

Examination Summary

Cirrus SR22, N733CD

Examination overseen by A. Gerhardt, ASI



The wreckage was recovered and examined by airframe manufacturer, FAA, and NTSB safety investigators on October 21, 2020. The fuselage exhibited fragmentation consistent with impacting trees and terrain and discoloration consistent with post-impact spot fires. Sections of both the left and right cabin doors were identified and they exhibited impact damage and thermal damage. The baggage door was separated from the fuselage and it exhibited impact and thermal damage.

Cockpit documentation was not possible due to extensive impact and thermal damage. The Arnav MFD face frame, one piece of the Arnav MFD circuit board, the left and right outboard sections of the instrument panel, the bolster switch panel, were identified in the recovered wreckage. All observed components exhibited impact and thermal damage.

Both crew seats were destroyed by the post-impact fire and identification of which crew seat-back frame was the right or left was not possible. The rear passenger seats were not observed.

The left and right wings were fragmented. However, major components of each wing were identified. Aileron control cable continuity could not be confirmed due to the damage and sections that were not present. However, observation of the aileron cable separations revealed signatures consistent with overload.

The roll trim motor mounting base was located, and it exhibited impact damage, which precluded a determination of its trim position.

The flap actuator was separated from the fuselage and the flap actuator shaft was found in an extended position consistent with a flaps "Up" position.

All three landing gear were found separated and exhibiting impact and thermal damage. The empennage, horizontal stabilizer, and vertical stabilizer were fragmented in multiple pieces and exhibited thermal damage. The rudder was fractured into multiple pieces and exhibited impact and thermal damage. Rudder control cable could not be established due to the damage. However, the rudder cable separations exhibited signatures consistent with overload. The left and right elevators were fragmented in multiple sections. Their sections exhibited impact and thermal damage. Sections of the elevator control cable were identified and found separated. Due to the impact and thermal damage, elevator control cable continuity could not be confirmed. However, the elevator cable separations exhibited signatures consistent with overload.

The pitch trim motor remained attached to its fuselage station and its pitch trim position was between neutral and nose up pitch trim.

All observed CAPS components exhibited impact and thermal damage. The CAPS activation handle and cable were found separated from its handle holder. The separated CAPS activation handle was fractured into multiple pieces. The CAPS enclosure cover was separated from the fuselage.

The separated CAPS rocket motor, pick-up collar and collar support exhibited impact and thermal damage. The CAPS rocket motor propellant was expended. The CAPS rocket motor lanyard was fractured into multiple pieces. Two fractures were noted at each attach loop. All observed lanyard fractures exhibited signatures consistent with tension overload. The CAPS rocket motor launch tube exhibited impact and thermal damage.

The D-Bag was extracted from the retaining harness. The retaining harness remained attached to a section of the enclosure compartment. The CAPS parachute was extracted from the D-Bag. The slider assembly remained near the base of the canopy. CAPS parachute exhibited impact and thermal damage.

The D-Bag and incremental bridle remained attached to the parachute canopy. The incremental bridle remained zipped. The rear harness stitching remained snubbed. The two reefing line cutters were not observed.

The engine was fragmented, its crankcase had fractured, and its internal components were visible through the openings in the fractured crankcase. The engine could not be rotated due to the impact damage.

The No. 1 cylinder displayed impact damage, remained attached to the crankcase, and its respective sparkplugs remained installed. The No. 1 cylinder's piston valves were exposed. The No. 2 cylinder remained attached to the crankcase, the spark plugs remained installed, and the valve cover remained in place, but the cylinder displayed significant impact damage. The No. 3 cylinder remained attached to the crankcase at its base. However, it sustained impact damage, its jug was completely exposed, and the cylinder had fragmented. The No. 4 cylinder remained attached to the cylinder, and its damage was consistent with No. 3 cylinder's impact damage. The No. 5 cylinder had a section of the cylinder remaining attached to the crankcase. However, the majority of the cylinder had separated from the engine. The No. 6 cylinder had a section of the cylinder remaining attached to the crankcase and displayed similar damage as compared to the No. 5 cylinder. Several sections of piston heads, cylinder fragments, and engine rods were found with the wreckage. No engine accessories remained attached to the engine. Removed sparkplugs displayed normal combustion signatures when compared to a Champion check-a-plug chart.

The exhaust system and cabin heat exchanger separated from the engine and they exhibited deformation consistent with impact damage.

The 3-bladed propeller separated from its crankshaft propeller flange. The spinner was fractured into several pieces. The observed spinner pieces exhibited spiral crushing. One propeller blade was separated from the propeller hub at a fracture near its hub. The separated section of propeller blade was also fractured at its blade tip. A second propeller blade, which remained attached to the propeller, exhibited a 90° curved bend that extended from the hub to the fracture at the tip. The second propeller blade was also fractured into two pieces near the tip of the blade. A third propeller blade, which also remained attached to the hub, was missing the blade tip. All three propeller blades and the 4 observed fractured pieces exhibited chordwise scratches and gouges. The two attached propeller blades exhibited "S" Bending.

I can attest that the above summary is correct to the best of my knowledge:

Edward F. Malinowski
National Transportation Safety Board
Air Safety Investigator