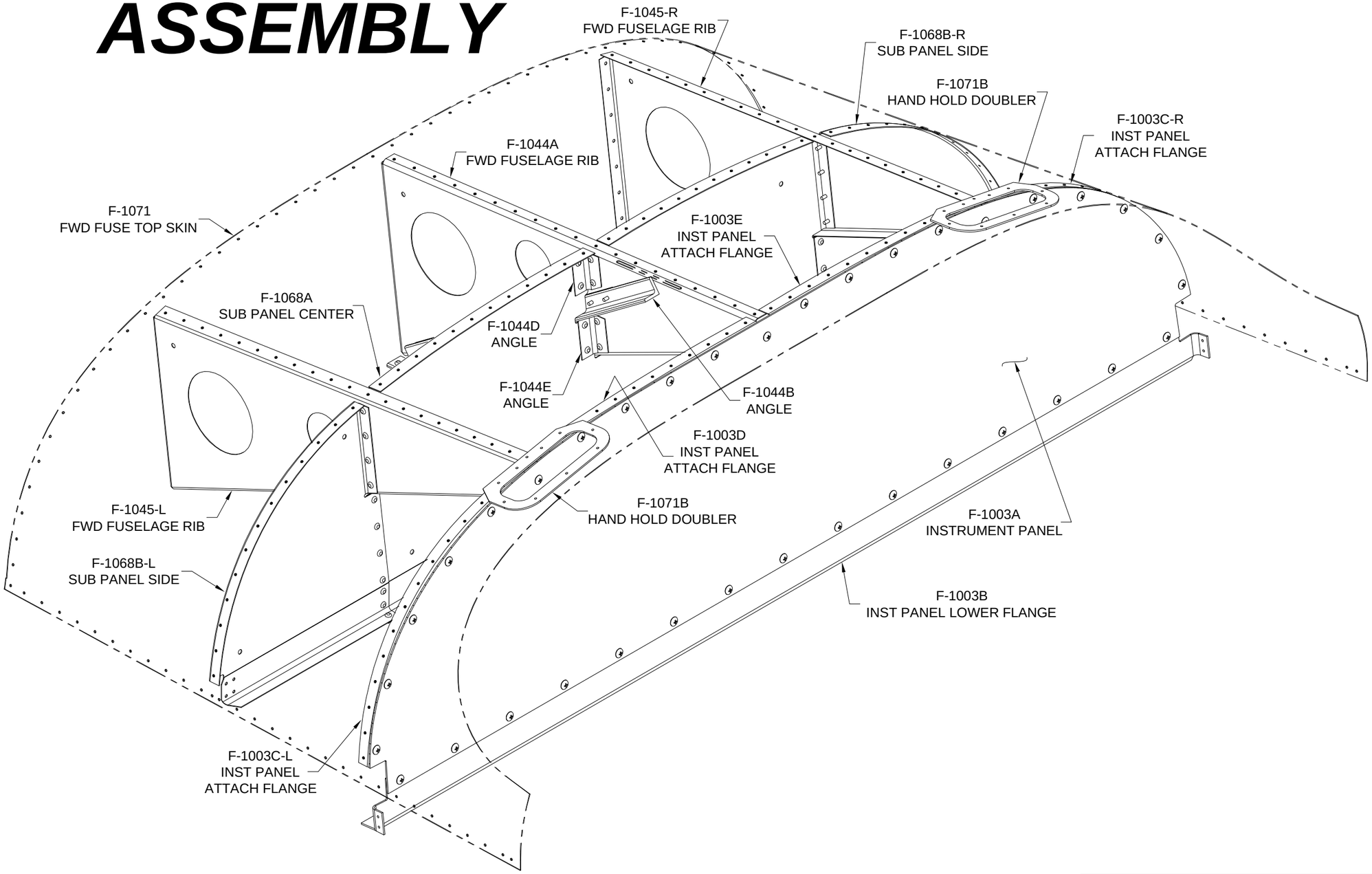
SECTION 31:
UPPER FORWARD FUSELAGE ASSEMBLY



Step 1: Fabricate the F-1044C Spacer from AS3-063 x .625 as shown in Figure 1.

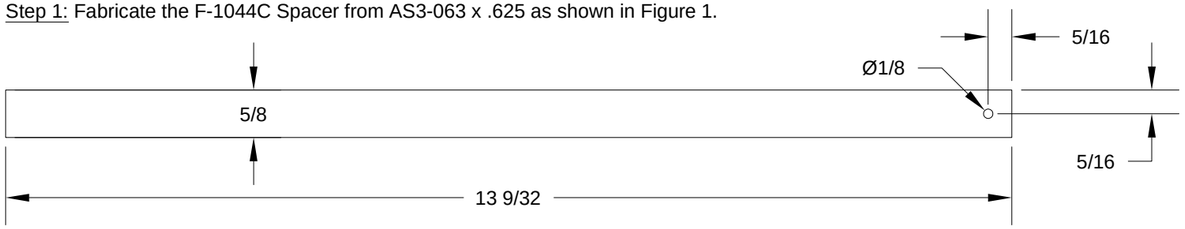


FIGURE 1: FABRICATE SPACER

Step 2: Fabricate the F-1044B Angle from AA6-125 x 3/4 x 3/4 as shown in Figure 2.

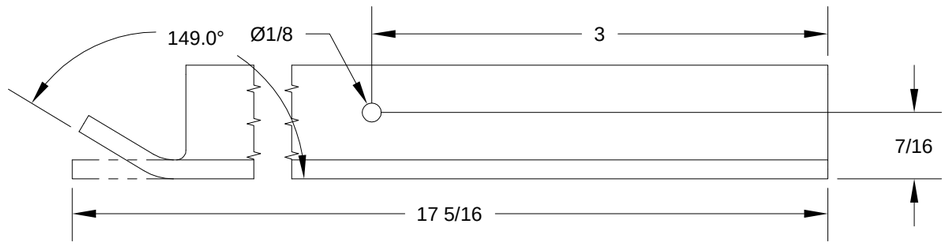


FIGURE 2: FABRICATE ANGLE

Step 3: Fabricate the F-1003D and F-1003E Inst Panel Attach Flanges from AA3-032 x 3/4 x 3/4 as shown in Figure 3.

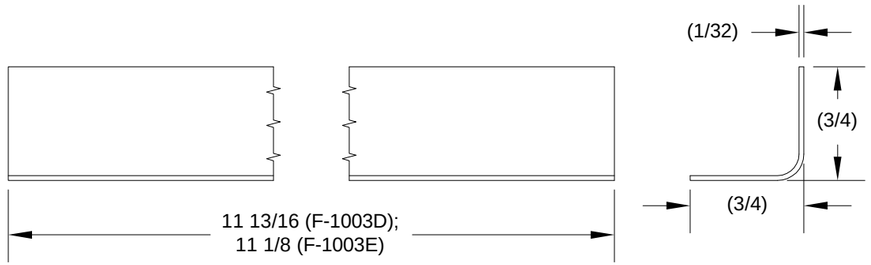


FIGURE 3: FABRICATE INST PANEL ATTACH FLANGES

Step 4: Break apart the F-1044DEF Angle into individual F-1044D, F-1044E, and F-1044F Angles as shown in Figure 4.

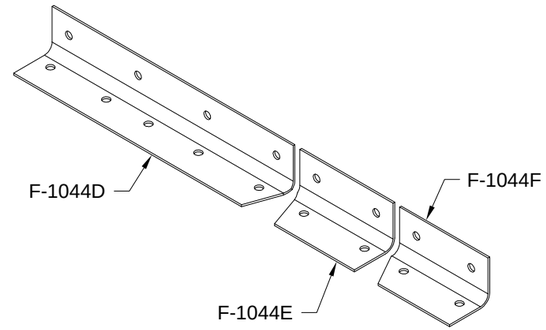


FIGURE 4: BREAK APART ANGLES

Step 5: Flute and straighten the flanges of the F-1003C Inst Panel Attach Flange per Section 5N.

Cut apart the inst panel attach flange into individual F-1003C-L and F-1003C-R Inst Panel Attach Flanges as shown in Figure 5.

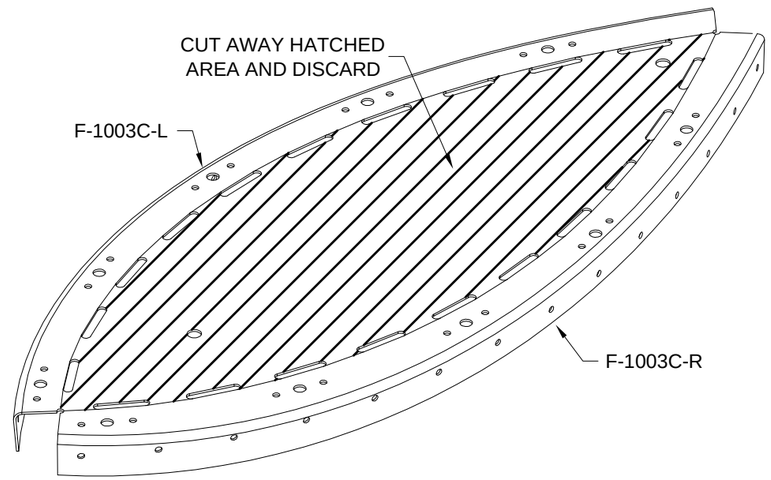


FIGURE 5: BREAK APART INST PANEL ATTACH FLANGES

Step 1: Final-Drill #40 all the nutplate attach holes in the F-1003C-L & R Inst Panel Attach Flanges as shown in Figure 1.

