PROCEDURE 3.155

WING CLOSEOUT PROCEDURES

In this procedure…
The lower wing skin will be bonded to the upper wing skin.

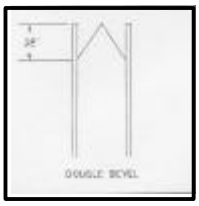
For this procedure, the following part will be required:

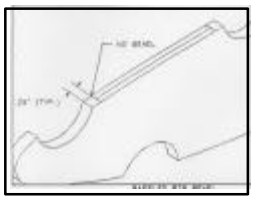
Part Number	Description	Quantity
111-11-060-01	Lower Left Wing Skin	1
111-11-060-02	Lower Right Wing Skin	1

Step 1. **Insure wing fixtures are level.**

Recheck the alignment of the wing fixtures to insure that all fixtures are level to prevent an unwanted twist in the wing. Once the wing is closed you cannot remove any twist or alignment problems.

Step 2. **Cut grove for milled-fiber squash in all unflanged ribs and shear webs, which have 5 lbs. Foam as their core.**





Use a box knife and cut a ¼" deep cut between the fiberglass skin and the foam on the rib. Make a second 45º cut down the center of the rib with the blade slanting outward to the skin. Remove the triangle shaped piece of foam. Repeat this cut on the other side of the rib. These groves will be used to hold the milled fiber material during the close out. (Note: Do not cut groves in the cut out area in the fuel baffle ribs.)

Step 3. **Check fuel filler cap installation.**

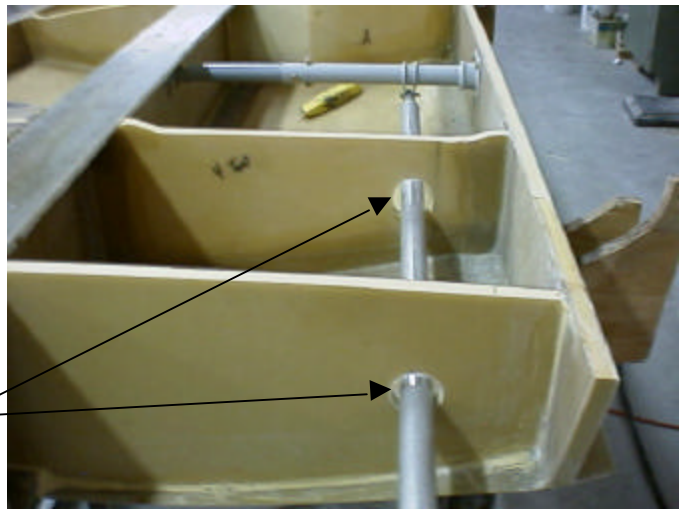
Check the fuel filler cap installation to insure for proper sealing and insure attachments nuts are secure.

Step 4. **Inspect fuel bays.**

Inspect the four fuel bays to insure there are no holes in the wing skins, which will allow fuel to leak into foam core. Insure that exposed foam in cutouts on baffle ribs is coated with resin to prevent fuel from seeping into foam. Check laminations on forward shear web, and the inboard and outboard ribs to insure a good seal is present.

Step 5. **Cut holes in ribs Q and I for inboard aileron push-pull tube.**

Take a measurement from the aft face of the forward shear web to the center on the horn on the aileron torque tube. Use this dimension and measure aft from the aft face of the forward shear web on ribs Q and I. Use a level and make a vertical line on the rib face. Measure up from the wing skin 2 ½" and make a horizontal mark. Measure down from top of the rib 2 ½" and make another horizontal mark. Use a 2" hole saw and drill a hole in the ribs at each of the center marks. Cut out rib material between these two holes.



These holes are larger than shown in this picture

the

Step 6. **Remove the flap torque tube assembly and the inboard main landing gear bracket.**

Because of additional laminates, which have to be added to ribs, J, and I after close out the flap torque tube, inboard bearing bracket and inboard landing gear bracket must be removed. These items will be reinstalled after inboard laminates have been added. The outboard landing gear bracket does not have to be removed.

