

NATIONAL TRANSPORTATION SAFETY BOARD

Office of Research and Engineering

Washington, D.C. 20594

October 21, 2009

REAR SPAR DAMAGE POLK CITY, FL AND OAKDALE, CA 8 PHOTOGRAPHS PART 2

by John Clark

A. ACCIDENTS

Location: Polk City, Florida

Date: April 7, 2008

Aircraft: Czech Aircraft Works Zodiac 601XL

NTSB#: NYC08FA158

Location: Oakdale, California

Date: January 29, 2007

Aircraft: Experimental Zodiac 601XL

NTSB#: LAX06LA106

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

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REAR SPAR DAMAGE OF SIX ZODIAC AIRPLANES (PART 2, POLK CITY, FL AND OAKDALE, CA)

A number of Zodiac 601XL light sport airplanes sustained inflight failures of a wing. Photographs of six 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.

It is important to note that typically one wing would fail and wrap around the fuselage while the other wing would remain relatively straight. 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.

The Dutch Safety Board provided photographs of the Dutch accident. The CIAAIC provided photographs of the Spanish accident.

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.

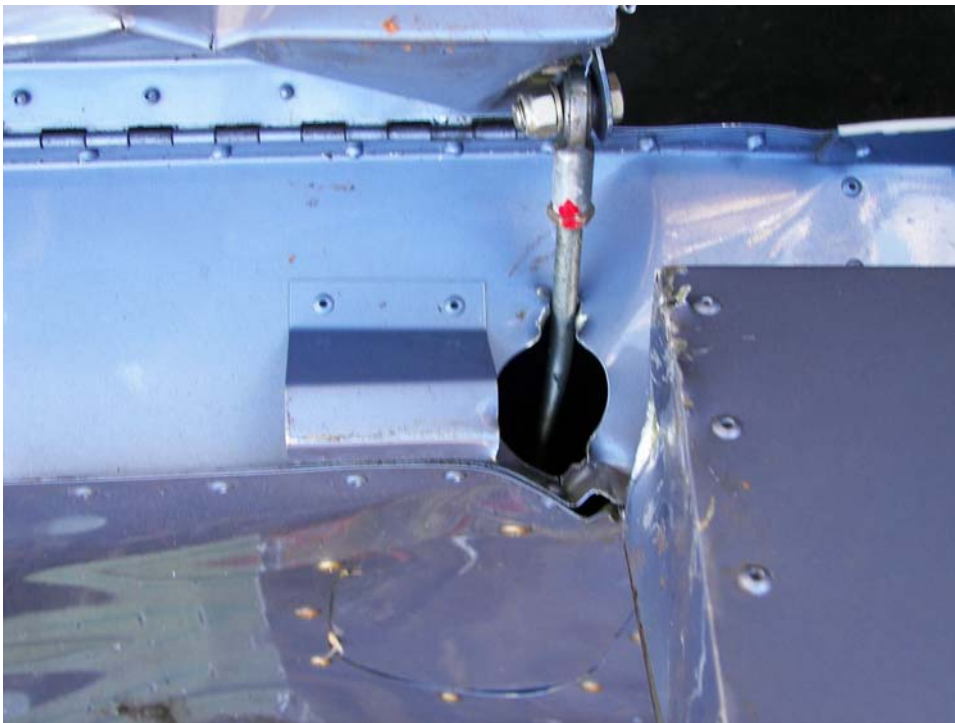
The Polk City accident: the left wing wrapped around the fuselage, the right wing was relatively straight.



Left wing wrapped around fuselage



Left wing, upper buckle



Left wing, lower buckle



Right wing, upper buckle



Right wing, lower surface, no apparent buckle at inboard end of aileron, other buckle may be due to leading edge impact.

The Oakdale, CA accident: both wings broke in down bending.



Right wing, lower surface



Left wing, upper buckle



Left wing, upper buckle

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