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SERVICE BULLETIN

SB028-0796

Subject: Lancair IV Inboard Spar Closeout Inspection

Date: 9 July, 96

Ref:

Pages: 4

Status: Mandatory Compliance

Background:

We've had a number of builders that have reported fuel leaking into their main spar close outs. When we were servicing a fuel probe on 106L, we also had a leak. Revision A11, dated 8/23/95 should have shown the 3 BID layup running from 25.5 rib to where it touches the forward web of the main spar.

Note:

The main spar close out area, at no time, should be permitted to carry fuel. This area has not been sealed to protect it against fuel. The epoxy pre -pregs are fuel resistant but we prefer to stay on the safe side by saying...if you do have a leak in these areas, you will need to drain the fuel and facilitate a seal. There is a possibility that your close out area does not show any leaks but is holding fuel.

Action:

The modification required depends on whether your wing is leaking or not. Refer to the appropriate section and revision A11.

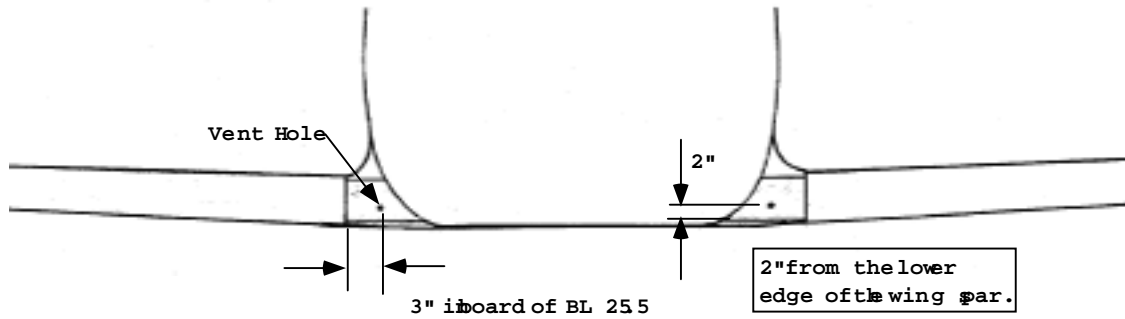
Modification if the wings are closed:

Note: If you have closed the wings and have already done your leak test, you will need to drill a 1/4" hole, as per #2 of this bulletin, and do another test.

1. Remove the access panel in the wing fairing aft of the main spar.
2. Drill a 1/4" hole 2" above the bottom edge of the main spar cap into the aft side of the spar web closeout. Be ready to plug the hole or use a piece of tygon tubing to drain the fuel in the cavity. NOTE: IT IS EXTREMELY IMPORTANT NOT TO DRILL THE HOLE LOWER THAN 2" ABOVE THE SPAR CAP. DRILLING THE HOLE TOO LOW COULD INFLICT DAMAGE TO THE LOWER SPAR CAP.

Locating the Drain/Vent Hole Position

Figure 1



3. After drilling this hole and if there is no fuel leaking out, you're done. This is now your new main spar inboard vent hole.
4. If you do have fuel in the cavity, drain the fuel out of the wing(s), remove the wing, and proceed with the following repair. (Drill an additional 1/8" hole into the face of the main spar at approximately the same location as the 1/4" hole.)
5. With the leading edge pointing down, air dry the closeout area with the a blow gun or fan. This should be done in a well ventilated area. **Be very careful not to over pressurize the close out area.**

