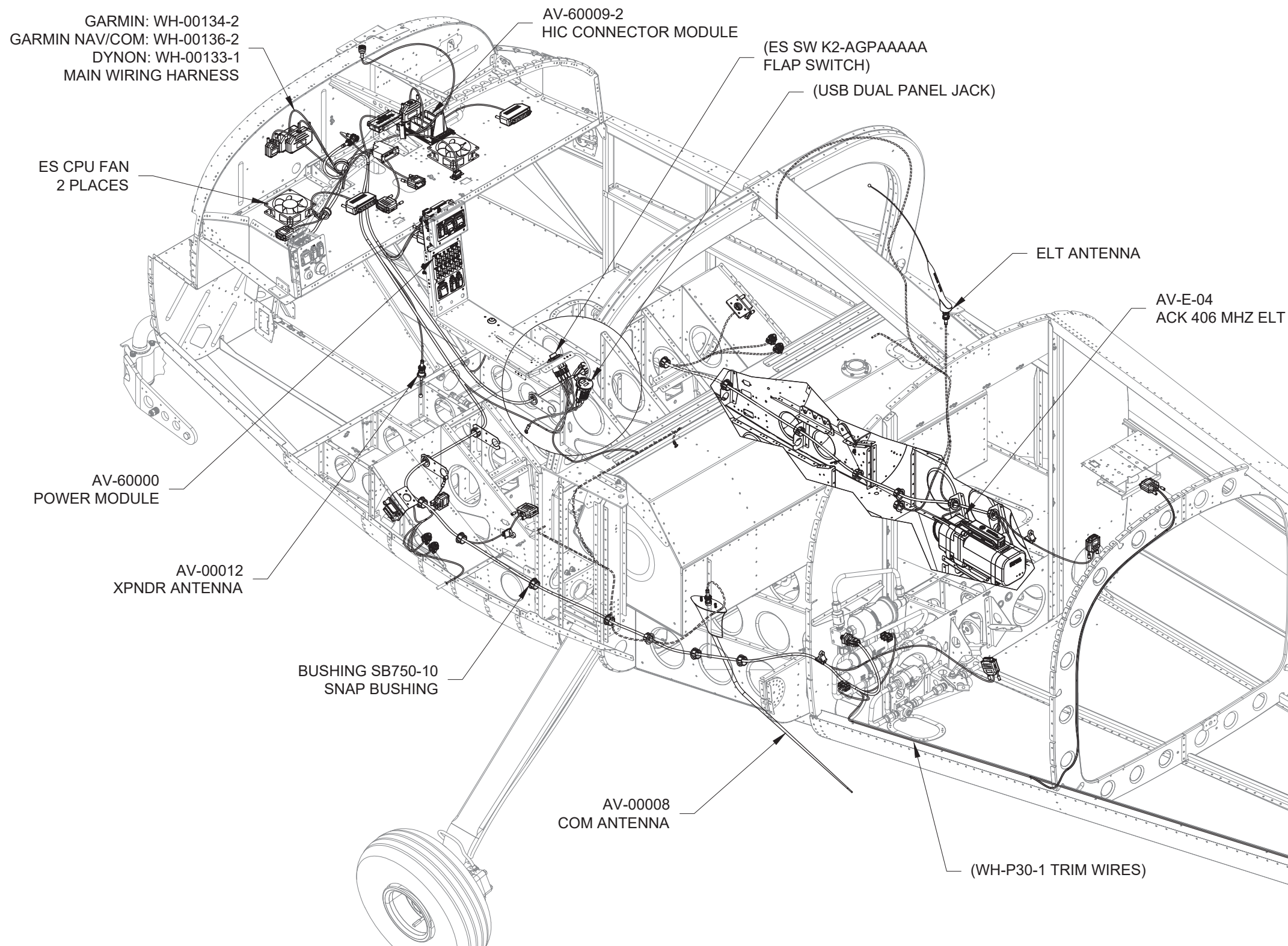


SECTION 42MiS/U: COMMON ELECTRICAL



NOTE: This page only applies to Rotax 912iS engine installations. Builders using the Rotax 912ULS may skip to the next page.

NOTE: This page only applies to early F-01202B-1 bulkheads which do not have the following holes pre-punched. Compare the holes in your existing F-01202B-1 to those called out in Figure 1 to determine if they need to be drilled.

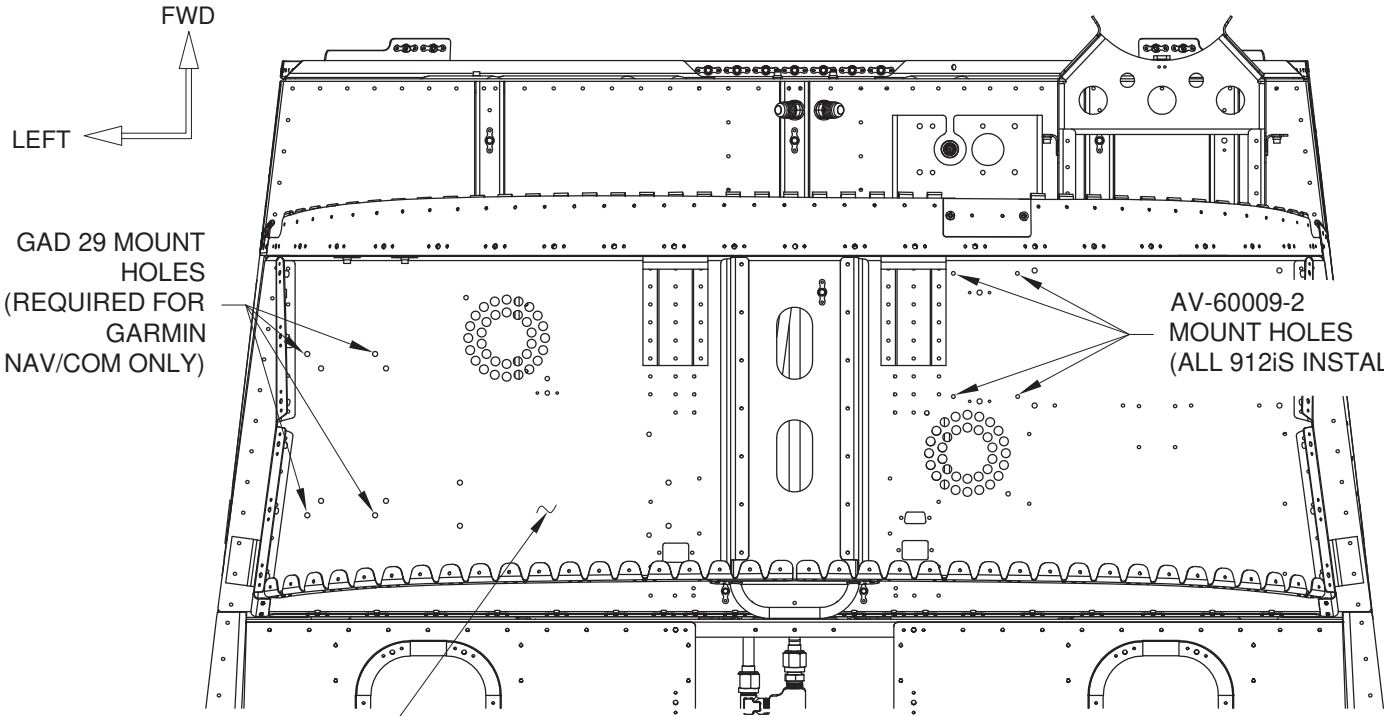


FIGURE 1: F-01202B-1 REQUIRED HOLES

Step 1: Cleco the TOOL-00005 to the F-01202B-1 and match-drill the four holes into the F-01202B-1 as shown in Figure 2.

Step 2: From the bottom, machine countersink through the F-01202C and F-01202B-1 in the locations shown in Figure 2 and the Detail View.

NOTE: Steps 3 and 4 only apply to Garmin Nav/Com avionics kit installations. Builders using the standard Garmin or Dynon Avionics kits may skip to the next page.

NOTE: The GAD 29 Drill Guide needs to be separated from the TOOL-00004 RV-12iS Drill Templates, Garmin. See Page 42NiS-08.

Step 3: Locate the GAD 29 Drill Guide on the F-01202B-1 with temporary fasteners as shown in Figure 2. Match-drill the two holes shown in the Detail View of Figure 2. Ensure the orientation notch is positioned as shown.

Step 4: Remove the GAD 29 Drill Guide from the F-01202B-1, flip it over, then relocate and match-drill the other two holes in the F-01202B-1 as shown in Figure 2.

Step 5: Remove the GAD 29 Drill Guide and TOOL-00005 from the F-01202B-1. Deburr the F-01202B-1.

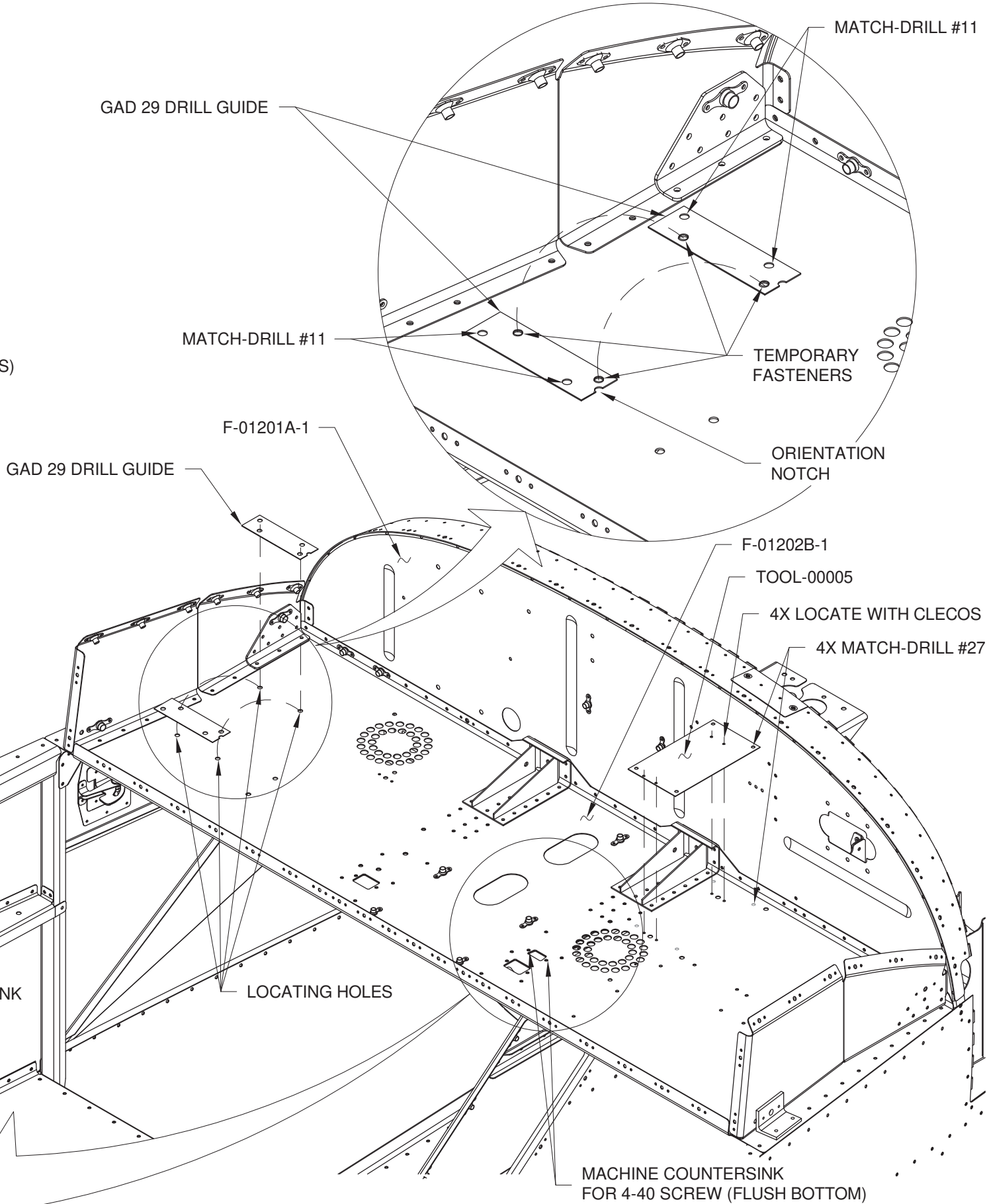
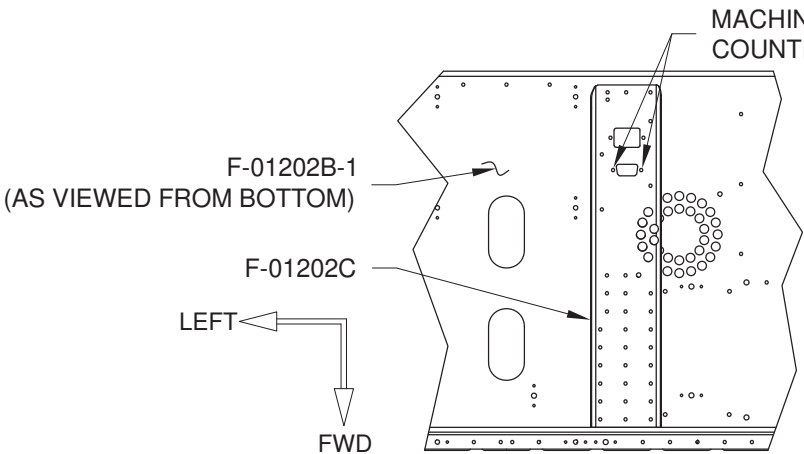
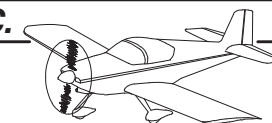


FIGURE 2: PREPARING THE F-01202B-1



NOTE: See Section 5.21 for more information on attaching electrical connectors.

Step 1: Cut the ES CPU FAN wires to length on both fans, then crimp the electrical connectors as shown in Figure 1.

NOTE: Do not over tighten the screws holding the ES CPU FANS. This can bend and break the attach ears on the fans.

NOTE: The screws used to install the ES CPU FANS are electrical grounds. The surface of the F-01202B-1 that is under the head of these screws should be free of paint and primer.

NOTE: Step 3 only applies to builders installing a 912iS engine.
Builders installing a 912ULS may skip to the next page.

Step 3: Install the AV-60009-2 onto the F-01202B-1 with the F-12335 towards the aft of the aircraft, using the hardware called out in Figure 2.

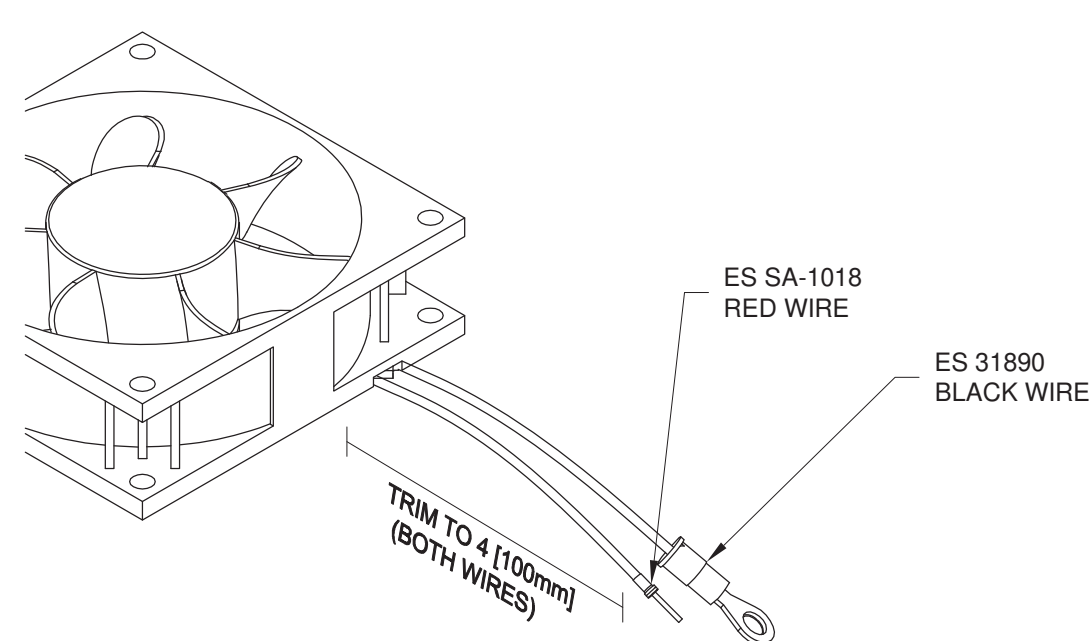


FIGURE 1: FAN CONNECTORS

Step 2: Install both ES CPU FAN's using the hardware called out in Figure 4. Place the left side fan upside down, so that the wires exit the top of the fan body. Install the grounding ring terminal (on the black wire) under the nut on the nearest screw holding the fan in place. The red wire will be connected later in this section.

