

Fuselage modification

New -1 fuselages skip this page. Quickbuilds remove the F-825pp aft skin. (NOTE; do not drill the rivet out, only remove the rivet head. Once skin has been removed, punch rivets out of the longeron while holding a bucking bar alongside the rivet tail. This method will not enlarge the rivet holes).



Remove and save the F-869pp L/R gussets, then the F-807b bulkhead top. Mark the F-808 and F-809 bulkheads at the top of the longeron then cut and remove.



Assemble the F807bfb L/R bulkhead halves referring to figure 2-1. Align and drill the F-807dfb angle, F-807efb, & F-807ffb seatbelt fairlead in assembly using the pre-punched holes. Dimple or machine countersink rivet holes in bulkhead and assemble using 3/32 countersink rivets.



Trim the lower corners of the F-807bfb at 63° and bend 17° aft at the longeron relief cut.

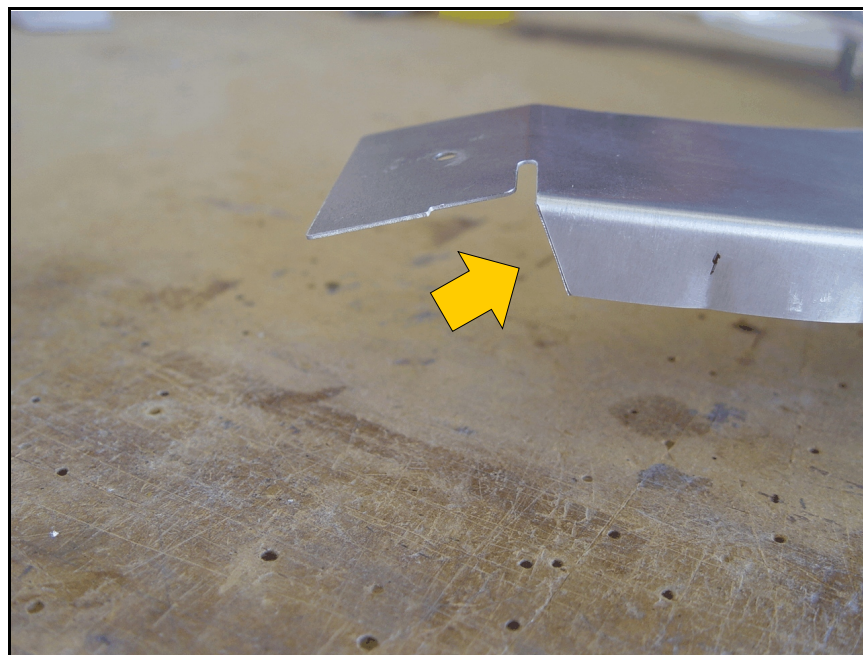
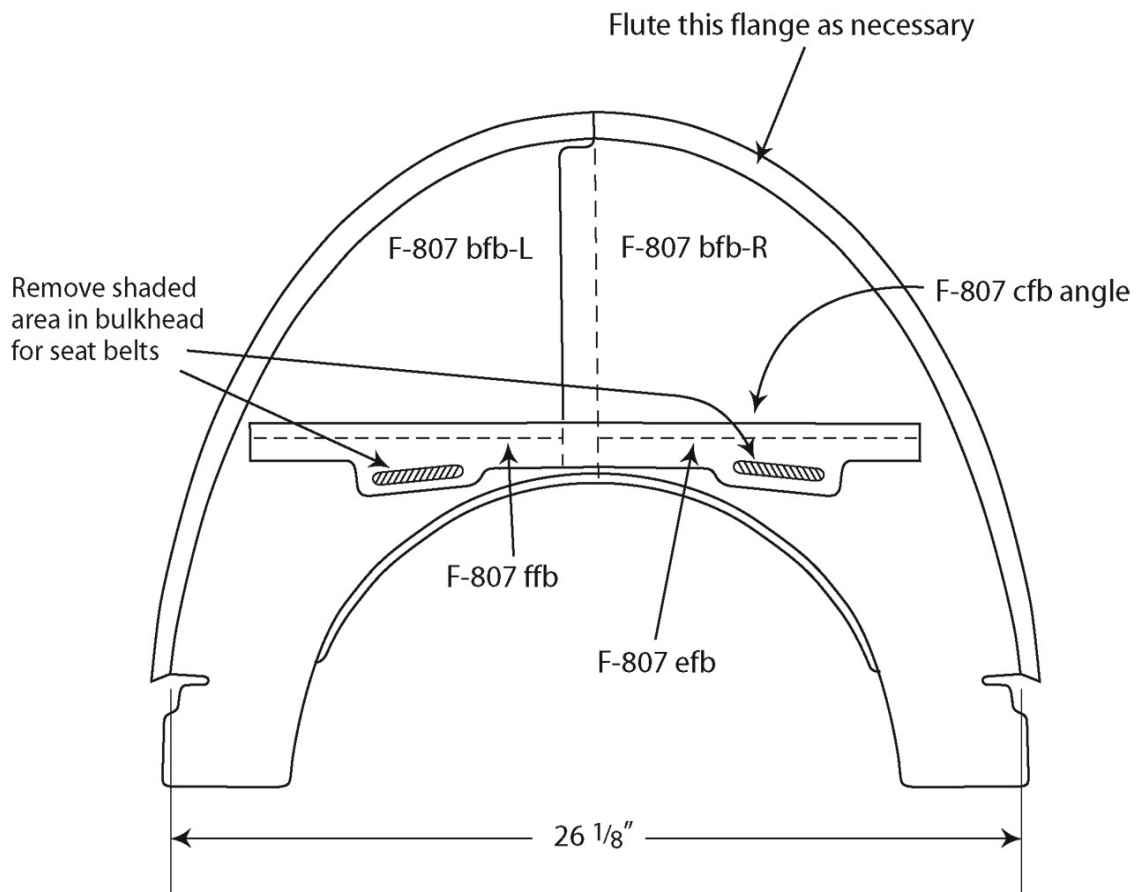


