



N8056L EXAMINATION

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WPR22LA076

NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Western Pacific Region

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AIRCRAFT REGISTRATION/AIRCRAFT TYPE: **N8056L/Cessna 172H**
ACCIDENT LOCATION: **Los Angeles, CA**

NTSB IIC: Michael Hicks Date: 06/28/2022 Signature: [REDACTED] Notes Approval: Agree: ☒ Disagree: ☐	FAA IIC: Patrick O'Brien Date: 08/08/2022 Signature: [REDACTED] Notes Approval: Agree: ☒ Disagree: ☐
Corona Aircraft Engines Name: Ben O'Con Date: 8/9 Signature: [REDACTED] Notes Approval: Agree: ☒ Disagree: ☐	FAA: Jeff Fritz Date: 08/08/2022 Signature: [REDACTED] Notes Approval: Agree: ☒ Disagree: ☐

ACCIDENT

Location: Los Angeles, CA

Date: 01/09/2022

Aircraft: N8056L, Cessna 172H, (S/N: 17256256) Manufactured: 1967

Engine: Continental O-300D (S/N: 35422-D-7D)

NTSB Investigator-in-Charge: Michael Hicks

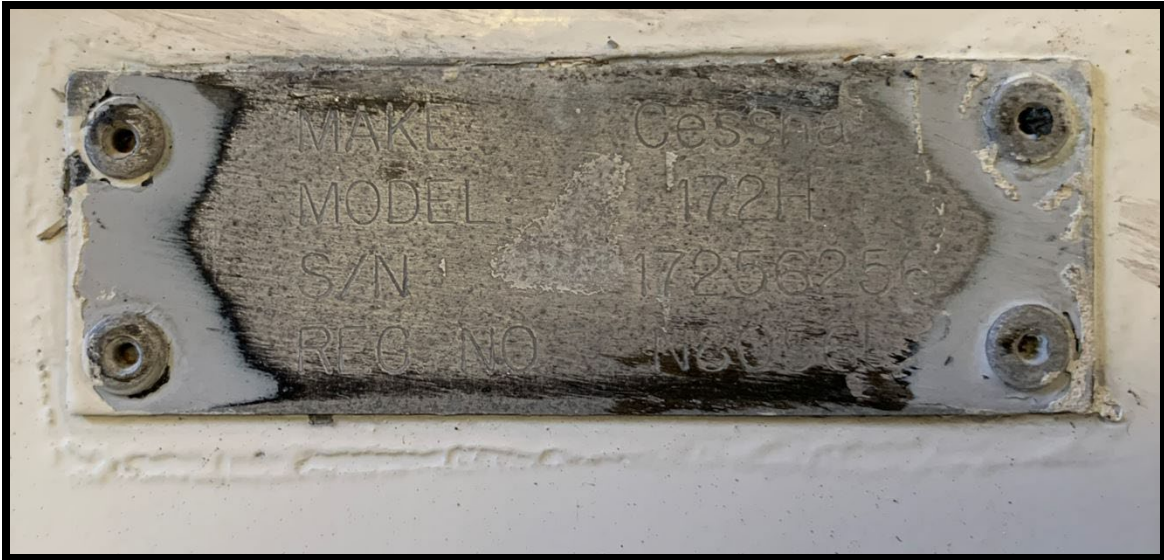


Figure 1: N8056L Airframe data plate



Figure 2: N8056L Engine data plate

Engine Examination Summary

Examination of the recovered engine revealed that a corrosive foreign substance occupied the gascolator and the carburetor. Excessive loose carbon was observed in cylinder 4, and a compression leak was observed about the piston rings. The #5 cylinder exhaust valve appeared to contain excessive carbon around the seat.

Document Prior to Removal:

- Engine was separated from the firewall.
- All accessories remained attached to the accessory case.
- No visual damage was observed on the crankcase.
- The rocker box covers were attached and intact.
- Each of the six-cylinders attachment points to the case appeared intact, including pushrods and pushrod housings.
- The induction and exhaust were liberated from the left side engine (cylinders 2, 4 and 6). The right-side induction and exhaust remained attached (cylinders 1, 3, 5).
- Impact damage was sustained to the bottom of the sump in the form of a three-inch hole about one inch aft of the carburetor.
- The carburetor and air induction box were separated from the oil sump at the attachment mount.
- Throttle and mixture cables were cut aft of the firewall. Mixture cable separated at the mixture control arm.
- Oil lines were present and remained attached to the engine. Oil cooler not installed.
- Fuel lines were the -8 type and remained attached and intact.
- The ignition harness sustained damage to the #4 and #6 top spark plugs wire. Ignition primary "P" lead connections were present and connected. The rubber boots were present on each of the "P" leads and appeared to have sustained impact damage.
- The fixed pitch propeller remained attached to the engine. The propeller spinner was crushed, and the propeller blades were damaged and curled aft toward the engine. One of the blades exhibited a more significant aft curling signature than the other, emanating from about the outboard 1/3 of the blade through the blade tip.