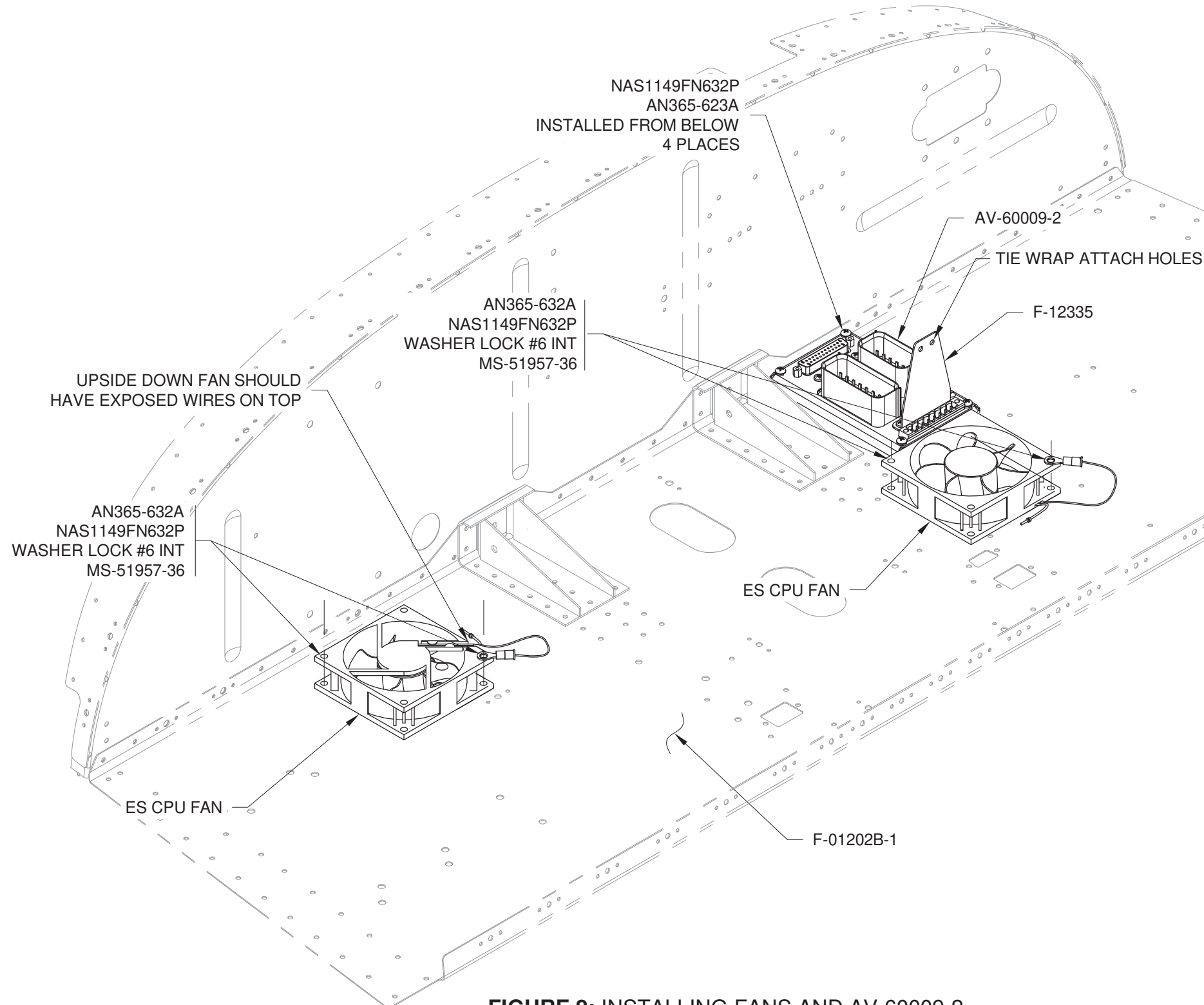
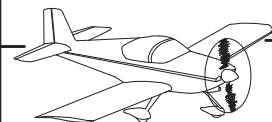


FIGURE 2: INSTALLING FANS AND AV-60009-2



Step 1: Install the AV-00012 to the F-01272-1 using the hardware provided with the antenna as shown in Figure 1.

Step 2: Install the AV-00008 to the F-01276-1 and F-00020 as shown in Figure 1.

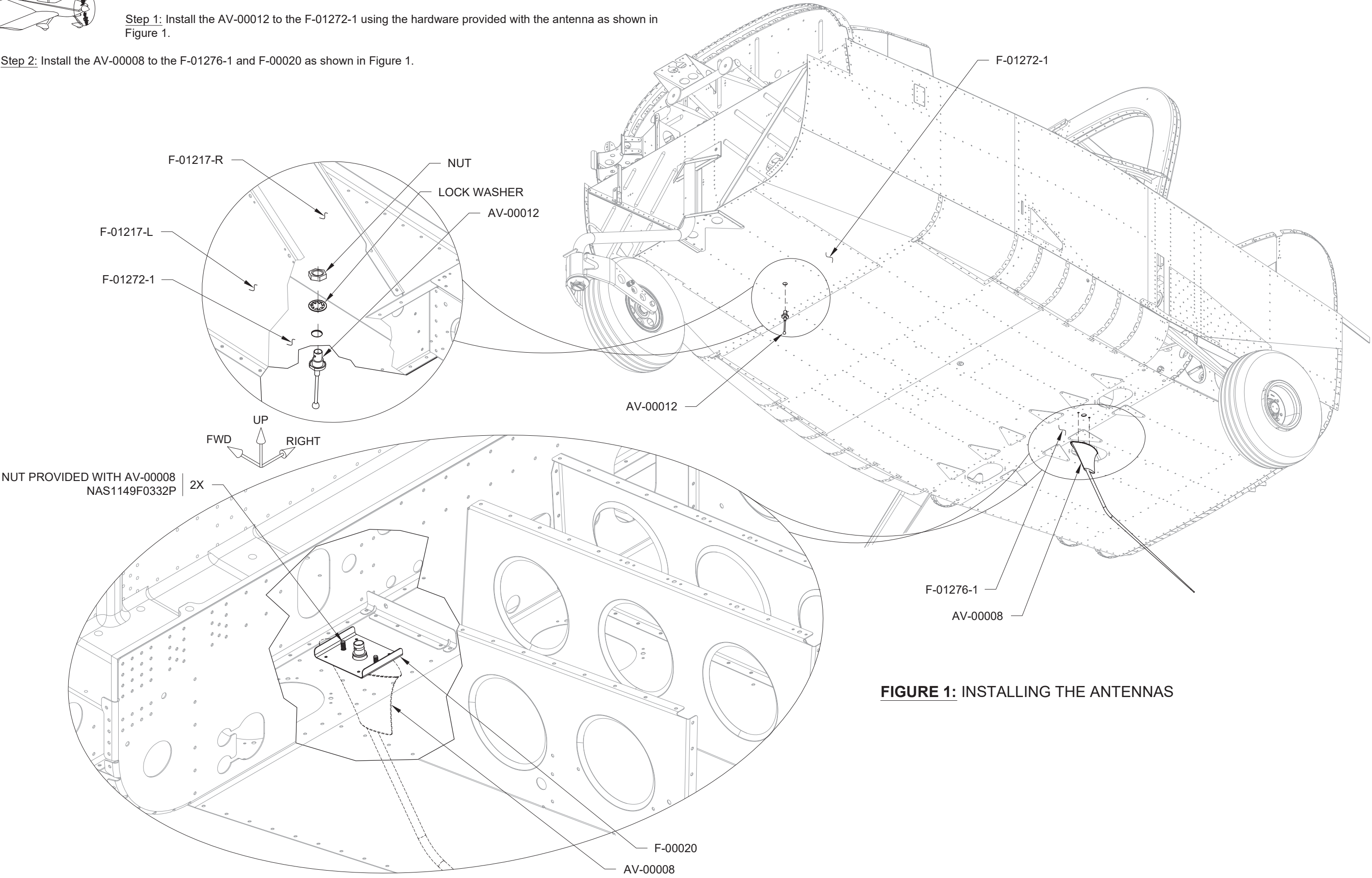


FIGURE 1: INSTALLING THE ANTENNAS



NOTE: Installation of the Pilot Stick Grip is shown on pages 42MiS/U-05 and 42MiS/U-06. Repeat and mirror the steps for the Co-Pilot Stick Grip.

NOTE: When drilling the hole in Step 1, make sure the drill bit will not be drilling through any welds in the WD-01212-1. The dimensions provided should put the hole in an acceptable location.

Step 1: Carefully drill #11 the WD-01212-1 Control Stick as shown in the Detail View in Figure 1 below.

Step 2: Install the included 7/8 [22.2 mm] I.D. CS-G405 Spacer onto the top of the WD-01212-1 until the ends of both are flush as shown in Figure 1 and Figure 2.

NOTE: The pilot hole drilled in Step 3 should only be drilled in the CS-G405 control head, it will be transferred to the CS-G405 spacer and WD-01212-1 in a later step. Additionally, the hole should only be through one side.

Step 3: Drill #40 the pilot hole in the CS-G405 control head at the location shown in Figure 2.

Step 4: Position the CS-G405 control head onto the CS-G405 spacer and WD-01212-1. The CS-G405 control head can be positioned for pilot comfort. Most pilots will find it ergonomic to turn the front slightly inboard (approximately 15 to 30 degrees towards center.) See Figure 1. Lightly clamp the GS-G405 Control Head in place when satisfied with its positioning.

NOTE: Apply very light pressure while drilling the hole in Step 5 to make sure the drill bit does not break through and damage the CS-G405 wires inside the WD-01212-1.

Step 5: Match-drill #30 the hole through the CS-G405 Spacer and WD-01212-1 as shown in Figure 2. Remove the CS-G405 control head and deburr all drilled holes.

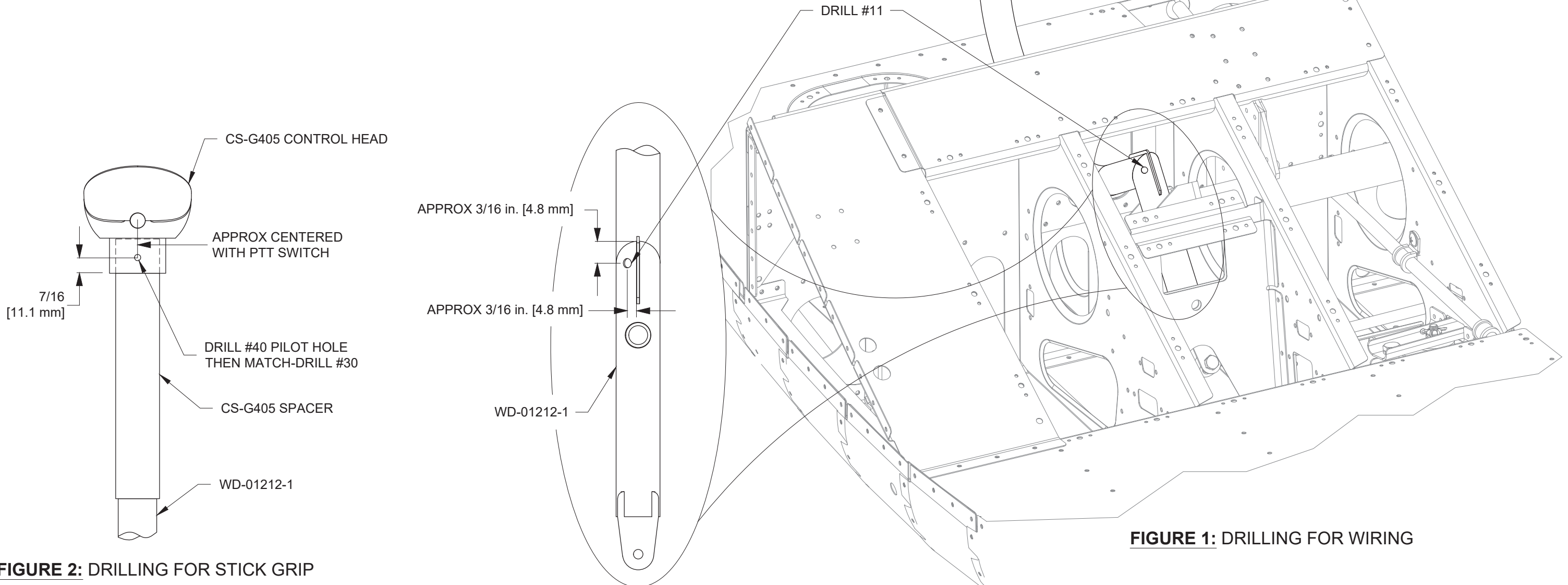


FIGURE 2: DRILLING FOR STICK GRIP

FIGURE 1: DRILLING FOR WIRING



Step 2: Feed a piece of safety wire through the lower drilled hole in the WD-01212-1 until a short length is sticking out of the top. Use a piece of heatshrink or tape to temporarily attach the wires from the CS-G405 control head to the safety wire, then pull them through the WD-01212-1 and out the hole at the bottom. See Figure 2. Remove the safety wire once the control head wires are through the bottom hole.

Step 4: Install the snap bushing into the WD-01212-1 and trim the ends of the wires to the length shown in Figure 1. Cut a piece of heat shrink in half and slide both halves over the wires.

Shrink one of the halves on between the gusset and the pivot in the WD-01212-1, and secure it with a tie-wrap. See Figure 1.

NOTE: When installing wire pins into d-sub connectors, gently pull test each wire after insertion to verify it has hooked into the connector body. If a pin is inserted into the wrong location, remove it using the TOOL ICM INSRT/EXTRCT tool available through Van's Aircraft.

NOTE: See Section 5.21 for more information on crimping d-sub terminals.

Step 5: Crimp ES SA-1018 D-Sub Pins onto the ends of the wires coming out of the Control Stick.

Insert the socket pins into a d-sub 9-pin connector per the locations shown in Figure 1.

Step 6: Trim off the hatched area of the backshell, then install the backshell over the connector and shrink the remaining heatshrink per Figure 1 and Section 5.21

Step 7: Apply the included CS-G405 labels to the CS-G405 control head as shown in Figure 3. If not installing an autopilot, label the left button "INOP" instead of "AP DISC". Location of labels should be identical for pilot and copilot stick grip; do not mirror the layout.

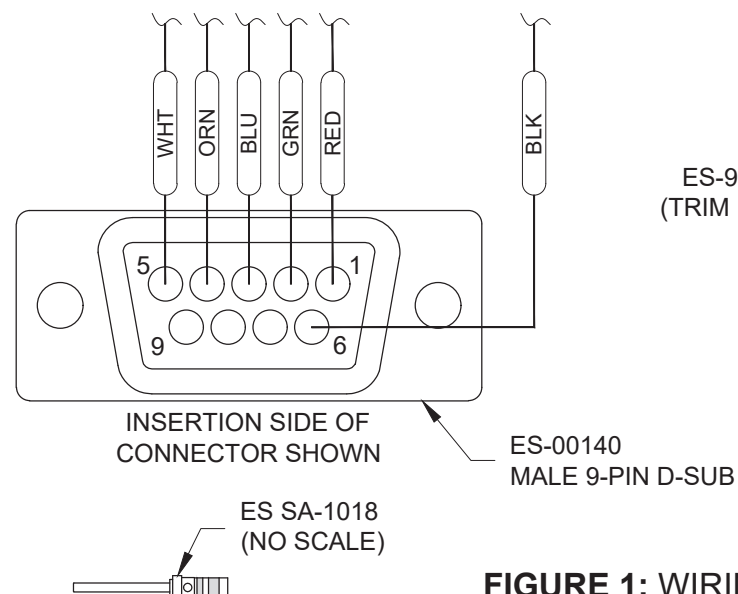


FIGURE 1: WIRING CONNECTOR

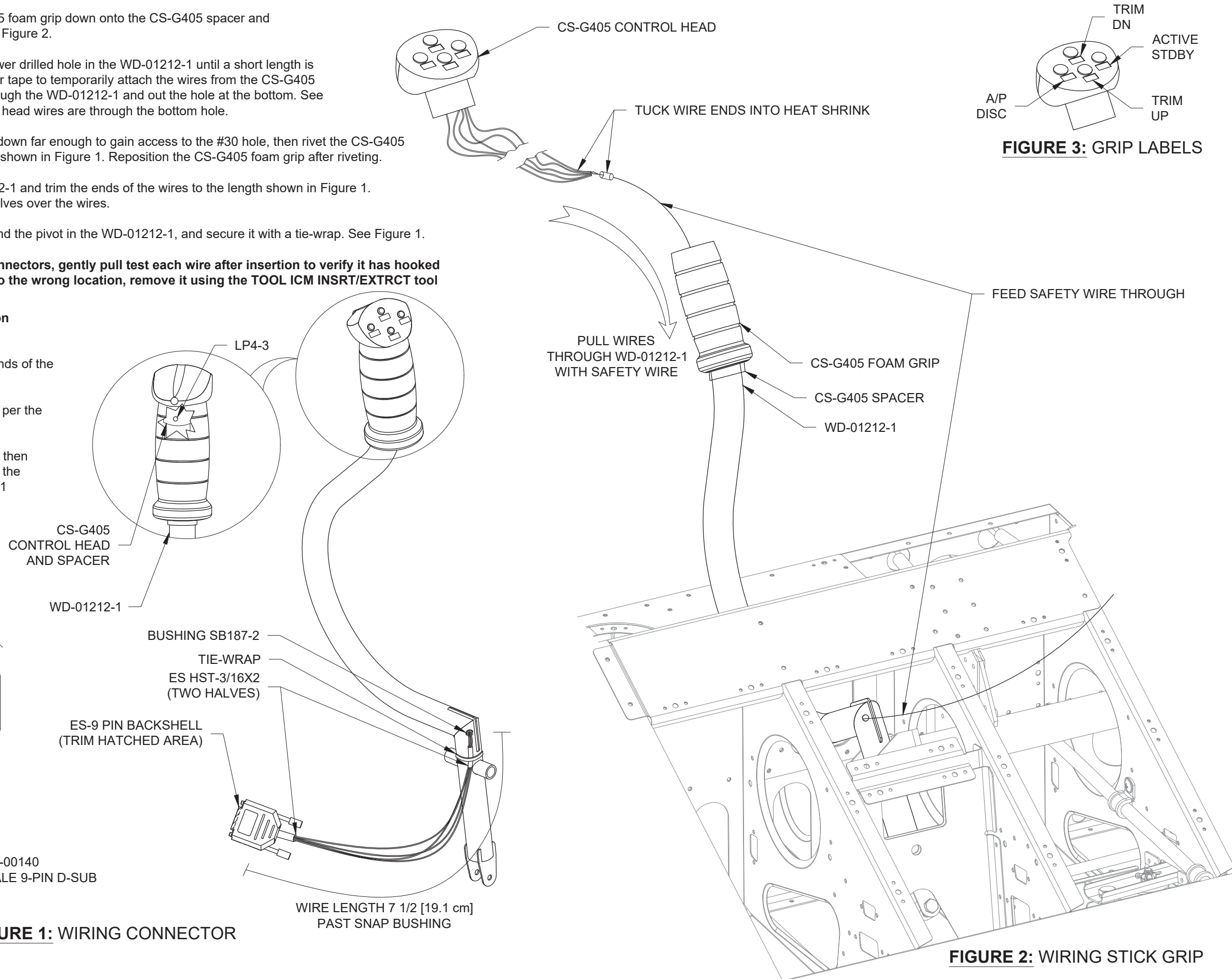
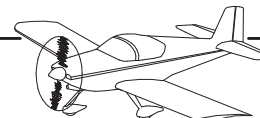


FIGURE 2: WIRING STICK GRIP



NOTE: When installing the ELT mounting tray and straps, make sure the mounting screws pass through the holes in the straps (in addition to the holes in the tray).

Step 1: Install the E-04.4 ELT Mounting Tray, E-04.4.1 Front Battery Strap, and E-04.4.2 Rear Retaining Strap onto the F-12107A as shown in Figure 1.

NOTE: If a log book has not already been started for the aircraft, purchase a log book for the airframe (Van's part BOOK LOG ENG/AF). The expiration date of the batteries installed in all ELT components must be recorded in the aircraft log book.

