



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety

AIRFRAME/ENGINE EXAMINATION **SUMMARY**

Accident case number: ERA19FA130

Location of exam: Atlanta Air Recovery, Griffin, GA.

The cabin sustained crush damage from the firewall through to the empennage. All flight controls were observed in the cockpit and were crushed. All of the cockpit instruments were crushed or destroyed and the dial readings were unreliable. The artificial horizon indicator was also destroyed, but the directional gyroscope was sent to the NTSB material laboratory for further examination. The throttle, mixture, propeller, and carburetor heat controls were crushed in the full forward position.

Fragments of scat tubing, engine mounts and engine cowling were located in the soil around the wreckage. The nose wheel landing gear assembly was crushed and observed retracted in the wheel well. Examination of the right wing revealed that about 5 ft remained attached at the wing root. The remainder of the wing was crushed and fragmented. The wing sustained significant leading edge crush throughout the span of the wing. The main landing gear remained within the wheel well. The flap was broken away from the wing and separated into two sections within the debris field. Fragments of the aileron remained partially attached to part of the outboard section of the wing. Fragments of the aileron control tubes were observed within the wing broken and buckled. The fuel tanks were breached and fuel was not observed. All fuel lines within the wing were broken.

The vertical stabilizer was crushed and parts were located fragmented within the debris field. The rudder was separated from the vertical stabilizer and was crushed and buckled. About 3 ft of both horizontal stabilizers remained attached to the empennage. The outboard sections of the horizontal stabilizers were fragmented within the debris field. Both elevators were partially attached to the horizontal stabilizers and buckled. The remainder of the elevators were located within the debris field and crushed. Flight control tubes for the rudder and elevators were observed within the empennage crushed and fragmented. The control tubes remained partially attached to the bellcranks of the control surfaces.

Examination of the left wing revealed that about 7 ft remained attached at the wing root. The remainder of the wing was crushed and fragmented. The wing sustained significant leading edge crush throughout the span of the wing. The main landing gear remained within the wheel well. The flap was separated from the wing at the attachment points. The aileron was broken in two sections. The flight control tubes were not observed within the wing but were located within the debris field and were fragmented and buckled. The fuel tanks were breached and fuel was not observed. All fuel lines within the wing were broken.

The engine sustained heavy impact damage exhibited no indications of catastrophic failure, and was crushed against the firewall. The No. 1 cylinder head was impact-damaged and separated from the cylinder. All valves remained attached to the cylinder heads and showed signs of impact damage. The pushrods for all the cylinders was bent aft and separated from the case. Both magnetos remained firmly attached and were impact damaged. All of the respective spark plug wires were impact damaged. The top and bottom sparkplugs were removed, examined and all eight sparkplugs were gray in color on the electrodes. When removed and tested, impact damage prevented them from producing spark at all terminal leads. The carburetor was separated from the intake manifold, and from the air inlet filter box. The carburetor was fragmented and crushed.

The engine's crankshaft could not be rotated due to the impact damage. The propeller flange was broken away from the crankshaft. The valvetrain was observed intact throughout the engine. All fuel lines were broken and fragmented. The engine-driven fuel pump was broken away from the engine case and all fittings were damaged. All fuel lines from the firewall through to the engine driven fuel pump and carburetor were fragmented. Examination of the three blade propeller revealed twisting, bending, and chordwise scratching. One blade was broken mid-span and exhibited significant impact damage.