



Aviation Safety

1701 Bond Street
Little Rock, AR 72202

Engine teardown Inspection for NTSB
N601ND s/n 6-6444
Clinton, Arkansas June 5, 2020

I Danny L. Brickey, ASI of Little Rock Flight Standards Office witnessed and supervised the inspection of engine and electrical systems for anomalies that could have caused engine failure, it was conducted by Wade Weary of Dawson's Aviation, as follows:

1. **Cockpit Inspection** – Removes all avionics boxes and inspected. Inspected all wiring at firewall and instrument panel.
2. **External Inspection** – Inspection of fuselage belly depicts smoke/smut and oil all down the left side
3. **Internal Inspection** –
 - The engine would NOT complete a 360-degree rotation.
 - The left side of the engine appeared to have gotten very hot burning the paint and oil residue on the outside. More so than the right side.
 - There was less than 8oz of oil in the engine

Left side:

- o All valve cover had different torque ranges from 0- 177-inch lbs.
- o All valves were intact. however the oil had gotten very hot and crystalized
- o All spark plugs showed evidence of overheating and burning oil.

Right side:

- o All valve cover had different torque ranges from 0- 144-inch lbs.
- o All valves were intact. however the oil had gotten very hot and crystalized
- o #1-fwd. cylinder, spark plugs are ground off on spark end.
- o All the rest of spark plugs showed evidence of overheating and burning oil.
- o Removing the head of the #1 right fwd cylinder revealed the piston was broken in two pieces and the piston crank link was bent.
- o The push rods were bent.

4. **Conclusion** – For an unknown reason. It appears the engine right front #1 piston broke. It did not penetrate the crank case and kept operating, thereby causing the overheating, oil

to burn and the engine to seize. This would explain the smoke the pilot reported and engine failure.

Danny L. Brickey
Aviation Safety Inspector
Little Rock Flight Standards