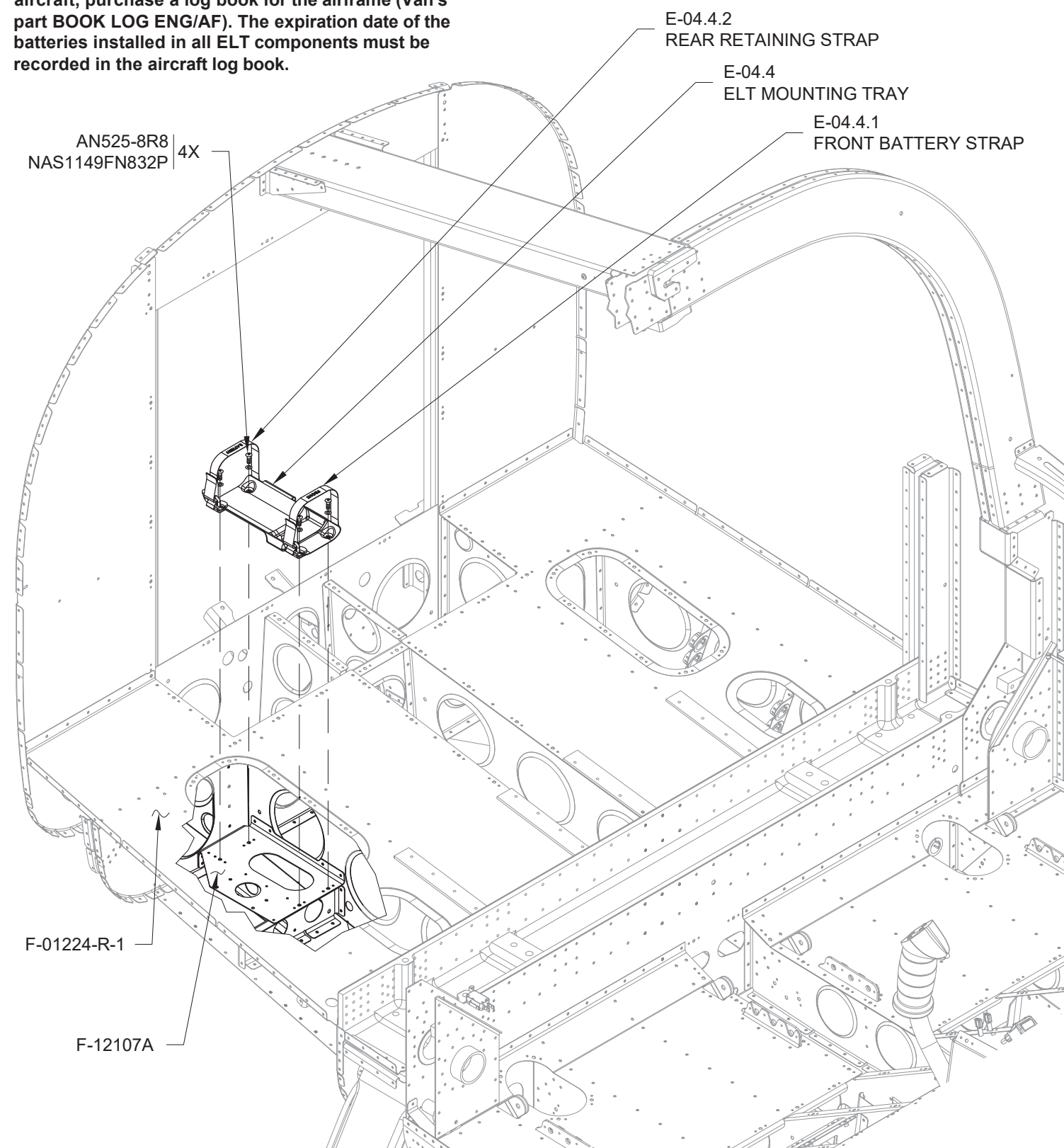


FIGURE 1: INSTALLING THE ELT MOUNTING TRAY

Step 2: Purchase, then install the internal battery in the E-04.7 ELT Audio Alert. See the instructions provided with the AV-E-04 ACK 406 Mhz ELT. Record the battery expiration date in the aircraft log book.

Insert the mating wire from the E-04 Transmitter Assembly into the appropriate end of the E-04.7.

Step 3: Install and latch the E-04 Transmitter Assembly into the E-04.4 ELT mounting tray. See Figure 2.

Step 4: Tie-wrap the E-04.7 to the F-12107A as shown in Figure 2. The loose wires will be secured when installing the main harness.

Step 5: Rivet the ES-00301 onto the F-01206A-1 as shown in Figure 2.

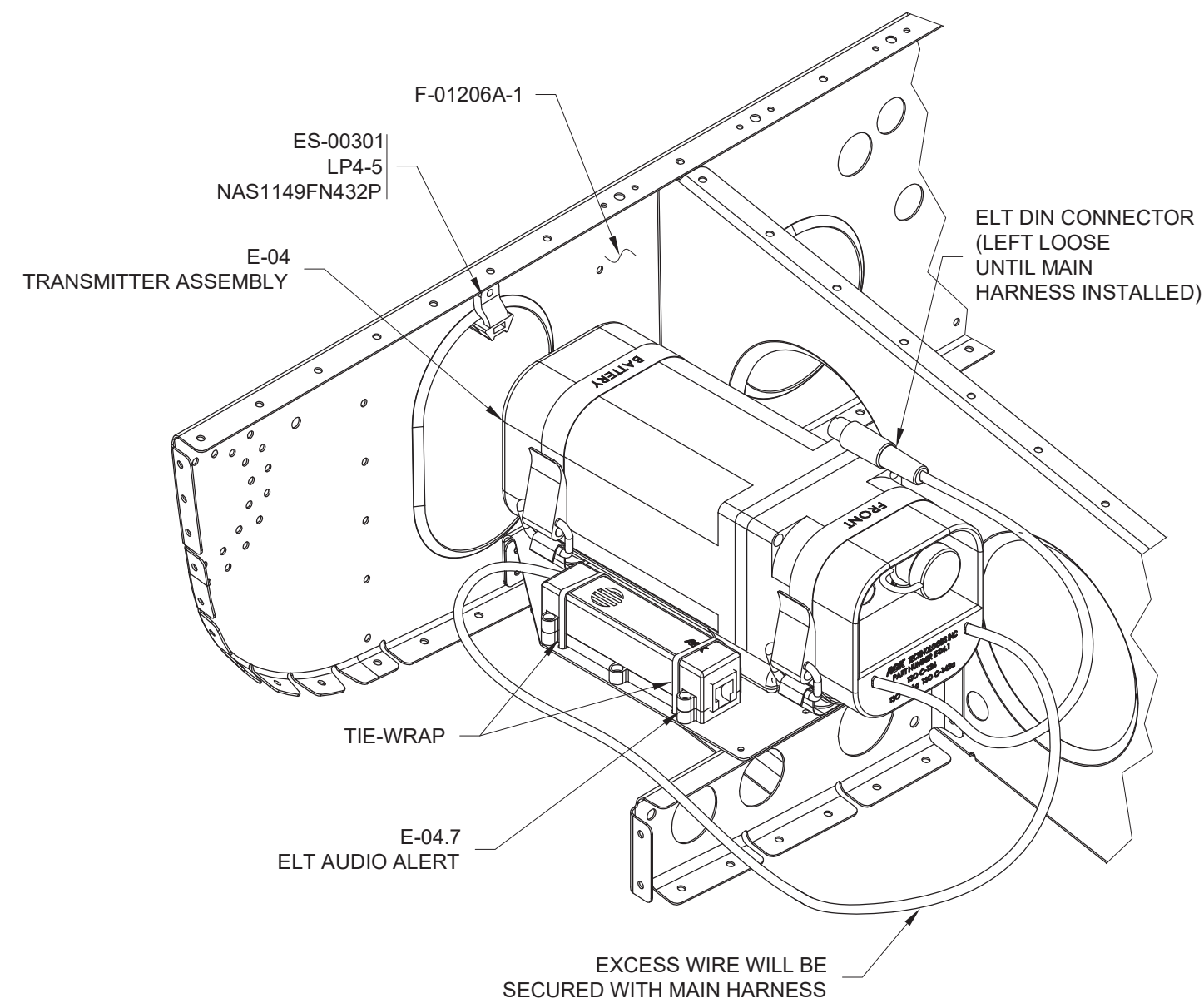


FIGURE 2: INSTALLING THE ELT



Step 1: Install the E-04.8 ELT Antenna onto the F-01205B-1 as shown in Figure 1 with the included nut and lock washer.

Step 2: Install the E-04.10.4 ELT Antenna Cable onto the ELT antenna, then route the antenna cable to the E-04 transmitter assembly as shown. The ELT antenna cable should be connected to the transmitter assembly for approximate positioning. Final cable placement and securement will be defined when the main harness is installed. See Figure 1.

Step 3: Cut a slit in the snap bushing, allowing the snap bushing to be put over the ELT antenna cable, then snap the bushing into the hole in the F-01224-R-1 baggage floor as shown in the detail view of Figure 1.

Step 4: Install the snap bushing SB375-3 as shown in Figure 1.

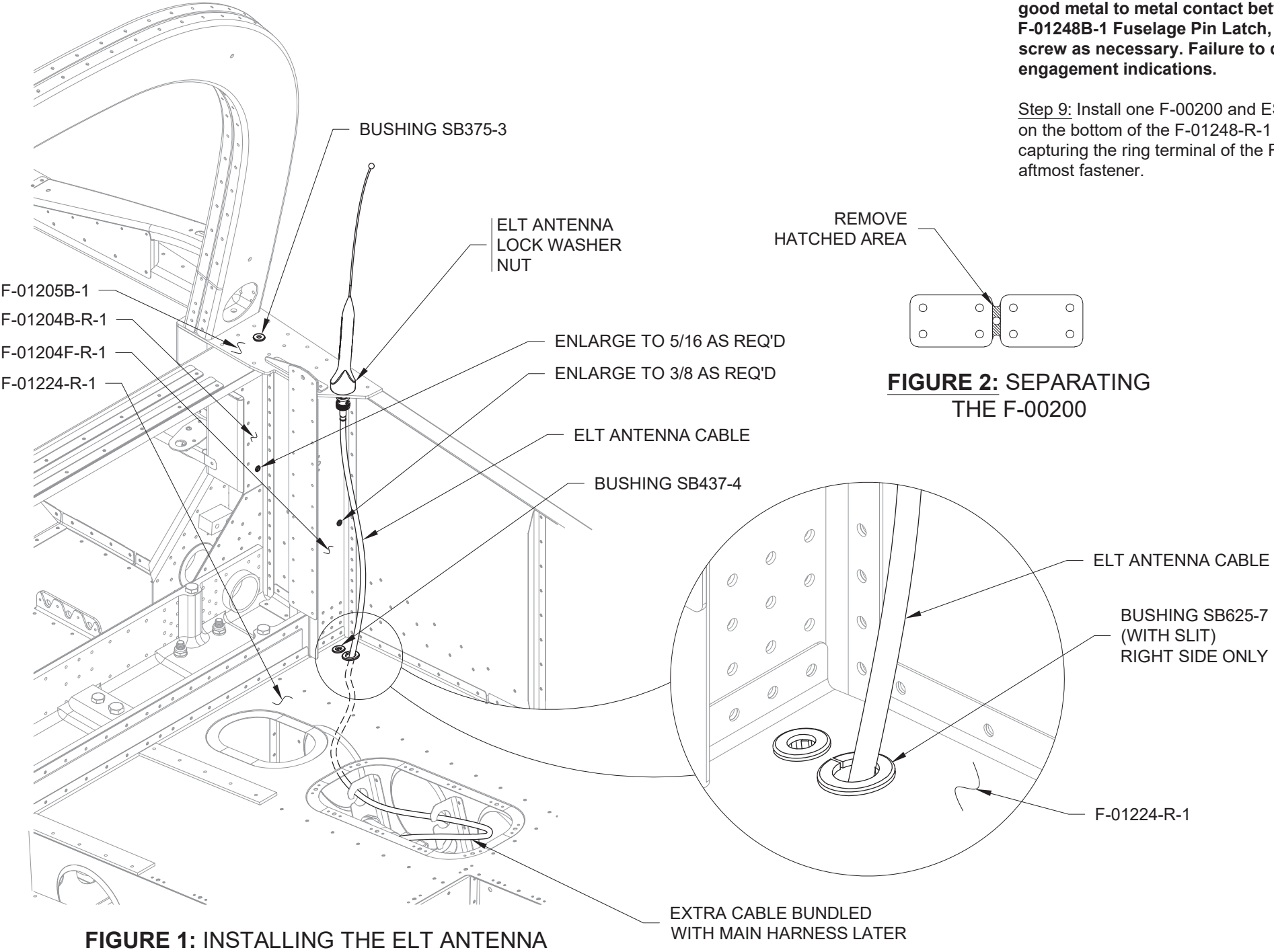


FIGURE 1: INSTALLING THE ELT ANTENNA

Step 5: Install the snap bushing shown in Figure 1 in the F-01224-R-1. Repeat for the left side of the aircraft.

Step 6: If required, enlarge the holes as shown in Figure 1 and the detail view of Figure 3. Repeat for the left side of the aircraft

Step 7: Separate the two F-00200 Spar Pin Switch Spacers. See Figure 2.

Step 8: Connect the spade connector on the F6262 (BLK) spar pin switch ground wire to middle spade (labeled "NO") of the ES E22-50K Spar Pin Switch. See Figure 3.

NOTE: The aftmost screw used to mount the ES E22-50K is used as an airframe ground for the spar pin switch circuitry. Ensure that that there is good metal to metal contact between the head of the screw and the F-01248B-1 Fuselage Pin Latch, removing any paint under the head of the screw as necessary. Failure to do so may result in erroneous spar pin engagement indications.

Step 9: Install one F-00200 and ES E22-50K Spar Pin Switch on the bottom of the F-01248-R-1 as shown in Figure 3, capturing the ring terminal of the F6262 (BLK) under the aftmost fastener.

FIGURE 2: SEPARATING THE F-00200

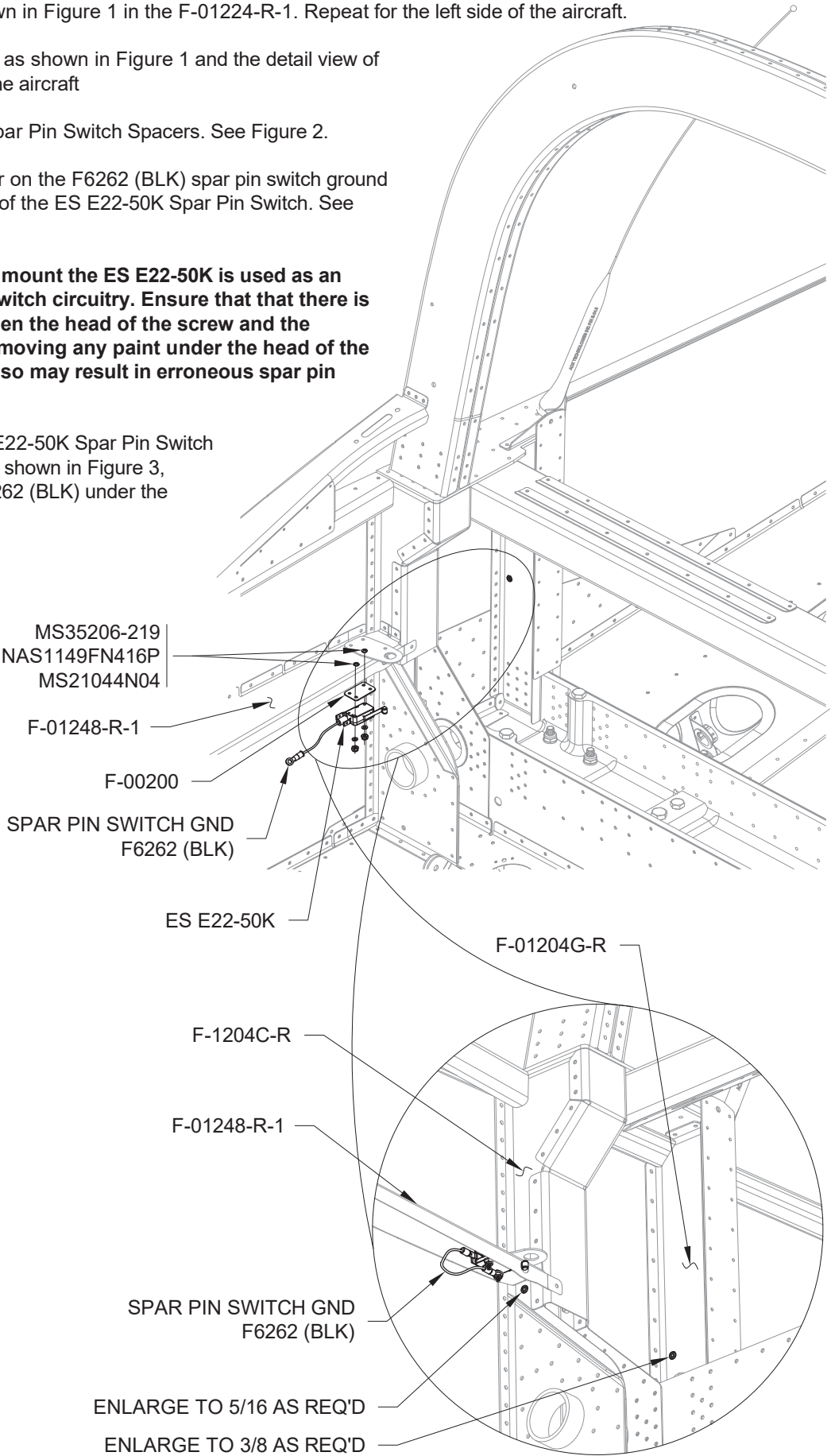
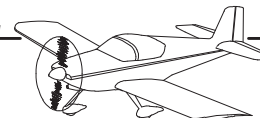


FIGURE 3: SPAR PIN SWITCH INSTALLATION



Step 1: Route the Q6300 (BLK) fuel sender ground wire through the holes in the F-1204C-L and F-1204B-L as shown in Figure 1. The routing and securing of this wire will be finalized when the main harness is installed.

NOTE: The aftmost screw used to mount the ES E22-50K is used as an airframe ground for the fuel sender circuitry. Ensure that there is good metal to metal contact between the head of the screw and the F-01248B-1 Fuselage Pin Latch, removing any paint under the head of the screw as necessary. Failure to do so may result in erroneous fuel gauge readings.

