



ERA17LA182

West Creek, New Jersey

May 16, 2017

Stinson 108 – N9366K

NTSB ENGINE EXAMINATION REPORT

June 2, 2017

PARTICIPANTS IN THE EXAMINATION

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HISTORY OF FLIGHT

On May 16, 2017, about 2030 eastern standard time, a Stinson 108-2, N9366K, was substantially damaged during a forced landing near West Creek, New Jersey. The private pilot received minor injuries. The airplane sustained substantial damage. The airplane was privately registered to and operated. The personal flight was conducted under the provisions of 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed and a visual flight rules flight plan was filed for the cross-country flight. The flight originated from Eagles Nest Airport (31E), West Creek, New Jersey, around 2020, and was destined for Frederick Municipal Airport (FDK), Frederick, Maryland.

ENGINE INFORMATION

Engine Manufacturer: Franklin

Engine Model Number: 6A4-165-B3

Engine Serial Number: 32806

Recent Inspection: September 16, 2016 – 100-hour inspection Tach 1039.6

Recent Recorded TSMOH: November 1, 1970.

Most recent oil change: November 3, 2016, at 1085.1. Tach at Accident: 1125.2

INITIAL EXAMINATION

The airplane was in the examination hangar at the salvager with the wings removed.

- The throttle cable was attached to the carburetor.
- The mixture cable was not attached to the mixture arm on the carburetor, though the cable functioned when moved.
- The carburetor heat cable was connected to the plenum.



DETAILED EXAMINATION

No. 4 Cylinder separated from crankcase

The No. 4 cylinder was fracture separated from the crankcase and remained attached to the engine via the intake and exhaust manifolds.



Picture 1. Top of Engine

The No. 4 piston was missing.



Picture 2. No. 4 Cylinder

The No. 4 connecting rod was bent, the wrist pin was missing, and damaged bearing material remained in the connecting rod piston end. The rod remained connected to the crankshaft.



Picture 3. No. 4 Connecting Rod

Cylinder Damage

The No. 4 cylinder was fractured and a large portion was missing. The exhaust valve face was missing. The cylinder wall contained dozens of semi-circular gouges consistent with the diameter of the exhaust valve.



Picture 4. Internal View of No. 4 Cylinder

Exhaust Valve

The No. 4 exhaust valve stem was fractured. The valve guide and the area near the tip and spring retainer contained carbon deposits. The clearance between the stem and guide appeared excessive.



Picture 5. View of No. 4 Valve assembly and exhaust guide



Picture 6. No. 4 Exhaust valve fractured stem and tip end

Oil Filter Element

The oil filter was cut open and the paper element examined. The element contained granular metallic debris about the size of sand grains.

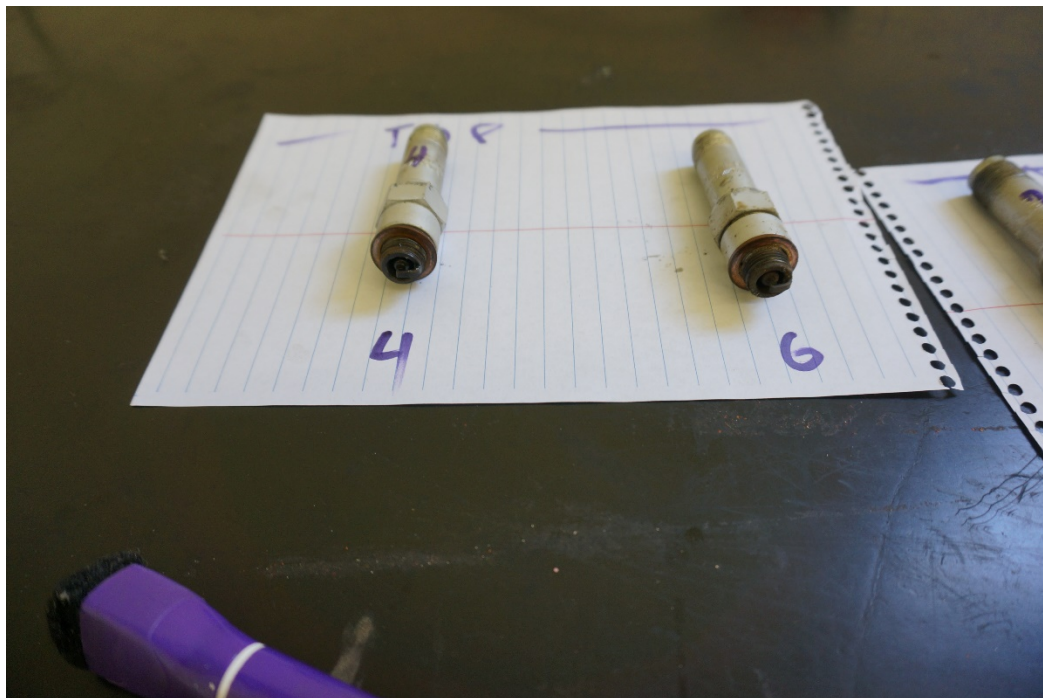


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Picture 7. Oil Filter Element

Spark Plugs

The top spark plugs were removed from the engine. The Nos. 1, 3, 5, and 6 spark plugs were slightly sooted. The No. 2 electrode exhibited corrosion. The No. 4 spark plug was oil soaked.



Picture 8. View of All Top Spark Plugs

SUMMARY

The No. 4 cylinder was fracture separated from the crankcase. The piston, sections of the cylinder and sections of the crankcase were missing. The crankshaft and remaining cylinders remained intact, and the engine rotated smoothly when the propeller was turned by hand. The No. 4 exhaust valve stem was fractured about halfway along its length. The lower half of the stem and face were missing. The valve guide clearance was excessive, the guide and tip area of the valve contained carbon deposits. The cylinder walls contained dozens of circular gouges consistent with the exhaust valve face diameter.