FIGURE 2-1 Bulkhead Detail

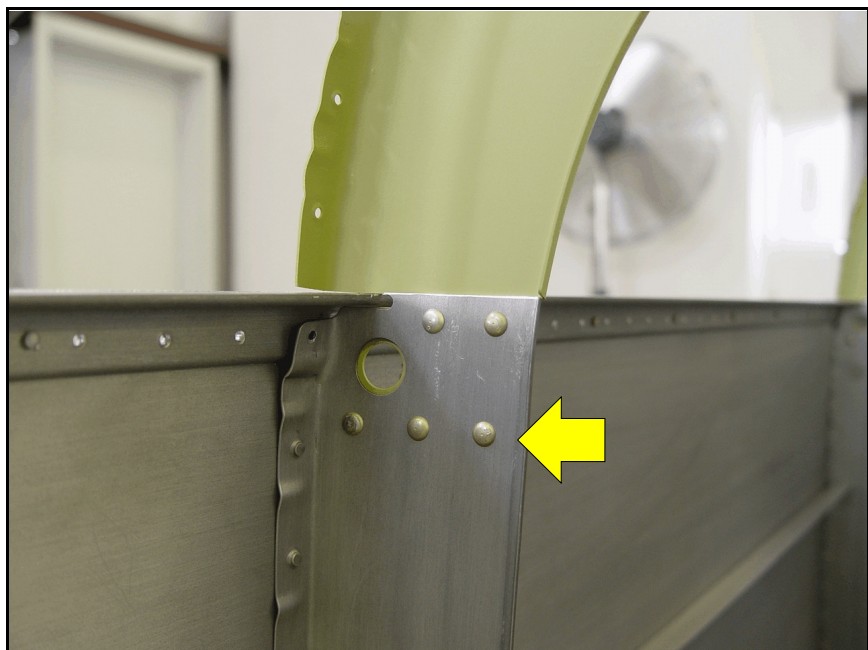


**View looking at the backside
of F-807bfb bulkhead**

Position and drill the F-807bfb bulkhead, then install the F-869pp L/R supports to their original locations after bending them to conform to the F807bfb bulkhead angle, assemble using appropriate 1/8" rivets. (NOTE; it may be necessary to brace the longerons to alleviate any preload carried by the bulk heads)



Locate and install the F-808fb and F809fb bulkhead tops using five 1/8" rivets.(NOTE; pay attention to rivet edge distance on the new -1 fuselage) Install the F-810a bulkhead at the original location. Flute all bulkheads as needed using the F-825fb skin rivet spacing as a guide.



Remove the rivets that attach the F-824pp side skin to the longeron, be careful to not enlarge these holes.