Final-Drill #19 all the nutplate screw holes in the inst panel attach flanges as shown in Figure 1.

Deburr all final-drilled holes in the inst panel attach flanges.

Dimple the nutplate attach holes in the inst panel attach flanges. See Figure 1. Dimple the nutplates that will be attached to the inst panel attach flanges.

Rivet nutplates to the inst panel attach flanges as shown in Figure 1.

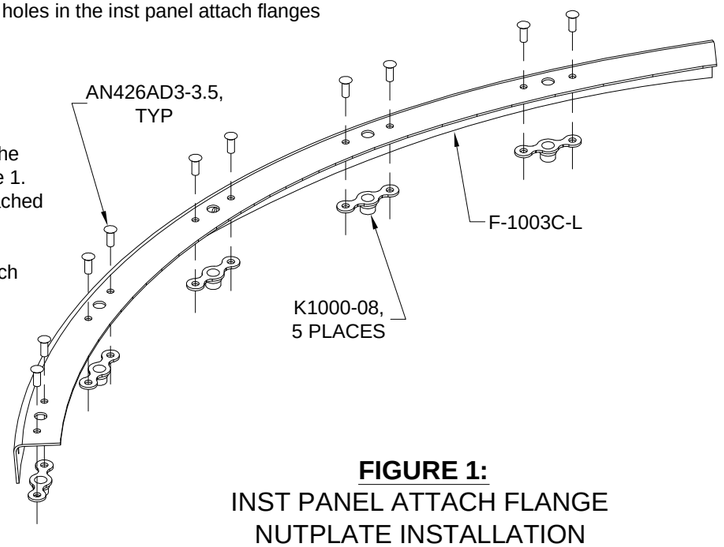


FIGURE 1:
INST PANEL ATTACH FLANGE NUTPLATE INSTALLATION

Step 2: Final-Drill #40 the nutplate attach holes in the F-1044A Fwd Fuselage Rib as shown in Figure 2.

Final-Drill #19 the nutplate screw hole in the fwd fuselage rib as shown in Figure 2.

Final-Drill #30 the rivet holes in the forward flange of the fwd fuselage rib as shown in Figure 2.

Deburr all final-drilled holes in the fwd fuselage rib.

Dimple the nutplate attach holes and the rivet holes in the forward flange of the fwd fuselage rib. See Figure 2. Dimple the nutplates that will be attached to the fwd fuselage rib.

Rivet nutplates to the fwd fuselage rib as shown in Figure 2.

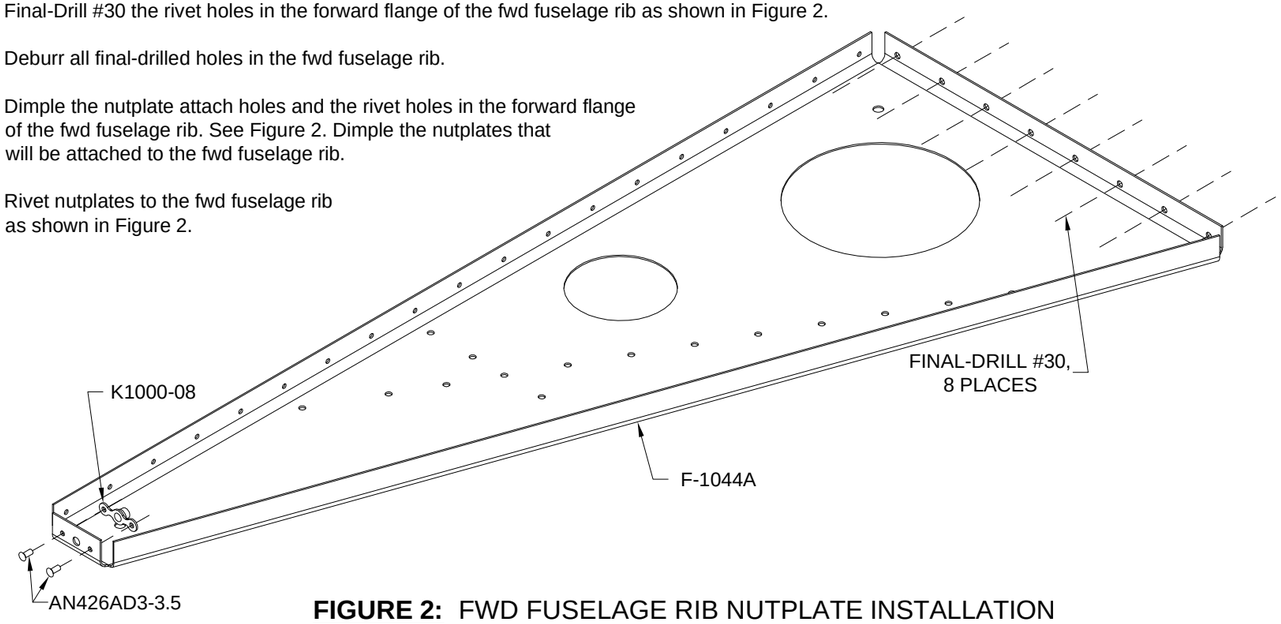


FIGURE 2: FWD FUSELAGE RIB NUTPLATE INSTALLATION

Step 3: Final-Drill #40 the nutplate attach holes in the F-1045-L & R Fwd Fuselage Ribs as shown in Figure 3.

Final-Drill #19 the nutplate screw holes in the fwd fuselage ribs as shown in Figure 3.

Final-Drill #30 the rivet holes in the forward flanges of the fwd fuselage rib as shown in Figure 3.

Deburr all final-drilled holes in the fwd fuselage rib.

Dimple the nutplate attach holes and the rivet holes in the forward flanges of the fwd fuselage rib. See Figure 3. Dimple the nutplates that will be attached to the fwd fuselage ribs.

Rivet nutplates to the fwd fuselage ribs as shown in Figure 3.

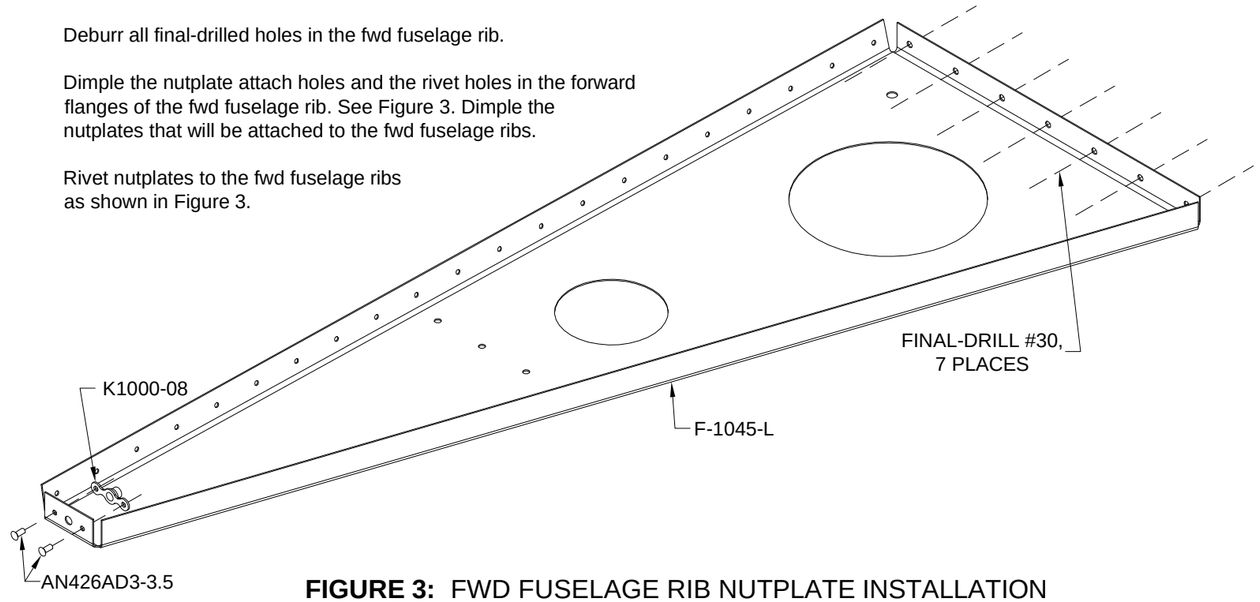


FIGURE 3: FWD FUSELAGE RIB NUTPLATE INSTALLATION

Step 1: Using the edge of a table or other straight edge, bend the lower portion of the F-1068A Sub Panel Center as shown in Figure 1.