Removal of Items:

- The propeller and spinner were removed from the engine to facilitate ease of rotation.
- The rocker box covers were removed from each of the six cylinders.
- The top spark plugs were removed to facilitate thumb compression. The #6 Top spark plug was loose and exhibited little resistance when removed.
- No engine driven fuel pump. Fuel system was gravity fed and carbureted.
- The wet vacuum pump was removed with no visual damage present, and the drive coupling moved freely.

Continuity Inspection:

- Rotated the engine through by hand in direction of normal rotation prior to removal of accessories.
- Equal travel of exhaust and intake rocker arms was observed, with no visual damage or restriction to movement, which confirmed that cam lobes were not significantly worn, and accessory gears were not damaged.
- Thumb compression was observed on cylinders 1, 2, 3 and 6 when the crankshaft was manually rotated through. Thumb compression on cylinder 4 was weak, and cylinder 5 presented no compression. Visual inspection of the #4 and #5 valve springs, push rods and rocker arms were intact and equal travel was observed. Excessive loose carbon was observed in cylinder 4, the exhaust and intake valves did seat, and a compression leak was observed about the piston rings. The intake valve seated on the #5 but a compression leak was observed about the exhaust valve, which appeared to contain excessive carbon around the seat.
- While rotating the engine crankshaft, spark was observed on all ignition harness leads except #4 and #6. A degraded spark appeared on #4, while #6 presented no spark.
- Both magnetos remained attached to their mounts and engine to magneto timing was verified.

Accessory Documentation:

- The accessory case was intact and undamaged. When removed, the crankshaft gear and camshaft gears were found in time with each other with bolts tighten and secured.

Ignition System/Magnetos:

- The engine was equipped with two Slick impulse coupled magnetos both were functional and produced sufficient spark in proper firing order. The magneto timing was found to be Left 28° and Right 30°. According to the engines data plate the left magneto is timed correctly, and the right magneto was found 4° advanced.
- Removed the left and right Slick Aircraft Products magnetos from the accessory case. The ignition harness remained connected to each respective magneto and each spark plug except #4 and #6 Top. The #4 and #6 harness leads were damaged and separated from the top plugs, less than ½ inch above the spark plug. Dirt and debris at each harness separation point appeared to be the result of impact damage. Top spark plugs on cylinders 1, 2, 3, and 5 remained connected with no visual impact damage and produced a correlating spark.
- A “clicking” noise could be heard emanating from the left and right magneto when the magneto drive shaft was rotated and was documented as a function of the impulse coupling. Each of the impulse couplings were intact and no internal damage was observed to either magneto.

- Spark plugs: #2 cylinder bottom spark plug was loose and the ceramic insulator was cracked. #6 cylinder top was finger tight, wet and bent.
- Each of the spark plugs presented as normal wear, no fouling or excessive gaps identified. Normal grey color signatures indicate normal use.
- The voltage regulator separated from the firewall and did not sustain visible impact damage.
- The alternator/generator remained attached to the accessory case and did not sustain visual impact damage. The alternator was intact and remained installed, the drive gear remained attached to the shaft and moved freely. The Zeftronics alternator controller remained attached to the firewall and did not sustain visual impact damage.
- The Kelly Aerospace 14-volt starter motor remained attached to starter, which remained attached to the engine case, and did not sustain visible impact damage.
- The wet vacuum pump remained attached to the starter and exhibited no visual impact damage. Upon disassembly of the vacuum pump, no internal damage was visible and unobstructed movement was observed about the drive coupling.

Fuel System:

WING TANKS:

- The airplane was equipped with two wing fuel tanks (left and right). The inboard left wing tank was breached, and the right wing tank was intact.
- The left and right wing contained vented fuel caps.
- The right wing fuel cap did not possess the silicone vent valve. The right fuel cap gasket was hard to the touch, brittle, and missing portions of the outer gasket. The air vent on the right wing was present and did not sustain impact damage.
- The left wing fuel cap vent valve was present. The gasket was hard to the touch, brittle, and missing portions of the outer gasket.
- Continuity of the fuel system was observed from the left and right wing tanks to the fuel selector.
- The fuel selector valve was connected to the fuel strainer by an unimpeded fuel line. The fuel selector valve was removed, and the valve was rotated through each of the detents without binding or restrictions to movement.
- The fuel selector had four positions (Left, Right, Both, and Off). The fuel selector was observed being in the Right tank position, prior to being removed.
- Continuity was observed from the fuel strainer to the carburetor. Carburetor to intake continuity was identified in association with the carburetor attachment bolts sustaining impact damage and separated from the sump. The intake manifold mating surface was also separated from the sump. The intake elbow to cylinder head attachment points were separated and sustained impact damage observed at the attachment mounts.