Step 7. **Inspect the aileron torque tube, mid aileron push-pull tube and outboard aileron bellcrank.**

Inspect the aileron torque tube for freedom of movement. Inspect the push-pull tube to insure that it clears the ribs it passes through throughout its travel. Also check the outboard aileron bellcrank for proper installation and freedom of travel. Drill a 1 ½" hole in rib H to allow for removal of the mid aileron push-pull tube after wing close out.

Step 8. **Inspect the NAV antenna to insure cable is secure and that copper tape has not been damaged.**

Step 9. **Inspect Tie-down bracket.**

Inspect the tie-down bracket to insure all laminates have been install. The hole for the tie-down eyebolt will be drilled after close out.

Step 10. Install the lower wing skin and check for alignment and fit.

Place the lower wing skin on the wing assembly. Align the spar centerline on the wing with the centerline in the spar. Check the outboard end of the wing to insure that the joggle for the wing tip is aligned. Slide the wing skin in or out to align joggle. Press wing skin down and check visible areas for rib fit. If necessary sand ribs to insure a proper fit. Laminates will be completed on ribs G and A after close out. A small gap between the rear shear web and the skin is normal. This gap will be pulled down during the squash. Once wing skin alignment is established drill an alignment hole in the wing skin and spar web at the outboard end. (Do not drill hole on inboard end of wing skin.)

Step 11. Prepare matting areas.

Sand all matting areas with 80 grit sandpaper and wipe with acetone. This includes the contact areas on the lower skin. Vacuum the wing bays and wipe with acetone. Pay particular attention to the fuel bay.

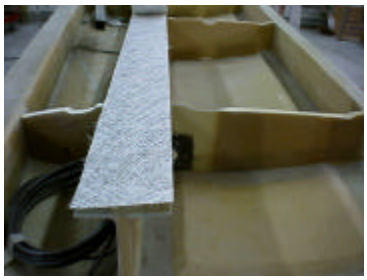
Step 12. Prepare tools and resin for close out.

Arrange all clamps, angle bars, sand bags and wood planks (use as load spreaders) so that they are readily available when needed.

You will need approximately 3200 grams of resin and 1400 grams of Milled Fiber. Do not catalyze all the resin at once. Poor resin into 300 to 400 gram cups and catalyze as needed. Mix milled fiber to a consistency of mashed potatoes.

Step 13. Apply resin and milled fiber to all contact areas.

Use a brush and brush resin on all contact areas, to include the lower skin. Place two laminates of mate on the spar web and wet out with resin.



Mix the milled fiber and apply to ribs. Insure that the milled fiber fills the "V" cutouts in the ribs and the center 2/3 of the flanged areas of the flanged ribs. The bead of milled fiber should extend ¼" to 3/8" above the rib.

Apply two ½" beads of milled fiber along the entire length of the spar. These beads should be approximately 1" in from the edge of the wing spar.

Step 13. <u>Install lower wing skin.</u>

With the help of an assistant lift the lower wing skin over the wing and place in position. Try to place the skin in position with minimal horizontal movement. Install a Cleco in the alignment hole. Check the alignment of the wing spar center ling and the spar centerline and clamp in position. Position an angle bar over the trailing edge of the wing. Place the other angle bar inside the aft Shearweb. Using a C clamp, pull the trailing edge of the wing down to the aft shear web flange. Make sure the angle bar does not extend inboard of the flap cutout. Place clamps at one-foot intervals.

Recheck wing alignment and then place the load spreaders along the spar. Place the sand bags on the load spreader. Total weight along the main spar should total approximately 800 lbs. This weight should be distributed equally along the spar.

Place a load spreader along the front shear web and place a row of sand bags along the wing. Total weight should be approximately 400 lbs.

Tighten all the "C" clamps on the trailing edge.

Recheck alignment. Clean all excess milled fiber from accessible areas. Allow wing to cure for 24 hours.