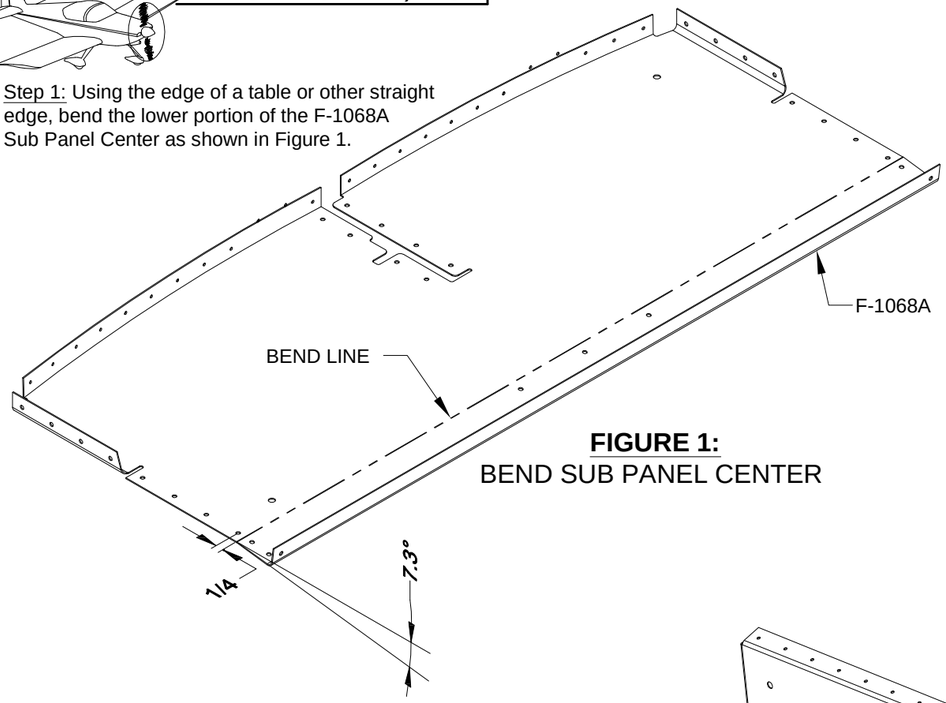


FIGURE 1:
BEND SUB PANEL CENTER

Step 2: Using the edge of a table or other straight edge, bend the lower portions of the F-1068B-L and F-1068B-R Sub Panel Sides as shown in Figure 2.

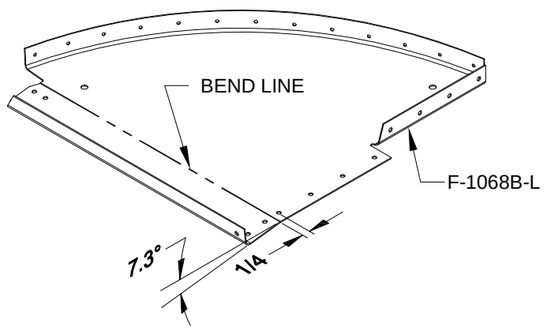


FIGURE 2: BEND SUB PANEL SIDE

Step 3: Flute and straighten the curved flanges of the F-1068B-L and F-1068B-R Sub Panel Sides per Section 5N.

Step 4: Cleco the F-1044A Fwd Fuselage Rib, F-1044D, E, & F Angles, F-1045-L & R Fwd Fuselage Ribs, F-1068A Sub Panel Center, F-1068B-L & R Sub Panel Sides, and F-1083 Control Cable Bracket as shown in Figure 3.

Final-Drill #30 all holes common to the parts clecoed together.

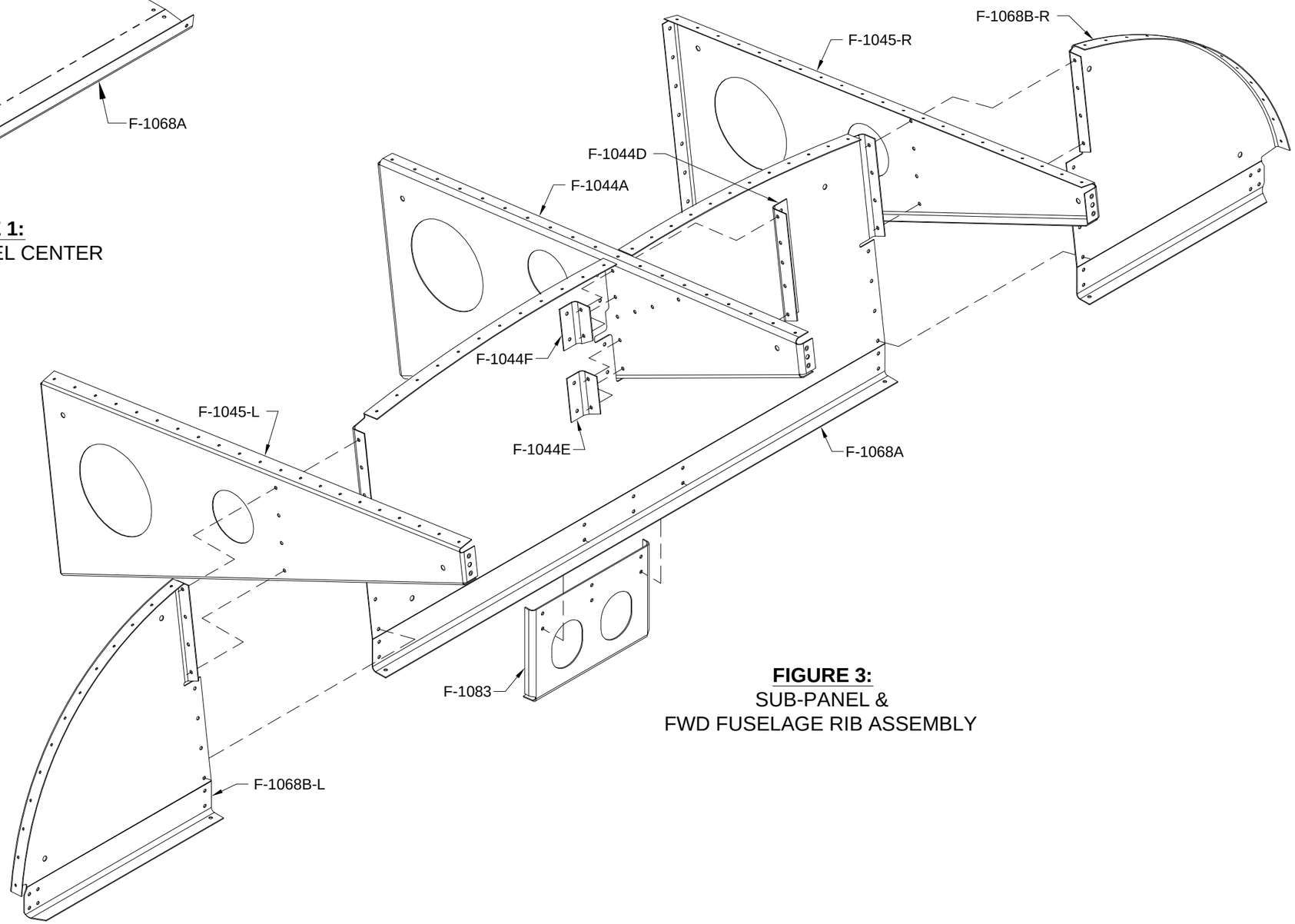


FIGURE 3:
SUB-PANEL &
FWD FUSELAGE RIB ASSEMBLY

Step 1: Insert the F-1044B Angle and F-1044C Spacer through the angle shaped opening in the F-1068A Sub Panel Center.

Cleco the angle and spacer to the F-1044A Fwd Fuselage Rib as shown in Figure 1.

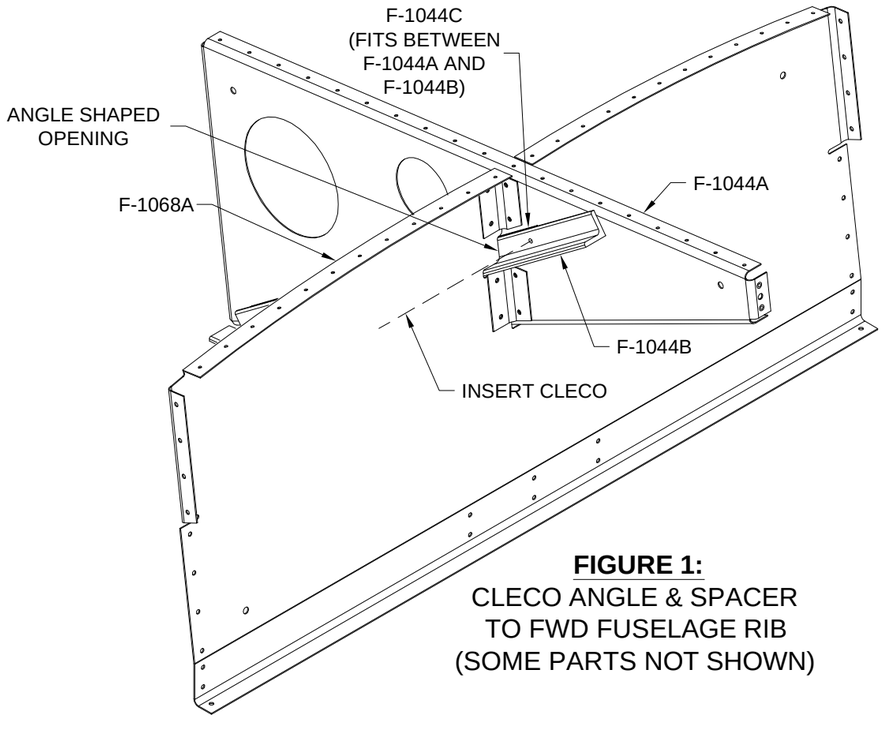


FIGURE 1:
CLECO ANGLE & SPACER
TO FWD FUSELAGE RIB
(SOME PARTS NOT SHOWN)

Step 2: Remove the F-1083 Control Cable Bracket from the F-1068A Sub Panel Center.

Final-Drill #19 the nutplate screw holes in the control cable bracket. See Figure 2.

Final-Drill #40 the nutplate attach holes in the control cable bracket. See Figure 2.

Deburr the holes and edges of the control cable bracket.