Drying the Close Out Area

Figure 2

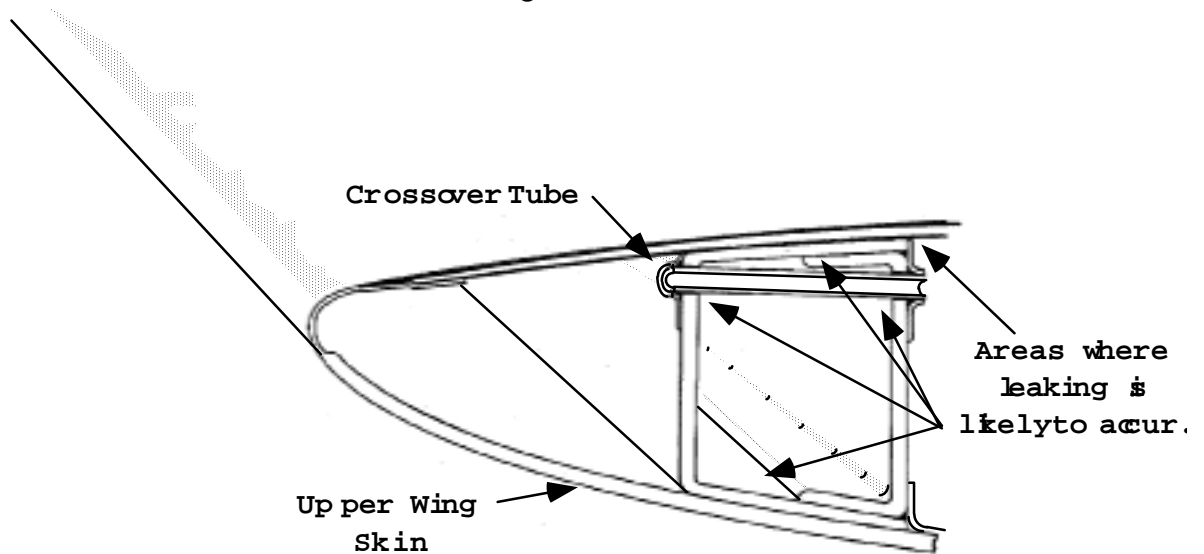


6. Mix up two cups of Jeffco fuel tank sealant. This may seem like more than is necessary, but the excess will be drained out later. (For this step the temperature should be at least 72°F or above. If not, the viscosity of the sealant may prevent proper penetration into the areas that are causing the leak. Pour the 2 cups of sealant into the hole). Attach a hose or fuel line to the fuel pickup on the BL 25.5 rib and tape that hose into a vacuum cleaner hose.

7. There are two possible areas causing the leak. The most likely source is through the area between the spar and the inboard spar closeout. A second source of leakage may be around the fuel crossover tube. Keeping this in mind, rotate the wing (very slowly) such that the sealer will flow into these areas. Apply the vacuum to the fuel tank during this process. This will allow the sealant to get drawn into the holes that are causing the leak. **NOTE: A small shop vacuum cleaner is ideal for this process. The vacuum source should be removed as soon as you think you have sealed the possible leak areas.**

Areas That Might Leak

Figure 3

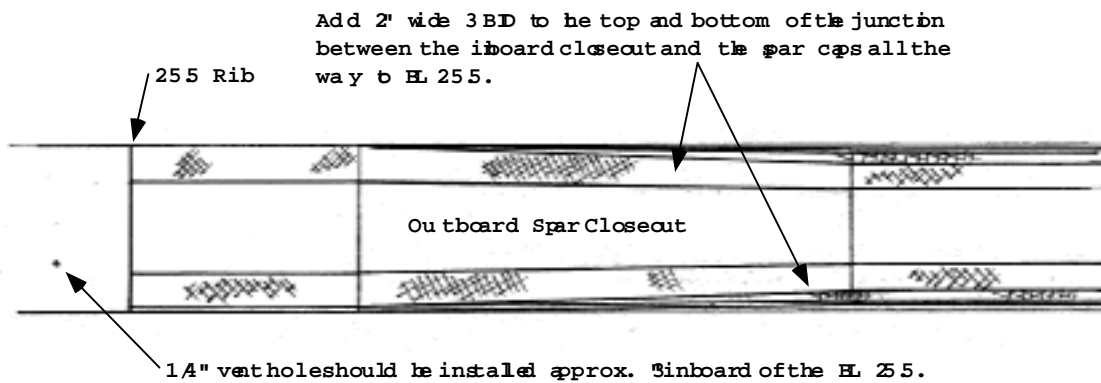


8. Drain the excess fuel tank sealant out of the cavity. (Use some of this excess sealant to paint on a piece of cardboard. Check the cardboard a couple of hours later to make sure it has cured enough to do a leak check).
9. Before the sealant has fully cured, perform a fuel tank vacuum test. It is preferable to draw a vacuum versus pressure to the wing tanks. Hook up an altimeter and monitor the gage. If it holds altitude, you're done, if not, repeat the process. (Note: There is also a possibility that the leak could stem from a different source: check all possibilities if you still have a leak).

Modification to the wings if they are not closed yet:

3 BID

Figure 4



1. Apply 2" wide 3 BID to the top and bottom of the junction between the inboard closeout and the spar caps. Refer to the figure.
2. Verify that you have a vent hole in the spar closeout inboard of the 25.5 rib.
3. Apply an extra coat of fuel tank sealer around the fuel tank crossover tube.

3-D View

Figure 5

