DYNON 100422-000
D-100 SERIES MOUNTING TRAY

F-12178
PITOT LINE

F-12179
STATIC LINE

AV FC-403-12
PANEL MOUNT
STEREO INTERCOM

WH-RV12-DUALDISPLAY
DYNON D-100 HARNESS

ES RS 279-374
PHONE CABLE

SECTION 43:
D-180 DUAL
DISPLAY

IF DYNON-D100 EFIS
DYNON EFIS

F-1202UD100
INSTRUMENT PANEL
RIGHT EFIS

AV FC-403-12
PANEL MT ST
INTERCOM

PLA ELT ON ARM
REMOTE SWITCH
LABEL

453-0023
SELF POWERED
COCKPIT REMOTE
SWITCH

F-12175
POH TRAY

WH-RV12-DUALDISPLAY
DYNON D-100 HARNESS

F-12176
TUNNEL POCKET

F-12177
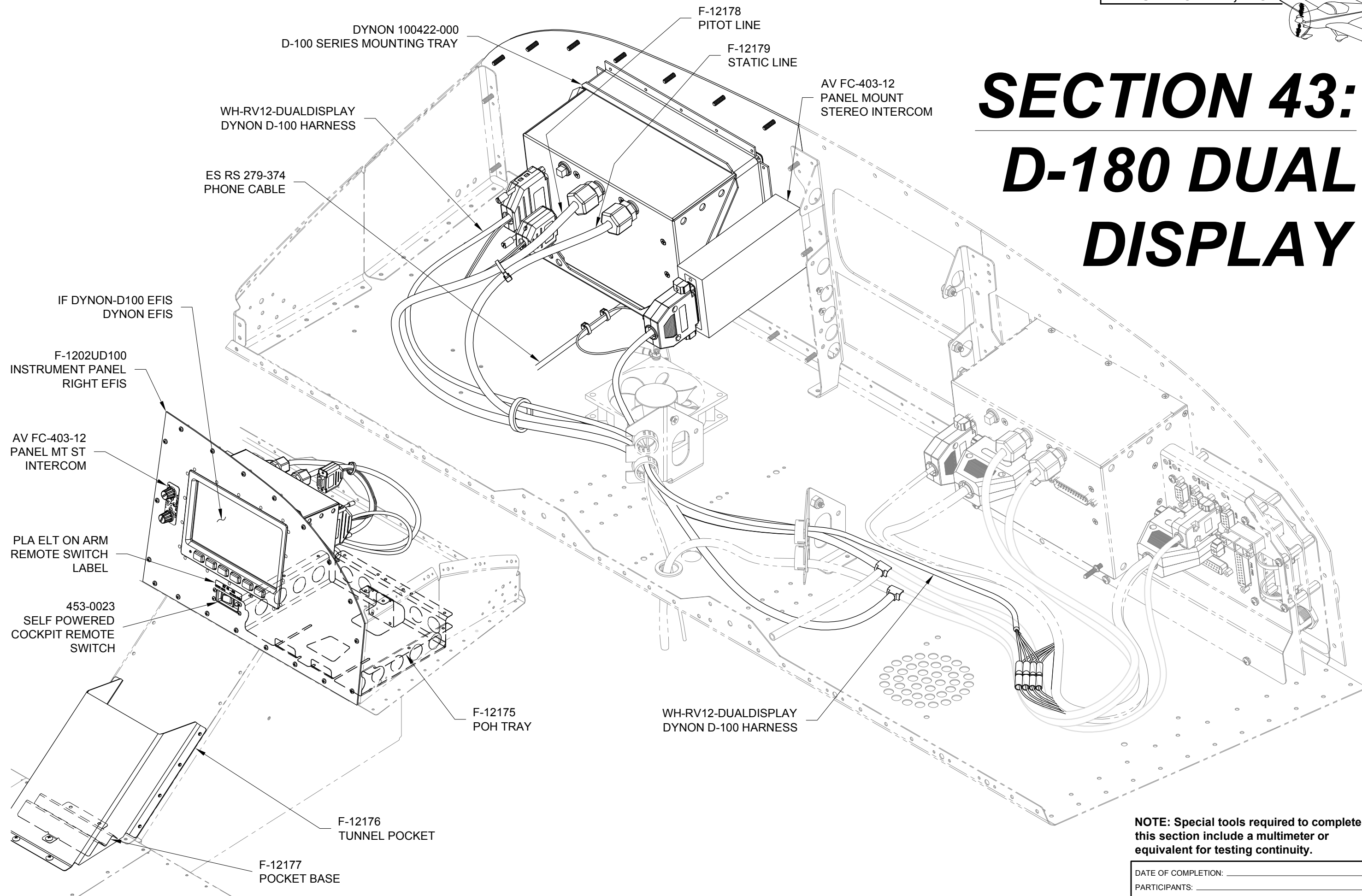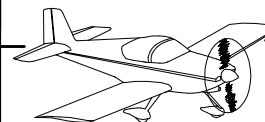POCKET BASE

NOTE: Special tools required to complete this section include a multimeter or equivalent for testing continuity.

DATE OF COMPLETION: _____

PARTICIPANTS: _____

NOTE: The following instructions cover installing the Dual EFIS, POH Tray and Tunnel Pocket in aircraft pre-construction and post-construction. Instructions unique to an aircraft under construction are preceded with the step number and "(PRECONST)". Instructions unique to assembled aircraft are preceded with the step number and "(POSTCONST)".

PRECONST NOTE: This section supersedes earlier portions of the manual which called for the installation of the following items:

  Section 29: MAP BOX
  Section 29: F-1202U Instrument Panel Right Mapbox
  Section 42: AV FC-403-12 Panel Mount Stereo Intercom
  Section 42: 453-0023 Self Powered Cockpit Remote Switch

Step 1 (PRECONST): Proceed to the next page.

Step 1 (POSTCONST): Remove the F-1240 Assembly. See Section 29 for reference.

Step 2: Remove the 453-0023 Self Powered Cockpit Remote Switch. See Section 42 for reference.

Step 3: Remove the Panel Mount Stereo Intercom. See Section 42 for reference.

Step 4: Remove the Map Box. See Section 29 for reference.

Step 5: Remove the F-1202U Instrument Panel Right Mapbox. See Section 29 for reference.

Step 6: Remove the F-12123 Fuse Holder Assembly from the Map Box door and set it aside for now. See Section 29 for reference.
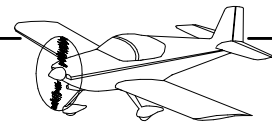
PRECONST NOTE: This page is an addendum to Section 29. The F-12175 POH Tray will be installed here while installing the F-1202B Panel Base.

Step 1: Cut through the three bridges in the F-12175 POH Tray as called out in Figure 1. Deburr the edges of both parts. Hereafter refer to these parts as F-12175A Tray and F-12175B Angle.
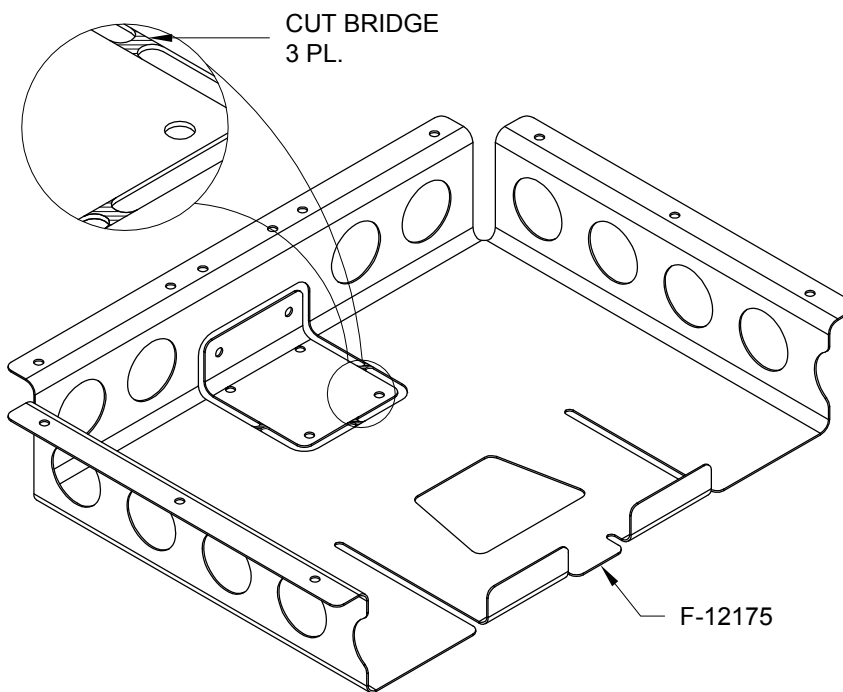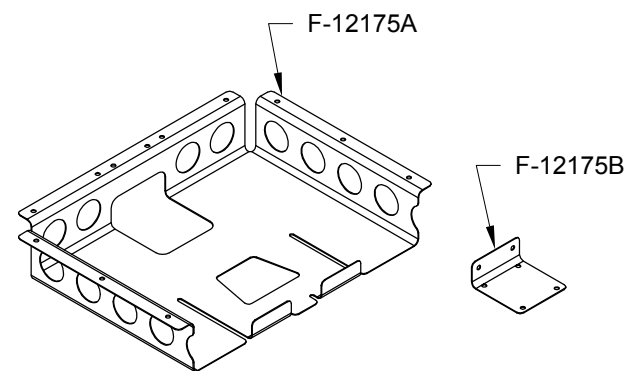
CUT BRIDGE
3 PL.

F-12175A

F-12175B

F-12175

FIGURE 1: SEPARATING THE POH TRAY PARTS

Step 2 : Inspect the F-1202B Panel Base for an existing hole pattern which matches that of the F-12175A Tray. If present proceed to Step 6.

Step 3: Cleco the F-12175A Tray to the underside of the F-1202B Panel Base at the one location shown in Figure 2.

Align the tray so that it is parallel with the aft edge of the panel base and clamp it in place.

Match-Drill #30 the Panel Base using the holes in the tray flanges as guides inserting clecos as you go.

