

**Subject: FW: [c-a] Varieze Center Section Spar Cap Failure**

**Date:** Wed, 18 Sep 2002 16:30:10 -0600

**From:** "flyez" <flyez@earthlink.net>

**To:** "Bill & Donna Oertel" <ezeflight@earthlink.net>, "David Orr" <canardfinder@att.net>

Hi Bill and David:

Thought you two might find this of interest.

Stet

> -----Original Message-----

> From: Andreas Christou [<mailto:andreasc@ix.netcom.com>]

> Sent: Thursday, September 12, 2002 7:22 PM

> To: canard-aviators@yahoogroups.com

> Subject: [c-a] Varieze Center Section Spar Cap Failure

>

>

> I hope the title got your attention, and yes I am still alive!

> Turn to Varieze manual page 6-17 for part references.

>

> I noticed a small crack in the paint just below the right Center Section wing attach fitting (WA-2-5).

>

> I asked (Long-Eze)Bob to put his finger over it while I moved the wing tip

> up and down. Bob felt it move!

>

> I looked at the top fitting while Bob moved the wing tip up and down and I

> saw the wing/center section gap move 1/16 in/out. Worse, the WA-2

> Plate was

> moving as well.

>

> We removed the right wing, and found a tea-spoonful of bluish-white

> granular powder sitting between the WA-3 wing tongue and on top of WA-2-2 Plate.

>

> The face of WA-5 spacer was corroded as was the top surface of WA-2-2 in the area between the wing tongue.

>

> I also noted that there was a gap between the top of WA-2 Plate and the thick layer of micro above it. Given that the WA2/WA-2-2/WA-5 combination were moving, we felt that further investigation was needed.

> I ground off the micro above WA-2 for a small section in the middle, to avoid the strake layups to the front and the cowling lip reinforcement to the rear.

>

> I found large amounts of corrosion. I then exposed all the area above WA-2

> and saw that the plate was slightly distorted, and there was a semi

> circular crack running in a curve around one of the eight AN509-428 R-14 screws.

>

> There was also a small gap inboard of WA-2, as evidence of movement.

>

> I removed WA-2 plate, the WA-5 spacer and the eight screws and was then able to remove WA-2-2 WITH the BID pad and part of the spar cap

> still attached.

>  
 > The bottom surface of WA-2 was severely corroded. About half the  
 > metal had  
 > been converted to a grey/white flaky material.  
 > The Spar Cap had failed exactly on the inboard edge of WA-2 Plate. The  
 > Shear web had failed along the top front and top rear edge of WA-2.  
 > The bottom surface of WA-2-2 plate was also badly corroded as  
 > were all four  
 > faces of WA-5 spacer.  
 >  
 > There was NOTHING holding the upper wing attach fitting to the center  
 > section spar, except a snug fit, and positive G.  
 >  
 > My guess is that corrosion was followed by progressive movement  
 > and failure  
 > of the spar cap.  
 >  
 > I hope someone will reply to me who can then make a more official  
 > diagnoses. I have photos of each stage of the disassembly.  
 >  
 > MY PLEA TO ALL OF YOU IS PLEASE!! CHECK your wing fittings thoroughly  
 > before next flight.  
 >  
 > NOTE:  
 > I had no external indication of corrosion.  
 >  
 > Most of the corrosion was buried inside the structure.  
 >  
 > The failure of the upper center section spar cap was TOTAL.  
 >  
 > I will leave you with the thought, that during my last flight, I  
 > performed  
 > one roll followed by a loop , another roll, a half loop with half  
 > roll off  
 > the top, accelerating while falling to the 45 degree line, a pull  
 > to level  
 > and another roll and then local flying, all the time wondering why  
 > something just did not feel right.  
 >  
 > The canard may be tested to 10g, but was the wing attach fitting ever  
 > fatigue tested??????  
 >  
 > I am sending the photos, and this text to CSA and to RAF.  
 >  
 > Feel free to ask questions privately if you fly a Varieze. I will try to  
 > update the group soon.  
 >  
 >  
 > Andreas P. Christou  
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 >  
 >  
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