



WPR25LA082

INVESTIGATIVE SUPPLEMENTAL MATERIALS

ACCIDENT

Location: Columbia, CA
Date: 01/23/2025
Time: 1515 Pacific Standard Time
Airplane: Cessna 172K

INVESTIGATIVE TEAM

IIC Zoë Keliher
National Transportation Safety Board
Portland, Oregon

Party Member


Textron Aviation
Wichita, KS


Lycoming Engines
Williamsport, PA

HISTORY OF FLIGHT

On January 23, 2025, about 1515 Pacific standard time, a Cessna 172K, N79910, was substantially damaged when it was involved in an accident near Columbia, California. The pilot and passenger sustained serious injuries. The airplane was operated as a Title 14 Code of Federal Regulations Part 91 personal flight.

The pilot stated that after departure, he continued east to Columbia and entered the downwind leg of the traffic pattern at a 45° angle for runway 17. On the final approach, he noted that the airplane was high and maneuvered the airplane in a forward slip in an attempt to descend faster. As the airplane approached the runway, it was still too high, and the pilot determined there was not enough available distance to land safely. The pilot initiated a go-around and pushed the throttle fully forward to increase engine power and turned the carburetor heat off.

Shortly thereafter, the engine rpm began to decrease. He verified that the mixture, throttle, and carb heat were all fully forward and confirmed that the fuel selector was set to both tanks. When he moved the throttle aft and forward, the engine briefly surged, and the rpm increased. As he searched for a suitable off-airport landing site, he observed that the surrounding terrain was hilly with trees and brush. The engine then lost rpm again. With limited options, he turned left in a 180° maneuver in an attempt to return to the runway. While transmitting a radio call to report the engine failure, he noticed the radios had gone blank. The airplane collided with trees and impacted the ground in a nose-down attitude.

RECORDS

The Cessna 172K single-engine airplane was manufactured in 1969 (serial number: 17258243).

Examination of aircraft documentation indicated the last maintenance performed was an annual/100-hour inspection on January 9, 2025. At the time of inspection, the tachometer reading was recorded as 2,774.6 hours. The tachometer reading at the time of the accident was 2,799.52 hours, indicating that the airplane operated 24.92 hours after the inspection.

The last documented fueling occurred on January 22, 2025, at 1412 hours, with the addition of 20.968 gallons. A flight record form located in the airplane indicated the last recorded flight was also on January 22, 2025, with an ending Hobbs time of 3,021.1 hours and a flight duration of 2.6 hours. The tachometer at the end of that flight was recorded as 2,798.92 hours, consistent with the accident pilot's starting time. The tachometer reading at the accident site was 2,799.52 hours, indicating the accident flight lasted approximately 0.6 hours.

FUEL SYSTEM

Fuel is supplied to the engine from two aluminum fuel tanks, one in each wing with a vented fuel cap. Usable fuel in each tank is 21.5 gallons when completely filled. Fuel from the wing fuel bay areas is gravity-fed through a selector valve located beneath the floor board between the seats with a "LEFT", "BOTH", "RIGHT", and "OFF" selection. From the selector the fuel flows through the firewall to a fuel strainer (gascolator). From the strainer, fuel is routed to the carburetor. The fuel is vented from the left wing through an interconnect vent line in the cockpit overhead to the right fuel tank. There is a flapper valve located just outside the left tank.

The airplane wings were previously removed for transport. Visual inspection of the aluminum fuel tanks in each wing revealed clean internal surfaces without debris. Fuel cap seals were pliable, mating surfaces were clean, and vented fuel caps exhibited only minor surface rust on the left side but appeared to form a proper seal. The wing vent system was unobstructed from both wings through to the cabin section. The fuel outlet screens in each wing were clean and unobstructed. Continuity was verified by blowing air through each wing outlet through the cabin fuel system to the gascolator.

The fuel selector functioned normally in all positions (left, right, both, and off). The gascolator was removed and contained approximately one-quarter pint of clean, blue-colored fuel; the internal gascolator screen was clean, though minor corrosion was noted in the bottom of the bowl. The gascolator drain remained attached to its bracket, which was broken free from the gascolator itself.