Dimple the nutplate attach holes. See Figure 2.

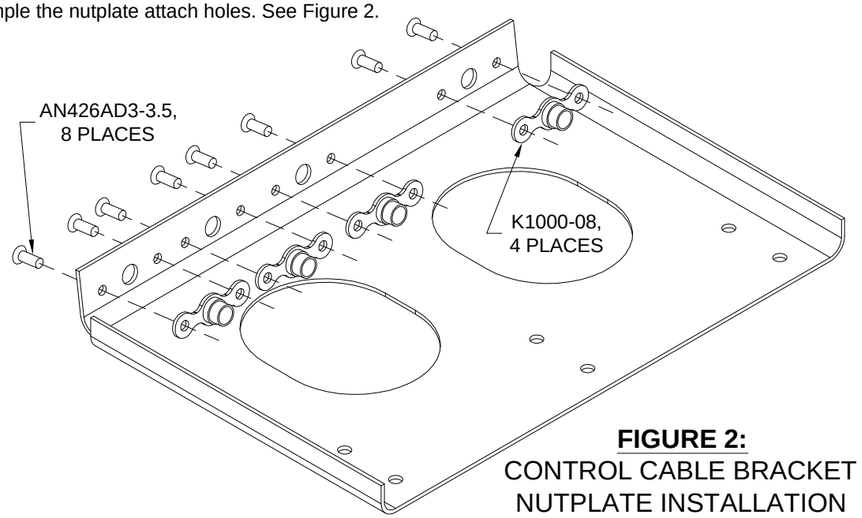


FIGURE 2:
CONTROL CABLE BRACKET
NUTPLATE INSTALLATION

Step 3: Using a long #30 drill bit, drill downward through the pilot hole near the middle of the F-1001B Upper Firewall Angle and through the upper surface of the F-1001K Firewall Recess. See Figure 3.

The new hole in the firewall recess will allow for drilling back up into the F-1044B Angle.

Use care when drilling so as not to enlarge the pilot hole in the upper firewall angle.

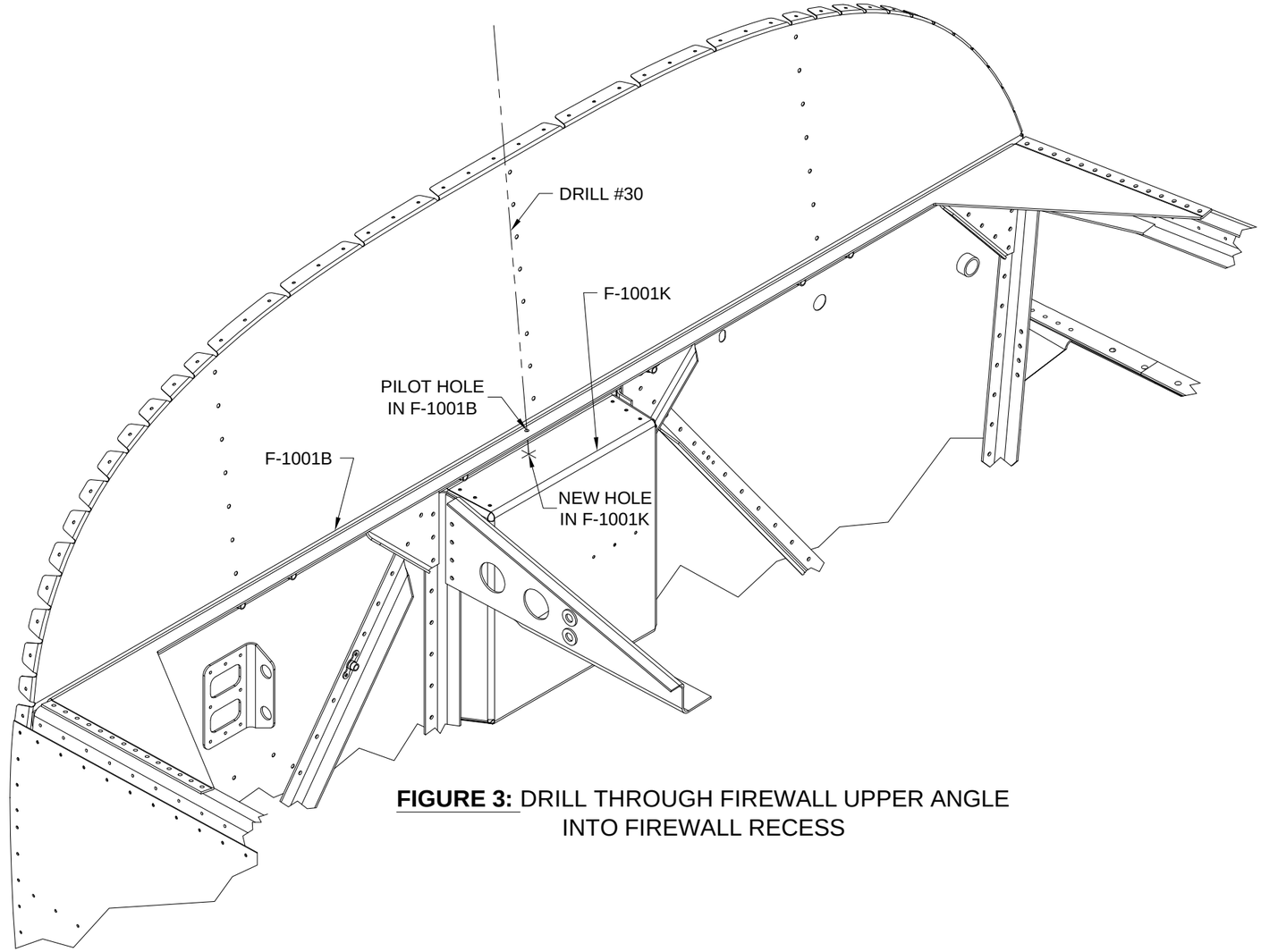


FIGURE 3: DRILL THROUGH FIREWALL UPPER ANGLE
INTO FIREWALL RECESS

Step 1: Cleco the Sub Panel/Fwd Fuselage Rib Subassembly to the forward fuselage as shown in Figure 1. It is permissible to slightly spread the F-1040-L & R Upper Fuse Channels to allow clearance for installation.

Final-Drill #30 four places F-1068B-L to F-1002-L and four places F-1068B-R to F-1002-R as shown in Figure 1.

Rotate the F-1044B Angle on the cleco holding it and the F-1044C Spacer to the F-1044A Fwd Fuse Rib until the forward tab of the angle rests on the upper surface of the F-1001B Firewall Upper Angle. Adjust the bend angle of the tab on the angle if/as required to rest flat on the firewall upper angle.

Match-Drill #30 and cleco the angle and spacer to the fwd fuselage rib in two places (once in the middle of the angle and once in the forward end of the angle) using the holes in the fwd fuselage rib as drill guides.

Step 2: Match-Drill #30 upward through the pilot hole in the upper surface of the F-1001K Firewall Recess, through the pilot hole in the F-1001B Upper Firewall Angle and into the forward tab of the F-1044B Angle. See Page 31-5, Figure 3.

Cleco the forward tab of the F-1044A Angle to the upper firewall angle.

