

National Transportation Safety Board

Office of Aviation Safety

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WPR24FA287

WRECKAGE FOLLOW-UP EXAMINATION SUMMARY REPORT

Factual Report

August 29, 2024

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A. ACCIDENT

Location: Santa Paula, California
Date: August 25, 2024
Time: 1224 Pacific Daylight Time
Airplane: Pitts S-1 (N42JF)

B. PARTICIPANTS

NTSB-IIC Andrew Swick
 NTSB AS-WPR
 Phoenix, Arizona

Party Member Mark Platt
 Lycoming Engines
 Phoenix, Arizona

C. DETAILS OF THE EXAMINATION

1.0 Airframe

The wreckage was displayed on the floor during the examination. Portions of the wing structure and smaller airframe components were gathered in a recovery bag during the recovery process.



Figure 1-Empennage, cabin structure and engine displayed on the floor.



Figure 2-Wreckage follow-up examination, entire wreckage displayed on the floor.

The flight control cables and pushrods were identified, and all connections remained attached to their fittings. The aileron control rods, control arms, bellcranks and both aileron inter-connect assemblies were identified in the wreckage. The aileron control tubes remained attached to the control stick torque tube and separated from the aileron linkage at both outboard ends. The cockpit control stick moved freely with the torque tube assembly.



Figure 3-Wreckage layout, cabin area and forward fuselage structure.

The empennage remained intact and had impact damage to several structural tubing locations. The tail wheel remained partially attached. The rudder and vertical stabilizer structural tubing had impact damage and the rudder control cables remained secure to the rudder attach points. Rudder cable control continuity was established to the rudder pedal attach points in the cabin area. The elevators and horizontal stabilizers structural tubing had impact damage. Elevator control tube continuity was established from the elevator attach points to near the separation of the control tube at the aft side of the control stick torque tube. The elevator trim tab was found in the down position and control cable continuity was established to the cockpit control. The elevator trim control was loose from its cabin attachment.

The ferry tank located on the upper forward wing spar, remained attached and had thermal damage. The tank was breached and had thermal damage. The tank cap was locked and remained attached to the tank and had thermal damage. The main tank was mostly consumed by post impact fire. Small fragments of melted aluminum were found near the steel bracket assembly that holds the tank in place. The main tank fuel cap was not found during the onsite examination. The smoke tank, forward of the right rudder pedal area, was also consumed by postimpact fire.



Figure 4-Wreckage layout, fuel system components.

The throttle and mixture cables were found loose in the cabin area and cable continuity was established to the firewall.

The fuel selector was found separated from mounting bracket and lines. The handle melted from the control shaft and the control shaft was found near the "wing" (3 o'clock) tank position. The valve was disassembled and no anomalies were noted.



Figure 5-Fuel selector valve.



Figure 6-Fuel selector valve (preaccident), mounted left of the pilot's seat.

The cabin restraint system fabric was melted in the cabin area. The ratchet and metal restraint components were identified.

2.0 Engine

The damaged upper cowling remained partially attached to the Lycoming IO-360-B4A engine. The engine mounting carriage remained attached to the engine and fuselage. The propeller remained attached to the crankshaft flange and both blades were bent slightly aft. No rotational signatures were noted on the blades.



Figure 7-Propeller, engine and firewall.

The fuel servo separated from the thermally damaged oil sump. The throttle control was found securely attached at the control arm of the fuel servo. The mixture cable had been pulled from the end of the linkage arm. The throttle and mixture arm castellated nut and cotter pin remained secure with the serrated interface securely mated. The plug on the side of the injector body was secure with the safety wire in place. The fuel servo was disassembled and the internal diaphragms had thermal damage and the fuel metering stem and ball remained intact and undamaged.



Figure 8-Engine oil sump damage.

The upper spark plugs and valve covers were removed. The crankshaft rotated freely in both directions by hand through the propeller assembly. During the crankshaft rotation, cylinder compression was observed in operational order and the valve train was observed moving in operational order.

The fuel flow divider remained secure at the mounting bracket. The fuel lines remained secure at each flow divider fitting and fuel injector at each cylinder location. The flow divider was disassembled and no anomalies were noted. The diaphragm remained pliable, intact and undamaged.

The fuel nozzles were removed from each cylinder location and examined. The nozzles were found unobstructed.

The fuel pump remained attached to the engine and thermal damaged fuel lines remained secure at their respective fittings. The fuel pump was removed and disassembled. The fuel pump internal diaphragms had thermal damage.



Figure 9-Engine driven fuel pump.

The upper and lower spark plugs were removed and examined. The spark plug electrodes remained mechanically undamaged, and according to the Champion Spark Plugs Check-A-Plug chart AV-27, the spark plug electrodes displayed coloration consistent with normal operation.

The cylinder combustion chambers were examined with a lighted boroscope. The piston head showed a normal amount of combustion deposits and the cylinder walls were undamaged. The valve heads were undamaged and exhibited normal operating conditions.

The ignition harness had impact and thermal damage and was not tested. The ignition harness was attached at each magneto and respective spark plug.

The magnetos remained secure to each of their engine mounting pads. The magneto housings had thermal damage and discoloration. The magneto to engine timing was observed at about 25-degrees before top dead center (BTDC) of the No. 1 cylinder. The left magneto produced spark at each of the lead ends. The right magneto would not produce spark. The magneto was disassembled and its internal components sustained thermal damage.



Figure 10-Magnetos

The alternator remained attached to the engine and it's electrical connections were secured at each terminal post.

The oil filter was removed from the engine and disassembled. The internal pleats were thermally damaged and had contained no metal fragments.

Submitted by:

Andrew Swick
Aviation Accident Investigator