

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



WPR22FA345

WRECKAGE EXAMINATION

Factual Report

March 9, 2023

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A. ACCIDENT

Location: Seligman, Arizona
Date: 9/13/2022
Time: 1100 MST
Airplane: Piper PA-46-310P

B. WRECKAGE EXAMINATION PARTICIPANTS

NTSB-IIC	Andrew Swick NTSB, AS-WPR Phoenix, Arizona
Inspector	Michael B. McComb FAA, FSDO Scottsdale, Arizona
Piper Aircraft	Kathryn Whitaker Piper Aircraft Phoenix, Arizona
Piper Aircraft	Robert Martellotti Piper Aircraft Phoenix, Arizona

C. SUMMARY

The examination of the wreckage revealed lateral crushing along the length of the left side of the fuselage and the separation of both wings and the empennage. Postaccident examination of the wreckage revealed no evidence of any preimpact mechanical malfunctions or failures that would have precluded normal operation. Wing spar signatures and empennage and wing impact marks suggests positive wing loading prior to the wing separation and inflight breakup.

D. DETAILS OF THE EXAMINATION

1.0 Fuselage

The fuselage was crushed laterally along the left side of the fuselage reducing the width of the cabin area to about half. The engine remained attached to the fuselage and had impact damage to the left side. The propeller assembly separated from the engine crankshaft propeller flange. The propeller blades remained attached to the hub and showed no impact signatures that would suggest power at ground impact. The spinner was crushed on one side. The main cabin door remained attached to the fuselage and the nose baggage door separated. The occupied seats and instrument panel were crushed. Examination of the instruments revealed no nonvolatile memory, and all cabin switch positions were undetermined. The fuselage upper exterior surface revealed black rubber transfer marks. Control cable continuity could be established from near cabin to the control surfaces, though overload separations were noted to the aileron control cables. Damage and compression of the fuselage structure precluded continuity determination within the cabin.



Figure 1-The left side of the fuselage and left wing spar inboard section.

2.0 Wings

The left wing separated at the wing root area. The left wing spar inboard section was visible and remained attached to the main wreckage. The spar end revealed separation signatures of positive wing loading. The fracture surfaces had angled, dull, grainy appearances consistent with overstress separation. The inboard upper spar cap was deformed upwards near the separation.



Figure 2-The left main wing spar separation.

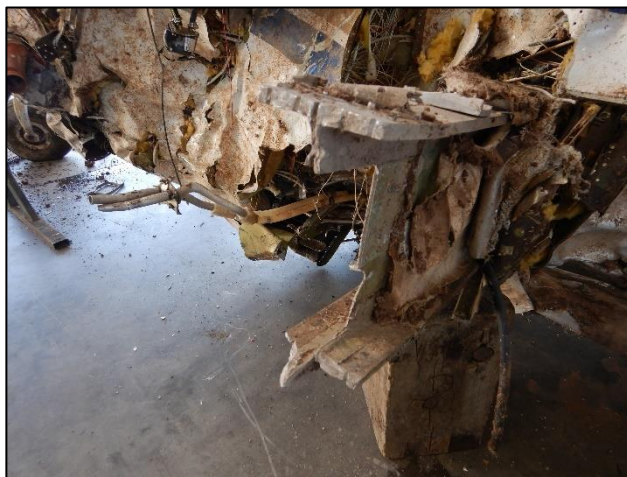


Figure 3-The left main wing spar separation.

The separated outboard left wing was recovered in two large sections and separated near wing station (WS) 135. The inboard section of the wing had trailing edge damage and the flap was not attached. The main landing gear remained attached to the inboard section. The aileron remained attached to the outboard wing section and had impact damage to the tip. The upper wing skin was damaged and curled outboard from the separation. The fracture surfaces between the two outboard left-wing sections had angled, dull, grainy appearances consistent with an overstress separation or positive wing loading.

The left aileron cables remained attached to their respective components and were separated near the wing root with the ends exhibiting a splayed, broomstraw appearance consistent with tension overload. The left flap separated from the wing and was not found during the recovery efforts.



Figure 6-Forward view of the left wing and main wreckage.



Figure 7-Aft view of the left wing sections.

The lower surface of the left aileron displayed an imprint, located about 20 inches from the inboard end, consistent in appearance with button head rivets spaced about 1 inch apart.



Figure 4-The left aileron rivet imprint.

The right wing separated near WS 86, leaving about 4 ft of the wing attached to the fuselage. Both the main and the aft wing spars were deformed upwards at the fracture location consistent with positive wing loading. The fracture surfaces had angled, dull, grainy appearances consistent with overstress separation. The wing had leading edge damage near WS 156.



Figure 6-Right wing separation.



Figure 7-Right wing main spar separation.

The right aileron was separated from the wing and had impact damage. The aileron cables remained attached to their respective components and were separated near WS 100 with the ends exhibiting a splayed, broomstraw appearance consistent with tension overload. The flap was found in two sections and the inboard portion remained attached to the inboard wing section that was attached to the fuselage. The outboard flap section was found in the debris field and had impact damage.



Figure 5-Right wing and flap.

3.0 Empennage

The empennage separated from the fuselage near the aft pressure bulkhead at fuselage station (FS) 250 but remained attached to the elevator and rudder control cables. Rudder control cable continuity was established, and the rudder control sector had impact damage. Elevator control cable continuity was established, and the elevator control sector had impact damage.

The vertical stabilizer forward and aft spars separated from the empennage at the roots. The vertical stabilizer skin separated from the spars. There was a circular impact mark and rubber transfer marks near the left side of the leading edge about 51 inches up from the root.



Figure 6-Vertical stabilizer skin held in place relative to its normal position on the empennage.

The horizontal stabilizer, most of the elevator, elevator tab and the FS 327 frame had separated from the empennage as one unit. The left side of the stabilizer was buckled, and the inboard leading edge was deformed upward. The right side of the stabilizer was separated about midspan; the leading edge was deformed upward and aft, and the outboard skin was impact separated. Several white paint transfer marks and black rubber transfer marks were noted to the de-ice boot and upper skin of the stabilizer. The right side of the elevator had impact damage. The elevator control stops remained mounted to the control rod and were unremarkable. The FS 327 frame displayed a semi-circular crush impression consistent with contact by the elevator control rod, above where the rod passed through to the elevator. The tail tiedown loop remained mounted to the FS 327 frame and had deformed to the left.



Figure 7-Horizontal stabilizer and elevator.

Submitted by:

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