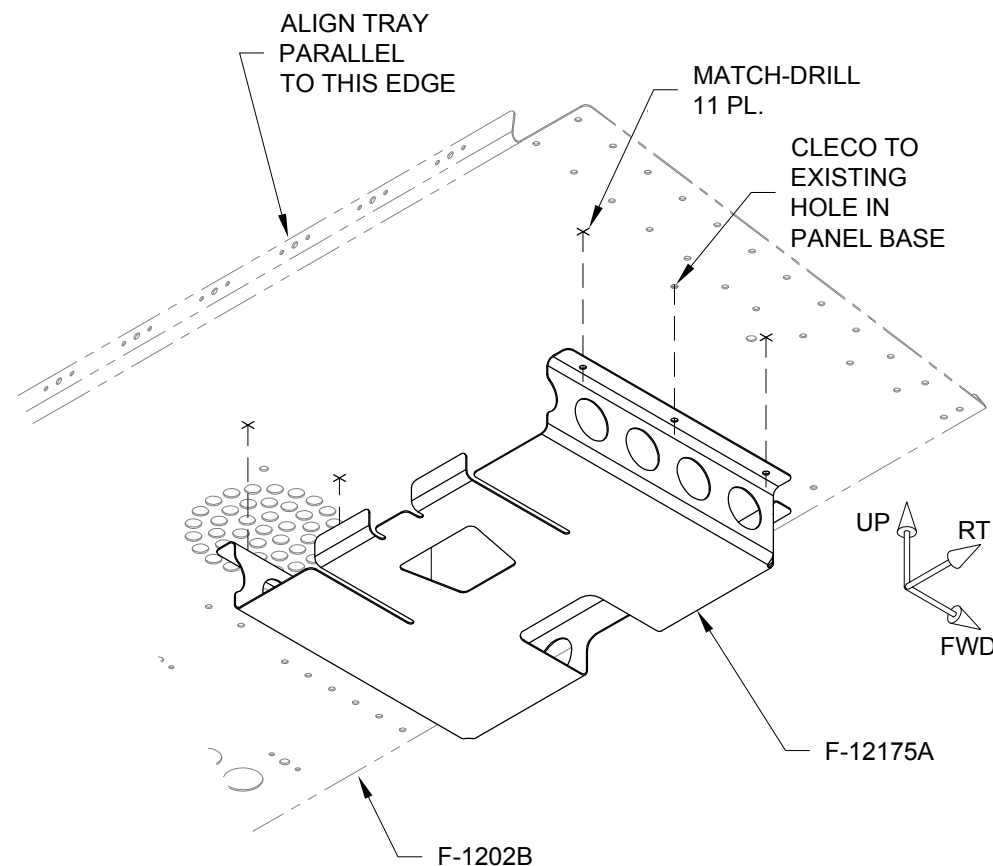Remove the tray and deburr the panel base.

ALIGN TRAY
PARALLEL
TO THIS EDGE

MATCH-DRILL
11 PL.

CLECO TO
EXISTING
HOLE IN
PANEL BASE

UP — RT

FWD

F-12175A

F-1202B

FIGURE 2: MATCH DRILL PANEL BASE

Step 4: Cleco the F-12175B Angle to the underside of the F-1202B Panel Base through the holes shown in Figure 3.

Step 5: Match-Drill #30 the F-1202B Panel Base per the call-out in Figure 3 using the F-12175B Angle as a guide. Remove the angle and deburr.
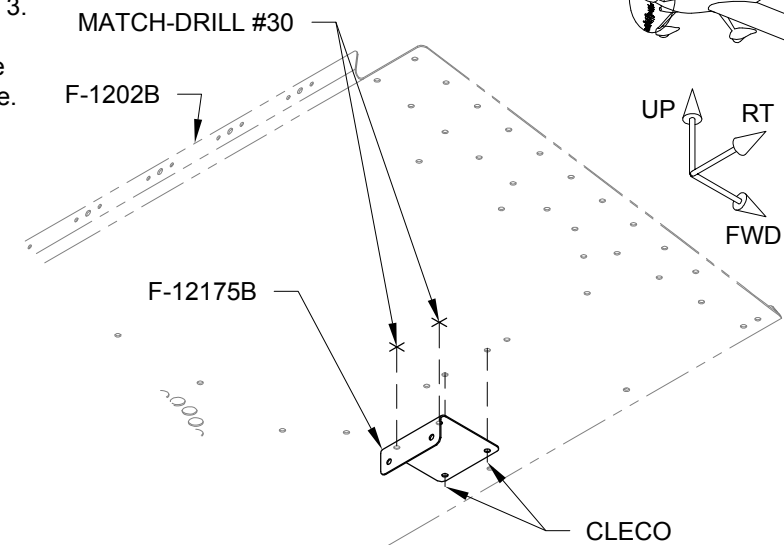
MATCH-DRILL #30

F-1202B

F-12175B

UP — RT

FWD

CLECO

FIGURE 3:
MATCH DRILL ANGLE TO PANEL BASE

Step 6: Position the F-12175B Angle on the F-1202B Panel Base as shown in Figure 4 and install one cleco.

Step 7: Rivet the F-12175B Angle to the F-1202B Panel Base using the rivets called out in Figure 4.

Rivet the F-12175A Tray to the panel base using the rivets called out in Figure 4.

Step 8 (PRECONST): Proceed with the assembly instructions in Section 29.

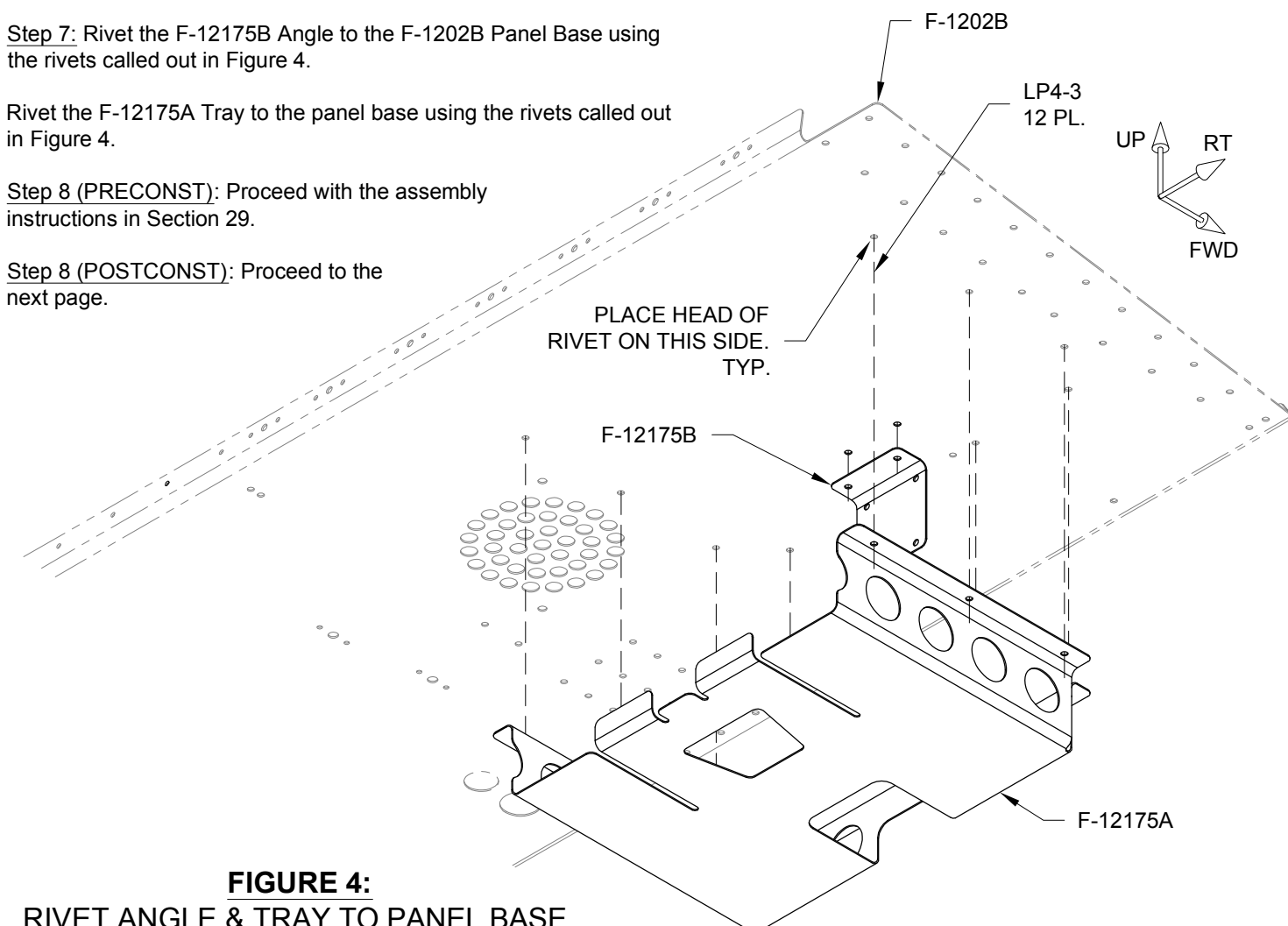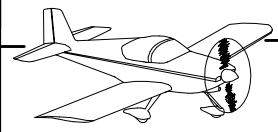Step 8 (POSTCONST): Proceed to the next page.

F-1202B

LP4-3
12 PL.

UP — RT

FWD

PLACE HEAD OF
RIVET ON THIS SIDE.
TYP.

F-12175B

F-12175A

FIGURE 4:
RIVET ANGLE & TRAY TO PANEL BASE

Step 1 (PRECONST): Attach the F-1214 Step Floor Cover using at least 2 screws, 1 per side. Attach the F-1230 Tunnel Cover omitting the 12 aft-most screws.

Step 1 (POSTCONST): Remove the 12 aft-most screws attaching the F-1230 Tunnel Cover to the sub-structure. See Figure 1.

Step 2: Attach the F-12177 Pocket Base to the lower flange of the F-1230 Tunnel Cover using two screws as shown in Figure 1.

Step 3: Match-Drill #19 the F-1214 Step Floor Cover using the F-12177 Pocket Base as a guide.

Step 4: Attach the F-12176 Tunnel Pocket to the structure using at least four screws, one at each corner.

Step 5: Match-Drill #19 the F-1214 Step Floor Cover using the F-12176 Tunnel Pocket as a guide. Remove the tunnel pocket, the F-12177 Pocket Base and the step floor cover.
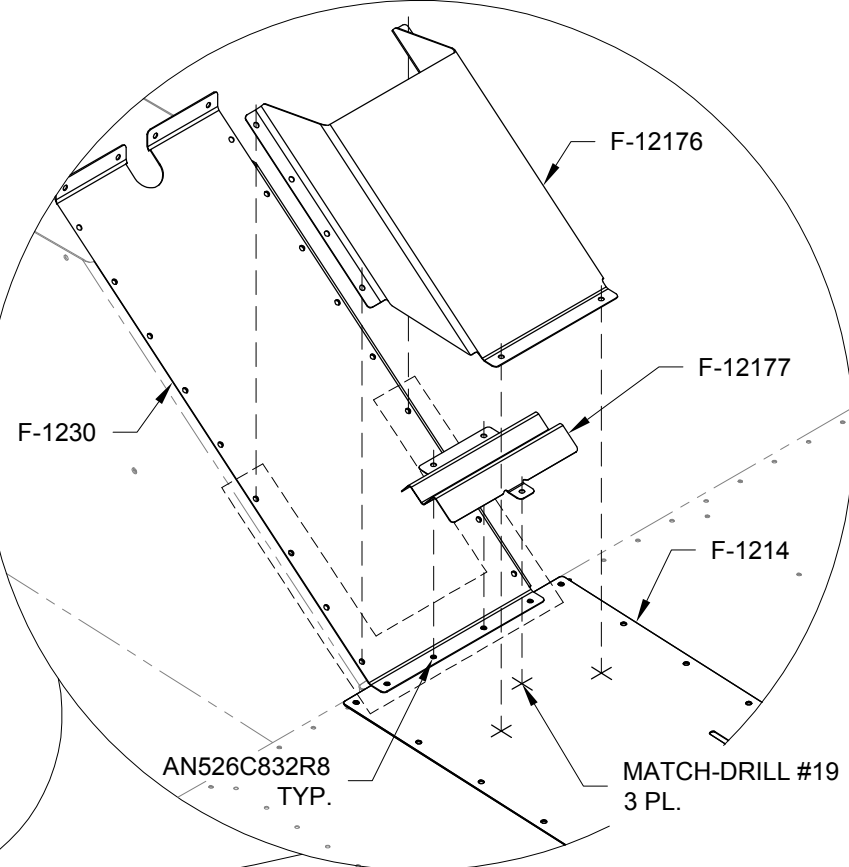
Step 9: Insert the forward edge of the F-1214 Floor Step Cover beneath the lower flange of the F-1230 Tunnel Cover and line up the screw holes.