Step 2: Mount the second F-00200 and ES E22-50K to the F-01248-L-1 using the hardware called out in Figure 1. Ensure the ring terminal on the Q6300 is captured by the aftmost fastener.

Step 3 (Dynon): Cut a length of PT-035X1/4 to 127.5 in. [323.9 cm] to fabricate the F-00213 Dynon AOA Line.

Step 3 (Garmin): Cut a length of PT-035X1/4 to 82.5 in. [209.6 cm] to fabricate the F-00212 Garmin AOA Line.

Step 4: Route the F-00213 (Dynon) or F-00212 (Garmin) AOA Line from the left wing root to the tailcone. Follow the CT-01204 Fuel Shut Off Cable through the top set of routing holes, leaving the excess line coiled in the tailcone until the avionics installation. See Figure 2.

Step 5: Rivet the ES-00301 onto the F-01223-L-1 Baggage Rib as shown in Figure 2. Repeat for the right side of the aircraft.

Step 6: Locate the WH-P30-1 Trim Wires in the tailcone (see Section 10iS/U). Route the WH-P30-1 from the tailcone up to the F-12103-1 Tunnel Brace—following the CT-01204 through the top set of holes. Secure WH-P30-1 to the right-side plastic tie standoff in F-12103-1. See Figure 2.

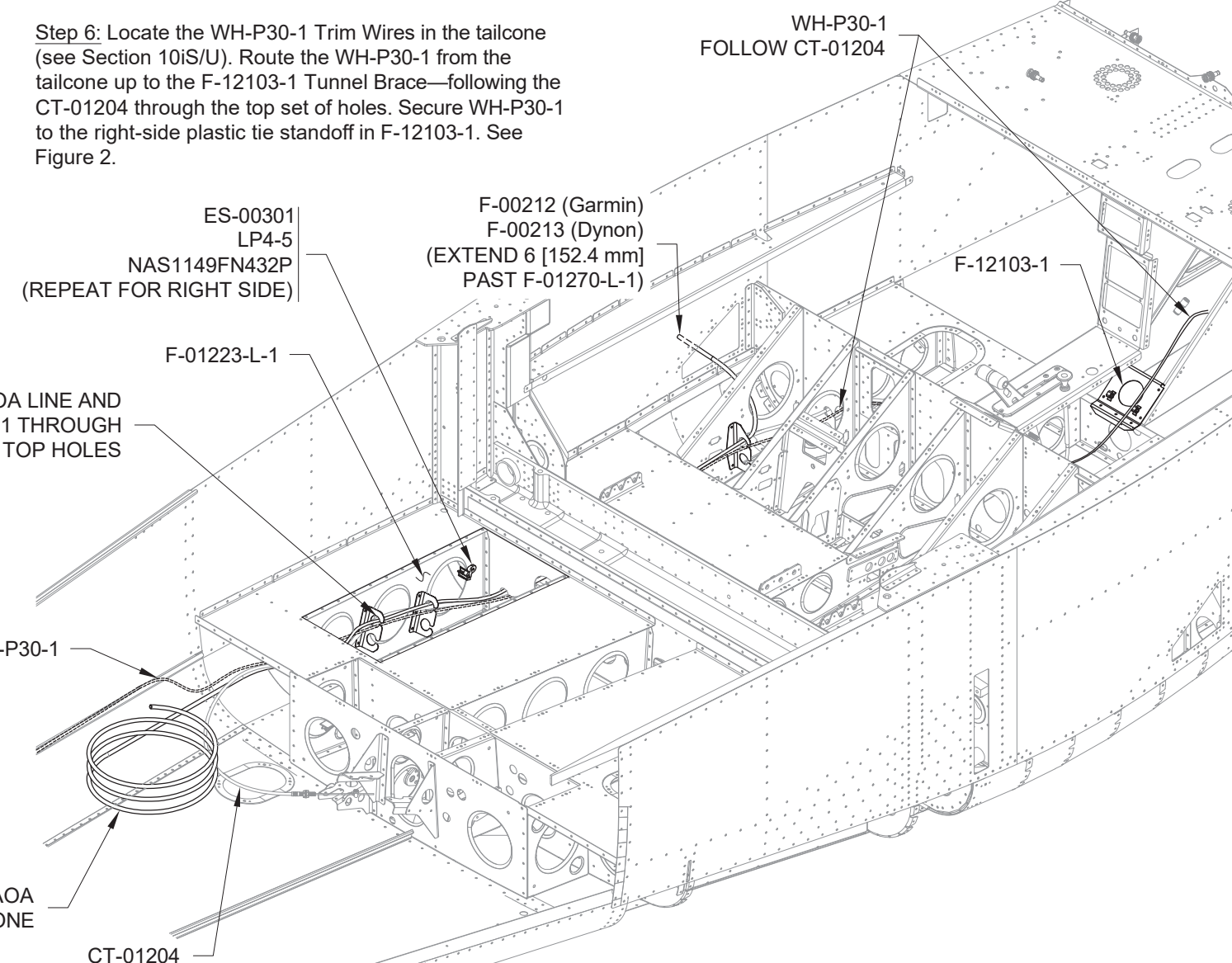


FIGURE 2: INSTALLING AOA LINE AND TRIM WIRE

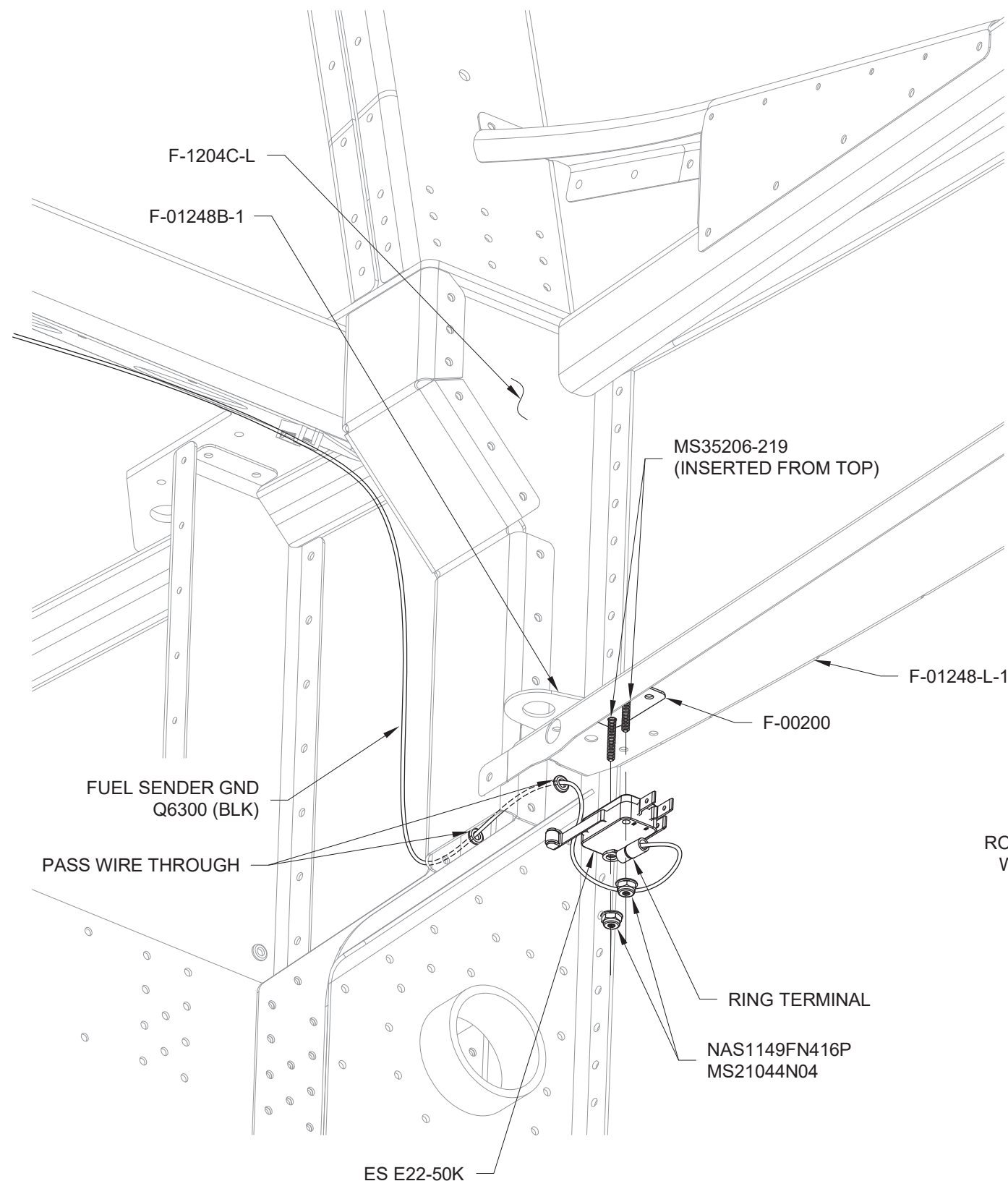


FIGURE 1: INSTALLING LEFT SPAR PIN SWITCH



Step 1: Cut the roller off of the lever arm of the ES E22-50K-1 to fabricate the Canopy Latch Switch as shown in Figure 1.

Step 2: Drill #19 in the location shown on the F-1232A Roll Bar Brace. See Figure 2.

Step 3: Connect the spade terminal of the F6035 (BLK) canopy latch ground onto the "COM" spade of the Canopy Latch Switch as shown in Figure 2.

Step 4: Ground and secure the ring terminal of the F6035 (BLK) to the F-1232A with the hardware called out in Figure 2. Ensure the surface of the F-1232A contacted by the ring terminal is free of paint or primer.

Step 5: Loosely mount the Canopy Latch Switch to the F-01231F-2 as shown in Figure 2 and Section A-A.

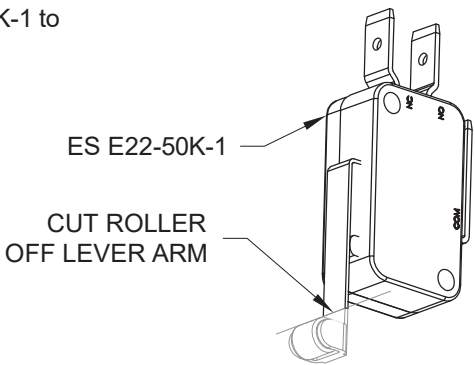


FIGURE 1: FABRICATING CANOPY LATCH SWITCH

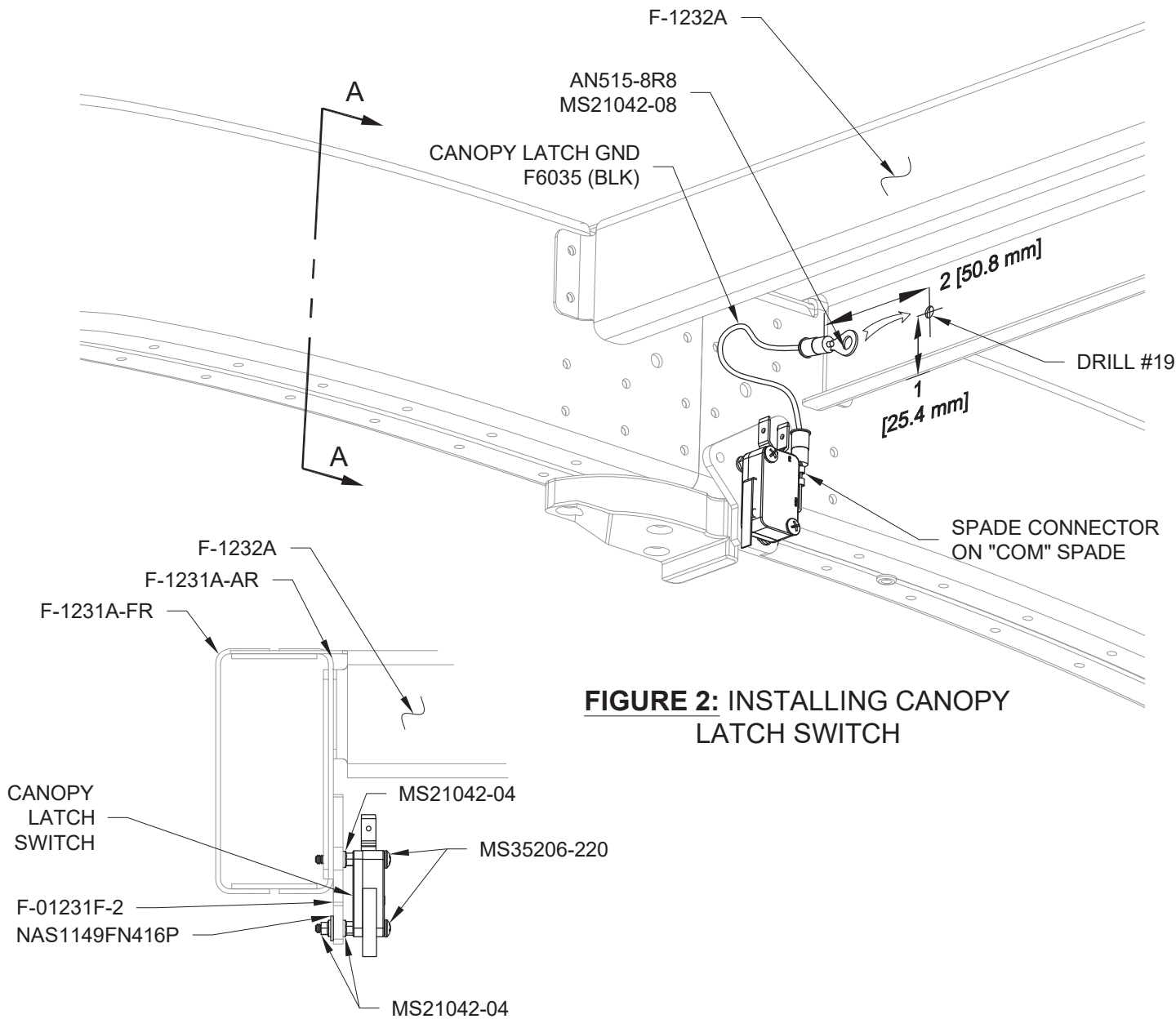


FIGURE 2: INSTALLING CANOPY LATCH SWITCH

SECTION A-A

Step 6: Snug the top fastener of the Canopy Latch Switch so it holds position, but can act as a pivot while adjusting the switch.

Step 7: With the canopy shut and the WD-01218-1 Canopy Latch fully latched, pivot the Canopy Latch Switch towards the WD-01218-1 until the arm on the switch depresses the button underneath (there will be an audible click). See Figure 3.

Step 8: Without moving the switch body, tighten the fasteners to fully secure the Canopy Latch Switch.

Step 9: Latch and unlatch the WD-01218-1 several times to verify operation of the Canopy Latch Switch. The switch should not be depressed until the WD-01218-1 is in the detent of the C-01205-3.

Electrical operation of the canopy latch switch will be confirmed in accordance with the PAP.

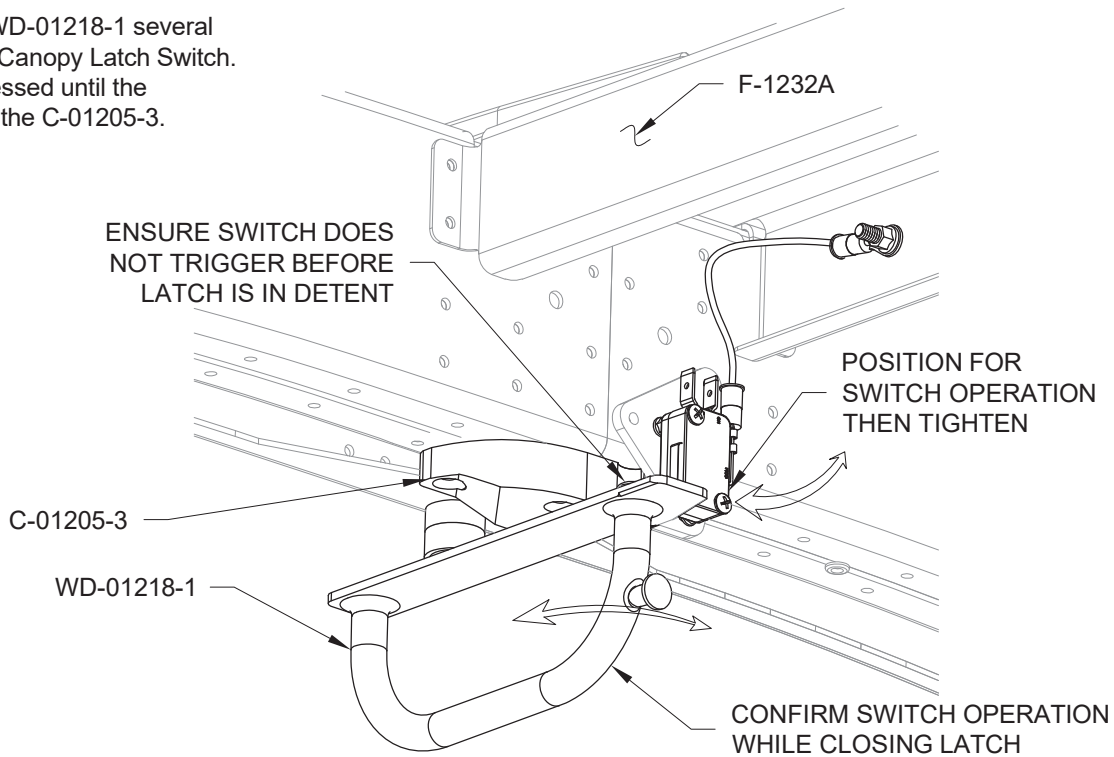


FIGURE 3: POSITIONING CANOPY LATCH SWITCH

Step 10: Position, match-drill, and rivet the ES-00301 on the F-01203A-1 as shown in Figure 4.

