NATIONAL TRANSPORTATION SAFETY BOARD

Office of Research and Engineering

Washington, D.C. 20594

November 10, 2009

REAR SPAR DAMAGE
AGNOS, AR
12 PHOTOGRAPHS
PART 4

by John Clark

A. ACCIDENTS

Location: Agnos, AR
Date: November 6, 2009
Aircraft: Zenair Zodiac 601XL (experimental)
NTSB#: CEN10FA042

B. DISCUSSION

The airplanes are Zodiac 601XLs. Each airplane sustained an in-flight structural failure of one or both wings. Where photographs are available, it is noted that the rear spar of both wings sustained similar damage. This report is added to the docket of the accident that occurred at Polk City, Florida.

Location: Polk City, Florida
Date: April 7, 2008
Aircraft: Czech Aircraft Works Zodiac 601XL
NTSB#: NYC08FA158

REAR SPAR DAMAGE OF THE SEVENTH ZODIAC AIRPLANE (PART 4, AGNOS, AR)

A number of Zodiac 601XL light sport airplanes sustained inflight failures of a wing. Photographs of seven were sufficient to allow examination of the rear spars in the area of the flap/aileron junction. The upper and lower caps of the rear spars exhibited compression buckling.

Regardless of the difference in the overall damage to each wing, compression buckling of the upper and lower caps of the rear spars was observed.

Typically, the compression buckling of the lower spar cap was at the lower edge of the hole that allowed the aileron push rod to pass through the rear spar web. The compression buckling of the upper spar cap was several inches inboard of the flap/aileron junction.

In some cases, only photographs of the external surfaces were available. In the Agnos, AR accident, buckling and scoring of the flap hinges and flaps were also noted.

The Agnos, AR accident: both wings separated from the airplane. The aileron bellcranks, pushrods, and aileron attach fittings separated, were pulled through the wings and remained with the fuselage, attached by the cables.

Both wings had separated from the fuselage. The horizontal stabilizer remained attached.

Bottom of the left wing.

Top of the left wing.

Score marks on top of flap, left wing.


Compression buckling of top and bottom rear spar cap, left wing.

Another view of compression buckling on top and bottom of rear spar, left wing.

Top of right wing, score marks on top of flap.

Top of right wing.

Right aileron attach fitting.

Rear spar, right wing.

Bottom of right wing. Buckle at mid-span of right flap.

Bottom of right wing, lower rear spar. Buckle near mid-span of right flap.

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