Step 10: Position the F-12177 Pocket Base on top of the lower flange of the F-1230 Tunnel Cover and the F-1214 Floor Step Cover. Fasten the pocket base and the floor step cover using the hardware called out in Figure 3.

Step 11: Fasten the F-12176 Tunnel Pocket to the F-1230 Tunnel Cover and the F-1214 Floor Step Cover using the hardware called out in Figure 3.

Step 12 (PRECONST): Return to Section 33 and continue assembly.

Step 12 (POSTCONST): Proceed to the next page.

FIGURE 1:
MATCH-DRILLING STEP FLOOR COVER

Step 6: Match-Drill #40 the nutplate attach holes in the F-1214 Step Floor Cover using the nutplates called out in Figure 2 as guides. Deburr all the match-drilled holes.

Step 7: Dimple the nutplate attach holes flush on the top side of the F-1214 Step Floor Cover for 3/32 flush rivets. Dimple the nutplates for 3/32 flush rivets.

Step 8: Rivet the nutplates to the underside of the F-1214 Step Floor Cover using the rivets called out in Figure 2.
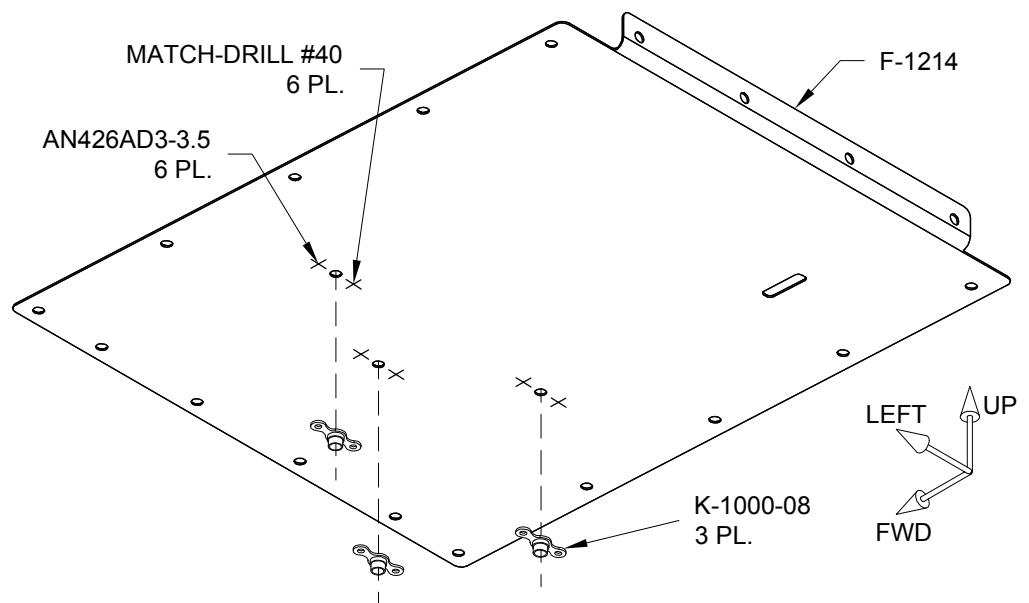
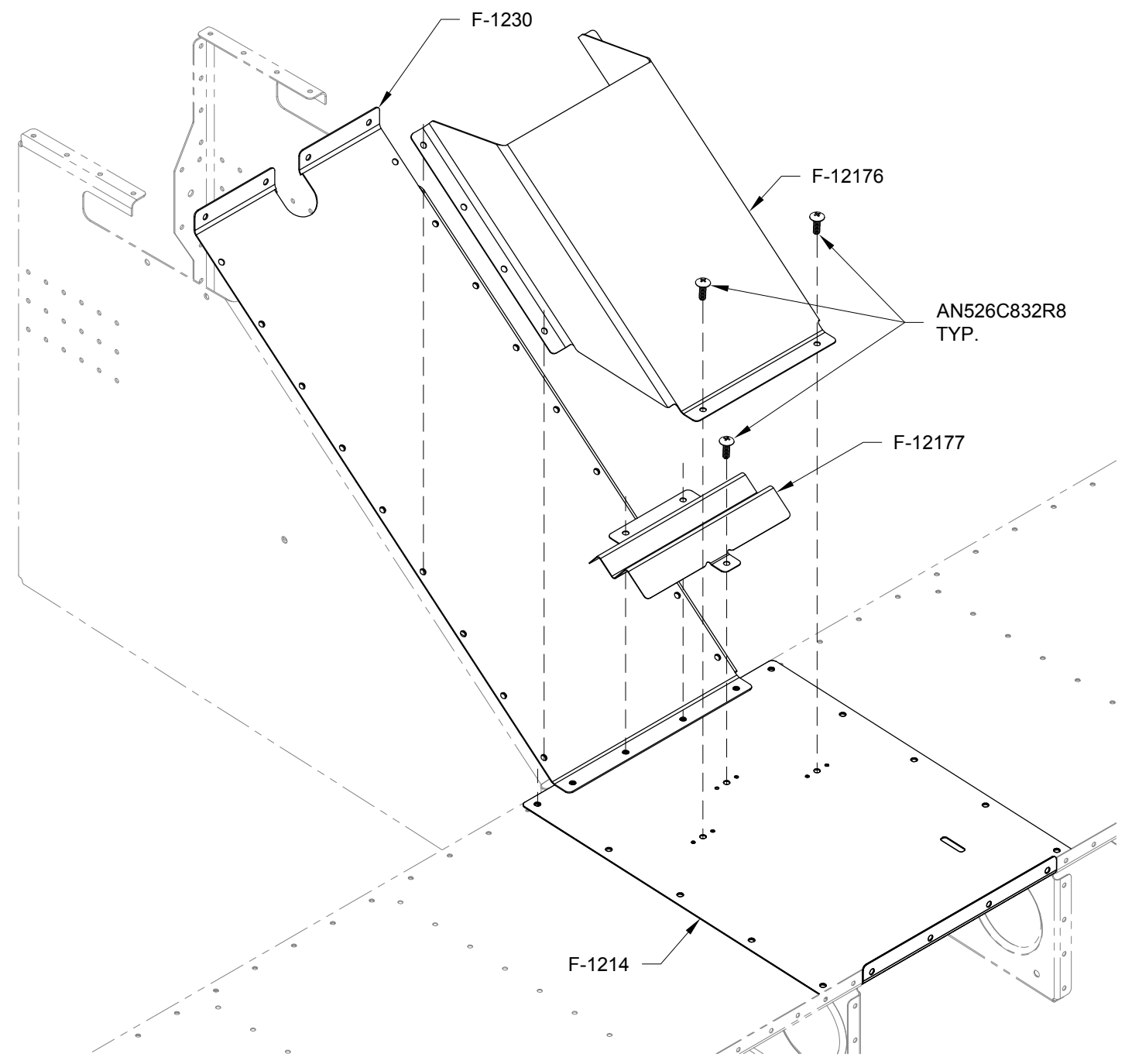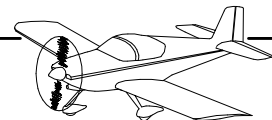**FIGURE 2:** INSTALLING STEP FLOOR COVER NUTPLATES

FIGURE 3: INSTALLING POCKET BASE & TUNNEL POCKET

NOTE: Check that the avionics master switch is in the off position. Opening the 37 PIN D180 D-SUB backshell is not required if a multimeter is available. When cutting wires to length leave enough to allow the EFIS to be removed from the panel. After a WH-RV12-DYNON harness wire is cut its halves will be referred to as "left" (for WH-RV12-DYNON AV Control Board 12, 37 Pin d-sub) side or "right" (for WH-RV12-DYNON EFIS 25 pin d-sub) side.

Step 1 (POSTCONST): Remove the AV GARMIN SL-40 COM Radio(not shown) from its tray to aid in routing wires.

Step 1 (PRECONST): Proceed to Step 2.

Step 2: Install the WH-RV12-DUALDISPLAY harness through the snap bushings in F-1202K-L & -R Inst Stack Supports. Strip the ends of the harness and position them at the splice location depicted in Figure 1.

Step 3: Unplug the WH-RV12-DYNON harness EFIS 25 PIN D-SUB connector from the back of the IF DYNON DEK 180-12 Dynon EFIS/EMS.

Step 4: Locate the RED 20 gauge wire in the WH-RV12-DYNON harness, cut it in the region of the splice and strip each end.

Step 5: Crimp the end of the left half of the RED 20 gauge wire in the WH-RV12-DYNON harness to the butt splice called out in Figure 2. Insert the corresponding color wire from the WH-RV12-DUALDISPLAY harness into the other end of the butt splice along with the end of the right half of the RED 20 gauge wire and crimp them together.

Step 6: Repeat Steps 4 and 5 for the BLK and BLU wires.

Step 7: Locate the two GRN wires in the WH-RV12-DYNON harness.

Step 8: Identify the correct GRN wire by checking for continuity using a multimeter (or equivalent) between the corresponding pin at the WH-RV12-DYNON harness EFIS 25 PIN D-SUB connector and a needle inserted through the insulation of one of the GRN wires at the intended splice location. See pin 4 in Figure 2. Once identified cut the GRN(pin 4) wire and strip each end.

Step 9: Repeat Step 5 for the GRN wire.

Step 10: Tie wrap the WH-RV12-DUALDISPLAY harness to the WH-RV12-DYNON harness.

Step 11: Attach an ES 25 PIN BACKSHELL to the WH-RV12-DUALDISPLAY harness. See Section 5 for Backshell installation.

