CHAPTER 24

COVERS/FAIRINGS/CONSOLES

Overview - This chapter involves installation of the left consoles (armrests), the lower aft cover of the fuselage, front seat thigh support and canard fairing.

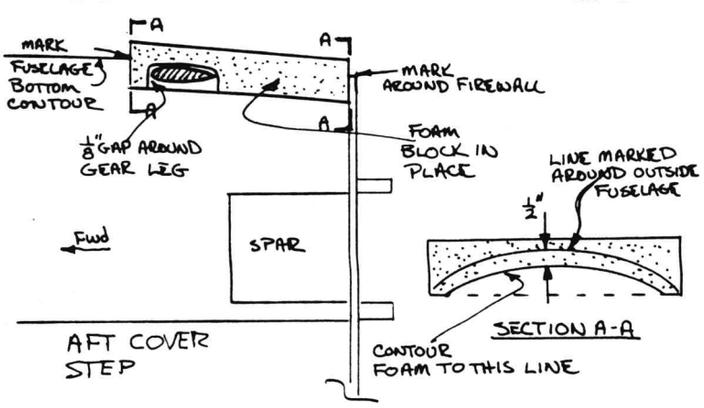
STEP 1

FUSELAGE LOWER AFT COVER

This is a single block, glassed inside and out. It involves two cures, but should only take about five man-hours. REMOVE THE CANOPY.

Flip the fuselage upside down and rest the longerons on the sawhorses. Grab an 18"x 20" chunk of 2" thick green urethane, sharpen your butcher knife, and hack away until it sits down on the bottom longerons, butts against the firewall and fuselage bottom block, and has about 1/8" clearance around the main gear strut (see sketch). Hold it in place while you work around the front and back as shown. Now, remove the block, draw a line about 1/2" inside the previous mark on both the front and back. Dish out the block up to the new lines. This dish job is done to obtain more baggage room and to clear the fuel system components at the firewall.

Place the block on your table with the dished side up and glass with pl BID (optional fiber orientation). After about two-hours cure, scissor trim the glass all around the edges and install in place on the fuselage with flox. Hold in place with weights to cure. Wipe excess flox from the outside and inside the baggage



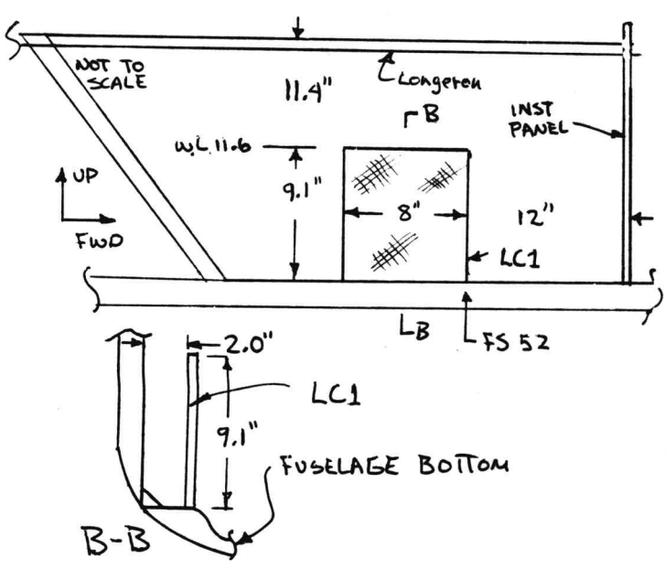
compartment.

When cured, remove the weights and carve to fair in with the forward fuselage, sides, and firewall. Glass the outside with two plies BID (optional fiber orientation), lapping 1" onto the fuselage at the front and sides. Use a small flox corner at the joint around the landing gear strut. Knife trim at the firewall and around the strut. Do not seal the gap around the main gear strut now. Wait until after the airplane has been painted, then seal the gap with silicone seal or RTV (Dow or G.E. silicone rubber bathtub caulk). The 1/8" silicone-filled gap allows the gear to flex without cracking the paint.