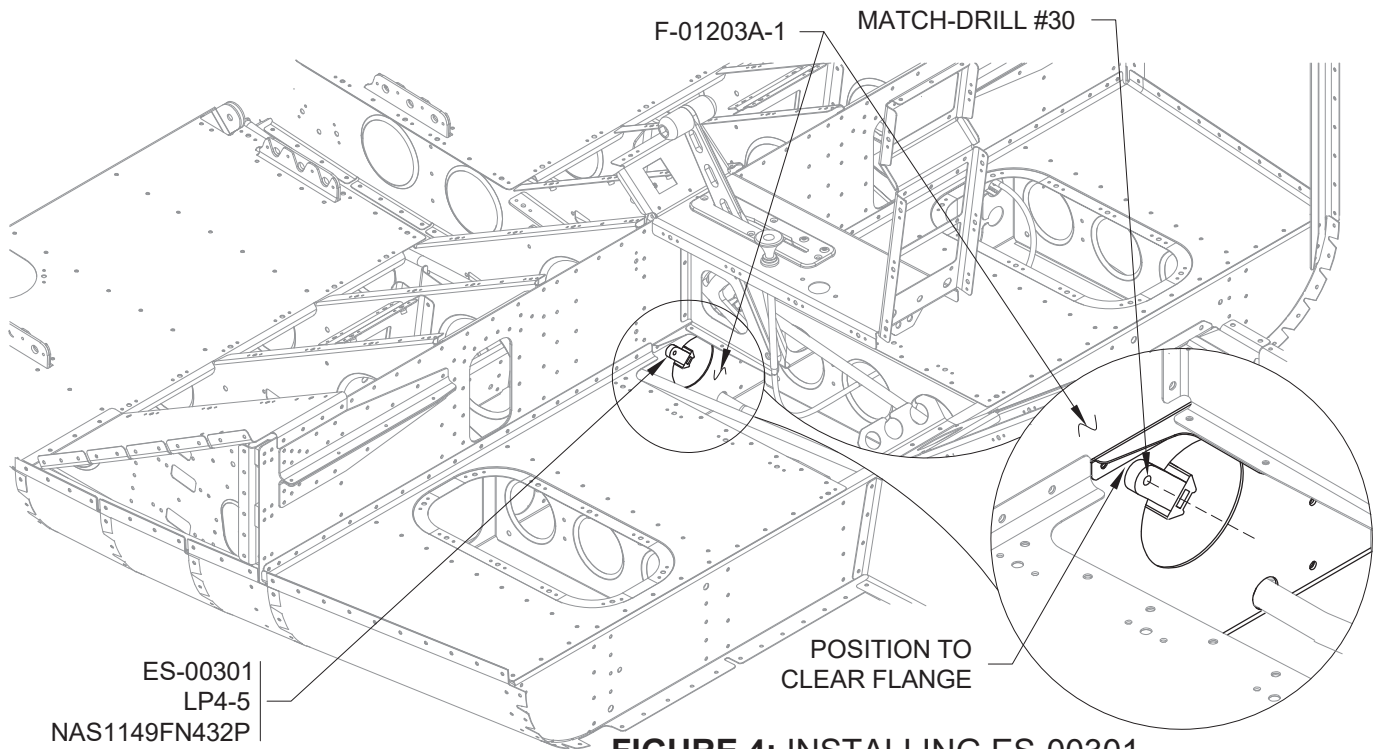


FIGURE 4: INSTALLING ES-00301



NOTE: The following pages cover the install of the Main Wiring Harness for the Dynon, Garmin, and Garmin Nav/Com systems (WH-00133-1, WH-00134-2, and WH-00136-2 respectively). The harnesses are very similar between systems and route almost identically throughout the aircraft. The few minor differences are pointed out in this section.

NOTE: Both the Dynon and the Garmin Main Wiring Harnesses come fully wired for all optional avionics kits (autopilot, ADS-B, landing lights, etc). Even if not installing these options, route and secure the wires as shown to allow for easy installation of these options at a later date.

NOTE: Study the layout of the Main Wiring Harness in Figure 1 to get a "big picture idea" of how to route the harness. This section includes connecting all of the common components (such as Spar Pin Switches and Headset Jacks). Installation and connection of specific LRU's (line replaceable units) such as the primary flight display or COM radio, will be detailed in later sections.

NOTE: Several blue tie-wraps (already installed) on the Main Wiring Harness are used to help position the harness relative to fuselage bulkheads during wire routing.

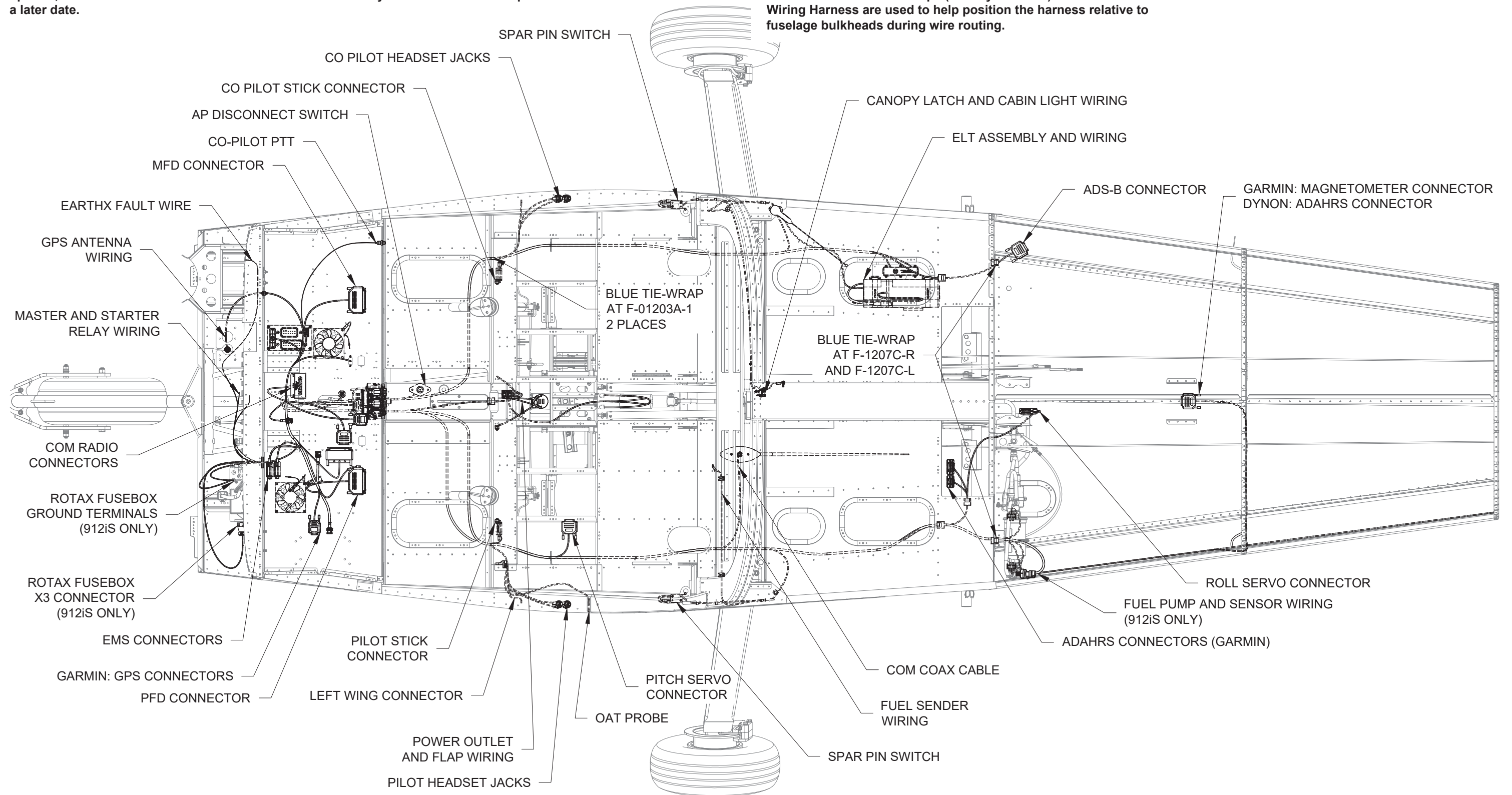


FIGURE 1: TOP VIEW OF MAIN WIRING HARNESS ROUTING

NOTE: Builders installing the Garmin Nav/Com avionics kit should ignore the steps on this page, and turn to

Page 42MiS/U-41 for Nav/Com-specific installation instructions.

NOTE: Builders with F-01202B-1s with dual openings need to pass the WH-00134-1 through the foremost opening. See Figure 2 on Page 42MiS/U-41 for the optional enlargement of the opening, easing the installation of the Main Wiring Harness. Later F-01202B-1s have only one (enlarged) opening which should be used.

Step 1: Route the Fuel Pump 1 and Fuel Pump 2 connectors from the Rotax ECU harness through the firewall via the “Modified AN931-16-6” shown in Figure 1 of page 42MiS/U-13 then downward through the opening in F-01202B-1.

Step 2: Connect the Fuel Pump 1 (Main) and Fuel Pump 2 (Aux) connectors from the main harness to the corresponding connectors from the Rotax ECU harness. See Figure 1.

Step 3: Connect ring terminals and the 50 pin connector to the AV-60000 as shown on page 42MiS/U-44.

Step 4: Mount the AV-60000 to the F-01246 Tunnel Cover as shown in Figure 1. Get the forward wires out of the way (denoted by the blue tie wrap bundling them together) by

routing them up through the slot in the F-01202B-1 until the blue tie wrap on the bundle is flush with the F-01202B-1. Examine Page 42MiS/U-13 to confirm which wires and connectors need to be passed through the F-01202B-1.

Step 5: Ground the Firewall Ground Ring Terminal to the F-01201A-1 at the location shown in Figure 1. Use the existing fastener, which is securing the F-01230-1 (not shown).

NOTE: See Section 5.21 for more information on assembling d-sub connectors.

NOTE: For Garmin installations, the 9-pin male d-sub will need to first be removed from the back of the AV-60000 before completing Step 6.

NOTE:The (WHT) and (BLK) wires of the WH-P30-1 go to different locations of the 9-pin male d-sub installed in Step 6, depending on whether or not an autopilot will be installed. See Figure 2.

Step 6: Crimp on ES SA-1018 pins onto the WH-P30-1 trim wires, and populate the 9-pin male d-sub as shown in Figure 2. Install the backshell, then connect the d-sub to the AV-60000 as shown in Figure 1.

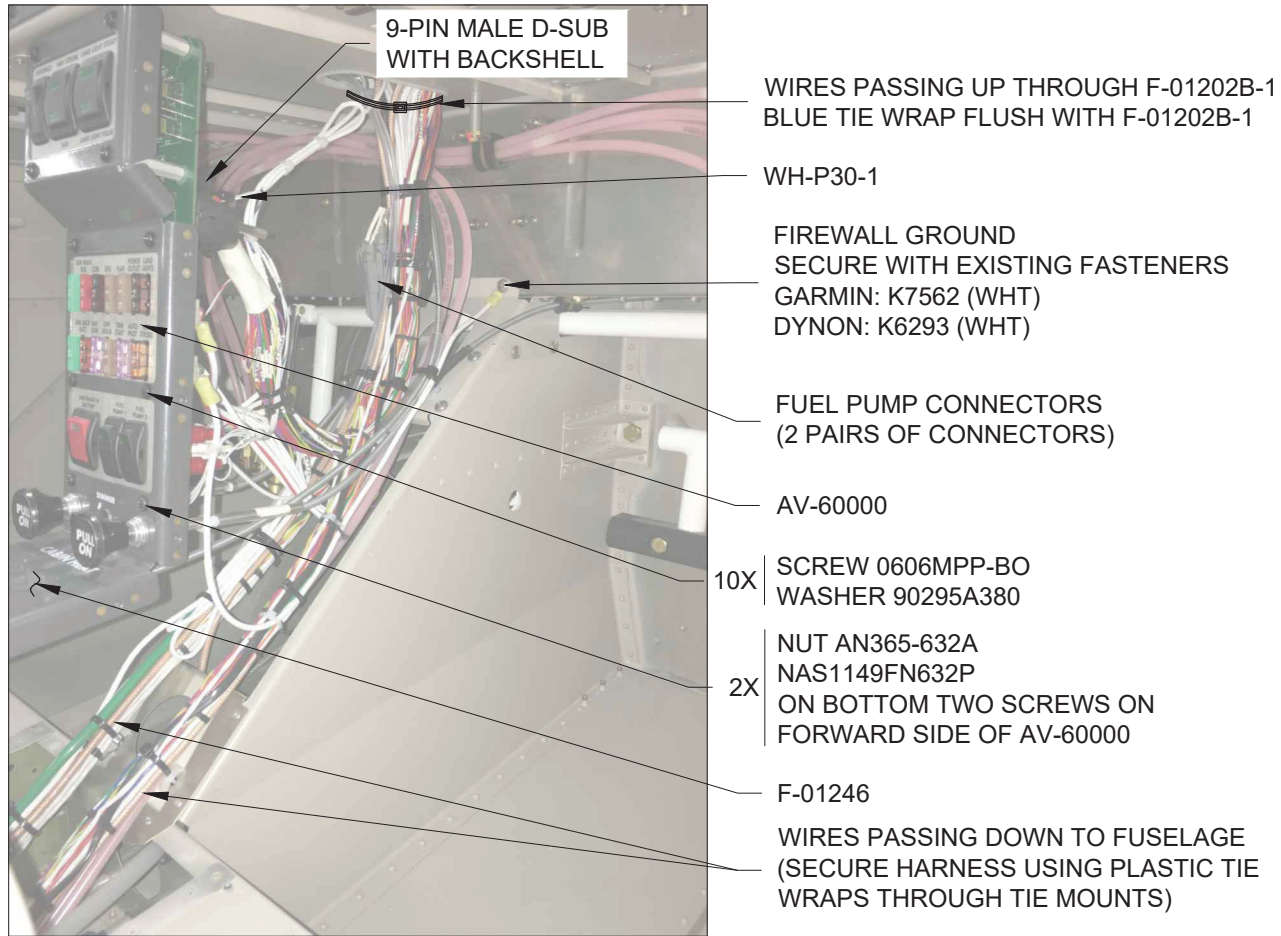


FIGURE 1: INSTALLING AV-60000

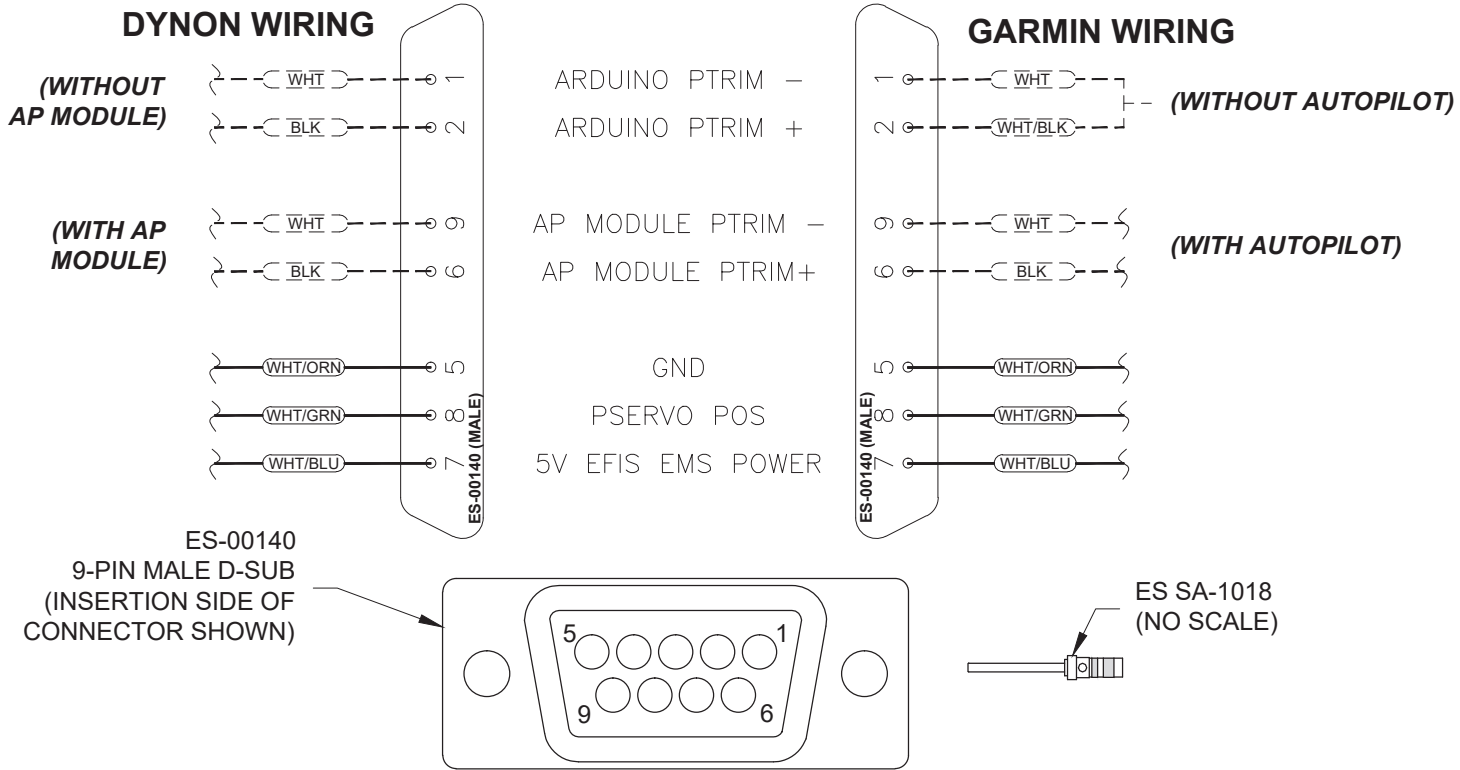


FIGURE 2: WH-P30-1 WIRING

NOTE: If not installing an autopilot, skip Step 7 and fabricate and install a closeout plate for the hole in the F-01246. Then secure the autopilot disconnect switch to the wiring harness.

Step 7: Install the autopilot disconnect switch onto the bottom of the F-01246 as shown in Figure 3.

Step 8: Install the ES-00195 Dimmer Potentiometer (part of the Main Wire Harness) onto the F-01246, then install the ES-00322 Dimmer Knob onto the shaft of the ES-00195. If desired, the ES-00195 shaft can be trimmed to length with a cut off wheel for a closer fit of the ES-00322. See Figure 3.

Step 9: Connect the XPNDR coax cable to the AV-00012 as shown in Figure 3.