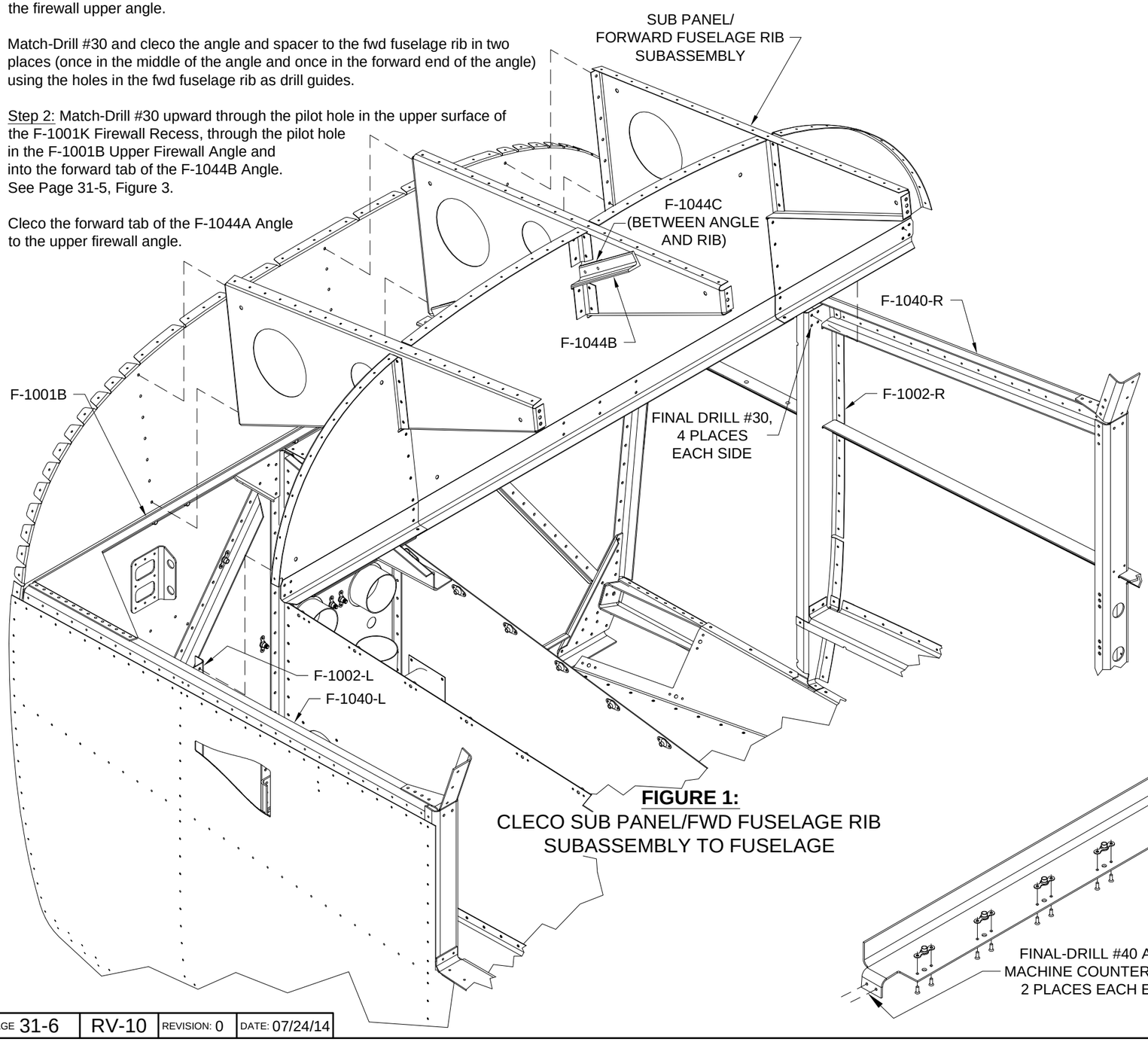


FIGURE 1:
CLECO SUB PANEL/FWD FUSELAGE RIB SUBASSEMBLY TO FUSELAGE

Step 3: Final-Drill #19 all holes in the F-1003A Instrument Panel.

Step 4: Final-Drill #19 all nutplate screw holes in the F-1003B Inst Panel Lower Flange.

Final-Drill #40 the rivet holes in the end tabs and nutplate attach holes in the inst panel lower flange. See Figure 2.

Machine countersink the nutplate attach holes to fit the head of an AN426AD3 rivet. See Figure 2.

Machine countersink the rivet holes in the end tabs to fit the dimples in the fuselage side skin. Make a dimple test sample by drilling and dimpling a scrap of .032 aluminum for an AN426AD3 rivet. See Figure 2. See Section 5E.

Rivet nutplates to the inst panel lower flange as shown in Figure 2.

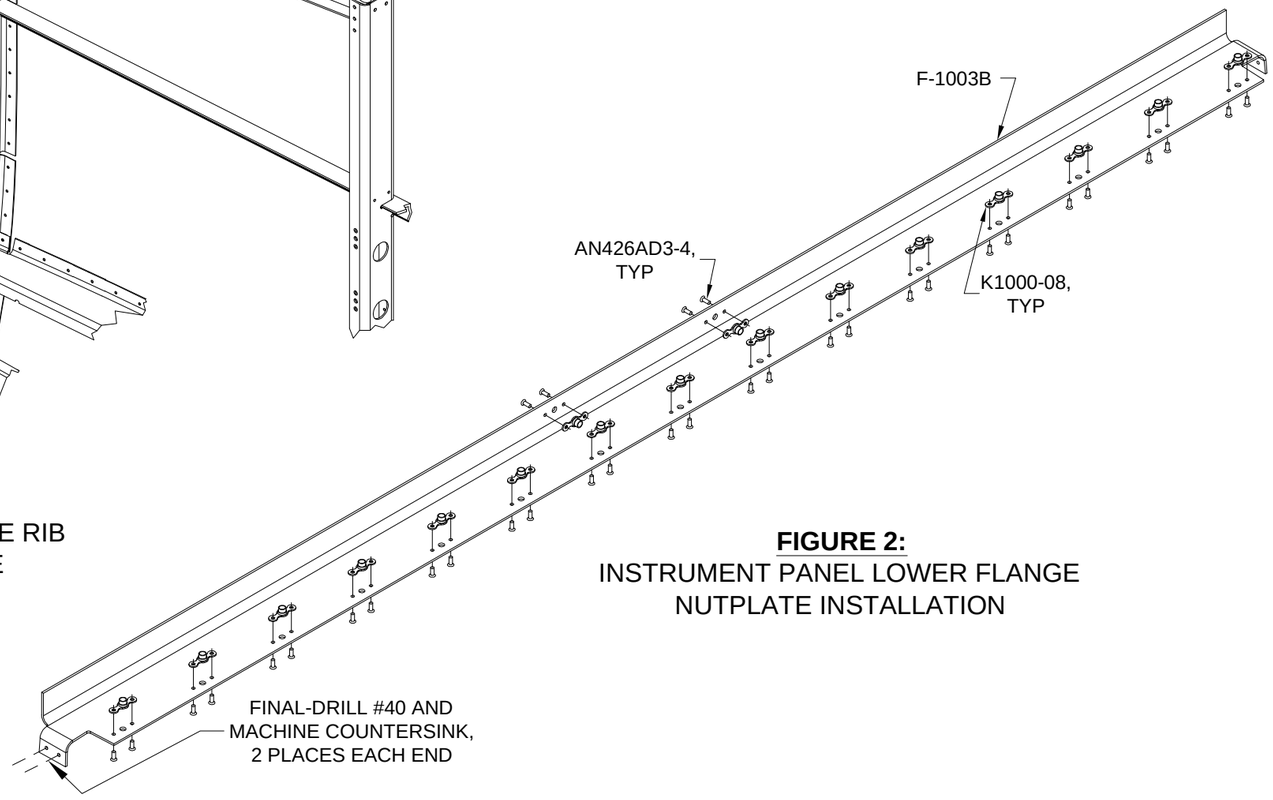


FIGURE 2:
INSTRUMENT PANEL LOWER FLANGE NUTPLATE INSTALLATION

Step 1: Attach the F-1003B Inst Panel Lower Flange and F-1003C-L & R Inst Panel Attach Flanges to the F-1003A Instrument Panel as shown in Figure 1.

Position the F-1003D and F-1003E Inst Panel Attach Flanges over the instrument panel and flute the outboard ends as required to match the instrument panel upper edge contour. See Figure 1. Locate the flutes in the inst panel attach flanges between the instrument panel screw holes as shown in Figure 1.

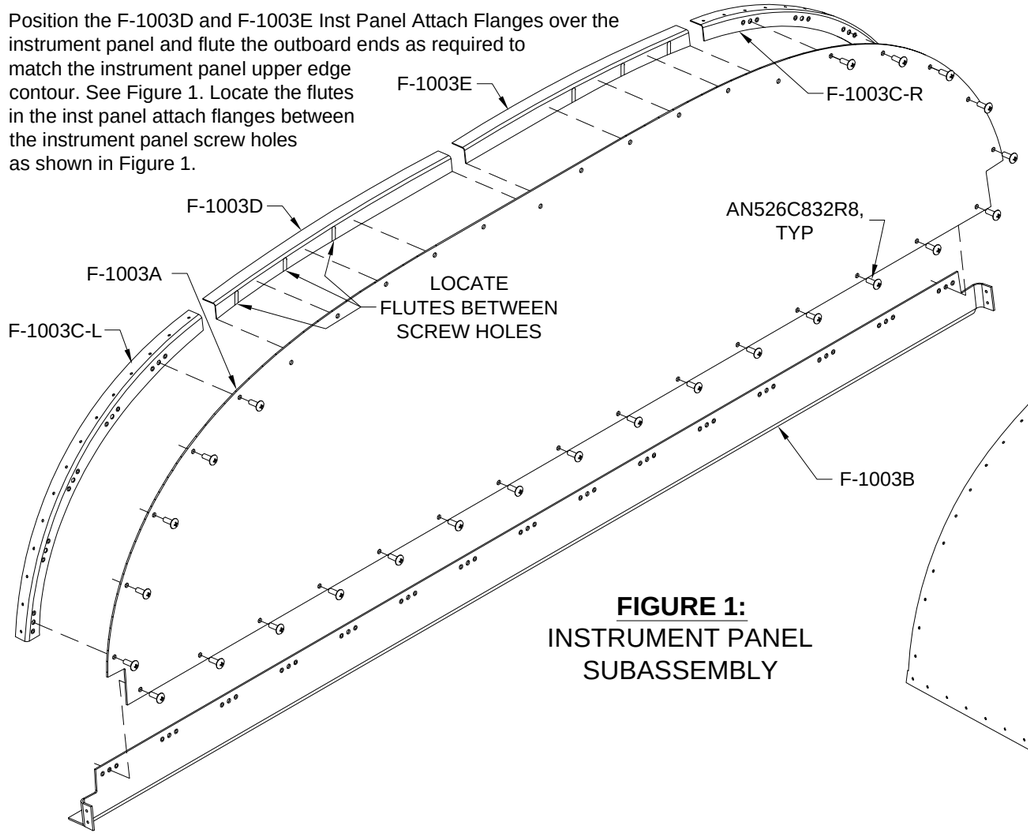


FIGURE 1:
INSTRUMENT PANEL
SUBASSEMBLY

Step 2: Attach the subassembly of F-1003A Instrument Panel, F-1003B Inst Panel Lower Flange, and the F-1003C-L & R Inst Panel Attach Flanges to the F-1044A, F-1045-L, & F-1045-R Fwd Fuselage Ribs as shown in Figure 2.