STEP 2 - Left side Consoles.

During Chapter 9 you were sent here to install a portion of the front left console, to support the landing brake handle. This portion is LC1, an 8-inch long segment of the vertical face as shown below, extending from FS 52 to FS 60. It is made from a 9.1" x 8" piece of 0.35" thick type R45 PV (dark blue). Glass the side that faces the fuselage side with 1 ply BID and the pilot's side with 2 plies BID. Lap these 1/2" onto the floor. Jig in place to cure by holding it with a stick that jams across the fuselage. Check the 2" gap between it and the fuselage side. Cure. Note that landing brake (Section VI) section H-H is now 2", not 1 1/2" gap. Install an AN4-26A bolt where the AN4-22A is shown and add another LB16 spacer between LB14 and the console. Other aspects of landing brake installation are per Section VI. Note that if you have purchased a prefab LB1 weldment, the LB21 will not be on the centerline of the fuselage. It is accptable to have the pushrod and hinge located 1" to the left of center. The brake itself should be centered. Weight savings - eliminate two of the three plies that cover the depression in the fuselage bottom. (bottom right of page 1, Section VI). This is possible because the Long-EZ's fuselage foam is more than twice as strong as the VariEze foam. Do not forget to increase brake dimensions to make your Long-EZ brake 1 1/2" longer and wider than the VariEze brake shown.

Now, return to Chapter 9 to complete the landing brake.



Now that you've reached this point you should have everything installed in the console area (engine controls, rudder cable and any electricals). Refering to the drawings below, cut the remaining parts of the left front console and the left rear console from 0.35" thick type R45 PV core and install using micro and glassing with 1 plyBID on insides and 2 plies BID on outside. Note that the rear left console is shorter than the rear right console, to allow room for the left suitcase (Chapter 26) to sit flush against the side.

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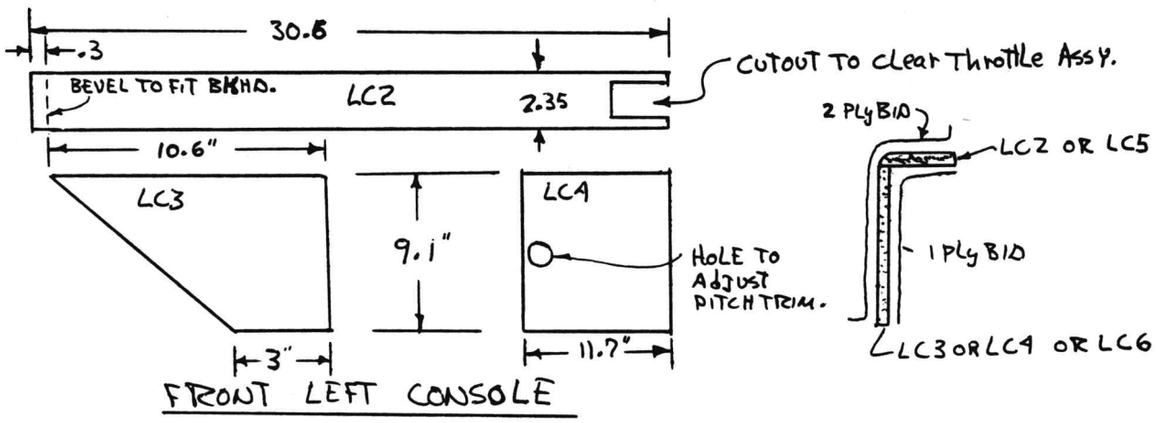
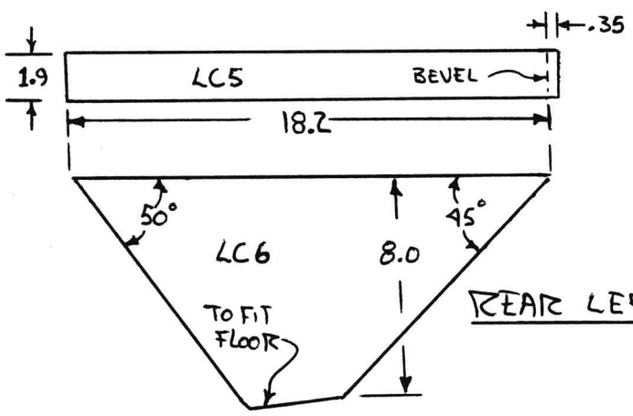