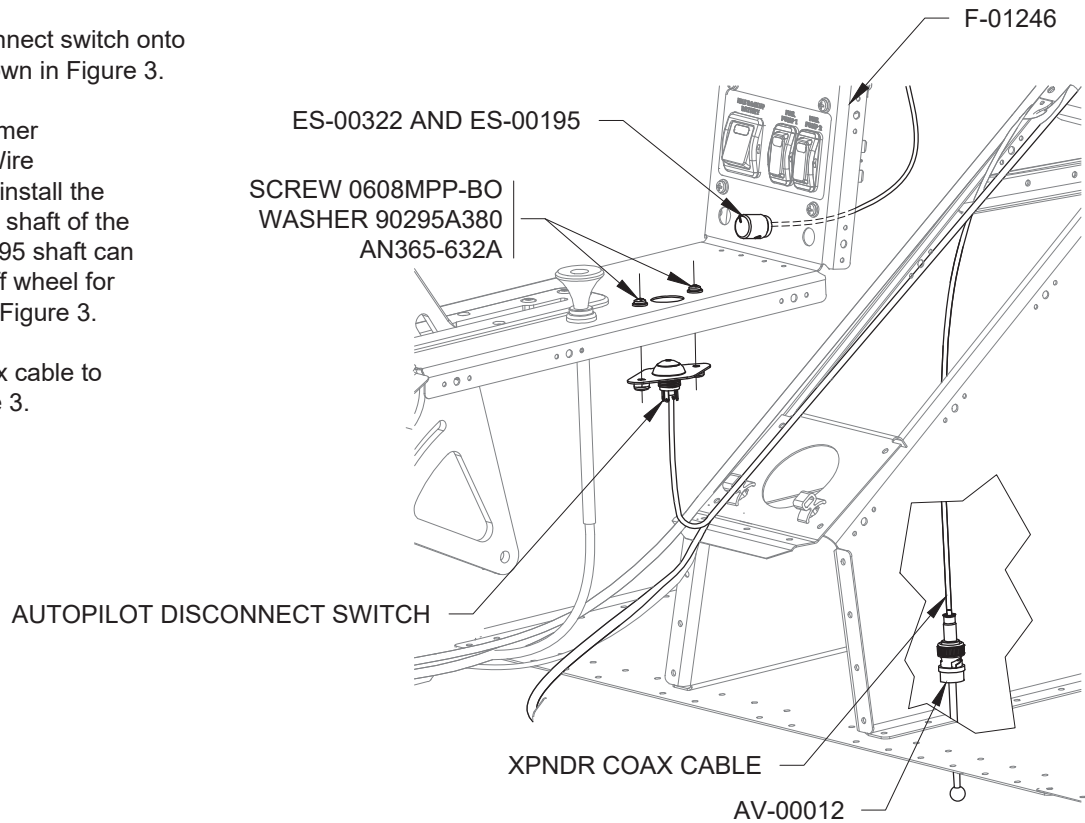
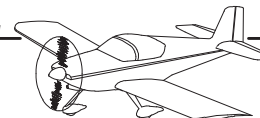


FIGURE 3: AP DISCONNECT, DIMMER, AND XPNDR COAX



NOTE: Builders installing the Garmin Nav/Com Avionics Kit should ignore the steps on this page, and turn to Page 42MiS/U-41 for Nav/Com-specific installation instructions.

Step 1: With the Main Wiring Harness routed through the F-01202B-1, position the wires and connectors in their approximate positions as shown in Figure 1. Wires passing through the firewall are identified and routed on the next page.

Step 2: Slide a piece of ES HST-3/16X2 heat shrink over wires K6297 (ORN) and K6298 (ORN), then connect to the red power leads of the ES CPU Fans. Once connected, shrink the heat shrink over the pins to insulate.

NOTE: Older F-01202B-1s with dual openings will need a 6.4 in. [16.26 cm] length of MS21266-1N Grommet around the forward opening only, instead of the F-00218 called out in Step 3.

Step 3: Make the F-00218 by cutting a 9.6 in. [24.38 cm] length of MS21266-1N Grommet. Install the F-00218 around the perimeter of the opening in the F-01202B-1. See Figure 1.

Step 4: For Dynon installations, secure the PFD and MFD (if dual screen) USB Ports to the F-01202B-1 as shown in Figure 1.

NOTE: Steps 5 through 7 apply to Rotax 912iS installations only.

Step 5: Connect the 25-pin d-sub and the 8-pin screw terminal connectors labeled "HIC" to the AV-60009-2 as shown in Figure 1. Secure the 8 pin connector wire harness to F-12335 with plastic tie-wrap 5.5". See Page 3.

Step 6: Connect the two HIC connectors on the Rotax ECU cables (not shown) to the appropriate receptacles on the AV-60009-2.

Step 7: Cut off the plastic flanges of the 912iS MAINT PORT backshell. Secure the 912iS MAINT PORT on wire E6023 (WHT) to the top of the F-01202B-1 with the hardware shown in Figure 1.

Step 8: Modify a grommet to be used for firewall penetration. Using a socket and a vise, squeeze one grommet at a time (as called out in Figure 2) until the socket shears through the grommet (this will be accompanied by a distinct crunching sound). See Figure 2.

Step 9 (912iS): Repeat Step 8 two more times to end up with three modified grommets.

NOTE: Gases escaping from a cracked engine exhaust can potentially enter the cabin and cause elevated levels of carbon monoxide. Van's recommends that a carbon monoxide detector be installed. Common wire harnesses manufactured after January 6th, 2020 have all the necessary wires to install an Aithre carbon monoxide detector.

Step 10: See Service Letter SL-00010 for installation of the optional carbon monoxide detector.

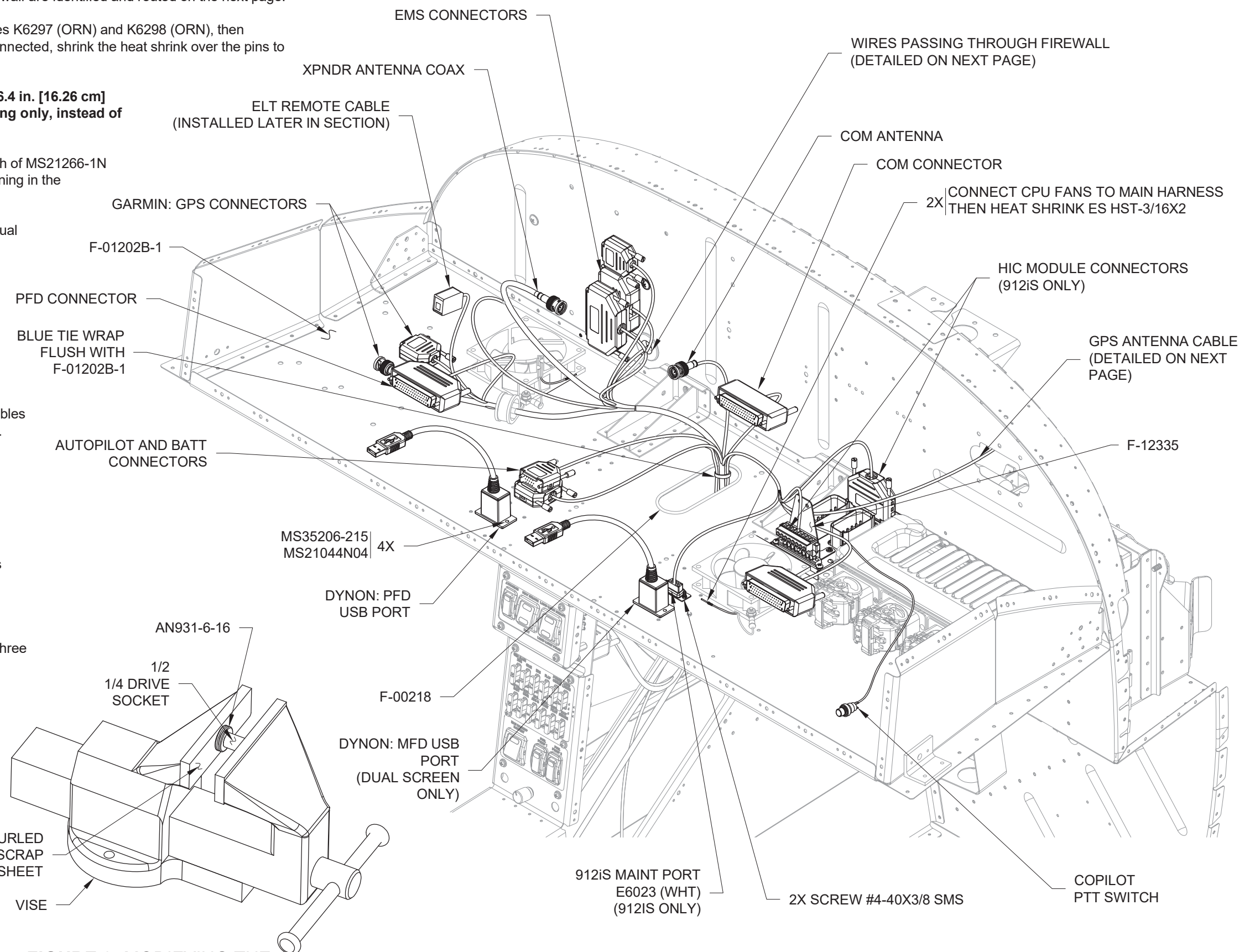


FIGURE 2: MODIFYING THE FIREWALL GROMMET

FIGURE 1: F-01202B-1 WIRE ROUTING



NOTE: The steps on this page are for the Rotax 912iS installation only. See Pages 42MiS/U-29 through 42MiS/U-39 for firewall forward wiring of a 912ULS installation.

Step 1: Route the wires through the opening in the F-01201A-1 and into position as shown in Figure 1.

NOTE: When assembling the Rotax X3 connector, make sure the wires and contacts have been passed through the X3 strain relief, the X3 backer plate, and the X3 rubber gasket before inserting the contacts into the connector housing. Use the X3 Strain Relief that provides the most secure clamping. See Figure 2.

Step 2: Assemble the X3 Connector as shown in Figure 2. Ensure the Rotax 931 110 Sealing Ring is installed on the fuse box per the Rotax 912iS Installation Manual Section 76-00-00, then connect to the Rotax Fusebox as shown in Figures 1 and 3.

Step 3: Connect the ring terminals onto the Rotax Fusebox Generator A and B ground lugs for the wires shown in Figure 1.

Step 4: Connect the Rotax Starter Relay wire ring terminal to the same lug, and under the same MS25171-3S insulator boot as the WH-P154 on the Rotax Starter Relay. See Figure 1.

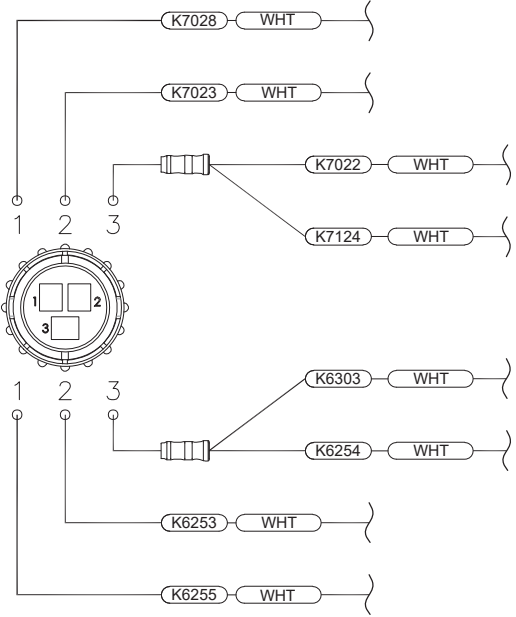
Step 5: Secure the ring terminal of the master relay wire onto the center lug of the ES 24115 as shown in Figure 1.

Step 6: Ground the ring terminal on the K6284 (WHT) wire to the F-01201A-1, securing it under the existing Brake Reservoir fasteners. See Figure 1.

Step 7: Cut a slit in, then install one of the modified AN931-6-16 grommets in the wire pass-through hole of the F-01201A. Seal the gaps between the grommet and wires with fuel tank sealant.

Step 8: Install the cushion clamps onto the WD-1221 Engine Mount Standoff, securing all Rotax Fusebox wires with the larger clamp. See Figure 3.

GARMIN WIRING



DYNON WIRING

FIGURE 2: POPULATING THE X3 CONNECTOR

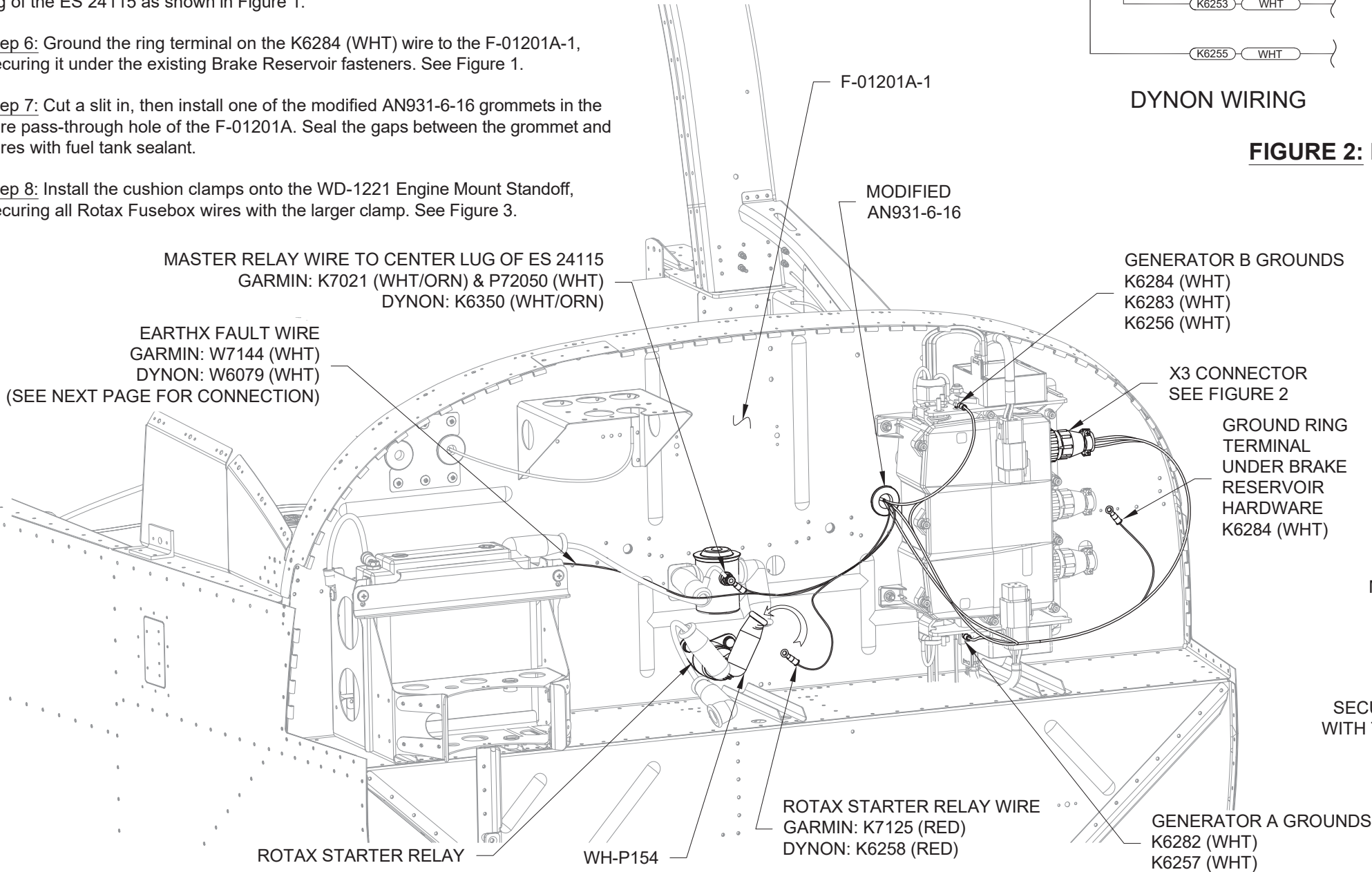
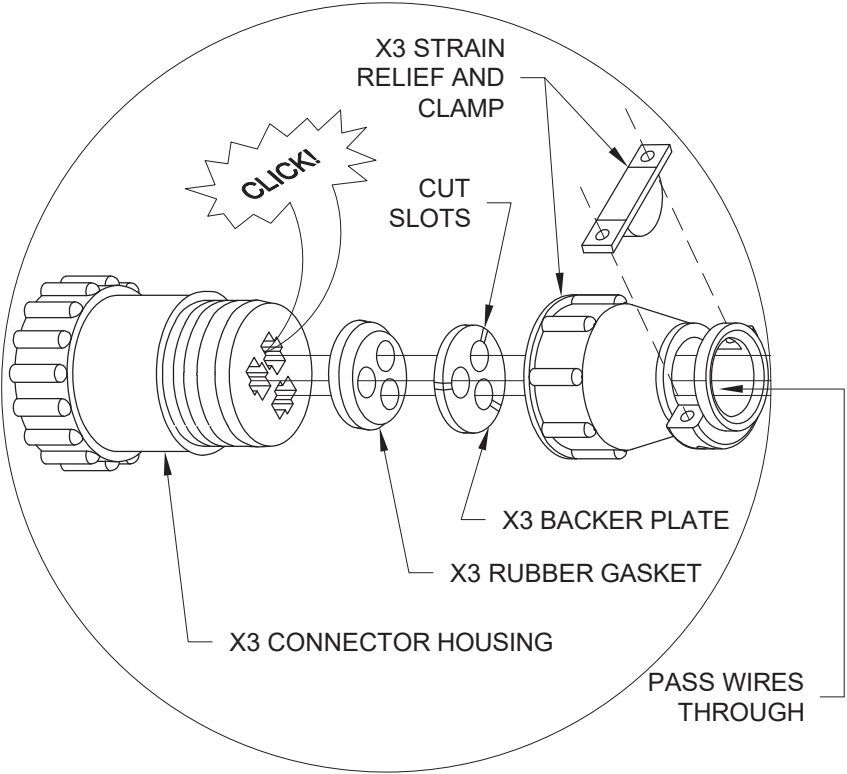


FIGURE 1: 912iS FIREWALL FORWARD WIRING



FIGURE 3: SECURING THE FUSEBOX WIRING

Step 1 (Dynon): Route the SV-GPS-2020 and wires through the window in the right side of the F-01201A-1 as shown in Figure 1.

Step 1 (Garmin): Following the Rotax ECU cables, route the GPS antenna cable and XM antenna cable through the window in the right side of the F-01201A-1 as shown in Figure 1.

Step 2 (Garmin Nav/Com): Pass the GA 26C GPS Antenna through the window in the F-01201A-1, following the GPS antenna cable routed in Step 1.

Step 3 (912iS): Install the F-00116 Cover Plate and rubber grommets as shown in Figure 1.

