



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Western Pacific Region

June 8, 2014

AIRFRAME AND ENGINE EXAMINATION

WPR14FA234

This document contains 16 embedded photos.

A. ACCIDENT

Location: Paso Robles, CA
Date: June 7, 2014
Aircraft: Piper J3 C-65, Registration Number: N24918, Serial #: 3535
NTSB IIC: Howard Plagens

B. EXAMINATION PARTICIPANTS:

Howard Plagens
Senior Air Safety Investigator
National Transportation Safety Board
Desert Hot Springs, CA 92240

Paul King
Aviation Operations Inspector
Federal Aviation Administration
San Jose, CA

Mark Mitchell
Aviation Safety Inspector
Federal Aviation Administration
San Jose, CA

C. SUMMARY

Examination of the airframe and engine was conducted on site.

D. DETAILS OF THE INVESTIGATION

1.0 Airframe Examination

The airframe was examined with no mechanical anomalies identified.

Investigators established control continuity for the ailerons, elevators, and rudder.

The left wing sustained substantially more damage than the right wing. The front of the right wing exhibited buckling and crush damage inboard of the aileron. The aft strut buckled about 30 degrees, and the wing was displaced forward. The wooden aft spar of the right wing splintered, and separated at the root; the wooden front spar of the right wing cracked, but remained attached. The right aileron was undamaged. The left wing was displaced aft. The left wing was crumpled its entire length with substantial bucking at the wing root. The left aileron was buckled in several places. The cap of the 8-gallon auxiliary fuel tank in the left wing was in place and secure.

The left main landing gear was crushed under the fuselage; the right main landing gear was intact.

The fuel selector valve was in the BOTH position. The main fuel tank in the fuselage was breached; a fluid that smelled like aviation gasoline was observed in the bottom of the tank. The gascolator was dislodged, and did not have a screen. It had some red flecks of debris in the bottom of the bowl.

The seat belts were stretched, and cut by first responders during victim removal.

The tachometer read 172.98 hours.

The emergency locator beacon was an Emergency Beacon Corporation EBGC-102A, serial number 531686, TOS C-91. It activated during the collision sequence, and was shut off by first responders.

1.1 Airframe Exam Photos



Photo 1 Top of Left Wing



Photo 2 Right Wing



Photo 3 Back View of Right Wing



Photo 4 Bottom of the Empennage



Photo 5 Elevator Bellcrank



Photo 6 Front Elevator Control Connection



Photo 7 Main Landing Gear

2.0 Engine Examination

Investigators left the engine in place. They removed the valve covers for cylinders one and three.

The spark plugs were Champion REM40E. Investigators removed the top spark plugs; all center electrodes were circular, and clean with no mechanical deformation. The spark plug electrodes were dark gray, which corresponded to normal operation according to the Champion Aviation Check-A-Plug AV-27 Chart.

A borescope inspection revealed no mechanical deformation on the valves, cylinder walls, or internal cylinder head.

Investigators manually rotated the crankshaft with the propeller blade remnants, and the crankshaft rotated freely. The valves moved approximately the same amount of lift on cylinders one and three; the valves were not observed on cylinders two and four as they were on the ground, and the valve covers were not removed. Investigators obtained thumb compression on all cylinders in firing order.

Both magnetos were Slick 4333 models. The left magneto was serial number 12040003; the right magneto was serial number 12040001. The ignition harness had sustained damage. Investigators removed the magnetos, and removed the back covers. They manually rotated the magnetos, and both magnetos produced spark at all posts.

The oil screen was clean.

The carburetor was a Stromberg A-18033A-3, serial number 3628. The carburetor separated at the engine connection; the fracture surface was jagged and rough. The throttle and carburetor heat cables remained connected, but the cables were bound by the crush damage to the firewall. With the cables disconnected, the controls on the carburetor moved freely from stop to stop. The mixture was wired in the rich position. The air filter remained attached, but sustained crush damage; the wire mesh screens on the front and back of the filter were partially dislodged. Dirt and grass were imbedded in the front of the filter element, and investigators observed dirt in the back side of the filter after removing it from the carb heat box. The filter element was paper, and appeared old and brittle. The paper element tore out along several edges.