Step 12: Attach an ES 9 PIN BACKSHELL to the SERIAL I/O 9 PIN PIGTAIL. See Section 5 for Backshell installation.
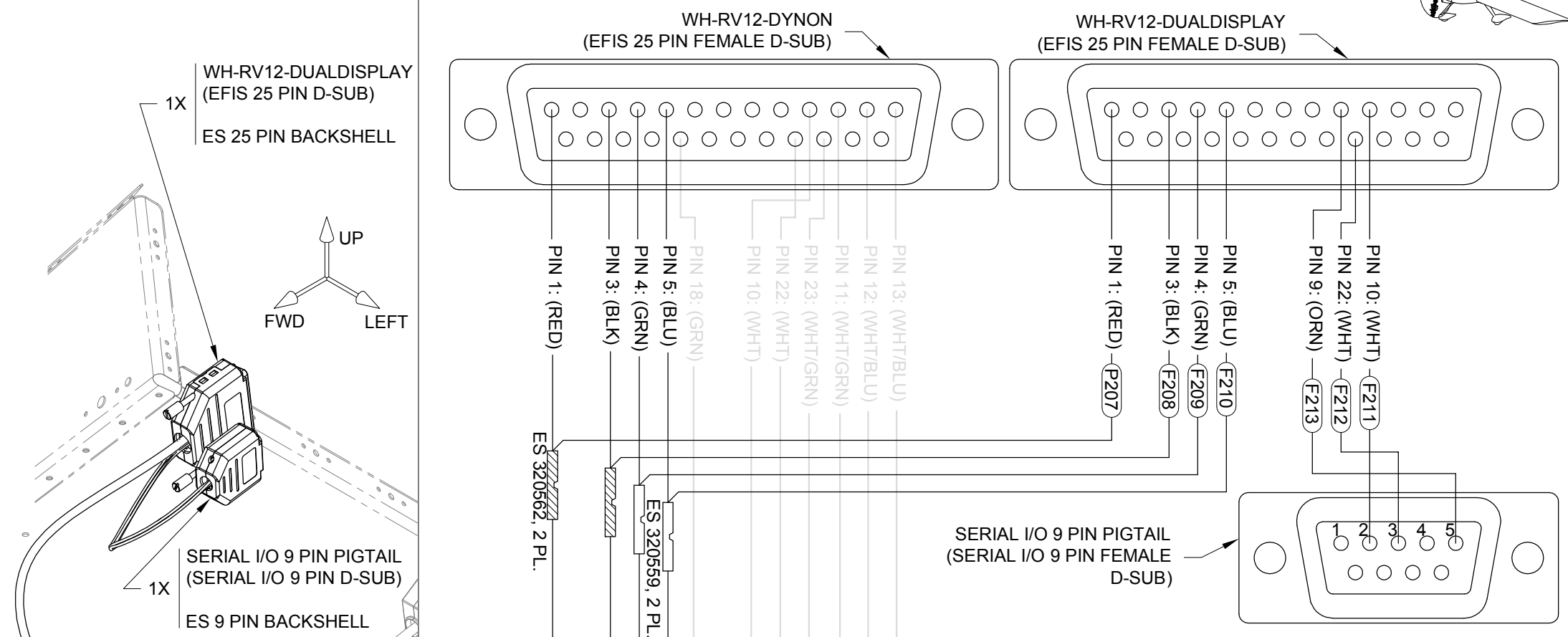
FIGURE 2: WIRING DIAGRAM
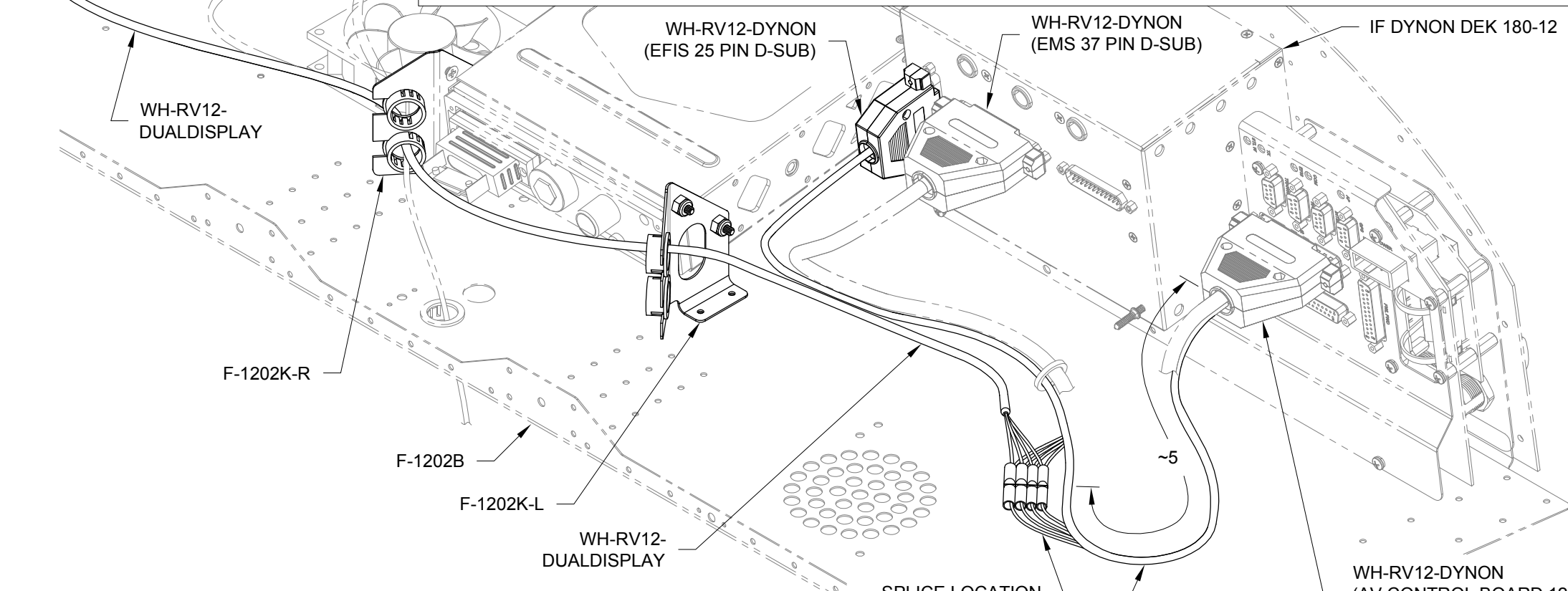(D-SUB REAR VIEW / PIN INSERTION SIDE)

FIGURE 1: EFIS WIRING HARNESS INSTALLATION
SOME PARTS AND COMPONENTS OMITTED FOR CLARITY

Step 1: Center the DYNON 100422-000 D-100 Series Mounting Tray behind the large cutout in the F-1202UD100 Instrument Panel Right EFIS as shown in Figure 1 and clamp it in place. Match-Drill #40 the holes in the instrument panel into the mounting tray. Cleco each hole after it is drilled.

Step 2: Remove and deburr the DYNON 100422-000 D-100 Series Mounting Tray. Machine countersink the #40 holes surrounding the D-100 cutout in the F-1202UD100 Instrument Panel Right EFIS for the head of the rivets that will attach the tray. See call-outs in Figure 1.

NOTE: See the call-out in Figure 1 for an optional blind rivet which may be used if it is not possible to squeeze the rivets in the locations shown.

Step 3: Rivet the DYNON 100422-000 D-100 Series Mounting Tray to the F-1202UD100 Instrument Panel Right EFIS per the call-outs in Figure 1.

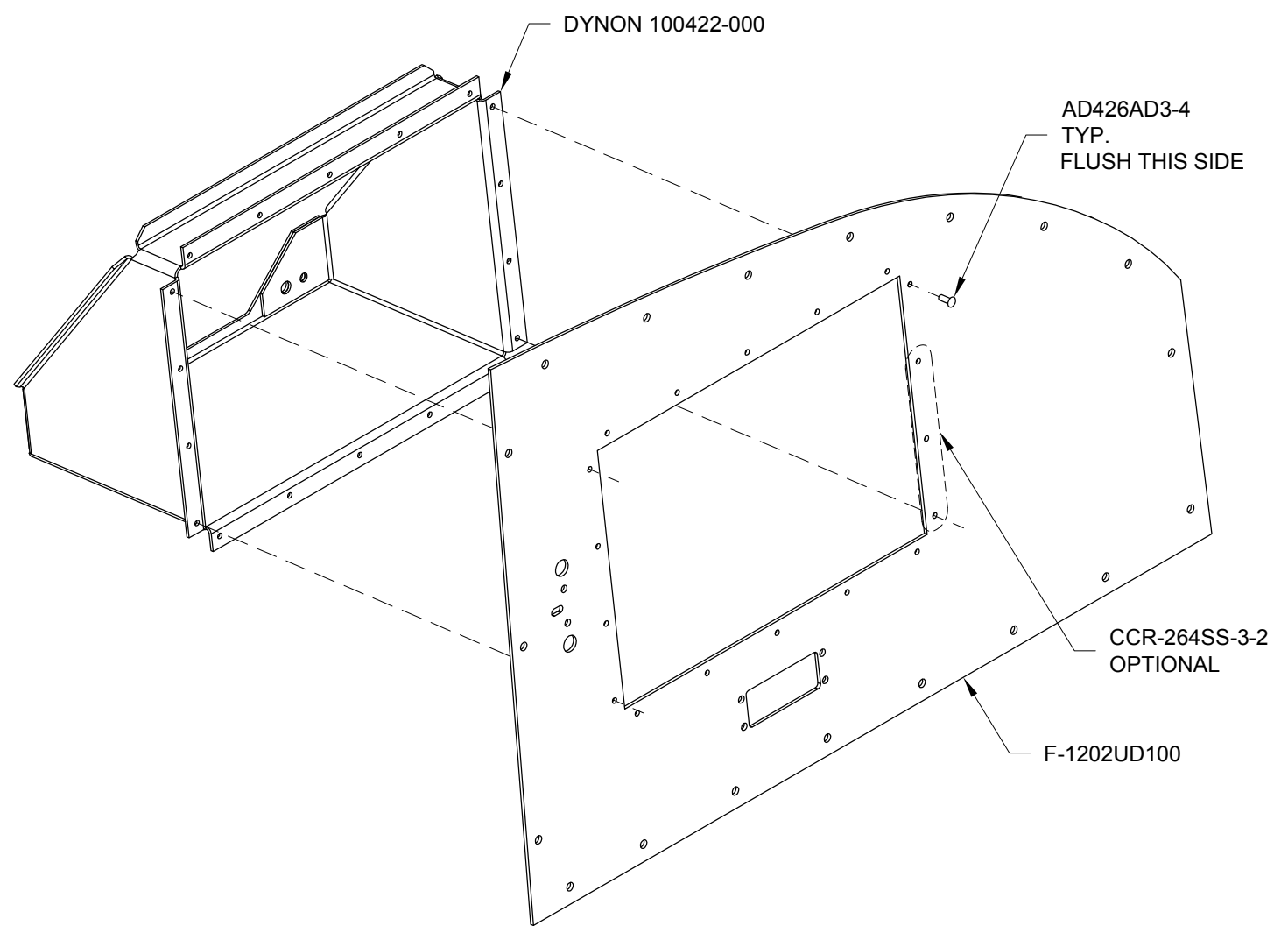**NOTE: Now is the time to paint the instrument panel if so desired.**

NOTE: Do not install the labels supplied with the elt. A new label is supplied in this kit.

Step 4 (PRECONST): Strip the end of the 453-0023 Ground Wire (BLK). See Figure 2.

Step 4 (POSTCONST): Proceed to Step 7.

Step 5: Crimp the ring terminal called out in Figure 2 onto the end of the 453-0023 Ground Wire (BLK).

Step 6: Refer to the instructions supplied with the ELT for the installation of a battery in the 453-0023 Self Powered Cockpit Remote Switch. Continue to the next step upon completion.