(NOTE; make sure all bulkhead flanges are bent at the correct angle for skin contact). Slide one side of the F-825fb top skin between the longeron and F-824pp side skin. Wrap the skin over the bulkheads and under the other side, use caution to not damage skin while handling. Make sure bulkheads are in their correct location and the F-825fb skin is even on both sides. *(NOTE; mark all bulkhead flanges in the middle to help locate when skin is in place).*



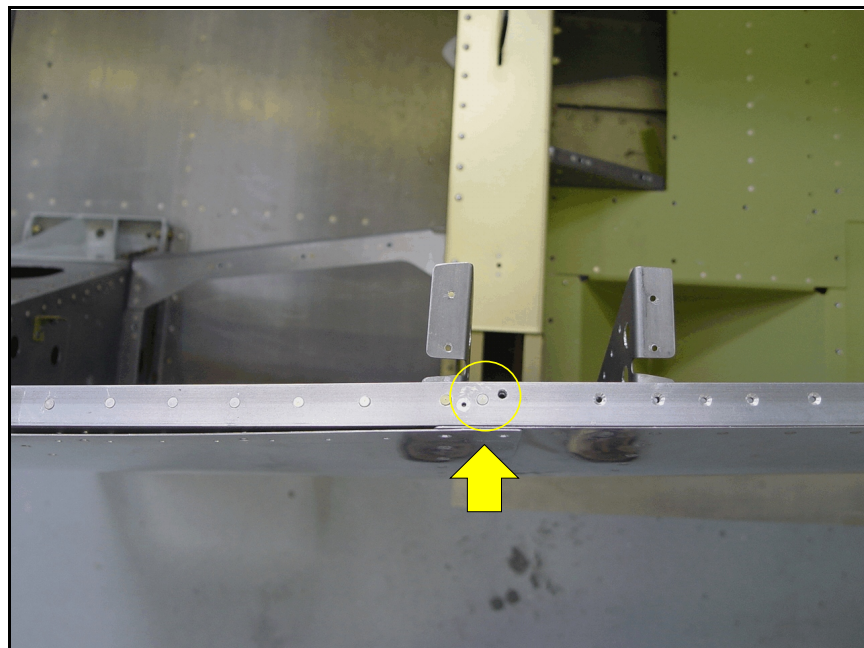
Once the skin has been located and it has been determined the fuselage is straight without a twist, start drilling the F-808fb bulkhead from the top down evenly on both sides. Repeat this for the F-809fb, F-807fb, and F-810a. Using the F-824pp side skin as a hole guide, drill from the mid point fwd then aft installing a cleco at each hole. *(NOTE; use care not to enlarge the hole in the side skin or longeron while drilling)*. Remove top skin and install rivets in F-824pp side skin and longeron. Now the F-825fb top skin can be dimple countersunk and assembled.



Quickbuilds remove the F-816 L/R cockpit rails using same technique as the aft skin. Trim the left and right F-804c bulkheads as shown to fit new F-816fb cockpit rails. Remove rivets fwd of the F-804c bulkhead that attach the F-820pp skin to longeron in preparation for F-816fb cockpit rail installation.



Use the fwd of the two rivet holes in longeron between the F-804c bulkheads for a #6 nutplate. Place a single leg nutplate at a diagonal inboard using the old rivet hole as the mid attach point. This will locate the #6 screw approximately 1/4" from longeron edge. Repeat for both sides, do not install the nutplate at this time.



Now fit the new F-816fb L/R using the pre-punched holes, the fwd flange fits between the F-820pp skin and longeron. Once they are clecoed in place back drill the # 6 screw that is located between F-804c bulkheads. When all drilling is complete remove rail's and fill the unused rivet holes in the L/R longerons starting at the fwd F-804c bulkhead. Refer to previous picture. *(NOTE; do not rivet cockpit rails on until the F-821pp fwd skin has been fit).*

Fit the F-821pp fwd skin per Van's instructions drilling only the firewall and baggage compartment bulkheads. Place a strait edge at the top of longerons and draw a line fwd, refer to figure 2-2 for skin modification details.