FRONT LEFT CONSOLE

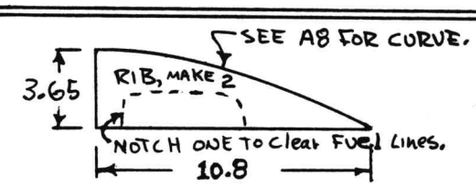


REAR LEFT CONSOLE

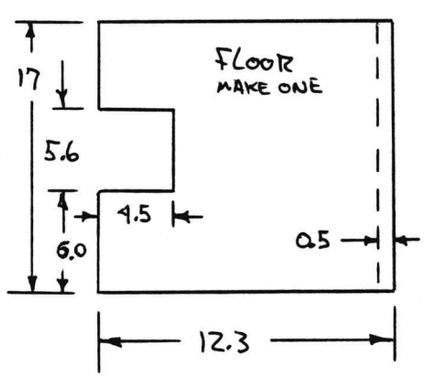
NOTE - you may have to remove a portion of the bottom of the rear console if you ever have to remove main gear.

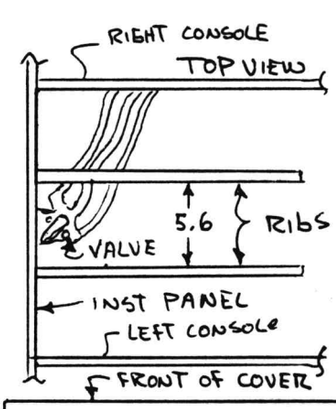
STEP 3 - Front seat thigh support.
See Page A-8 This is the floor of the cockpit immediately aft of the instrument panel. It consists of two supporting ribs and the floor piece. It also forms the roof of the two forward map cases (reached through the holes in the lower instrument panel bulkhead). Cut the 3 pieces shown from .35" type R45 PV (dark blue)foam. Bond the two ribs to the floor and instrument panel and glass with 1 ply BID. The floor piece is over-size to allow for tolerance. Trim it to fit so it butts to the side consoles, butts to the instrument panel, and its beveled aft edge butts to the fuselage bottom as shown. This piece can be taken to a heat source (kitchen stove, oven 280°, heat lamp, hair dryer, etc), and heated while it's bent to its curved shape. After it is cooled, it will remain in its curved shape.

Now, glass the inside of the floor piece with 1 ply BID and bond in place with wet micro. When cured, glass with two plies BID lapping onto the instrument panel, fuselage bottom, and side consoles. When cured, it is strong enough to stand on.
Fabricate the removable cover from .025 aluminum. This covers and placards the fuel valve. Lable as shown. Bond the cover in place with silicone rubber so it can be removed. Do not use screws.