GASCOLATOR:

- The fuel lines and fittings to and from the gascolator remained attached and intact.
- The gascolator was removed from the firewall and the safety wire was present.

- The fuel bowl was removed and about 1 teaspoon of white granulated corrosion exited the bowl. The walls of the bowl were covered in corrosion and pitted.
- Corrosion and rust were found on the top of the internal strainer assembly, and the fuel strainer seal kit exhibited corrosion and erosion signatures.
- The bottom half of the stainless-steel fuel strainer standpipe was covered with white granulated substance.
- The screen was covered with the white granulated substance and a noticeable fluid line was observed emanating from the top left of the screen to the bottom third of the screen.

CARBURETOR:

- Make: Marvel-Schebler
 - Model: MA-3SPA
 - Part No: 633029
 - Serial No: MS0DNM12
- The gravity-fed, carbureted fuel system sustained impact damage about the engine oil sump where the carburetor attached. The carburetor was liberated from the throttle body attachment point above the data plate.
 - Throttle and mixture cables were separated and remained attached to the firewall.
 - The mixture cable separated at the mixture control lever, the nut was loose, and no safety wire was present.
 - The mixture control lever remained attached to the carburetor and was uninhibited in movement.
 - The throttle control cable was separated from the carburetor at the throttle body. The throttle cable remained attached to the throttle control shaft and the throttle control shaft remained attached to the throttle valve. Part of the control shaft remained attached to the discharge pump lever.
 - Disassembled the carburetor and the plastic floats were intact and remained attached to the float and lever assembly. The needle valve was intact and contained corrosion witnessed upon the needle valve seat. The float bowl contained debris and rust colored corrosion.
 - The accelerator pump remained attached within the carburetor housing and contained rust colored corrosion throughout its housing, shaft, spring, and plunger. No fuel was expelled when actuated. The accelerator pump chamber was corroded from top to bottom and contained orange colored rust deposits.
 - The fuel nozzle exhibited a white film and the metal exhibited corrosion and the beginning stages of pitting.
 - The fuel inlet screen was removed and about ½ teaspoon of white granulated corrosion was extracted. The screen itself exhibited an orange-colored rust that extended onto the threads of the bolt it was attached to. The remainder of the screen was covered with the white granulated deposits.

Intake/Exhaust Systems:

- Air intake box sustained impact damage and separated from the engine.

- The airbox remained attached to the carburetor via the air filter bracket, and the carburetor heat linkage was present.
- Exhaust (on the cylinders 1, 3, 5) was present, sustained minor impact damage to the exhaust stack and remained unobstructed and intact.
- Exhaust (on the cylinders 2, 4, 6) was separated from the engine because of impact damage. The exhaust pipes separated at the cylinder attachment points and appeared unobstructed including the exhaust stack.
- Exhaust gas path coloration was light grey, and no oil film was identified.
- Both left and right exhaust stack baffles were unrestricted.

Cylinders:

- All cylinder barrels exhibited normal wear with visible cross-hatching. No abnormal scratches or scoring observed.
- Internal cylinder heads on 1, 2, 3, 4, and 6 showed carbon build up, normal to the make model of the engine and time on unit.
- The #5 internal cylinder head exhibited excessive carbon build up along with loose carbon when removed.
- All cylinder piston heads showed carbon build up with the #5 cylinder being more pronounced than the rest. However, no preignition or detonation signatures were noted.
- All cylinder's piston rings showed normal wear and were free in movement within their ring lands, albeit cylinder #4 rings revealed compression leak.
- No broken or stuck rings were observed on any of the cylinders. Valves and valve seat faces appeared to show normal wear with no burn signatures.
- All valves, valve springs, keepers, and retainers were intact with no burn signatures and observed as operational.
- No loss of engine oil pressure signatures noted. The #2 cylinder bearing disassembled and revealed normal wear pattern.

Misc. Accessories:

- The oil screen remained attached to the engine below the alternator.
- The screen was removed and the appeared clean and absent any foreign objects.