Step 7: Attach the 453-0023 Self Powered Cockpit Remote Switch to the back of the F-1202UD100 Inst. Panel Right EFIS using the instructions supplied with the ELT. See Figure 2.
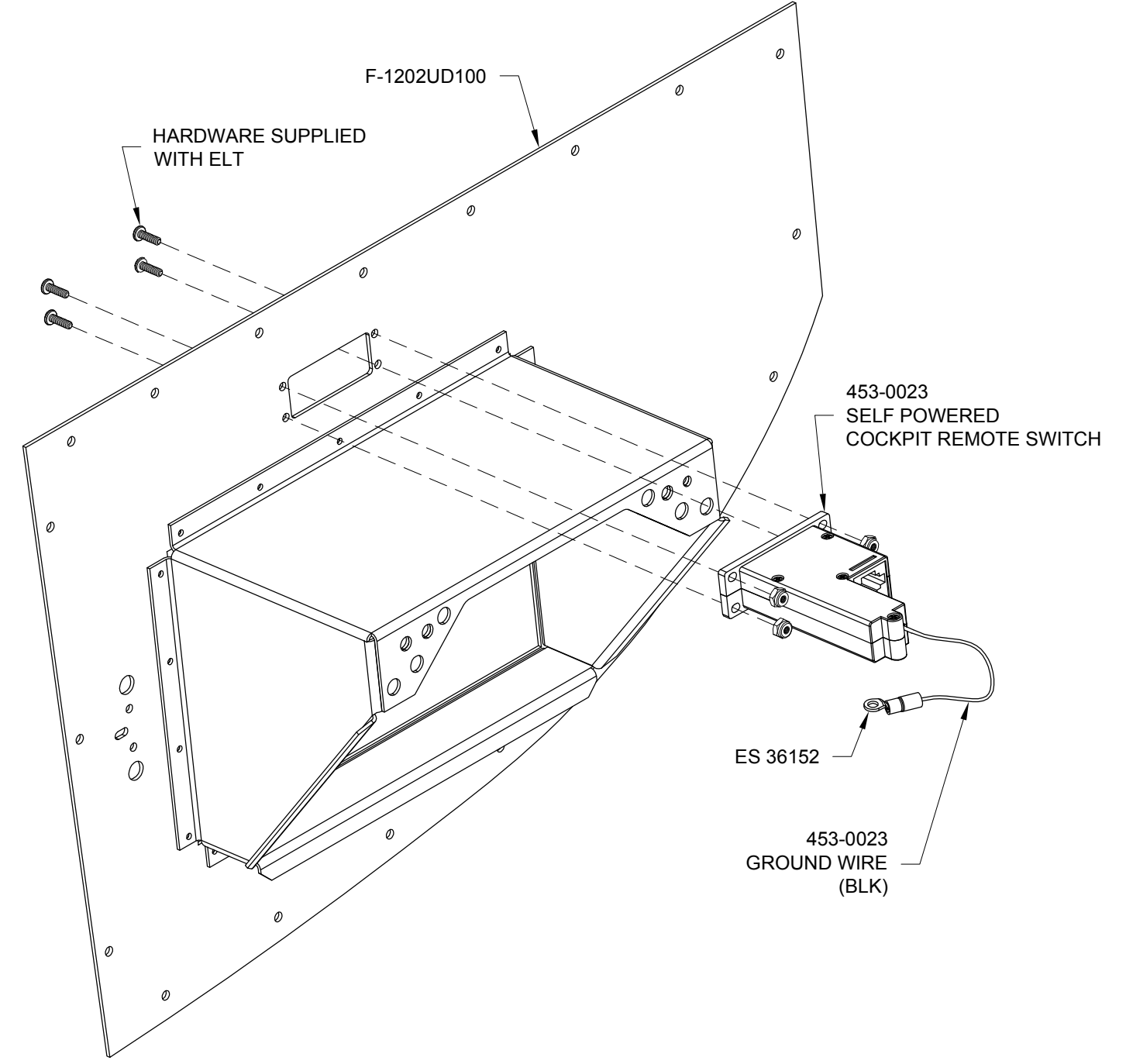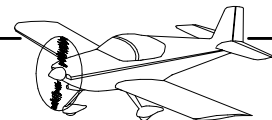

FIGURE 1: INSTALLING THE D-100 SERIES MOUNTING TRAY

FIGURE 2: INSTALLING THE ELT SELF POWERED COCKPIT REMOTE SWITCH

CAUTION: When installing the AV FC-403-12 Panel Mount Stereo Intercom use the "Small Intercom Faceplate Installation" instructions supplied with the intercom but _DO NOT_ enlarge the holes in the panel.

Step 1: Attach the AV FC-403-12 Panel Mount Stereo Intercom to the F-1202UD100 Instrument Panel Right EFIS. See Figure 1.

Use the side of the Faceplate designed for vertical positioning as shown in Figure 1. Attach the knobs so they point to the 7 o'clock position when rotated completely counterclockwise. Hereafter refer to this assembly as the Right Inst Panel Assembly.

Step 2: Attach the PLA ELT ON ARM Remote Switch Label to the Right Inst Panel Assembly as shown in Figure 1.

Step 3: Install the Right Inst Panel Assembly to the F-1202B Panel Base, F-1202J-R Inst Stack Angle and F-1202H-R Canopy Rib using the hardware called out in Figure 2.

F-1202UD100

AV FC-403-12

PLA ELT ON ARM

HARDWARE SUPPLIED WITH INTERCOM KIT

FACEPLATE
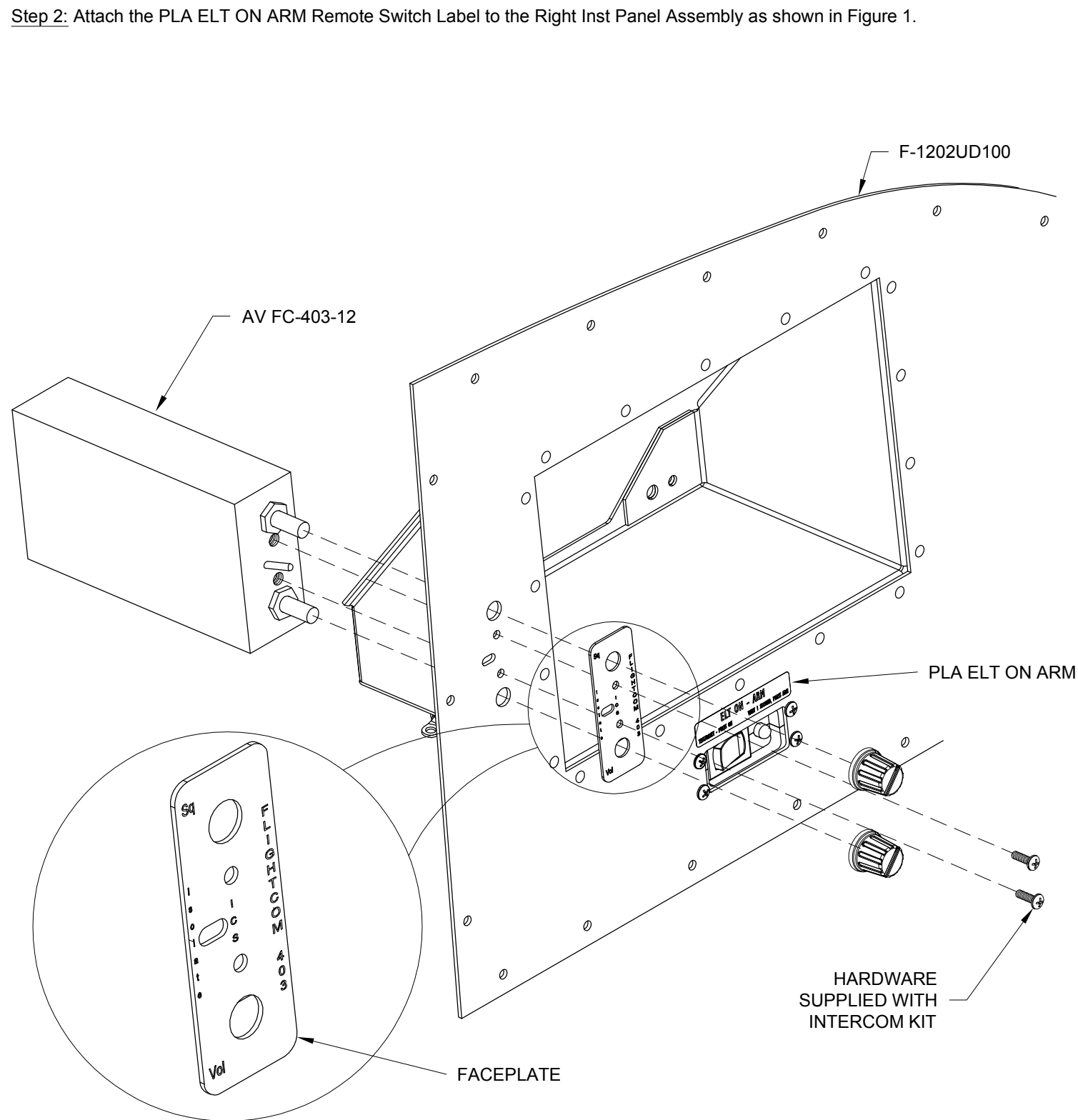
FIGURE 1: INSTALLING THE PANEL MOUNT STEREO INTERCOM

F-1202H-R

RIGHT INST PANEL ASSEMBLY

F-1202UD100

F-1202J-R

F-1202B

AN515-6R8, TYP.
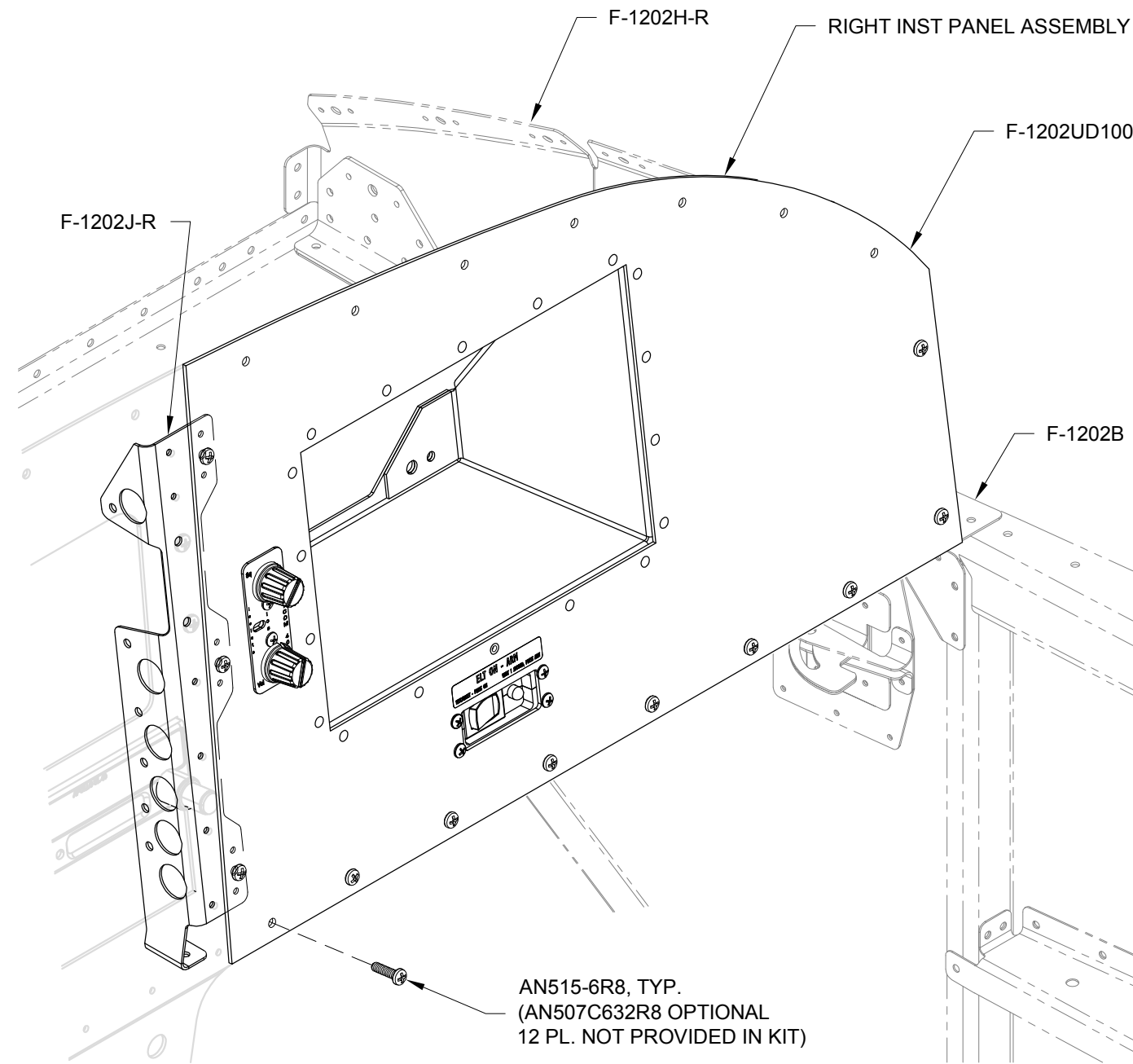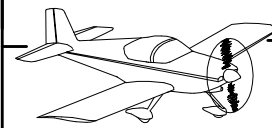(AN507C632R8 OPTIONAL
12 PL. NOT PROVIDED IN KIT)