Step 3: Cleco the F-1071 Fwd Fuse Top Skin to the flanges of F-1001A, F-1003C-L & R, F-1044A, F-1045-L & R, F-1068A, F-1068B-L & R, and to the F-1040-L & R Fwd Fuselage Channels as shown in Figure 2.

Note that the fwd fuse top skin is NOT symmetrical and that it must be installed such that the "slot" is on the leftside of the F-1044A Fwd Fuselage Rib. See Figure 2.

Step 4: Form the F-1071B Hand Hold Doublers to match the countour of the F-1071 Fwd Fuse Top Skin as it is clecoed in place. The forming process will create one "Left" hand hold doubler and one "Right" hand hold doubler.

Cleco the hand hold doublers to the fwd fuse top skin as shown in Figure 2.

Match-Drill #40 each of the hand hold doublers to the fwd fuse top skin in the four places where there is no hole pre-punched in the fwd fuse top skin.

Final-Drill #40 each of the hand hold doublers to the fwd fuse top skin and the sub-structure in all the places where there are matching pre-punched holes.

Trace around the perimeter of each of the hand hold doublers with a sharpie pen. This will show where the fwd fuse skin is NOT to be dimpled.

Step 5: Final-Drill #40 the F-1071 Fwd Fuse Top Skin to the sub-structure through all holes not yet final-drilled.

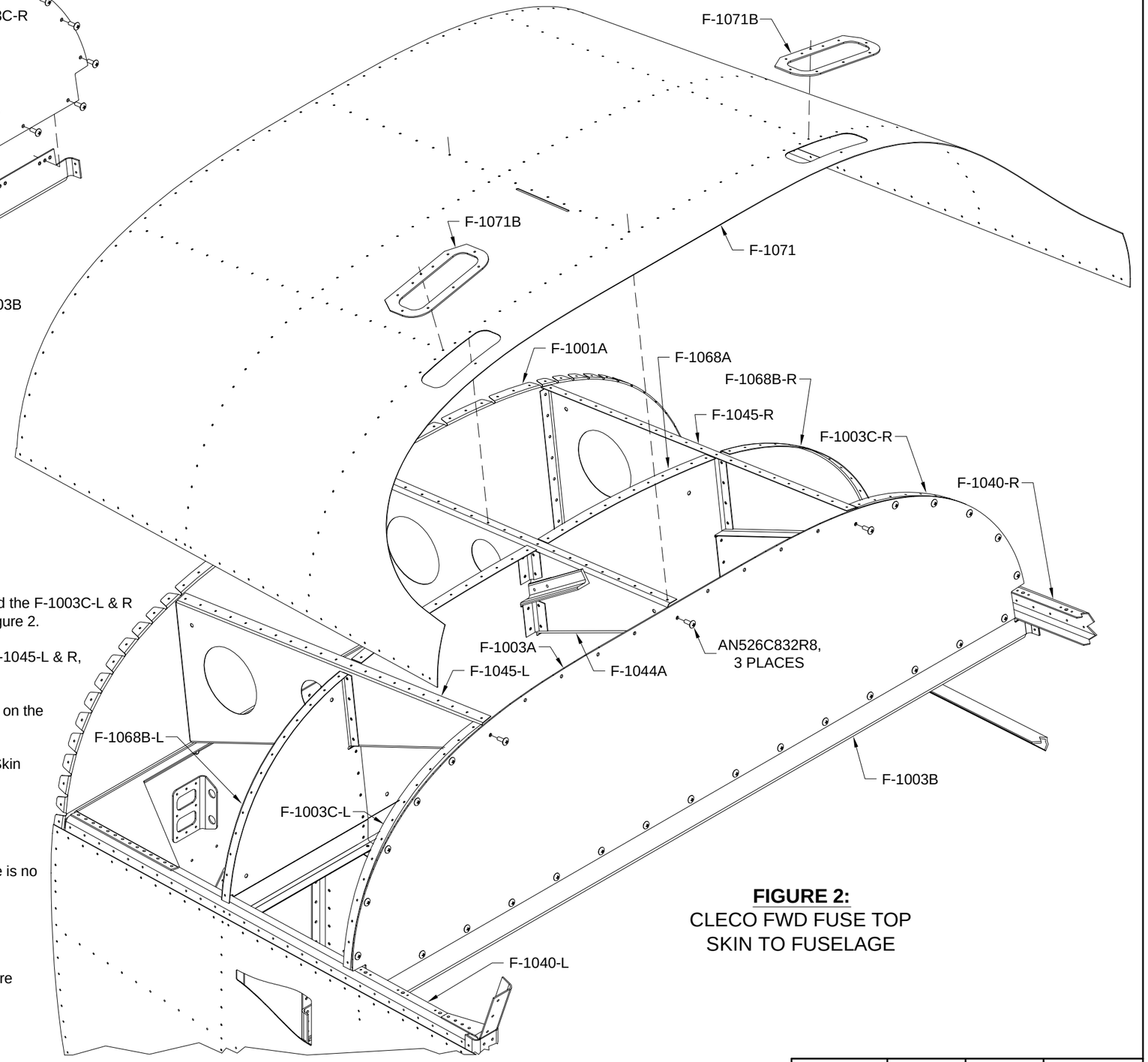


FIGURE 2:
CLECO FWD FUSE TOP
SKIN TO FUSELAGE

Step 1: Position the F-1003D Inst Panel Attach Flange simultaneously against the F-1071 Fwd Fuse Top Skin and the forward side of the F-1003A Instrument Panel (See Page 31-7, Figure 1). Match-Drill #40 and cleco the inst panel attach flange using the holes in the fwd fuse top skin as drill guides. Be sure that the inst panel attach flange is in contact with the forward surface of the instrument panel when match-drilling.

Step 2: Position the F-1003E Inst Panel Attach Flange simultaneously against the F-1071 Fwd Fuse Top Skin and the forward side of the F-1003A Instrument Panel (See Page 31-7, Figure 1). Match-Drill #40 and cleco the inst panel attach flange using the holes in the fwd fuse top skin as drill guides. Be sure that the inst panel attach flange is in contact with the forward surface of the instrument panel when match-drilling.

Step 3: Match-Drill #19 through the screw holes in the F-1003A Instrument Panel and into the F-1003D and F-1003E Inst Panel Attach Flanges.

Step 4: Final-Drill #40 the F-1071 Fwd Fuse Top Skin to the sub-structure through all holes not yet match-drilled or final-drilled.

Step 5: Remove the F-1003D and F-1003E Inst Panel Attach Flanges. Using a nutplate as a drill guide, match-drill #40 two nutplate attach holes for each screw hole. See Figure 1.

Deburr the holes and edges of the inst panel attach flanges.

Dimple the nutplate attach holes and skin attach holes. See Figure 1.

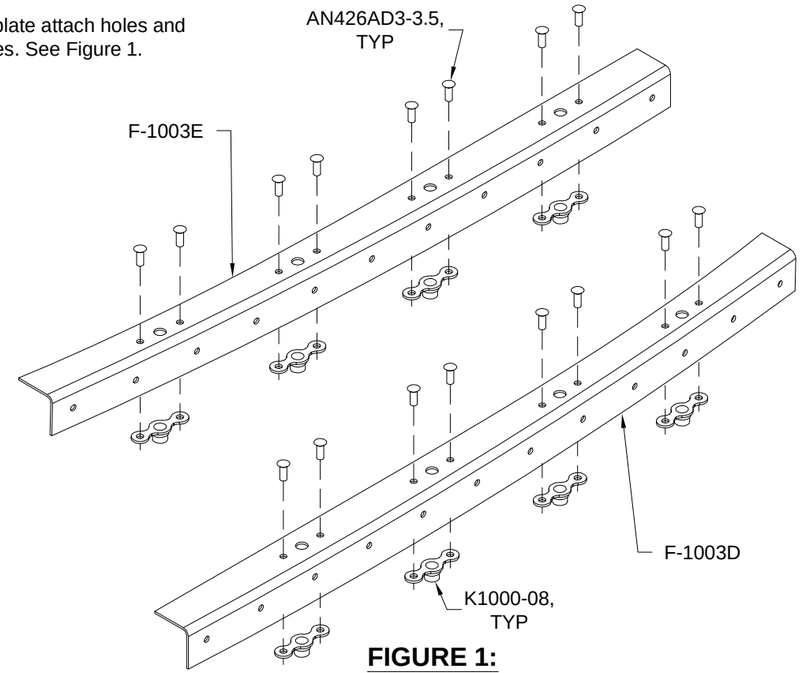


FIGURE 1:
INST PANEL ATTACH FLANGE NUTPLATE INSTALLATION

Step 6: Machine countersink the rivet holes in the F-1071B Hand Hold Doublers to fit the head of an AN426AD3 rivet. See Page 31-7, Figure 2.

Uncleco the hand hold doublers from the F-1071 Fwd Fuse Top Skin and deburr holes and edges.

Step 7: Uncleco the F-1071 Fwd Fuse Top Skin from the sub-structure. When unclecoing, mark the holes in the sub-structure that lie under the F-1071B Hand Hold Doublers with a sharpie pen so that they will not be dimpled later.

Deburr the holes and edges of the fwd fuse top skin then dimple all holes EXCEPT those that are under the F-1071B Hand Hold Doublers.

Step 8: Dimple the holes in the flanges of the F-1001A Firewall Bulkhead that are common to the F-1071 Fwd Fuse Top Skin. See Page 31-7, Figure 2.