Continuity was confirmed by blowing air backward from the gascolator through the fuel selector valve with no obstructions noted. Fuel lines from the fuel selector were individually disconnected and continuity verified with no

obstructions. Disassembly of the fuel selector revealed all poppet balls in place and moderate wear on the cam, though it still functioned properly with distinct detents. The linkage between the fuel selector handle and valve was bent, consistent with impact damage; the surrounding floorboard was buckled.

The fuel line connecting the gascolator to the was disconnected for examination, revealing no internal obstruction or significant deterioration, although there was a slight imperfection of metal observed inside the ferrule clamp. Approximately two tablespoons of fuel, containing sediment, were recovered from this fuel line.

The carburetor heat, throttle, and mixture control cables were bent at the firewall, preventing operation; however, they remained connected at their respective components at the carburetor and carburetor heat box.

A jar of fuel recovered from the left wing during aircraft recovery appeared cloudy yellow with sediment observed at the bottom.

ENGINE

The airplane was powered by a Lycoming O-320-E2D (serial number L-45576-27A) four-cylinder engine. The cylinders' combustion chambers were examined through the upper spark plug holes utilizing a lighted borescope. The combustion chambers remained mechanically undamaged, and there was no evidence of foreign object ingestion or detonation. There was no evidence of valve-to-piston face contact observed. The gas path and combustion signatures observed at the spark plugs, combustion chambers, and exhaust system components displayed coloration that the Lycoming representative said was consistent with normal operation. There was no oil residue observed in the exhaust system gas path.

Investigators achieved manual rotation of the crankshaft by rotating the propeller by hand. Thumb compression was established in all cylinders. Valve train continuity was observed, with approximately equal lift action at each rocker assembly. The accessory gears were undamaged and had a light residue of oil. The muffler assembly was removed from the engine; one header pipe was detached, and internal examination revealed no obstructions to exhaust gas flow. Intake tubes at each cylinder were removed, and the induction plenum was internally inspected, revealing no obstructions. Examination of the intake valve backsides revealed an oil coating and blue stain that the Lycoming representative said was typical signatures in this type of operating environment.

The ignition system was intact, with all spark plug leads secured at their respective spark plugs. Both magnetos were secure at their respective mounting pads. The right magneto (model 4370, serial number 00021288) was timed at 25 degrees before top dead center (TDC). The left magneto (model 4371, serial number 13051480) indicated timing at 13 degrees before TDC, but appeared to have shifted on its mounting pad, consistent with impact forces. Both magnetos were removed, their drives were intact and undamaged, and both produced spark upon manual rotation.

The carburetor, a Marvel-Schebler MA-4SPA (part number 10-5009, serial number BL-20-12547), remained attached securely to the engine with mixture and throttle controls connected. Carburetor control cable continuity could not be fully verified due to impact damage at the firewall. The carburetor was removed and opened for examination. The fuel bowl was clean, without visible contamination. Float pontoons and the float arm were intact and undamaged, with floats of a composite design. The fuel inlet filter at the carburetor was free of visible contamination, the main jet was unobstructed, and the venturi was secure and intact. The accelerator pump plunger gasket appeared somewhat dry yet pliable.

Internal inspection of the carburetor revealed a clean fuel bowl without contamination, composite floats intact, an unobstructed main jet, intact venturi, and a clean inlet fuel filter screen. The carburetor accelerator pump gasket appeared dry but pliable. The mixture and throttle controls were secured to the carburetor; however, full control continuity was not verified due to impact damage to the respective control cables at the firewall. The carburetor airbox was removed along with the air filter element; both were free of foreign objects or airflow obstructions. The foam filter element was intact and unobstructed. The carburetor heat door on the airbox exhibited a recent installation appearance and was labeled as and STC manufactured by McFarlane.

The propeller was a two-bladed McCauley 1C172/MTM7653. The propeller remained securely attached to the crankshaft flange, with both blades intact from tip to hub. The propeller blades exhibited minor leading-edge nicking.