



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Western Pacific Region

April 21, 2021

AIRFRAME EXAMINATION SUMMARY REPORT

WPR22FA026

This document contains 17 embedded photos.

A. ACCIDENT

Location:	Shafter, California
Date/Time:	November 3, 2021, 1130 PDT (1830Z)
Aircraft:	N8960Q; Ayers Corp./S-2R
NTSB Investigator-in-Charge:	Andrew Swick

B. EXAMINATION PARTICIPANTS:

Andrew Swick
Aviation Accident Investigator-IIC
National Transportation Safety Board
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C. SUMMARY

Examination of the airframe and engine was conducted at Air Transport, in Phoenix, Arizona on August 30, 2022. The examination revealed no evidence of preaccident mechanical malfunctions or anomalies that would have precluded normal operation.

D. AIRFRAME EXAMINATION

The airframe was found in numerous sections and only a couple sections of the forward fuselage and both horizontal stabilizers were cut to facilitate the recovery of the wreckage. All primary flight controls were identified during the examination. The fuselage including the empennage had thermal and impact damage revealing its internal structure and controls.



Figure 1-Wreckage examination, wreckage layout.

The rudder control cables remained attached to the rudder bellcrank and forward left attachment point. The right rudder cable separated near the cabin area and showed overload signatures. The forward right attachment point was not found during the examination. The elevator rear linkage remained attached to the empennage area. The elevator control rods located in the aft fuselage to the cabin area were not found during the examination.



Figure 2-Wreckage examination, empennage.

The cabin area had excessive impact damage and none of the forward cabin controls were identified. The lower fuselage pan remained attached to the cabin area and revealed a long circular impact signature. The circular impact signature was visible up the side of the cabin area on the left side of the pilot's seat and cabin structure area.



Figure 3-Cabin area, right side view.



Figure 4-Cabin area, left side view.



Figure 5-Impact signature on cabin area, lower pan.



Figure 6-Impact signature on fuselage skin panel and cabin area.

The forward fuselage, including the forward section of the cabin area, separated from the cabin area and remained partially attached to the wing spar. The forward hopper section and engine carriage separated from the wing spar. The wing tip sections (about 6 ft') separated from the wing during the accident sequence. The wing spar remained intact with excessive impact damage to the right wing. Only a small portion of wing structure and skin remained attached to the right wing spar. The aileron and flap assemblies were found with the wreckage. The right wing spar was bent aft from about the fuselage attach point to the tip, (about 8 ft aft from its original position at the tip.) The wings flight controls tubes were not found during the examination. Flap position was not determined. Aileron sections remained attached to the separated wing tip sections.



Figure 7-Main wreckage, right side view of the wing spar.



Figure 8-Right wing tip and aileron.



Figure 9-Left wing tip and aileron.



Figure 10-Right wing and flap sections.



Figure 11-Forward fuselage section.

E. ENGINE EXAMINATION

The engine was separated from its mount and found in two sections. The propeller remained attached to the gear box section of the engine. The power section was examined and showed some metal splatter on inner blade stages. The compressor inlet first stage showed impact damage to several blades. The turbine blades rotated freely by hand.



Figure 12-Engine sections.



Figure 13-Engine compressor inlet.



Figure 14-Propeller assembly and gearbox.

The propeller assembly remained attached to the gearbox and two blades separated from the hub. The blades showed s-type bending throughout the blade's lengths and chordwise scuffing and scratches.



Figure 15-Propeller blade damage.



Figure 16-Propeller blade.



Figure 17-Propeller blade.

Submitted by: Andrew Swick