Step 9: Machine countersink the holes in the F-1040-L & R Upper Fuse Channels and F-1042-L & R Bulkhead Side Channels that are common to the F-1071 Fwd Fuse Top Skin. Countersink deep enough to fit the dimples in the fwd fuse top skin. Make a dimple test sample by drilling and dimpling a scrap of .032 aluminum for an AN426AD3 rivet. See Page 31-7, Figure 2. See Section 5E.

Most "micro-stop" countersink cages will interfere with the upper edge of the F-1069 Fwd Side Skins. In this case, the countersinking is best done "free-hand" with a countersink cutter in a drill motor.

Step 10: Remove the subassembly of F-1003A Instrument Panel, F-1003B Inst Panel Lower Flange, and the F-1003C-L & R Inst Panel Attach Flanges from the F-1044A, F-1045-L, & F-1045-R Fwd Fuselage Ribs. See Page 31-7, Figures 1 and 2.

Remove the inst panel attach flanges and inst panel lower flange from the instrument panel.

Deburr all open rivet holes and edges of the inst panel attach flanges then dimple all rivet holes EXCEPT the two most inboard rivet holes which lie under the F-1071B Hand Hold Doublers. See Page 31-7, Figure 2.

Step 11: Remove the Sub-Panel/Fwd Fuselage Rib Subassembly from the forward fuselage. See Page 31-6, Figure 1.

Disassemble the Sub-Panel/Fwd Fuselage Rib Subassembly into it's individual components. See Page 31-4, Figure 3.

Deburr the holes and edges of all parts.

Dimple the skin attach rivet holes in the F-1044A and F-1045-L & R Fwd Fuselage Ribs, F-1068A Sub Panel Center, and F-1068B-L & R Sub Panel Sides.

Step 12: Prime the F-1044B Angle. Prime all other parts if/as desired.

Step 13: Dimple the nutplates that will be attached to the F-1003D & E Inst Panel Attach Flanges and F-1083 Control Cable Bracket. See Figure 1 and Page 31-5, Figure 2.

Step 14: Rivet nutplates to the F-1003D & E Inst Panel Attach Flanges and F-1083 Control Cable Bracket as shown in Figure 1 and Page 31-5, Figure 2.

Step 15: Rivet the F-1044B Angle, F-1044C Spacer, and F-1044D, E, & F Angles to the F-1044A Fwd Fuselage Rib as shown in Figure 2.

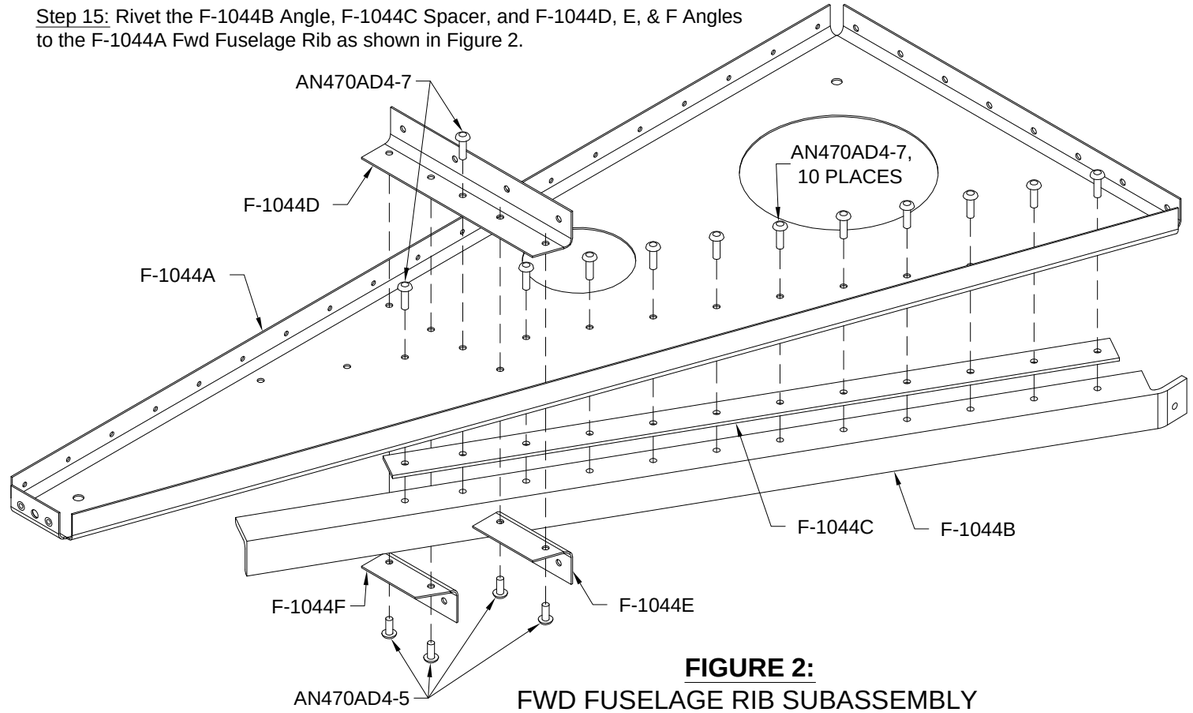


FIGURE 2:
FWD FUSELAGE RIB SUBASSEMBLY

Step 1: Rivet the F-1044 Fwd Fuselage Rib Subassembly and F-1083 Control Cable Bracket to the F-1068A Sub Panel Center as shown in Figure 1.

Step 2: Rivet the F-1068B-L Sub Panel Side and F-1045-L Fwd Fuselage Rib to the F-1068A Sub Panel Center as shown in Figure 1.

Rivet the F-1068B-R Sub Panel Side and F-1045-R Fwd Fuselage Rib to the sub panel center as shown in Figure 1.

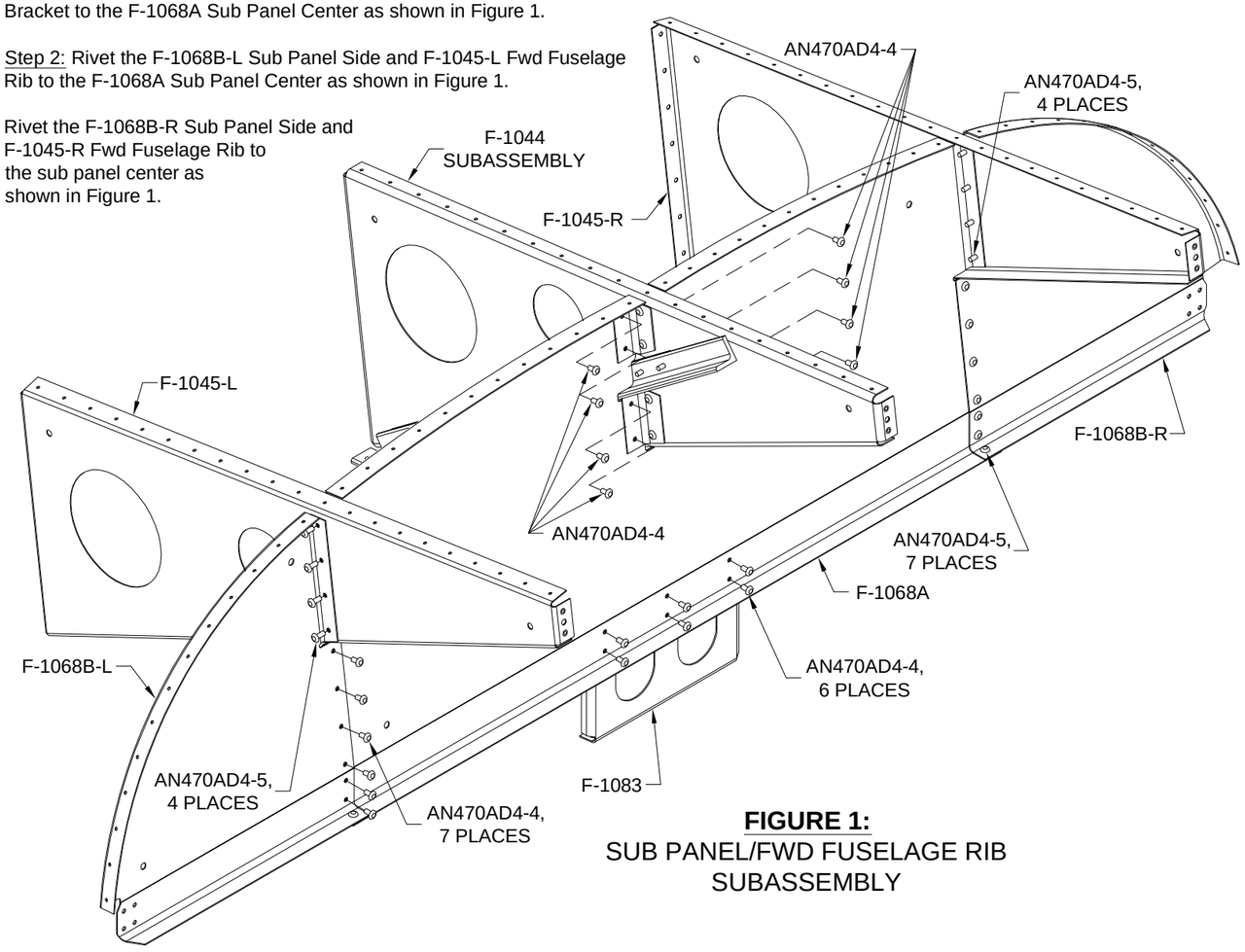


FIGURE 1:
SUB PANEL/FWD FUSELAGE RIB SUBASSEMBLY

Step 3: Rivet the F-1071 Fwd Fuse Top Skin to the Sub Panel/Fwd Fuselage Rib Subassembly using the rivets and riveting sequence shown in Figure 2.