2.1 Engine Exam Photos



Photo 8 Top of Engine



Photo 9 Engine Data Plate



Photo 10 Oil Screen



Photo 11 Carburetor



Photo 12 Exhaust Pipe

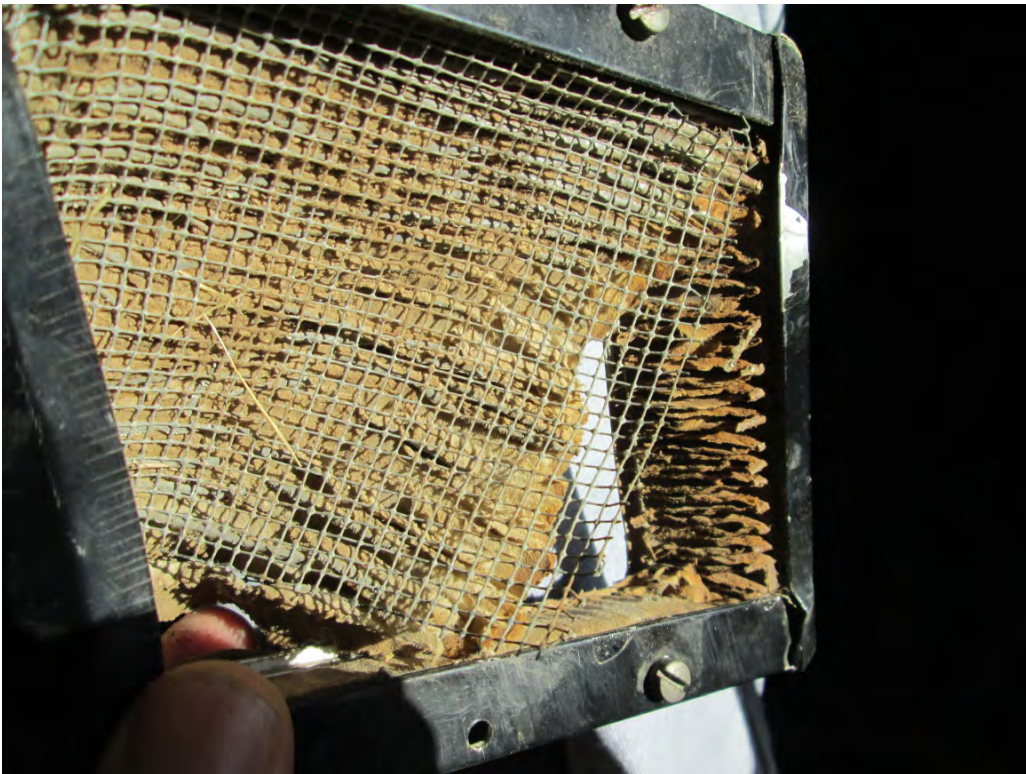


Photo 13 Front of Air Filter

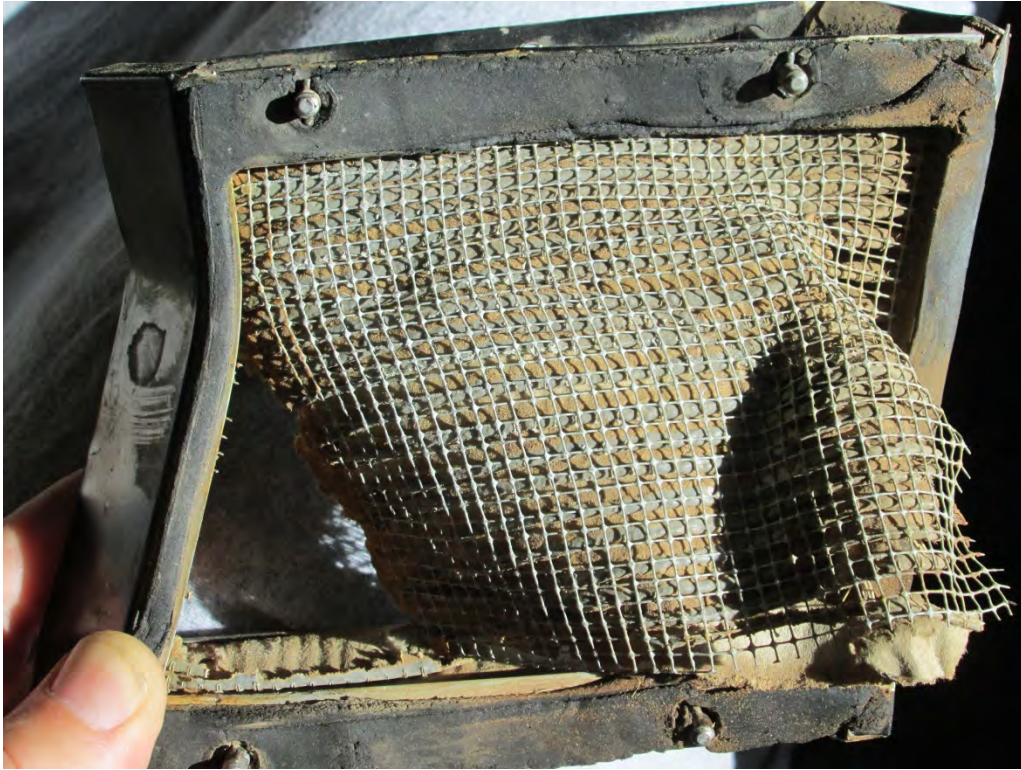


Photo 14 Aft side of Air Filter

3.0 Propeller Examination

The two-bladed wooden propeller was a Sensenich W72CK 42, serial number AK0609.

Both blades fragmented into numerous pieces. Both blades had metal sleeves on the leading at the tip and around the curve of the tip. Both metal pieces were dented and crushed toward the chord.

About 60 percent of the spinner was crushed aft into the propeller flange with slight angular scoring and some horizontal scoring.

3.1 Propeller Exam Photos



Photo 15 Propeller Blade Tips



Photo 16 Propeller Blade Pieces