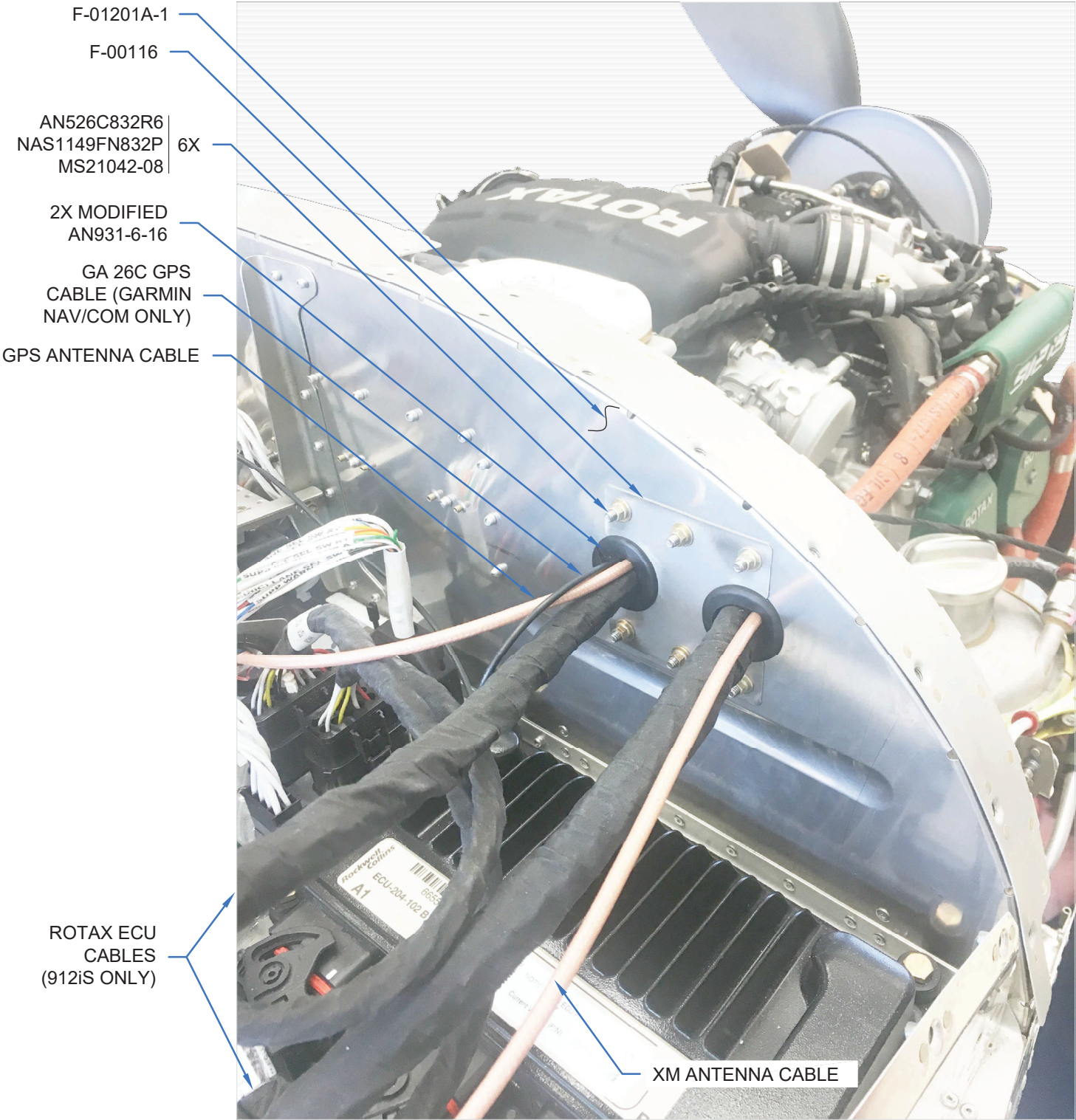


FIGURE 1: RIGHT SIDE FIREWALL PENETRATION

Step 4: Route the GPS (and Garmin XM) antenna cables to the bottom of the F-01201R-1 to establish approximate positioning of all cables.

On Dynon installations, the SV-GPS-2020 can sit on top of the F-01201R-1 for positioning. It will be fully installed in Section 42CiS/U.

NOTE: Steps 5 through 7 apply to Rotax 912iS Installations only. Builders installing the Rotax 912ULS will closeout the F-01201A-1 window in Section 42CiS/U, and may skip to the next page.

Step 5: Secure the GPS and XM antenna cables as well as the EarthX fault wire to the Rotax ECU cables with a tie-wrap as shown in Figure 2.

Step 6: Connect the spade terminal on the EarthX fault wire to the spade terminal on the wire from the ES-ETX900 as shown in Figure 2.

Step 7: Apply fuel tank sealant to seal the grommets around the cables and wires shown in Figure 2.

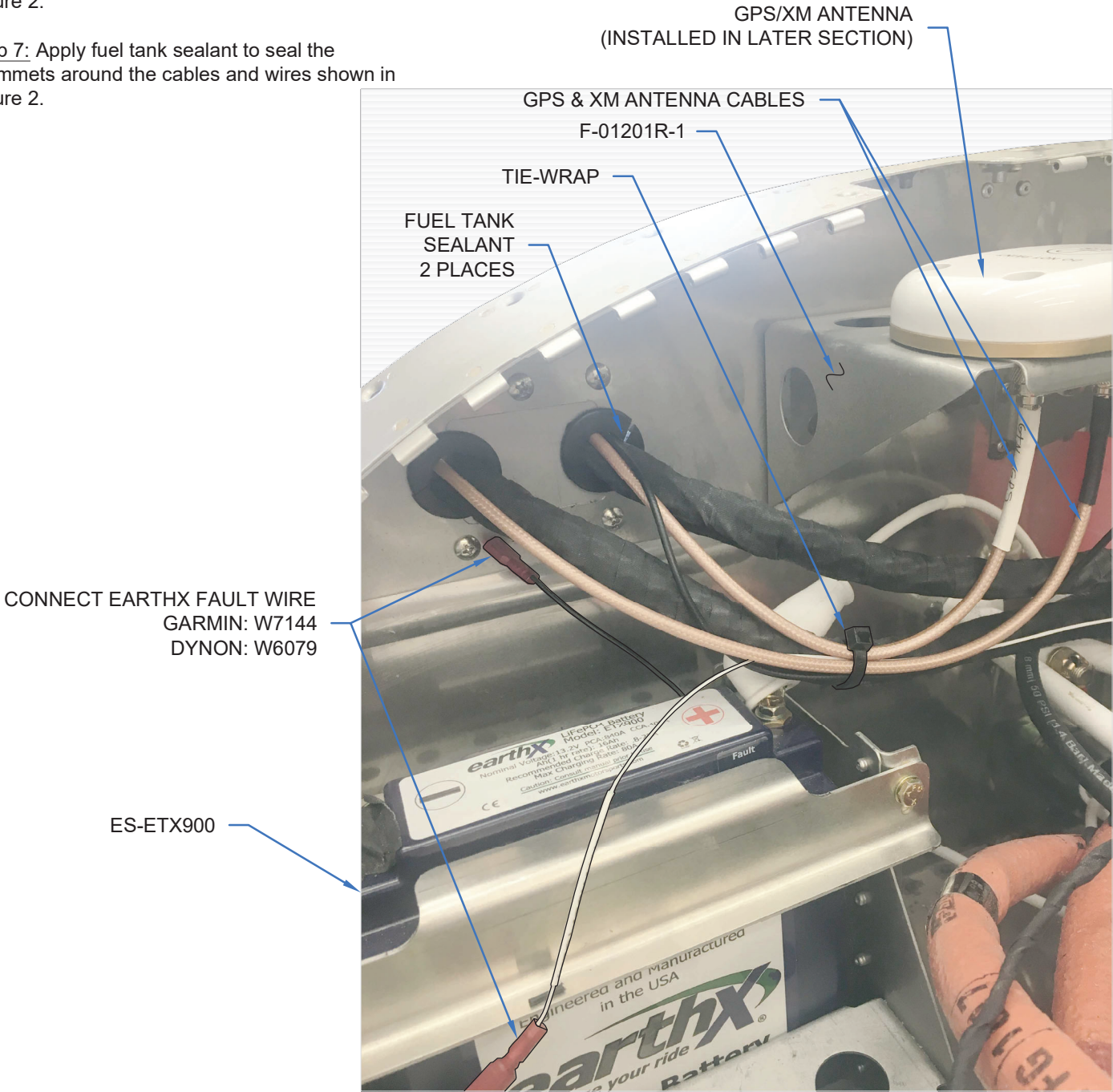


FIGURE 2: GPS AND XM ANTENNA CABLE ROUTING



Step 1: Using the Figures on Pages 42MiS/U-11, 42MiS/U-16, 42MiS/U-17, and 42MiS/U-18 as a guide, begin to lay out and route the Main Wiring Harness to the rear of the airframe. Remove interior panels and covers as necessary to gain access for wire routing. Do not connect or secure wires until instructed to do so, starting on page 42MiS/U-19.

GARMIN: MAGNETOMETER
DYNON: ADAHRS

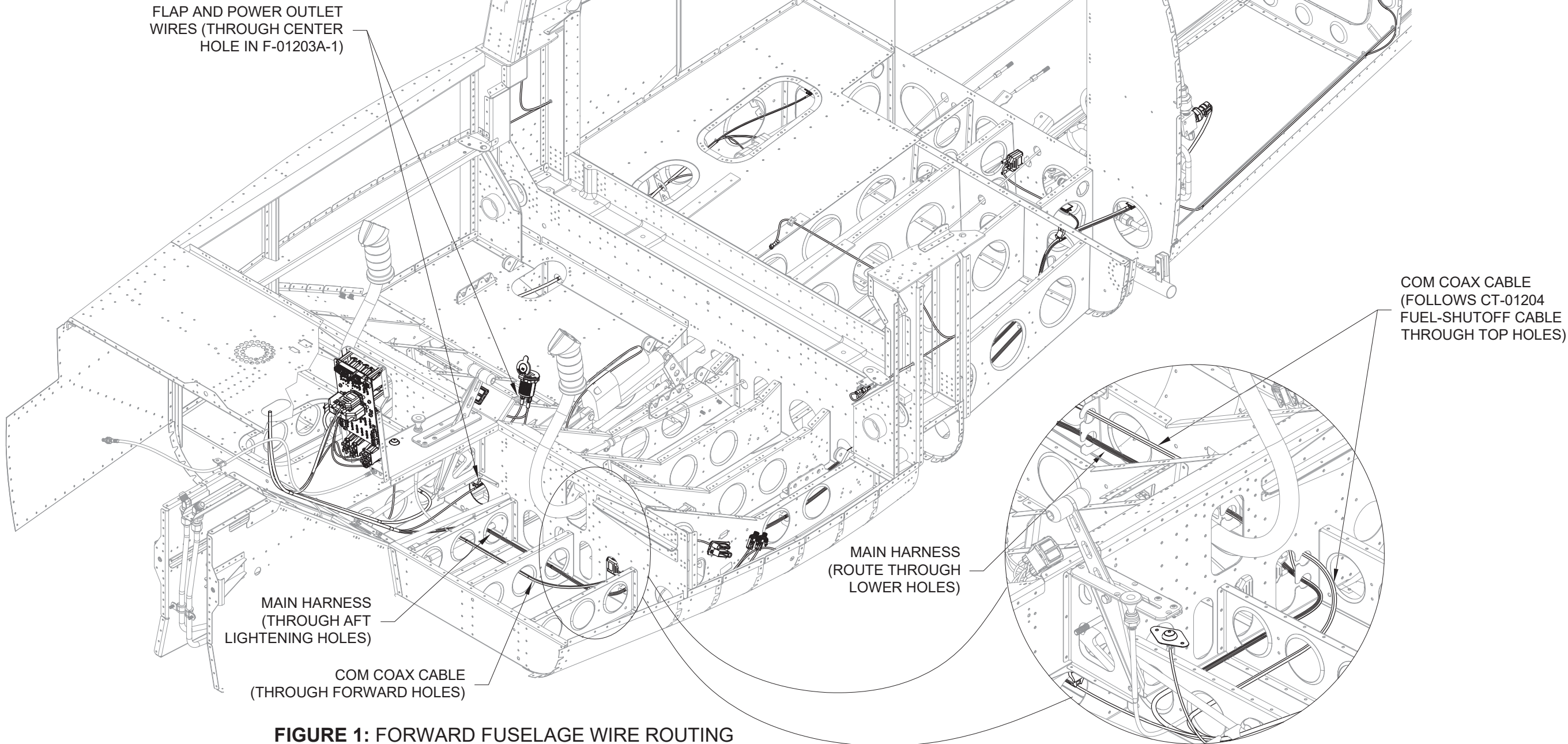


FIGURE 1: FORWARD FUSELAGE WIRE ROUTING

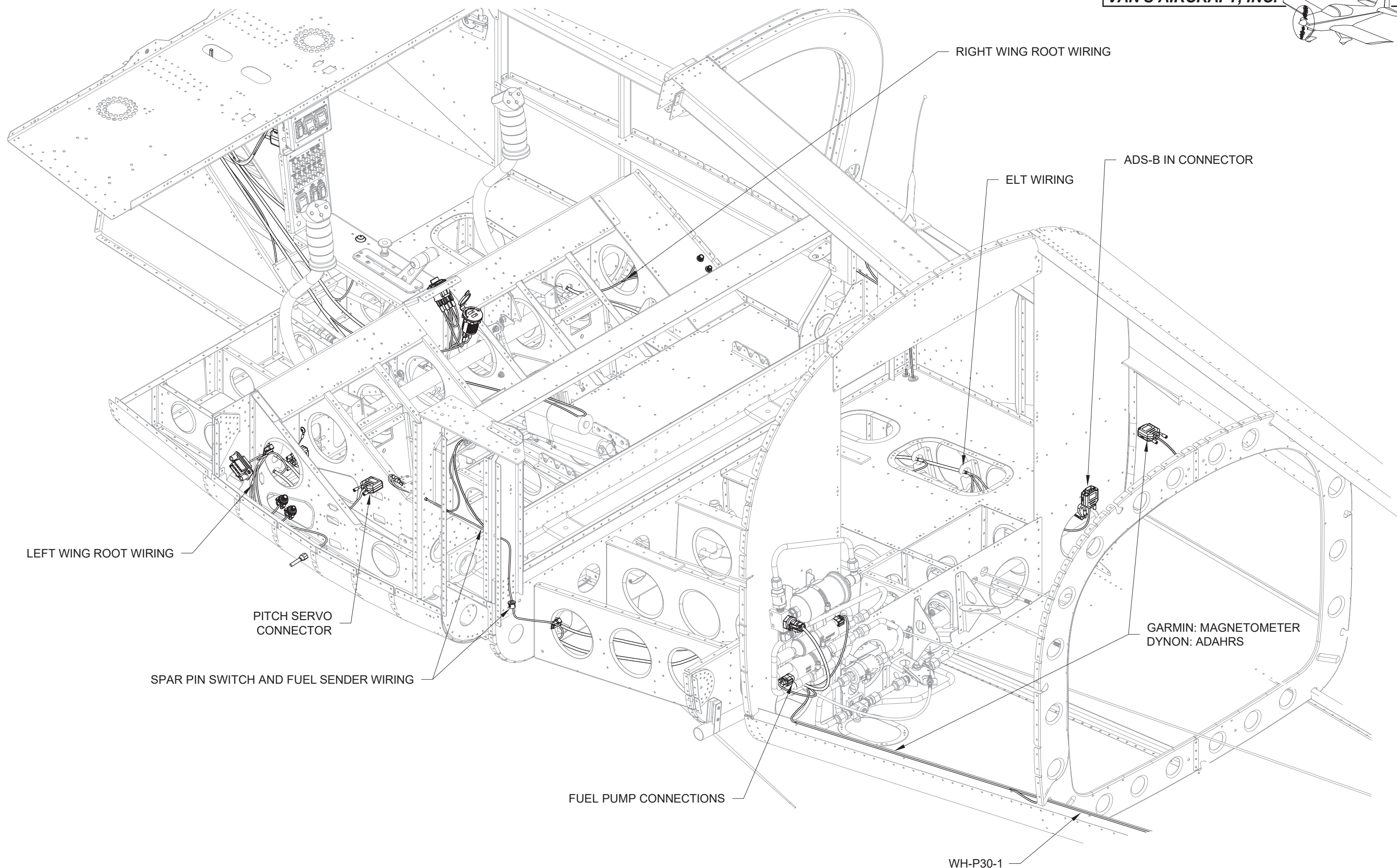
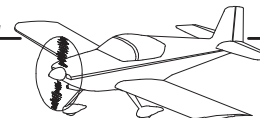


FIGURE 1: REAR OUTBOARD VIEW OF FUSELAGE WIRE ROUTING



NOTE: Main Harness wire routing for the left side shown. Mirror the routing for the right side.