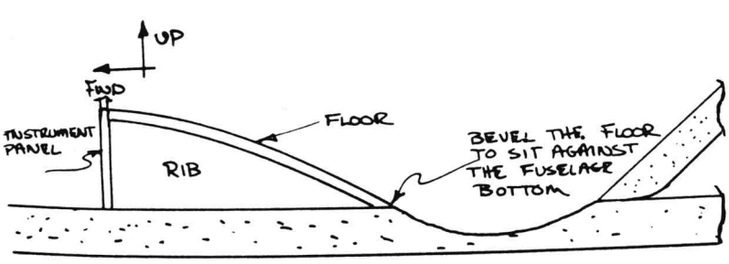


ALSO SEE Pg A1

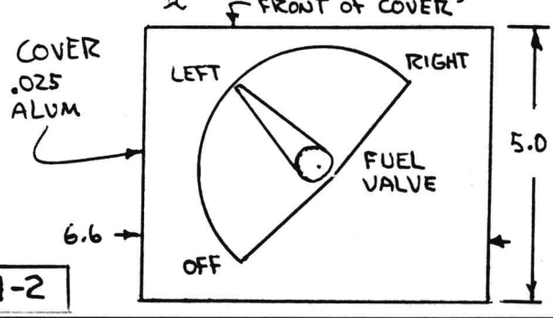




Rib positioning →



THIGH SUPPORT SIDE VIEW



STEP 4

CANARD COVER

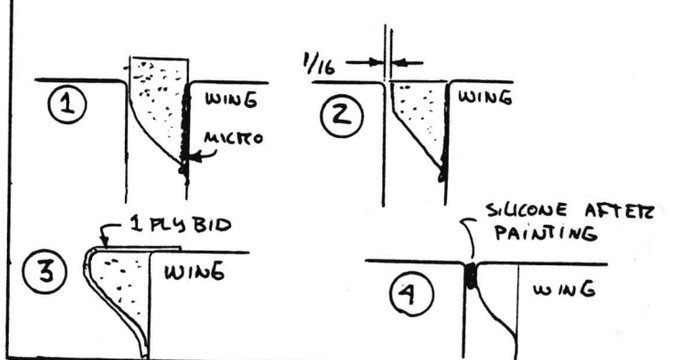
Install the canard on the fuselage. Cut a 2" thick green urethane foam block and fit it to the fuselage and canard as shown. Make the block wider than the fuselage contours; it will get carved down later. Protect the fusealge, nose, F28, elevator slot, etc., with gray tape or Saran Wrap. Sand the top of your canard dull for bonding where it contacts the foam block. Mix wet micro, apply it to the top of the canard, and squish the foam block onto position. Clean off any squeeze-out. Let the micro cure. Carve the outside of the foam fair with the fuselage contours and glass with two plies of BID. Lap the glass onto the canard about 1/4 inch. Knife trim all edges. When the glass is cured, remove the canard. Remove foam to allow room for the inside layup. Glass the bare foam surfaces with two plies BID and flox corners as shown. Knife trim when ready.

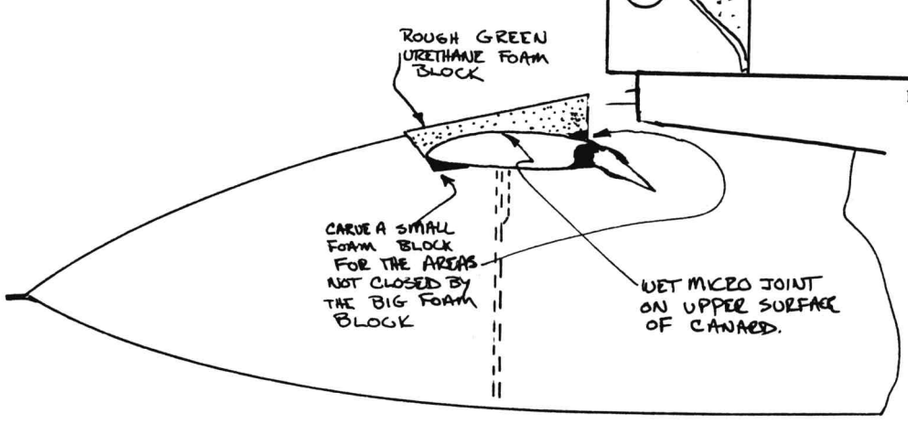
After the glass work is finished and painted, youcan seal any gaps between fuselage and the canard cover with white silicone rubber. Protect the fuselage with Saran Wrap, apply a thick bead of silicone to the areas to be sealed, and reinstall the canard. Clean off any excess. Let the silicone cure for two or three days before removing it again. The canard cover surfaces should be sanded in the areas where the silicone is supposed to stick. This gives you a permanent rubber seal strip.

