptured from impact and there was noticeable blue staining from leaked 100 LL Aviation Fuel into the surrounding snow at the crash site. The engine appeared in newly rebuilt or overhauled condition, with the exception of separation damage on the number one cylinder from impact that severed the top cover and push-rod assembly. This assembly was located within the crash scene approximately 10 feet from the engine. The lower carburetor was also broken away from its mounting. The three bladed propeller was still attached with serious impact damage to the spinner. Two of the prop blades were buried underneath tree roots and surface rocks. Rotation could not be established at the crash site. The propeller blades did not show rotation damage from an engine under power.

On December 23, 2019, I returned with Inspector Kevin Godbout to continue the crash investigation of N4726S. Several fuel lines were removed and checked for fuel. Inspection of these lines revealed no fuel evidence from the firewall to engine fuel pump and from the engine fuel pump to the carburetor. The fuel selector appeared not moved from the right fuel tank position and revealed impact witness marks in this position before the fuel selector handle was severed from its location. Several upper and lower cylinder spark plugs were removed and revealed no operation abnormalities, heavy deposits, or high temperature operation signatures. The engine accessories were inspected and found intact. Both magnetos, alternator, fuel pump, and propeller governor showed no signs of internal or external operational failure or impact damage from the crash. The Oil filter was removed and split open at a local North Adams Airport FBO and revealed no metallic particles or signatures of internal engine wear. The oil appeared to have low operation time being lightly darkened from normal engine operation.



Daniel J. Ballou

Aviation Safety Inspector - Airworthiness

On February 7, 2020, myself and Inspector Kevin Godbout we're tasked to continue to investigate the accident of N4726S and perform continuity and operational analysis of the aircraft and engine. This was conducted at the local aircraft salvage and recovery company AMF Aviation, Inc. located in Southwick, Massachusetts. An overview of the Lycoming O-540 S/N RL-23384-40E engine was conducted and revealed a recent factory rebuilt engine that had been installed in this 1969 Piper Cherokee PA-32-260. This engine has a professionally rebuilt appearance with approximately 35 hours of operation logged before the accident event on December 20, 2019, and was installed by Mid Island Air Service located at Macarthur Airport, Long Island, Ronkonkoma, New York. The engine was in good condition with the exception of the #1 cylinder valve cover broken off revealing both push rods broken from accident impact. The lower carburetor assembly was also broken away from its mounting. It was confirmed that both throttle and mixture linkages had full motion despite receiving impact damage from the crash. Engine rotation was confirmed rotating the propeller through its full range of motion without any hang-ups or rotation difficulties.

After removing all lower spark plugs and inspecting them, they appeared very new, in good operational condition, without heavy deposits or gap problems. The # 3 spark plug was removed at the crash site and experienced light corrosion from being reinstalled hand tight, noticed during this more extensive inspection. Damage to the #1 cylinder prompted us to check/inspect #1 cylinder camshaft lobes by inserting a tool in the pushrod holes to verify continued continuity of operation. We performed full engine rotation once again confirming the engine rotated freely without hang-ups. The remaining five cylinder valve covers were removed from the engine and another full rotation check was conducted which revealed all valves opened and closed without any issues or rough operation discrepancies. Spark from the Magnetos and Impulse coupler was tested and revealed no issues. Both Magnetos were removed, disassembled, and inspected. These units appeared very new with internal gears, parts, coils, wires, and points all in great condition revealing no wear, defects, or operation anomalies. Both Magnetos rotated to confirm normal internal operation. The Mechanical Fuel pump was removed and was tested for operation revealing no problems or obstruction in fuel flow.

The Carburetor was removed and inspected for condition and operation anomalies revealing none. The Carburetor Filter (last chance filter) was removed, inspected for debris and revealed a very clean filter without obstruction. We inspected the Engine intake, revealing no passage blockage or damage preventing proper airflow. The Engine Exhaust inspection revealed the same, no damage or blockage preventing proper exhaust operation. The Propeller Governor was inspected for condition, checked for full range of motion revealing no damage or rotation problems to prevent normal engine to Propeller operation.

The Oil filter was removed at the crash scene, split open, inspected for magnetic particles at a local North Adams Airport FBO and revealed no anomalies preventing proper oil circulation throughout the engine. Engine oil was confirmed present in the Engine Oil Cooler and Accessory case, no defects or leaks were present in these assemblies. The Engine Alternator was inspected and revealed an intact component with no damage or issues to prevent normal operation.

Overall, this aircraft engine revealed no apparent mechanical issues or operation anomalies to prevent this engine from normal operation. Damage from impacting trees and the ground did not prevent our determination that N4726S's Lycoming O-540 S/N RL-23384-40E engine was running normally until exhausted from fuel flow due to mismanaged fuel tanks by the pilot prior to the eventual crash.



Daniel J. Ballou, N4726S Accident FAA IIC

FAA Aviation Safety Inspector - Airworthiness