Bend the F-821afb reinforcement to conform to F-821pp skin then place it at the reference locations and draw a line. *(NOTE; use a 1 1/2" hole saw to radius the intersecting lines).*

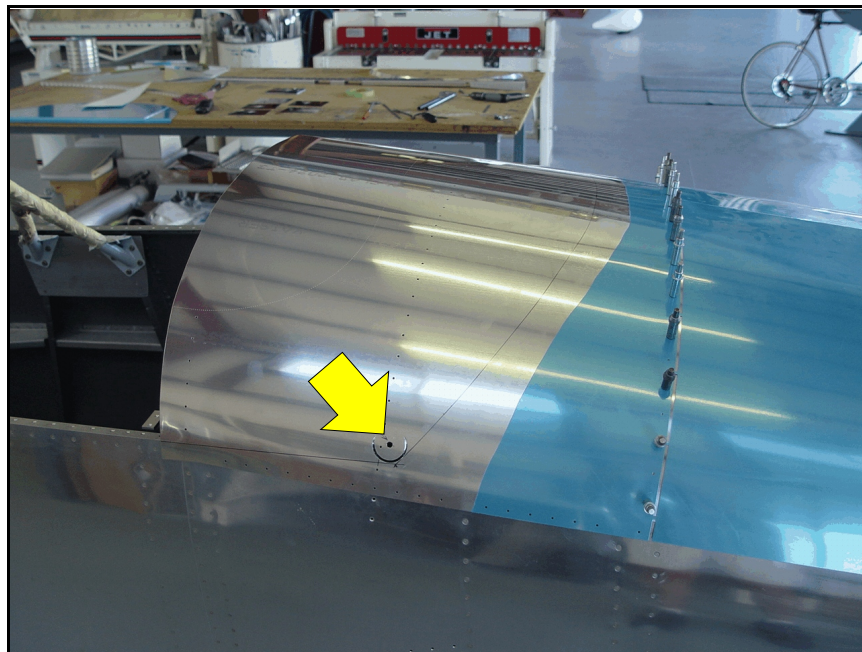
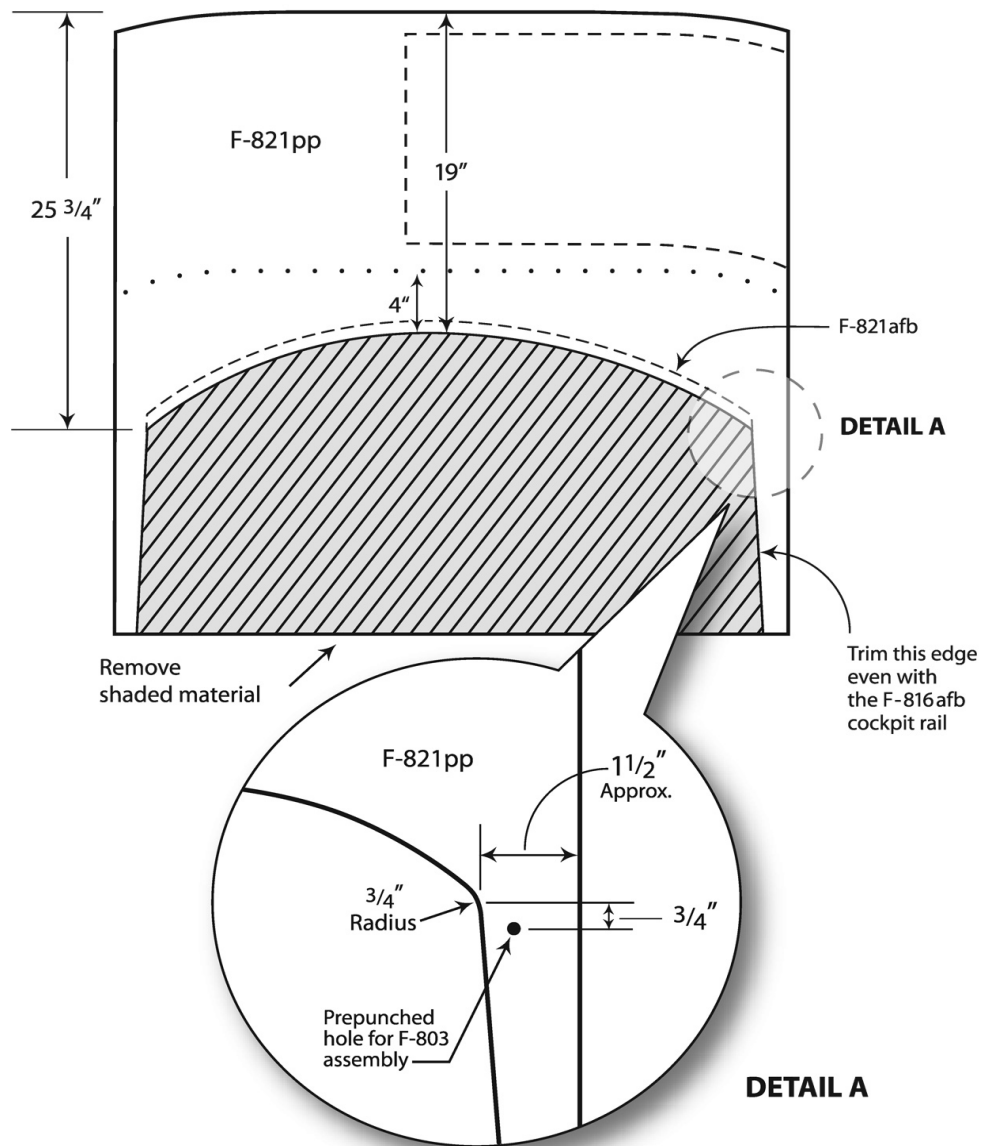
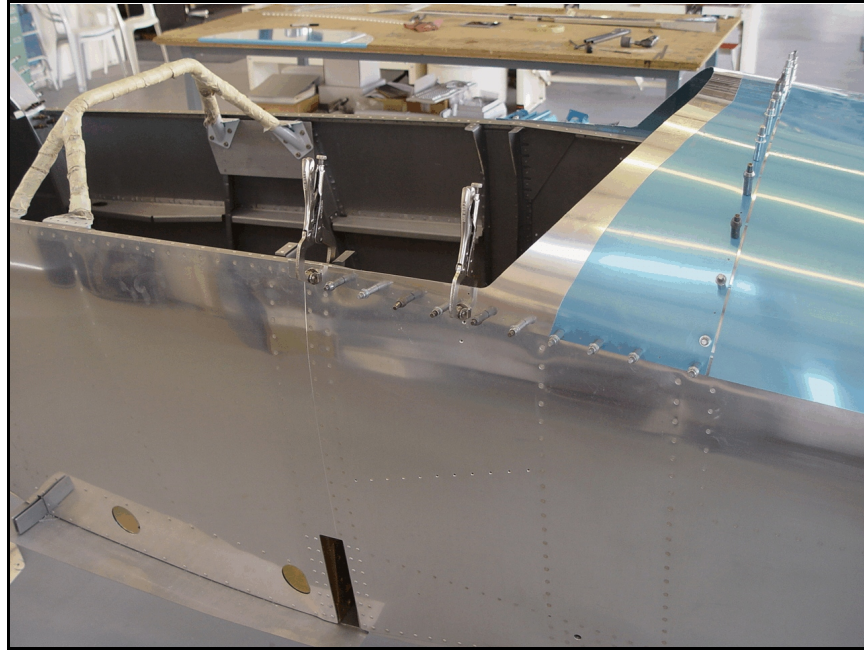