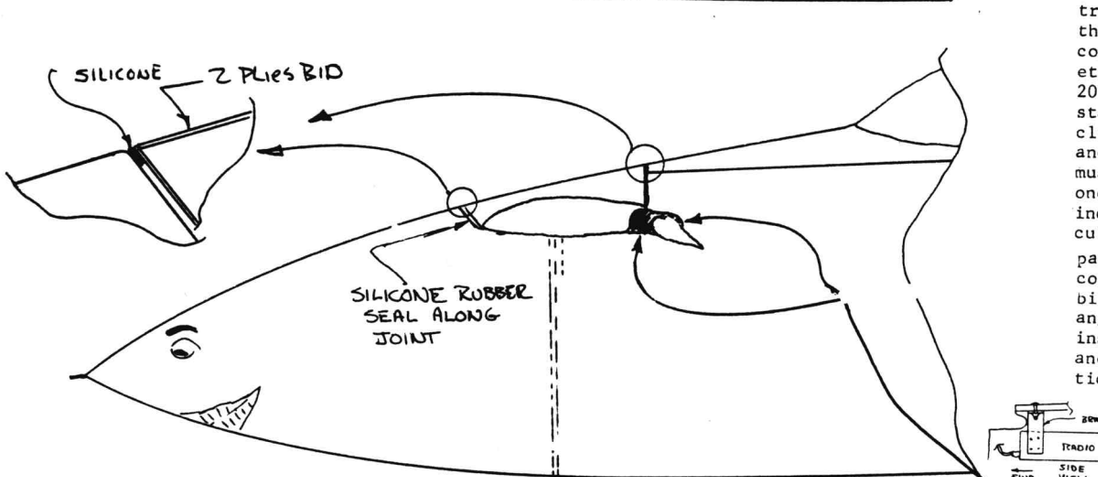
This step should not take over four man-hours.

STEP 5 - Wing/Centersection seal.
Refer to the sketches to seal the aprroximate ⅛" gap between the wing and CS spar. Cut wedges of urethane foam, apply micro to the wing side, push into place and allow to cure.

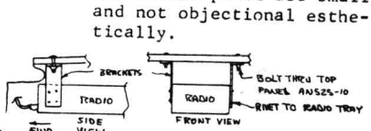
Sand to contour and sand a 1/16" gap at front. Remove wing and glass around with 1 ply BID. Cure. After painting fill the gap with silicone rubber. Use release (saran wrap) on one side if you plan to remove wings often. If not, simply fill the small gap (cut with razor blade when removing wing). Seal this area, including wing LE/Strake gap, well - air spillage here reduces performance significantly and spills engine cooling air.







RADIO SUPPORT: If you are installing a little one and one/half NAV/CON radio like the Alpha 200, Escort 110, or RT 553, as shown on the instrument panel drawing (A1), an undefined support bracket is required. The radio comes with a mounting tray designed to attach to the instrument panel. On N79RAwe decided to add a pair of aluminum straps from the front cover (forward of canopy) down to the radio tray for better support on the most forward (away from cockpit) end. The brackets are .025 thick and 2024-T3 sheet metal, installed as shown here. To clear the elevator tubes and pushrods, the radio must be angled down about one inch and inboard 1/2 inch from being perpendicular to the instrument panel. Be sure that the control system does not bind on the radio! The angles between radio and instrument panel are small and not objectional esthetically.



INSTALL SOME SOFT FOAM RUBBER HERE TO SEAL MAJOR AIR LEAKAGE AROUND ELEVATOR TUBES. BOND TO FUSELAGE AND CANARD WITH SILICONE RUBBER