Install the rivets sequentially beginning with the rivet row labeled "RIVET 1st" through the rivet row labeled "RIVET 5th" only. See Figure 2.

Install the rivets in the rivet rows labeled "RIVET 6th" and "RIVET 7th" beginning each row with the most inboard rivet and progressing outboard. See Figure 2.

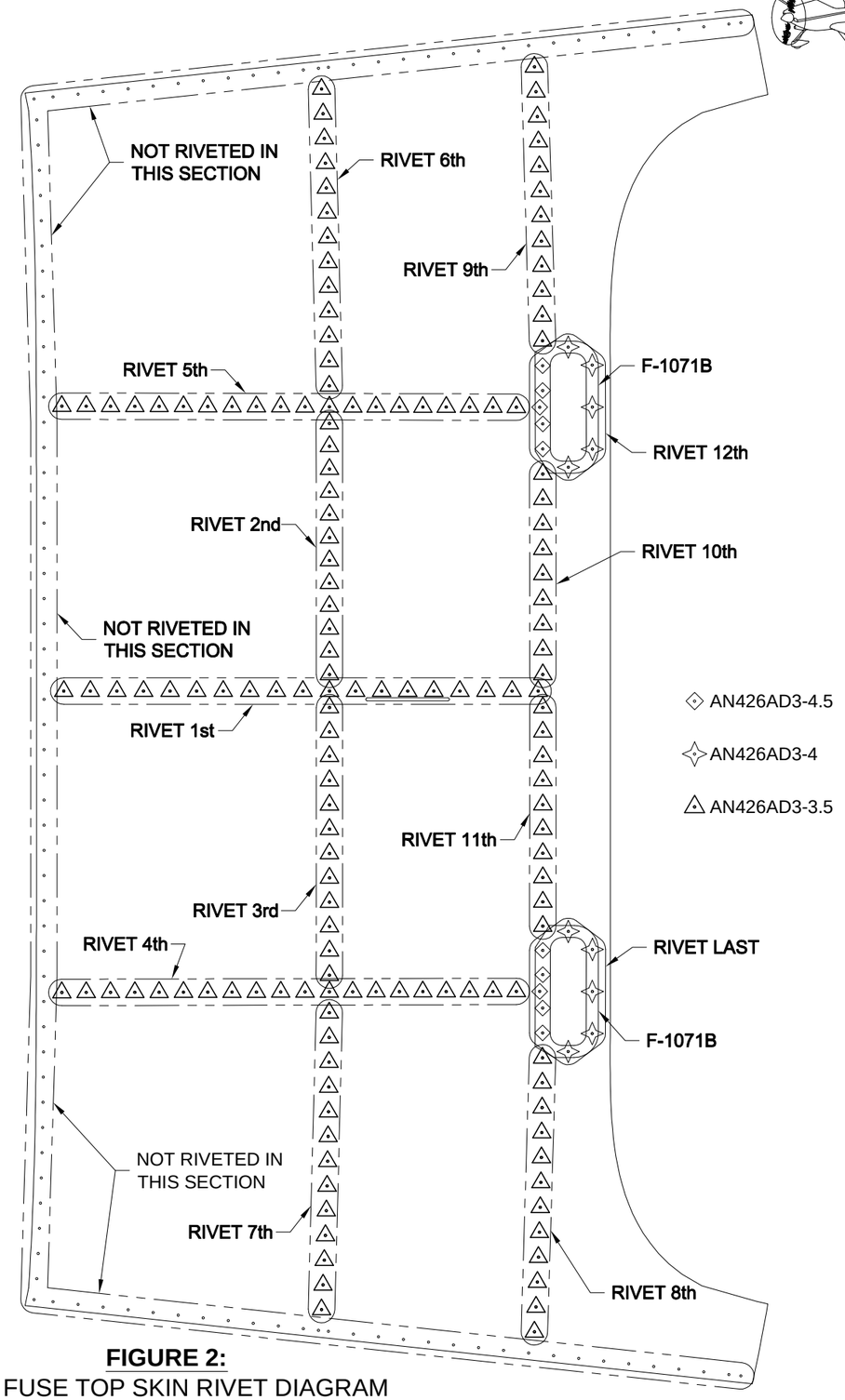


FIGURE 2:
FWD FUSE TOP SKIN RIVET DIAGRAM

Step 1: Rivet the F-1003C-L & R Inst Panel Attach Flanges to the F-1071 Fwd Fuse Top Skin as shown in Figure 1. Use the rivets and riveting sequence shown in Page 31-9, Figure 2.

Step 2: Rivet the F-1003D and F-1003E Inst Panel Attach Flanges to the F-1071 Fwd Fuse Top Skin as shown in Figure 1. Use the rivets and riveting sequence shown in Page 31-9, Figure 2.

Step 3: Rivet the two F-1071B Hand Hold Doublers to the F-1071 Fwd Fuse Top Skin as shown in Figure 1. Use the rivets shown in Page 31-9, Figure 2.

Step 4: Temporarily attach the F-1003A Instrument Panel and F-1003B Inst Panel Lower Flange to the Upper Forward Fuselage Subassembly and set aside for now.

The attachment of the upper forward fuselage subassembly is covered in a later section of the assembly manual. Now is a good time to plan the lay-out and installation of the items that will be mounted in and/or behind the instrument panel. Pay particular attention to placement of equipment so as to avoid interference with the upper forward fuselage structure.

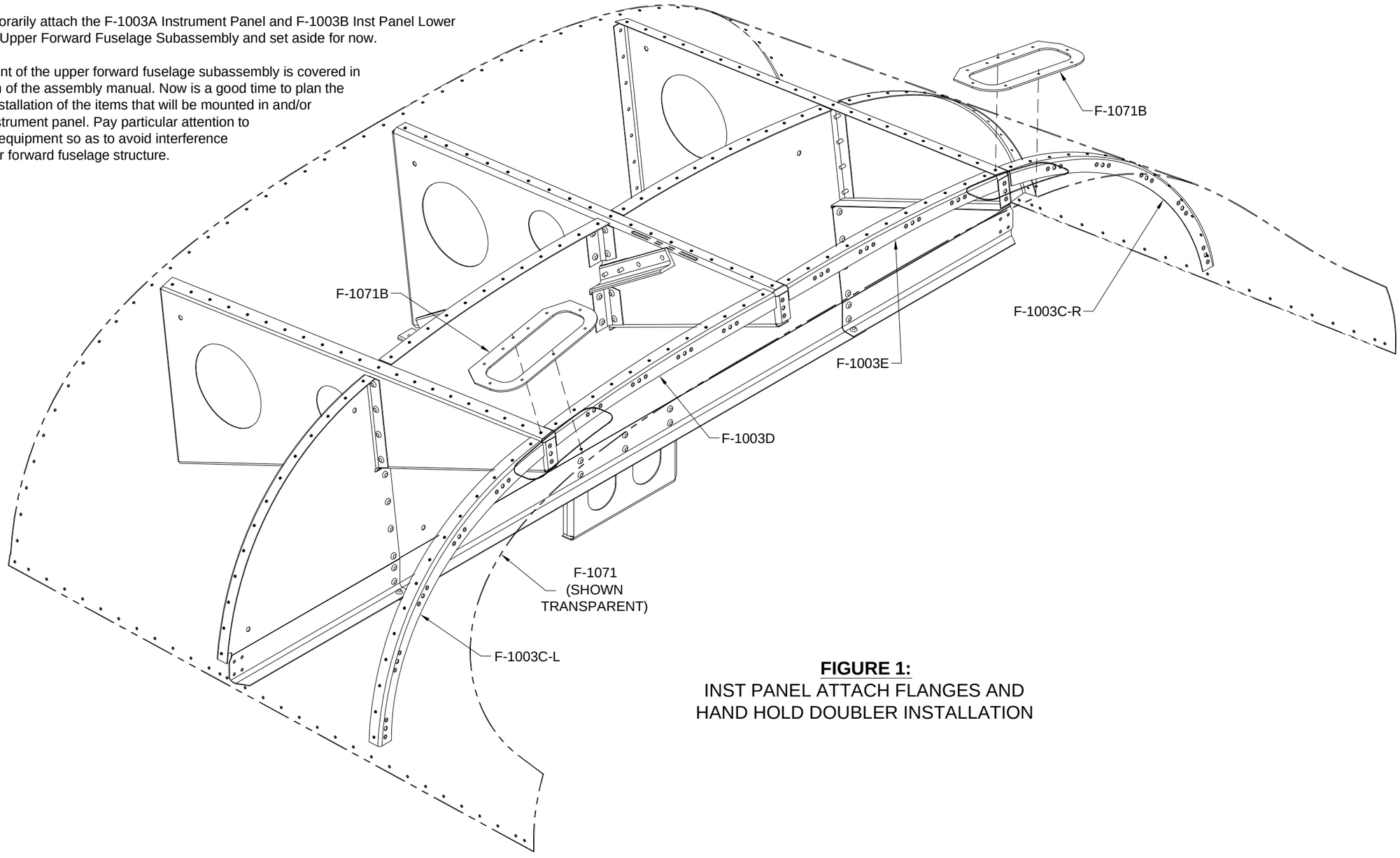


FIGURE 1:
INST PANEL ATTACH FLANGES AND
HAND HOLD DOUBLER INSTALLATION