FIGURE 2: INSTALLING THE INSTRUMENT PANEL RIGHT EFIS

Step 1: Remove the nut and screw from the aft right corner of the right ES CPU FAN as shown in Figure 1. Place the ring terminal which is on the end of the 453-0023 Ground Wire (BLK) and the ground ring terminal for the fan over the shank of the screw. Replace the screw and tighten the nut.

Step 2: Install the IF DYNON-D100 EFIS into the DYNON 100422-000 D-100 Series Mounting Tray using the instructions and allen wrench supplied by Dynon.

Step 3: Install the WH-RV12-DUALDISPLAY harness to the EFIS 25 PIN D-SUB Male Connector on the back of the IF DYNON-D100 EFIS.

Step 4: Attach the ES RS 279-374 Phone Cable to the back of the 453-0023 Self Powered Cockpit Remote Switch. Tie-wrap the 453-0023 Ground Wire (BLK) to the phone cable in two places for strain relief as shown in Figure 1.

Step 5: Attach the WH-RV12-FLTCOM403 Intercom Wiring Harness to the back of the AV FC-403-12 Panel Mount Stereo Intercom.

Step 6 (PRECONST): Route the free end of the WH-RV12-FLTCOM403 Intercom Wiring Harness forward of the AV GARMIN GTX 3XX(not shown) and through the snap bushing in the F-1202K-R Inst Stack Support or the F-12328-R Bracket(not shown), whichever is applicable and through the cushioned clamp aft of the left CPU Fan. Attach the harness to the back of the AV CONTROL BOARD 12.

Step 6 (POSTCONST): Proceed to the next page.

EFIS 25 PIN D-SUB
MALE CONNECTOR

IF DYNON-D100 EFIS

WH-RV12-DUALDISPLAY
(EFIS 25 PIN D-SUB)

DYNON 100422-000

F-1202UD100

AV FC-403-12

WH-RV12-FLTCOM403

CUSHIONED CLAMP

WH-RV12-
FLTCOM403

AV CONTROL
BOARD 12

UP
FWD   LEFT

453-0023

ES RS 279-374

TIE-WRAP 4 IN
2 PL.

453-0023
GROUND WIRE
(BLK)

ES CPU FAN

RING
TERMINAL

ES CPU FAN
ATTACH SCREW

ES CPU FAN
GROUND RING
TERMINAL

F-1202K-R

ES RS 279-374

F-1202B
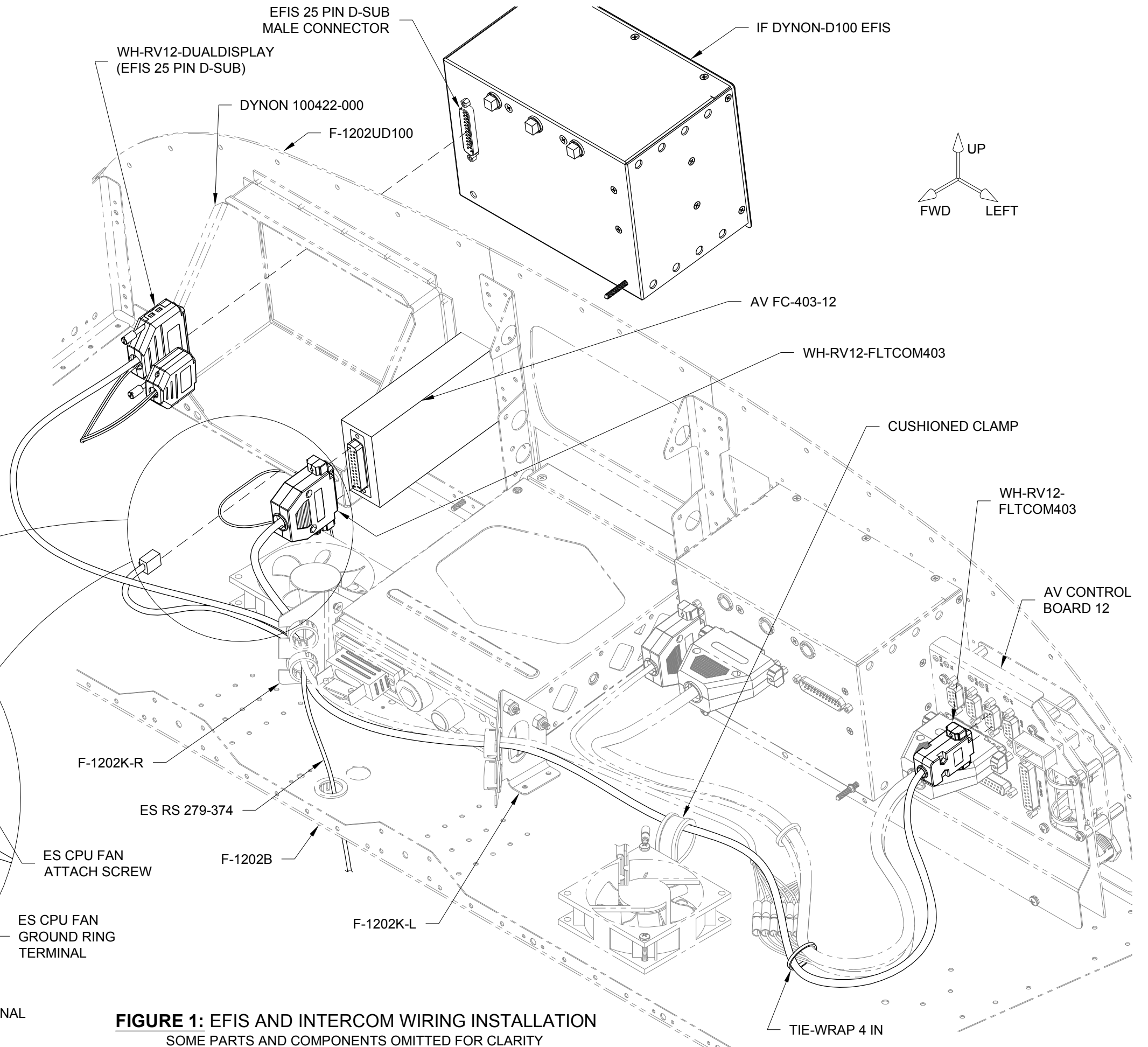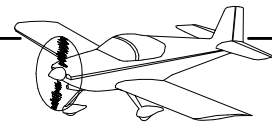
F-1202K-L

TIE-WRAP 4 IN

FIGURE 1: EFIS AND INTERCOM WIRING INSTALLATION
SOME PARTS AND COMPONENTS OMITTED FOR CLARITY

Step 1 (PRECONST): Peel the backing off the F-12123D Fuse Holder Label and stick it to the top of the F-12123A Fuse Holder as shown in Figure 1. Peel one side of the F-12123B Double Sided Velcro Tape off and place it on the bottom of the assembly.

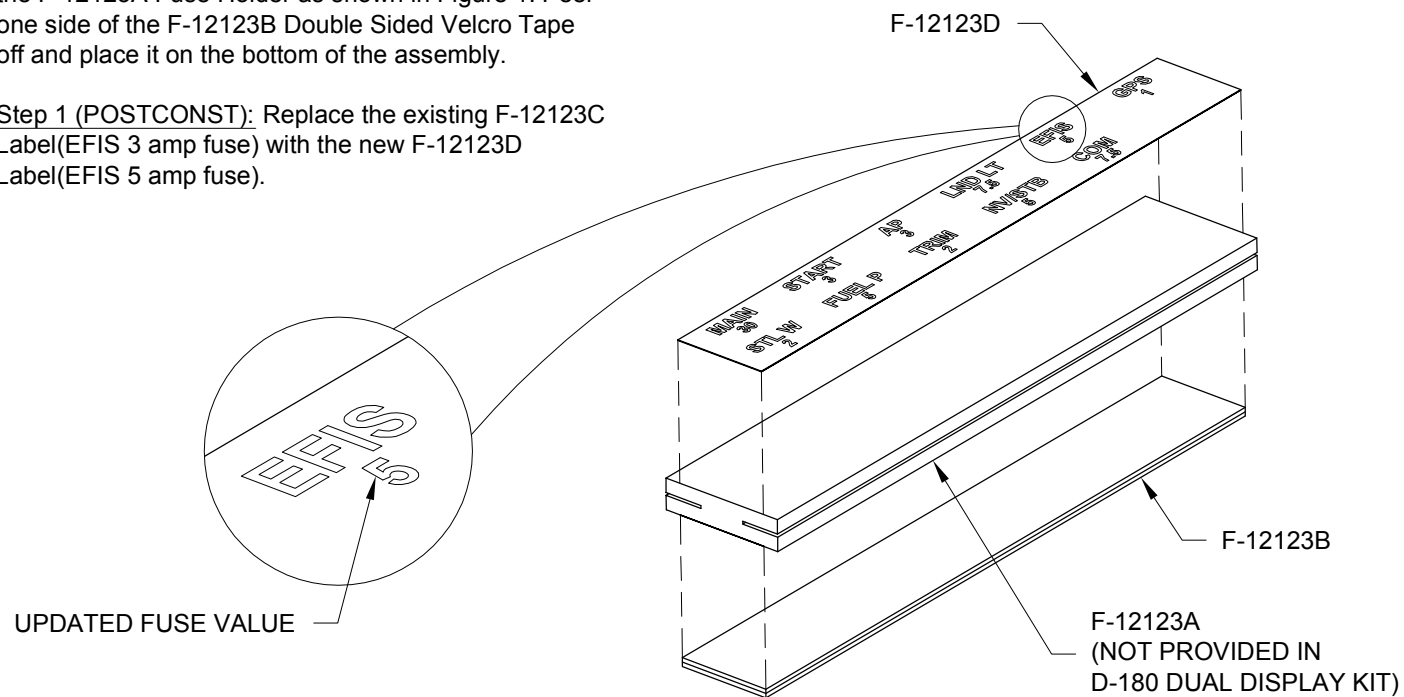Step 1 (POSTCONST): Replace the existing F-12123C Label(EFIS 3 amp fuse) with the new F-12123D Label(EFIS 5 amp fuse).