FIGURE 2-2 Forward Skin Modification



Carefully cut this line with a high speed cutting tool, use extra care not to damage the longerons.
(NOTE; do not have the instrument panel installed at this time).

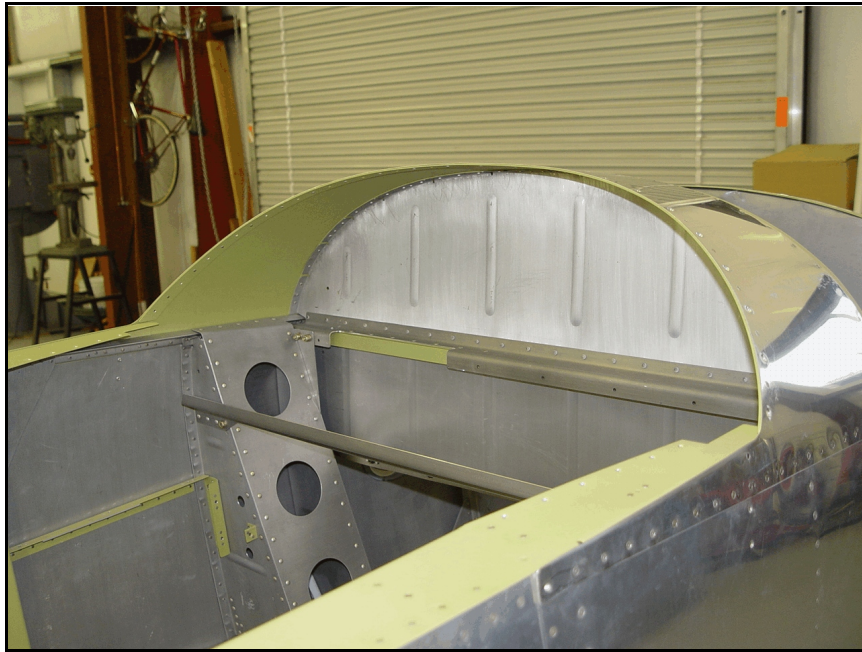


Once the F-821pp skin as been fit and drilled re-install the F-816fb L/R cockpit rails. Make sure the fwd top edge of rails are even with F-821pp skin then drill at longeron location.

Fit the F-821afb reinforcement to the underside of the F-821pp skin even with the edge. Drill at pre-punched locations and cleco in place. The first hole up from the cockpit rail on left and right side and every other hole are #6 screw location, between the screws are 3/32 rivets. Machine countersink rivet locations on F-821pp skin and the bottom side of reinforcement, dimple countersink the #6 holes in the F-821pp skin and machine countersink the top side of the reinforcement. *(NOTE; the underside of the F-821afb must be smooth with no protruding rivet tails that would contact the C-821fb instrument cover).*

Install the #6 single leg nut plate between the F-804c bulkheads in L/R longerons and in the pre-punched location at the fwd end of the F-816fb L/R cockpit rail. After nutplate installations are complete, rivet the cockpit rails on. Skip every other rivet location on right cockpit rail to allow for canopy hinge installation. Re-install the rivets that were removed earlier in the F-820pp skin and longeron this will now capture the cockpit rails.

Install the F821pp fwd skin and double flush rivet the F-821afb reinforcement in place.



Assemble the F-803bpp instrument panel halves together using the F-803cpp flange. From the sixth hole above the longeron relief cut start to curve the F-803cpp flange to align with the inboard edge of the cut out, refer to figure 2-3. Drill new holes in the instrument panel using the flange as a guide, repeat for both sides. *(NOTE; do not use the pre-punched hole in the flange on fifth location).*

