



MEMORANDUM FOR RECORD

Douglass Brazy
Air Safety Investigator
Eastern Region Aviation

November 26, 2019

Subject: N78912, Cessna 172K, 09/24/19, Manville, New Jersey, NTSB Investigation ERA19LA280. Wreckage Examination.

On November 26, 2019, the airplane was examined with oversight by a Federal Aviation Administration Inspector. The mechanic provided the following information:

Oil

Oil level satisfactory.
Oil condition dark.

No major leaks, but leaks were evident.
Engine rotated freely and normally. Cold.
Oil filter removed and inspected. Satisfactory.

Cylinders

Cylinder One: 65/80
Cylinder Two: 70/80
Cylinder Three: 55/80
Cylinder Four: 30/80

Cylinder One: Lower spark plug was excessively oil fouled. The lower spark plug hole was plugged with combustion by products and reached spark plug electrode shorting out spark plug.

Firm push with finger was able to remove the layer.

Cylinder Four: crack in exhaust port

All cylinders had ring leakage and valve leakage. Compression was checked cold.

Cylinder baffle seals were in poor condition.

Cylinder Three: valve travel appeared less than others.

Magnetos

Check magneto timing. Timing satisfactory within two degrees. BTC of 25 degrees. 27 Impulse coupling operated correctly.

There are no majorly worn components. Egap setting was close to manufacturer setting and magneto fired (sparked).

Magnetos removed and inspected. Reinstalled and spark check confirmed. Spark plugs show normal wear; some new some worn. Lead deposits but not excessive. Resistance check satisfactory. Some gaps were excessive. Ignition leads tested satisfactory. Rh magneto had observed a weaker spark than Lh. Needed a closer gap to work but that magneto is not equipped with an impulse coupling. Cylinder 1 lower lead was not tested thoroughly for spark or spark was not confirmed. All other leads had spark.

Carburetor

Fuel was observed in the carburetor float bowl in clean and normal condition. Rigging was correct and functional. The float needle and seat function properly and no defects were noted or leaks in the brass float. There was black carbon coating in the carburetor. Accelerator pump functioned properly. Finger screen was not removed. There was a V stamped in data plate indicating one piece venturi.

Airbox

Air filter was singed
Air filter assembly complies with AD and no loose gasket on air filter housing
Air box removed.
Two small pieces of debris fell out of airbox. It appeared to possibly be a clear epoxy used on the air box patches as sealant. Approximate .010" thick 2 inches long. they were grey in color from fretting aluminum chafing. When cleaned it looked clear or opaque. They were not retained.
The carburetor heat valve had excessive play.
Sealing material worn, brittle and possible loose particles. No large pieces missing
Carb Heat shaft was worn and had loose hardware.
Multiple patches and repairs were made to the airbox; they are fretting and coming loose.
Sealant coming loose in various areas.
Plate installed with 2 screws covered opening in airbox. Possible repair or modification.

Fuel Supply

Fuel tank vent was clear, no blockages.
Fuel selector valve detents were observed and off position functioned properly.
Fuel strainer functioned properly, but not disassembled.
Main fuel hose was free of blockages and contained fuel.
Fuel caps were present.
Clean fuel was drained from the carburetor.

Primer

Functioned properly and O rings were intact. No wear noted.

Miscellaneous Observations of 100hr

Propeller installed to incorrect clock position. Worn alternator belt. Battery ground terminal connected to magneto mounting bolt.

- rh magneto had observed a weaker spark than Lh. Cylinder 1 lower lead was not tested thoroughly for spark or spark was not confirmed.
- Cylinder 1 lower spark plug hole filled with combustion by products and reached spark plug electrode. shorting out spark plug.
- Spark plug gaps were various, brand of spark plugs were also various and condition of spark plugs varied.
- Do to the worn and loose flapper valve in the airbox the engine has been ingesting unfiltered and hot air for extended time. When the air box was removed there was what appeared to be two pieces of dried epoxy sealant. It is possible this debris may have interrupted the air flow over the venturi.
- Engine baffles and airbox typically have cracks and repairs due to excessive engine vibration.

Propeller bent from impact. exhaust damaged from impact.

Example of venturi blockage for reference only (the debris shown in the photo below was found in the airbox upon disassembly. It was not found in the carburetor venturi. In the photo below, the debris was placed in the venturi during the examination to show its size relative to the venturi).



<end>