F-12123D

UPDATED FUSE VALUE

F-12123B

F-12123A
(NOT PROVIDED IN D-180 DUAL DISPLAY KIT)

FIGURE 1: INSTALLING LABEL AND VELCRO

Step 2 (PRECONST): Install a second set of fuses in the F-12123 Fuse Holder Assembly pertaining to the same fuse values shown on the F-12123C Fuse Holder Label as shown in Figure 2.

Step 2 (POSTCONST): Replace the Lighted 3 AMP Blade Fuse in the F-12123 Fuse Holder Assembly corresponding to "EFIS" with an ES-00205 Lighted 5 AMP Blade Fuse.

ES-00205

F-12123

SPARE FUSES
(NOT PROVIDED IN D-180 DUAL DISPLAY KIT)
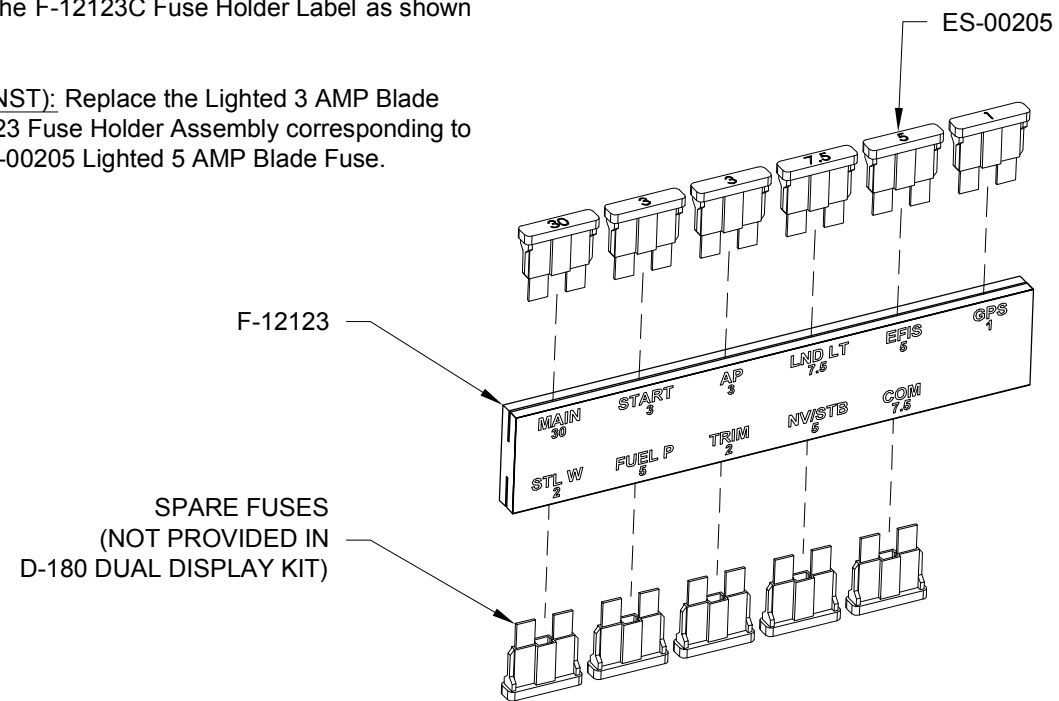
FIGURE 2: INSTALLING SPARE FUSES IN FUSE HOLDER ASSEMBLY

Step 4 (PRECONST): Peel off the backing of the other side of the F-12123B Double Sided Velcro Tape as shown in Figure 3.

Step 4 (POSTCONST): Remove and discard the redundant half of the F-12123B Double Sided Velcro Tape provided in the kit. Attach the remaining half to the back of the F-12123 Fuse Holder Assembly. Peel off the backing of the double sided velcro tape as shown in Figure 3.
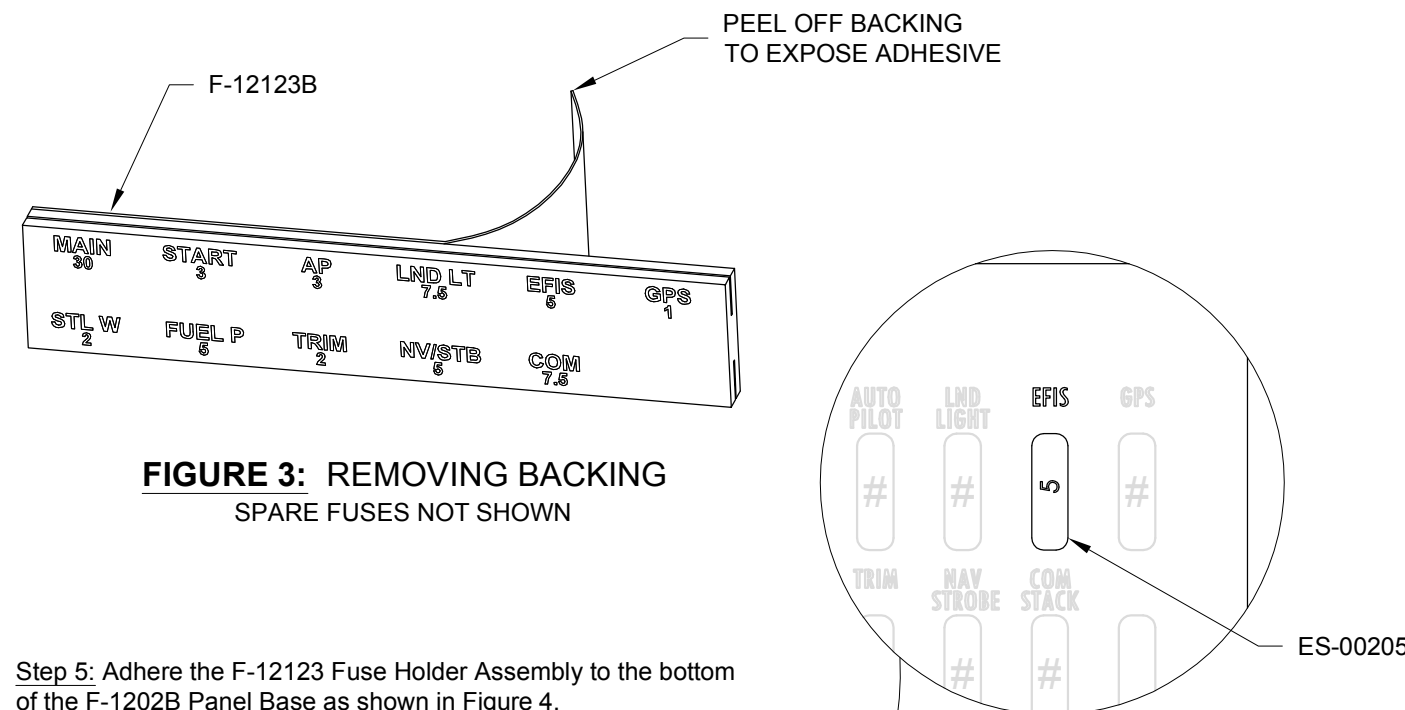
PEEL OFF BACKING TO EXPOSE ADHESIVE

F-12123B

FIGURE 3: REMOVING BACKING
SPARE FUSES NOT SHOWN

Step 5: Adhere the F-12123 Fuse Holder Assembly to the bottom of the F-1202B Panel Base as shown in Figure 4.

Step 6: Remove the existing 3 amp fuse for the EFIS and replace it with one ES-00205 5 Amp fuse for the dual EFIS in the AV CONTROL BOARD 12 .
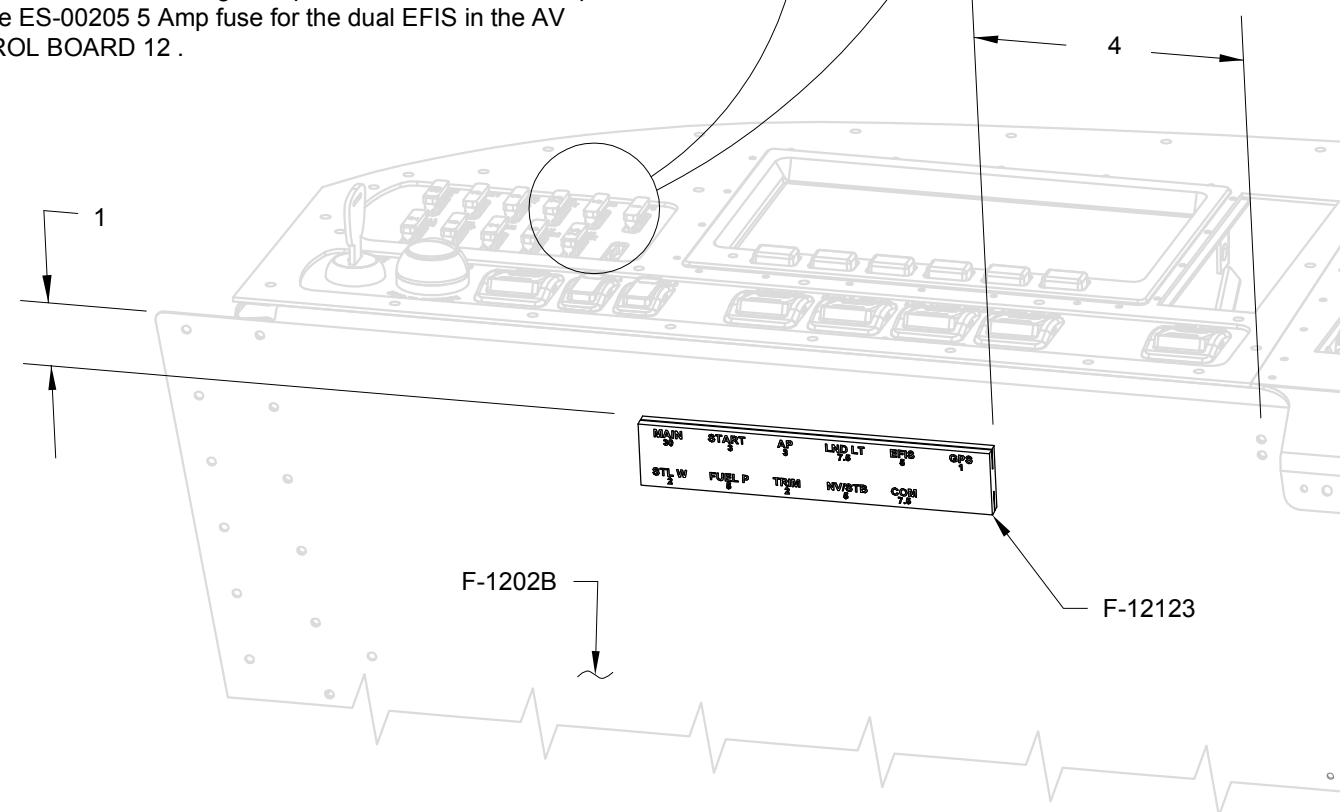
ES-00205

F-1202B

F-12123

FIGURE 4: INSTALLING FUSE HOLDER ASSEMBLY TO UNDERSIDE OF PANEL BASE
SPARE FUSES NOT SHOWN

VAN'S AIRCRAFT, INC.

