

CEN18LA251

NTSB Airframe and Engine Examination Notes

The NTSB investigator-in-charge, a Federal Aviation Administration aviation safety inspector, the president of Veracity Aviation, and a mechanic from Veracity Aviation were present on August 8, 2018 at the headquarters of Veracity Aviation in Seguin, Texas.

The team members performed an airframe and engine examination on N830J (Robinson R-22 Beta II helicopter equipped with a Lycoming Engines O-360-J2A engine).

Airframe

All structural components of the airframe were accounted for.

Substantial damage was sustained to the tail boom and the vertical stabilizer from the accident sequence.

No evidence of a fire occurring was observed.

No containments, debris, or water was noted in a fuel sample from the helicopter.

All of the flight controls remained attached to the helicopter. Flight control continuity was established for the airframe.

No preimpact mechanical malfunctions or failures with the airframe were noted.

Engine

All components of the engine and engine accessories were accounted for. No binding, wear, or damage was noted.

The engine was found attached to the engine mount system, which was attached to the airframe. The engine case remained intact.

No evidence of a fire occurring was observed.

The crankshaft was able to rotate with full rotation. Drivetrain continuity was established. The intake and exhaust valve rocker arm movement for all cylinders was established in correct firing order.

Compression for all cylinders was established via a differential cylinder pressure tester (calibrated on 8/8/2017 and was due for calibration on 8/8/2018):

#1	75/80
#2	36/80
#3	65/80

#4 62/80

A valve guide wobble check was performed for each cylinder, per Robinson Helicopter Company Service Bulletin 388C:

#1 0.022

#2 0.024

#3 0.024

#4 0.021

The spark plugs were found secured at each position. The ignition harness for each spark plug was attached at each magneto and was attached to each spark plug. The spark plugs were removed and examined with the following appearances noted below.***

1. Top Undamaged - Electrode/Normal

1. Bottom Undamaged - Electrode/Normal

2. Top Undamaged - Electrode/Normal

2. Bottom Undamaged - Electrode/Normal

3. Top Undamaged - Electrode/Normal

3. Bottom Undamaged - Electrode/Normal

4. Top Undamaged - Electrode/Normal

4. Bottom Undamaged - Electrode/Normal

***Per the Champion Spark Plugs "Check-A-Plug" chart AV-27

Spark was established for all ignition lead harnesses.

Magneto timing was performed – right magneto was 25, left magneto was 25.5.

No preimpact mechanical malfunctions or failures with the engine were noted.

Maintenance Records

An examination of the maintenance records provided by the operator revealed no evidence of any uncorrected mechanical discrepancies with the helicopter. Last maintenance recorded:

Engine – 100-hour inspection on 06/29/2018.

Total time: 3813.8

TSOH: 1614.2

Hobbs: 3813.8

No issues noted. Operational check on engine performed.

Airframe – 100-hour inspection on 06/29/2018.

Total time: 3813.8

TSOH: 1614.2

Hobbs: 3813.8

No issues noted. Maintenance flight completed.

Other

The operator reported that the pilot receiving instruction may have inadvertently gripped and reduced the throttle while in flight. The pilot is historically known for being “heavy” or “rough” on the flight controls. A postaccident flight with the pilot by the operator showed the pilot being “heavy” or “rough” again on the flight controls.