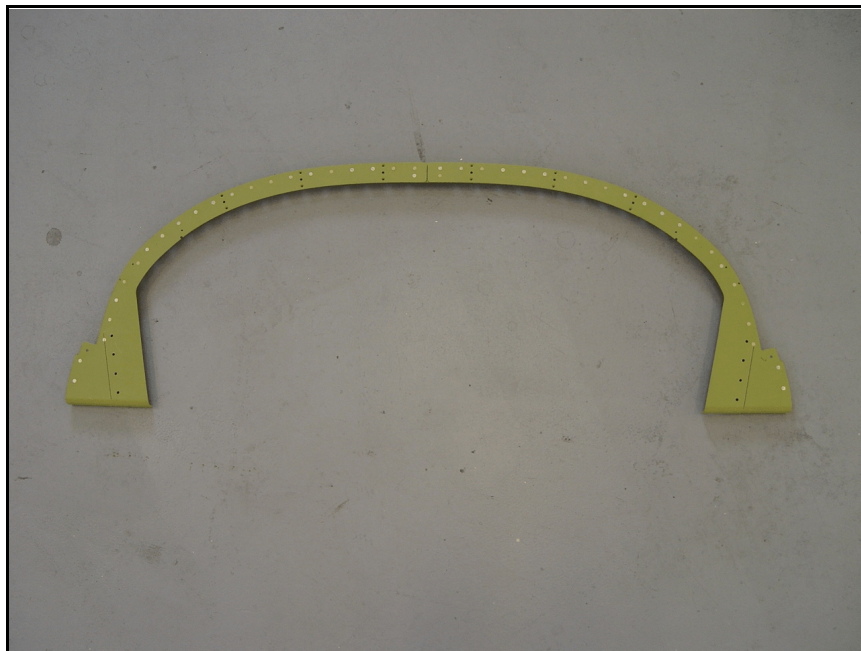
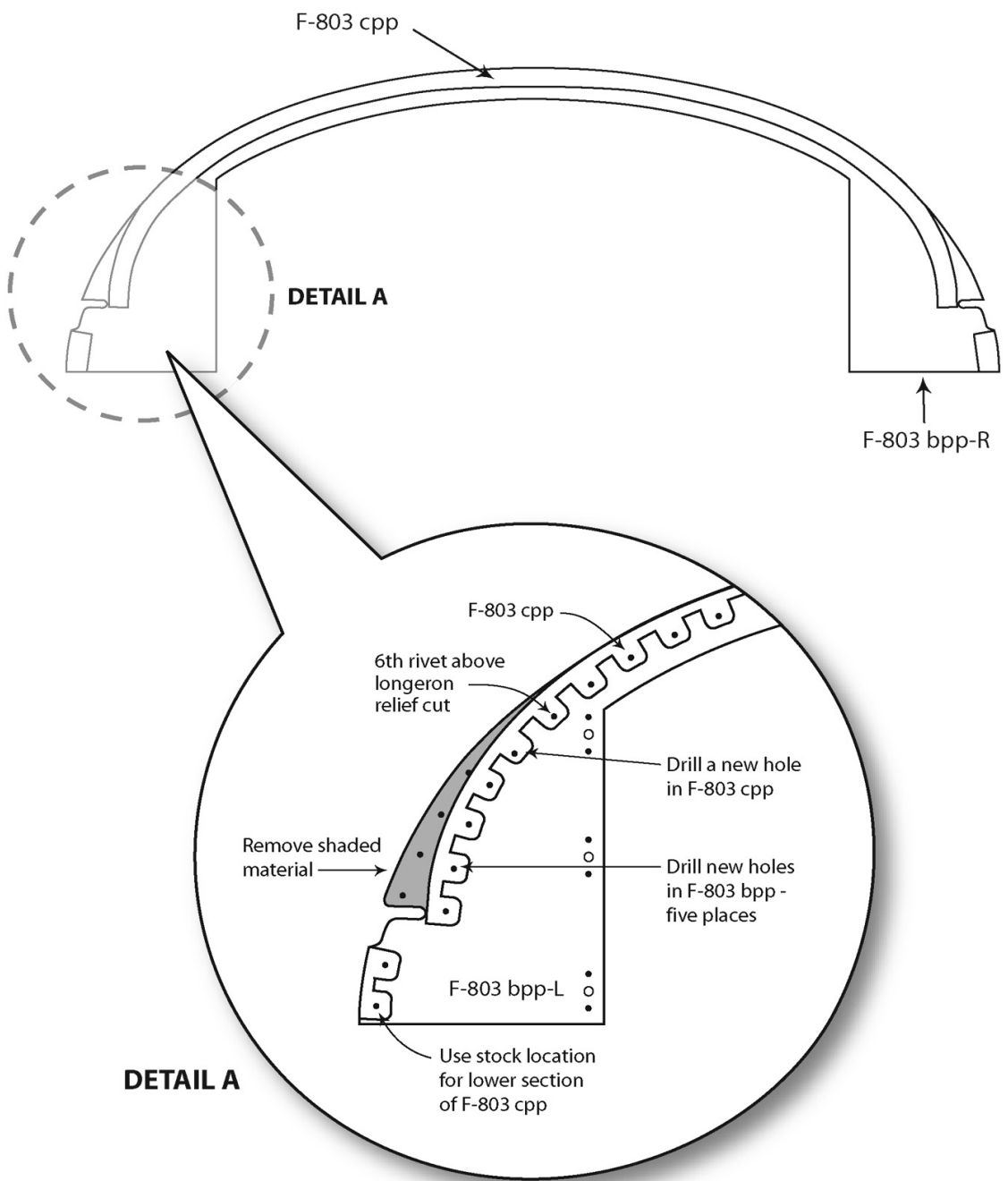


FIGURE 2-3 Instrument Panel Detail



Install the instrument panel assy. at the original location in fuselage. Position the F-816afb L/R gussets up to the cockpit rail and fwd against the F-803bpp instrument panel half, angle the gussets inboard so they are even with the bottom of the instrument panel. Drill at the pre-punched locations on the cockpit rail and four evenly spaced #30 holes at the F-803bpp. Use 1/8" blind rivets to attach the gusset to the instrument panel assy.