Step 1: Make the F-12178 Pitot Line and the F-12179 Static Line from the PT 1/4OD TUBEX67 per the dimensions called out in Figure 1. Label the parts.
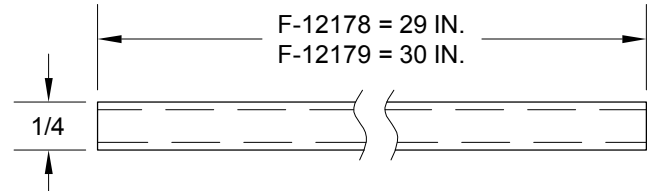
F-12178 = 29 IN.
F-12179 = 30 IN.
1/4

FIGURE 1:
MAKING THE PITOT & STATIC LINES

Step 2: Insert the FLF-00001 Brass Tee into the end of the F-12179 Static Line as shown in Figure 2.

Step 3: Cut the existing Static Line at the location shown in Figure 2.

Step 4: Insert the FLF-00001 Brass Tee into the ends of the existing Static Line.

Step 5: Route the free end of the F-12179 Static Line forward of the AV GARMIN GTX 3XX(not shown) and through the snap bushing in the F-1202K-R Inst Stack Support or the F-12328-R Bracket(not shown), whichever is applicable as shown in Figure 2.

Step 6: Remove the plastic plug from the static port of the IF DYNON-D100 EFIS.

Step 7: Remove the male nylon fitting from the F N4MC-2 Nylon 1/4 Straight assembly.

Step 8: Install (hand tight) the male nylon fitting from the F N4MC-2 Nylon 1/4 Straight into the back of the IF DYNON-D100 EFIS as shown in Figure 2.

Step 9: Install the nut, metal keeper, nylon collar and O-ring seal from the F N4MC-2 Nylon 1/4 Straight onto the male nylon fitting in the back of the IF DYNON-D100 EFIS so that three threads of the male fitting are visible.

Step 10: Install the F-12179 Static Line into the F N4MC-2 Nylon 1/4 Straight by cutting the tube(static line) squarely and remove any burrs.

Mark the end of the tube 5/8" from the end.

Moisten the end of the tube with water.

Push tube straight into fitting until it bottoms on the fitting's shoulder.

Tighten nut by hand. Additional tightening should not be necessary, but 1/4 additional turn may be added if desired. DO NOT OVER TIGHTEN nut or threads will strip and the fitting will not function properly. A proper assembly will not show the insertion mark extending beyond the nut. If the insertion mark is visible, then repeat this step.

Step 11: Repeat Steps 2-10 for the F-12178 Pitot Line after completing Section 45.

Step 12: Tie-wrap F-12178 Pitot Line, F-12179 Static Line and WH-RV12-DUALDISPLAY harness together as shown in Figure 2. Tie-wrap the SERIAL I/O 9 PIN PIGTAIL to the Pitot/Static Lines at a point just forward of the ES 9 PIN BACKSHELL.

IF DYNON-D100 EFIS
DO NOT REMOVE PLUG
PITOT PORT
STATIC PORT
F-12178
F-12179
ES 9 PIN BACKSHELL
SERIAL I/O 9 PIN PIGTAIL
PLASTIC TIE WRAP 4 IN.
F-1202K-R
STATIC SOURCE
PITOT SOURCE
F-12178
F-12179

NYLON COLLAR
NYLON NUT
F N4MC-2 NYLON 1/4 STRAIGHT 2 PL.
F N4MC-2 (MALE NYLON FITTING)
O-RING SEAL
METAL KEEPER

EXISTING PITOT LINE (SECTION 45)
EXISTING STATIC LINE (SECTION 42)
F-12178
(STATIC SOURCE)
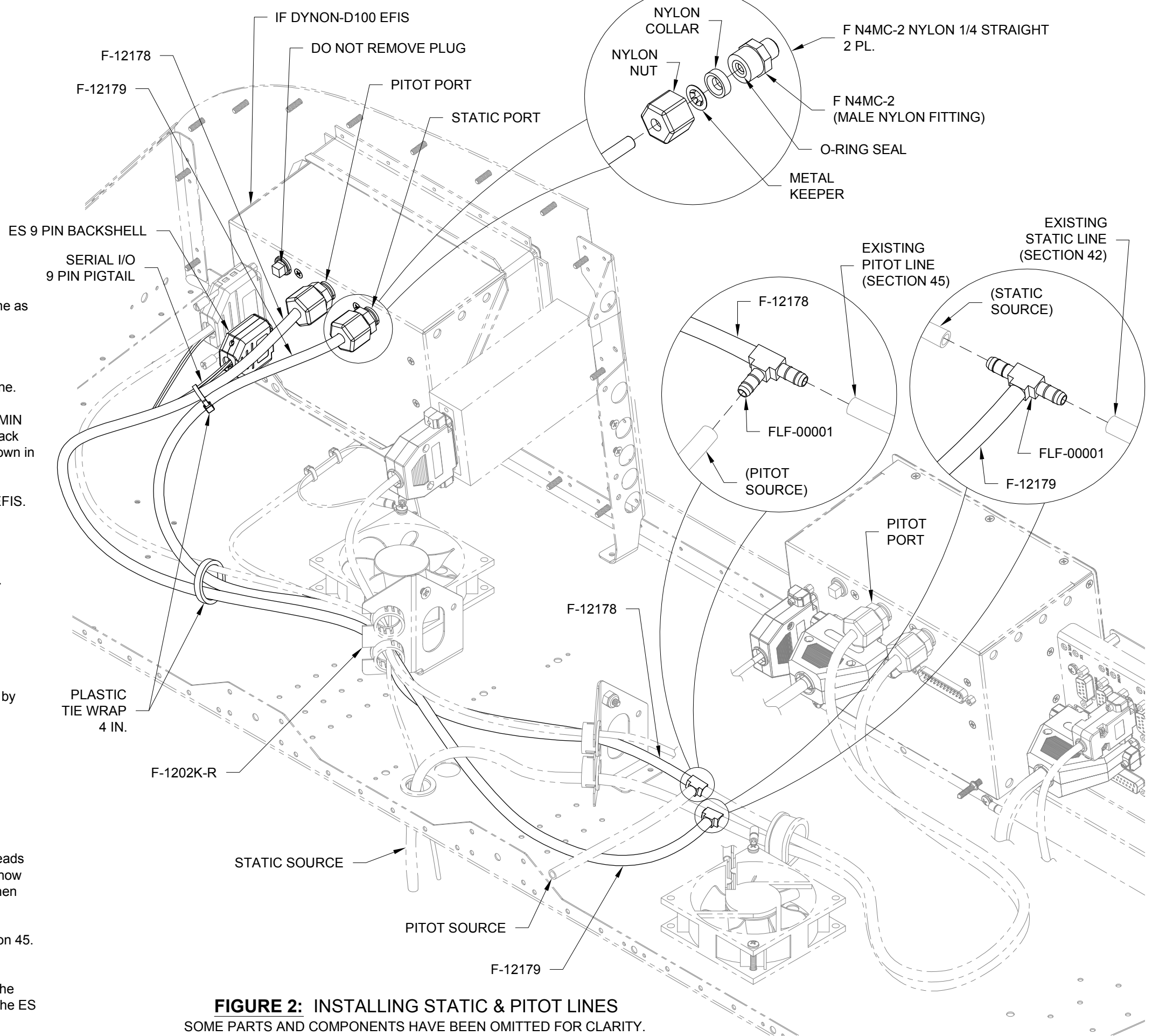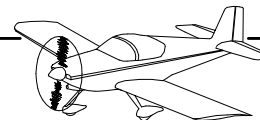FLF-00001
(PITOT SOURCE)
FLF-00001
F-12179

PITOT PORT

FIGURE 2: INSTALLING STATIC & PITOT LINES
SOME PARTS AND COMPONENTS HAVE BEEN OMITTED FOR CLARITY.

Step 1: Turn the master switch to the on position and power up the D100 to check that it is receiving power.

Step 2: Refer to the D180 and D100 installation instructions for further assistance.

Step 3: Proceed with the assembly instructions in Section 44 or 45, whichever is applicable.

NOTE: Any weight and balance information recorded for the aircraft must be updated. Depending on the state of your kit some steps may not be applicable.

Step 4: In the RV-12 Maintenance Manual (MM) "INSTALLED EQUIPMENT LIST" table, add "D-180 DUAL DISPLAY" to the "ITEM" column. On the same line add a checkmark to the "INSTALLED" column.

Enter 2.8 lb for "Weight", 57.5 in for "Location/Arm" and 161 in-lb "Moment" onto the same line as "D-180 DUAL DISPLAY".

NOTE: Steps 5-7 on this page are only applicable if a final weight and balance as specified in the PAP has been completed.

Step 5: In the RV-12 Pilot Operating Handbook (POH) "YOUR AIRPLANE" table, enter the new total values for the arm, weight, and moment of the installed equipment.

Step 6: In the RV-12 POH "YOUR AIRPLANE" table, recalculate and enter new values for the Empty Weight, Empty Moment, and Empty Arm.

Step 7: Make an entry, as calculated in the previous step, on the WEIGHT AND BALANCE RECORD page of the RV-12 Maintenance Manual as follows:

As of this date: ___/___/___ the following values represent current Weight and Balance calculations resulting from the installation of the D-180 Dual Display Optional Kit.

Revised Empty Weight: _____ lbs
Revised Empty Moment: _____ in-lbs
Revised Empty Arm: _____ in   Signed: _____

NOTE: The remaining steps on this page are only applicable for aircraft which have passed a final airworthiness inspection.

Step 8: Make an appropriate entry in the airframe logbook. See example below:

Installed the D-180 DUAL DISPLAY option in accordance with Van's Aircraft KAI Section 43 and confirmed proper operation.

Signature _____ Certificate # _____

Step 9: Section complete.

PART NO.	DESCRIPTION	WEIGHT(LBS)	ARM(IN.)	MOMENT(IN-LBS)
DYNON 100422-000	DYNON TRAY	0.4046	56.8913	23.0178
F-1202U	MAP BOX PANEL	-0.6783	58.5801	-39.7343
F-1202UD100	D100 INSTRUMENT PANEL	0.6104	58.6432	35.7939
F-12175	POH TRAY	0.0748	55.6050	4.1593
F-12176	TUNNEL POCKET	0.2132	59.1903	12.6194
F-12177	POCKET BASE	0.0112	60.8010	0.6810
IF DYNON-D100 EFIS	D100	2.6500	56.6557	150.1376
MAP BOX	MAP BOX ASSEMBLY	-0.7549	54.0437	-40.8002
MISC PARTS & HDW		0.2826	55.0000	15.5409
SUM		2.81 LBS		161 IN-LBS

DELTA WEIGHT = 2.8 LBS   DELTA MOMENT = 161 IN-LBS

TABLE 1: WEIGHT AND BALANCE ADJUSTMENT FOR D-180 DUAL DISPLAY OPTION

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