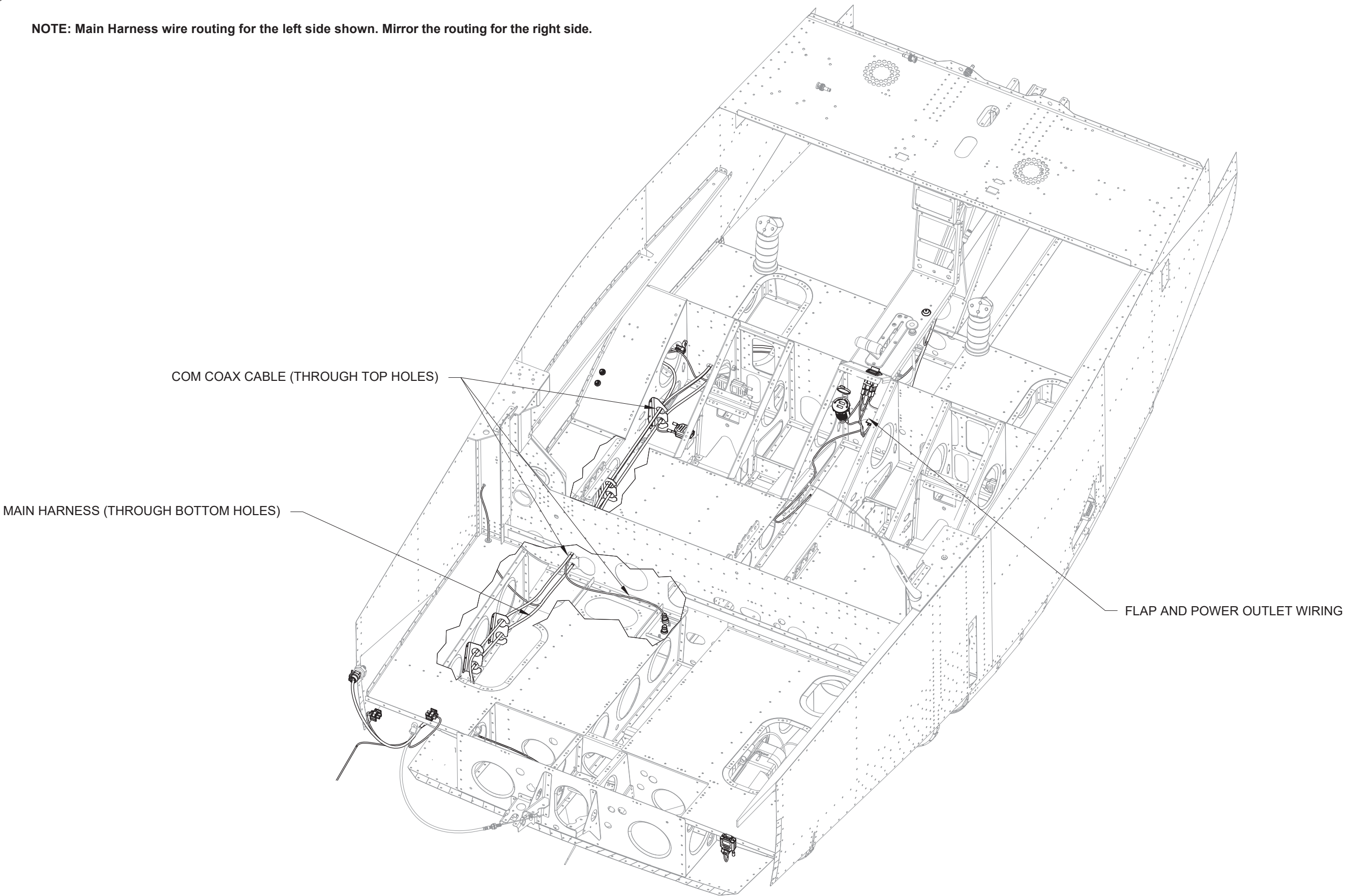
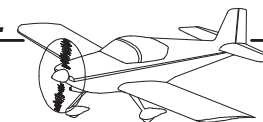


FIGURE 1: REAR INBOARD VIEW OF FUSELAGE WIRE ROUTING



NOTE: The RZ6054 (ORN/BLK) and RZ6055 (ORN/BLK) Audio Power Wires may be used to install a powered headset Lemo type connector. This may be added by the builder. Please consult your headset manufacturer for further parts and information.

Step 1: If required, sand down the upper face of the headset jack stepped isolator washer until the stepped portion is slightly less than the thickness of the F-1226 Seat Ramp Floor.

Step 2: Attach the headset jacks to the F-1226-L & -R as shown in Figure 1.

Step 3: Use a multimeter to check that there is no continuity between the nuts on the headphone and mic jacks and airframe ground.

Step 4: Install the ES-00301 as shown in Figure 1.

Step 5: Connect the Pilot Stick Grip connectors through the d-sub shaped cutout in the F-01215-R-1 Seat Rib.

Step 6: Secure the left wingroot and pilot stick grip ground ring terminals to the F-01215-R-1 Seat Rib as shown.

Step 7: Repeat Steps 1 through 6 for the right side of the aircraft.

SECURE WIRES AND AOA LINE TO ES-00301
AS INSTRUCTED ON PAGE 42MIS/U-20

WINGROOT AND PILOT STICK GRIP
GND RING TERMINAL
AN525-10R7
NAS1149F0332P
AN365-1032

CONNECT PILOT STICK GRIP
CONNECTOR TO MAIN HARNESS
THROUGH F-01215-R-1

F-01215-R-1

SECURE PITCH SERVO
CONNECTOR WITH TIE-WRAP
UNTIL AUTOPILOT IS INSTALLED

L6341 (DYNON) AND AUTOPILOT
SERVO GND RING TERMINALS
AN525-10R7
NAS1149F0332P
AN365-1032

ES-00301
LP4-5
NAS1149FN432P

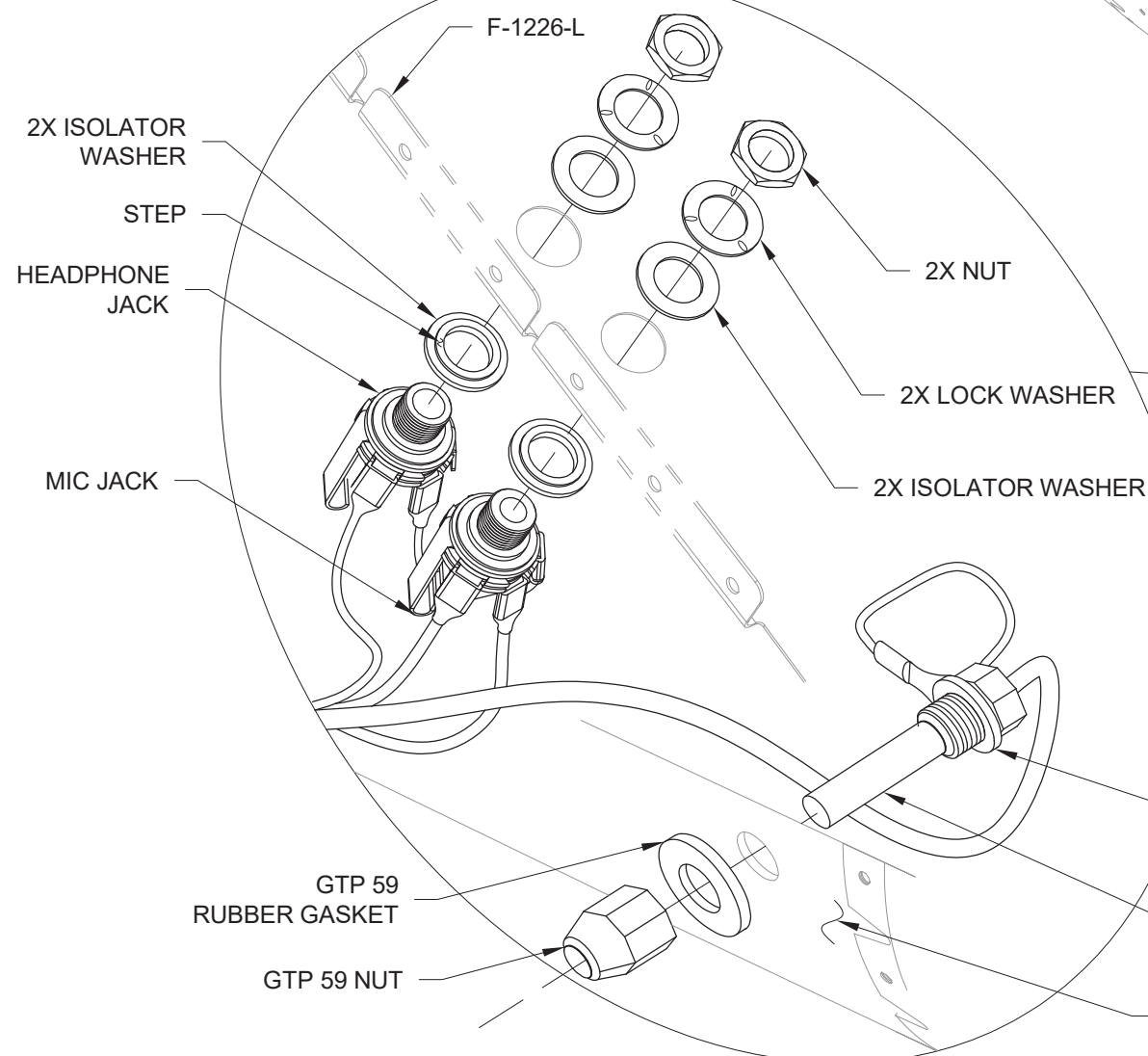


FIGURE 1: HEADSET JACK AND OAT INSTALL

Step 8: Secure the pitch servo connector with a tie-wrap until the optional Autopilot System is installed.

NOTE: Step 9 only pertains to Garmin Avionics installations. The Dynon OAT probe is installed in section 42CiS/U.

Step 9: Install the GTP 59 OAT Probe into the hole in the F-1275C-L Fuselage Corner Skin as shown in Figure 1.



NOTE: If not already done, complete the installation of the RV-12iS AOA Retro Kit for the wing components (as outlined in Notification 16-12-14) before completing the steps on this page.

Step 1: Tap 8-32 the four holes in the F-00034A and F-00034-R Wing Electrical Brackets as shown in Figure 1.

Step 2: Install the ES-00077 Left Wing Connector to the F-00034A using the hardware shown in Figure 1.

Install the ES-00078 Right Wing Connector to the F-00034-R.

Step 3: Install the Fuselage FLF-00012 AOA Fitting to the F-00034A with the "Fixed Nut" end inboard, as shown in Figure 1. Tighten the outboard FLF-00012 Adjustable Nut.

Step 4: Using a blunt implement (tip of a ball point pen), install the HW-00012 1/4 inch ID O-Ring into the FLF-00015-1 AOA Tube Guide. The o-ring fits into the o-ring groove just below the tapered face of the fitting (see cross section view). Lubricate the o-ring with a thin coating of Dow Corning #4 silicone lubricant (or equivalent). Verify the o-ring is properly installed in the FLF-00015-1 before installing it on the FLF-00012.

Step 5: Install the FLF-00015-1 on the outboard end of the fuselage FLF-00012. Apply a couple drops of Super Glue to the exposed threads of the FLF-00012 and thread the FLF-00015-1 on with firm "finger-tight" pressure.

The FLF-00015-1 AOA tube guide compresses the FLF-00012 fitting release ring, allowing the FLF-00016 Aluminum Connector Tube to slide freely in and out of the fuselage FLF-00012 during wing installation and removal.

Remove the FLF-00016 from the left wing. Verify that the FLF-00012 release ring is compressed by inserting and removing the FLF-00016 in the Left Wing Connector Assembly.

The FLF-00016 must not lock into the fuselage FLF-00012.

Return the FLF-00016 to its installed location in the left wing FLF-00012 fitting.

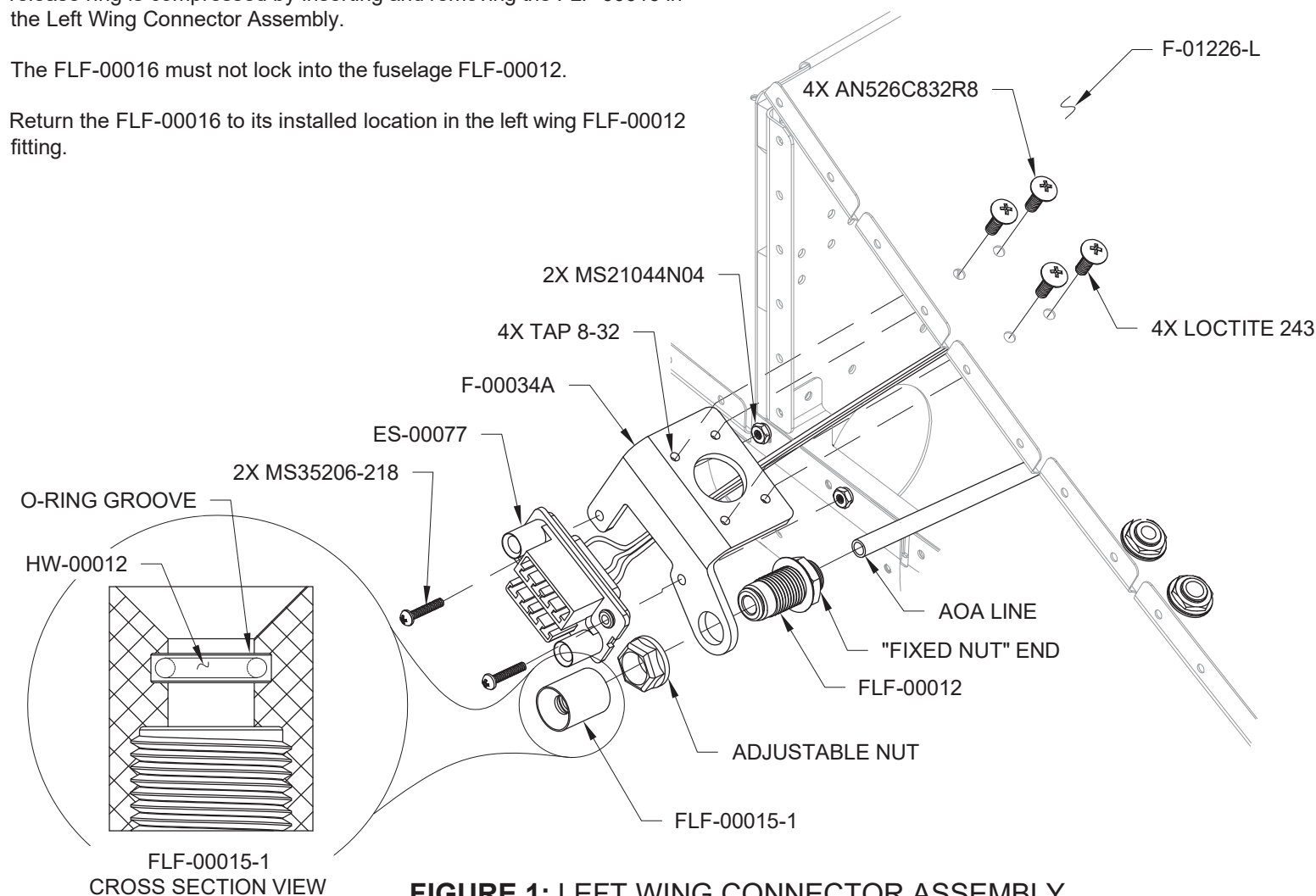


FIGURE 1: LEFT WING CONNECTOR ASSEMBLY

Step 6: Install the AOA Line into the "Fixed Nut" end of the FLF-00012.

Step 7: Install the F-00034A to the F-01226-L using the four mounting screws as shown in Figure 1.

Install the F-00034-R wing electrical bracket to the F-01226-R.

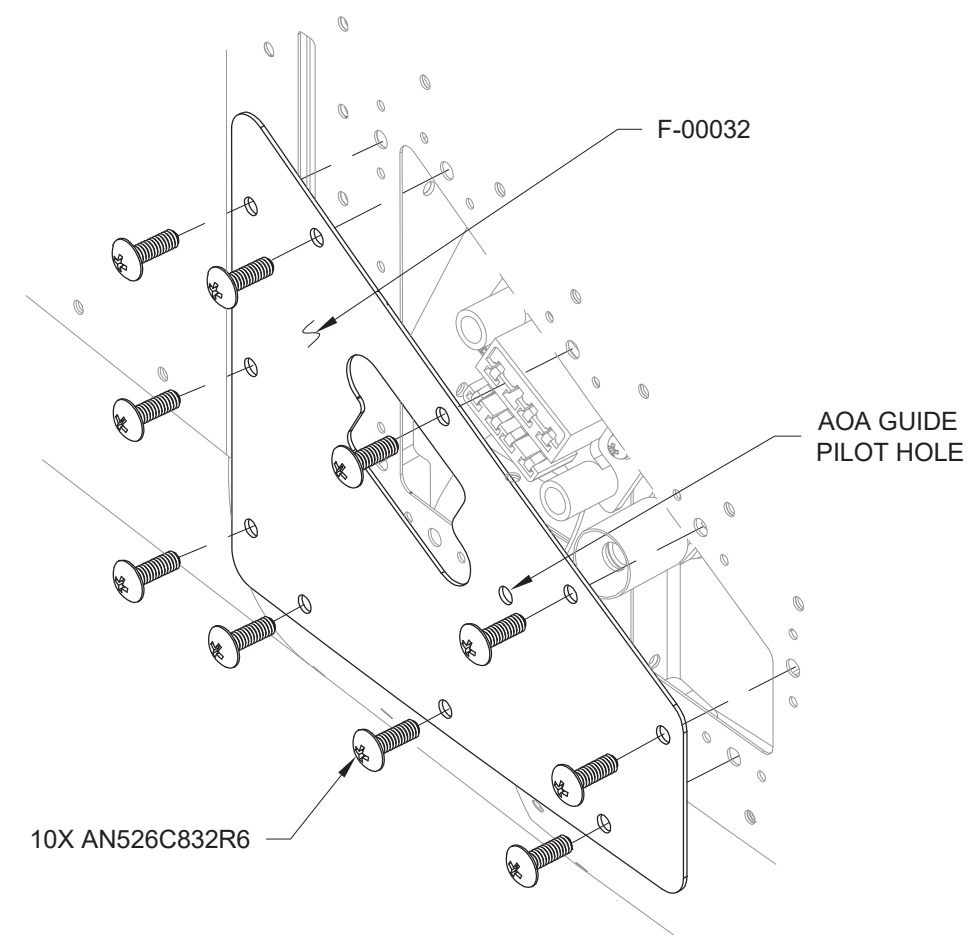
Step 8: Tie-wrap and secure all wires going to the ES-00077, headset jacks, and GTP 59 (Garmin Only), as well as the AOA line, to the ES-00301 as shown on the previous page.

Repeat for the applicable wires on the right side of the aircraft.

Step 9: Use a step drill to enlarge the AOA Guide pilot hole to 3/4 in the left F-00032 Fuselage Side Cover and deburr. See Figure 2.

Ignore the pilot hole in the right F-00032 Fuselage Side Cover, it is not used.

Step 10: Install the left F-00032 fuselage side cover using the hardware called out in Figure 2. Repeat for the right F-00032.



**FIGURE 2: LEFT SIDE COVER
(MIRROR FOR RIGHT SIDE)**



NOTE: A detailed wiring schematic for the steps on this page, including connectors, is provided on the next page.

Step 1: Remove the F-12101 Flap Cover and install the HW-00004 as shown in Section A-A of Figure 1.

Step 2: Route the flap switch, flap motor, and power outlet wires through the hole in the F-01203A-1 and to their approximate locations as shown in Figure 1.

Step 3: Disconnect the ES SW K2-AGPAAAAA Flap Switch from the harness, then install the ES SW-807038-1 Switch Gasket and ES SW K2-AGPAAAAA onto the F-01246 Tunnel Cover. Reconnect the spade terminals once the switch is installed.

Step 4: Ground the ring terminal of the C6286 (BLK) wire to the F-01215-R-1 Seat Rib as shown in Section A-A.

Step 5: Strip back the two power and the three signal wires on the ES-00346 Flap Motor.

Step 6: Crimp an ES 421-0108 Female Spade Connector onto each of the Flap Motor Power Wires (red and black), and an ES 421-0107 Male Spade Connector onto each of the Flap Motor Signal Wires (white, yellow, and blue.)

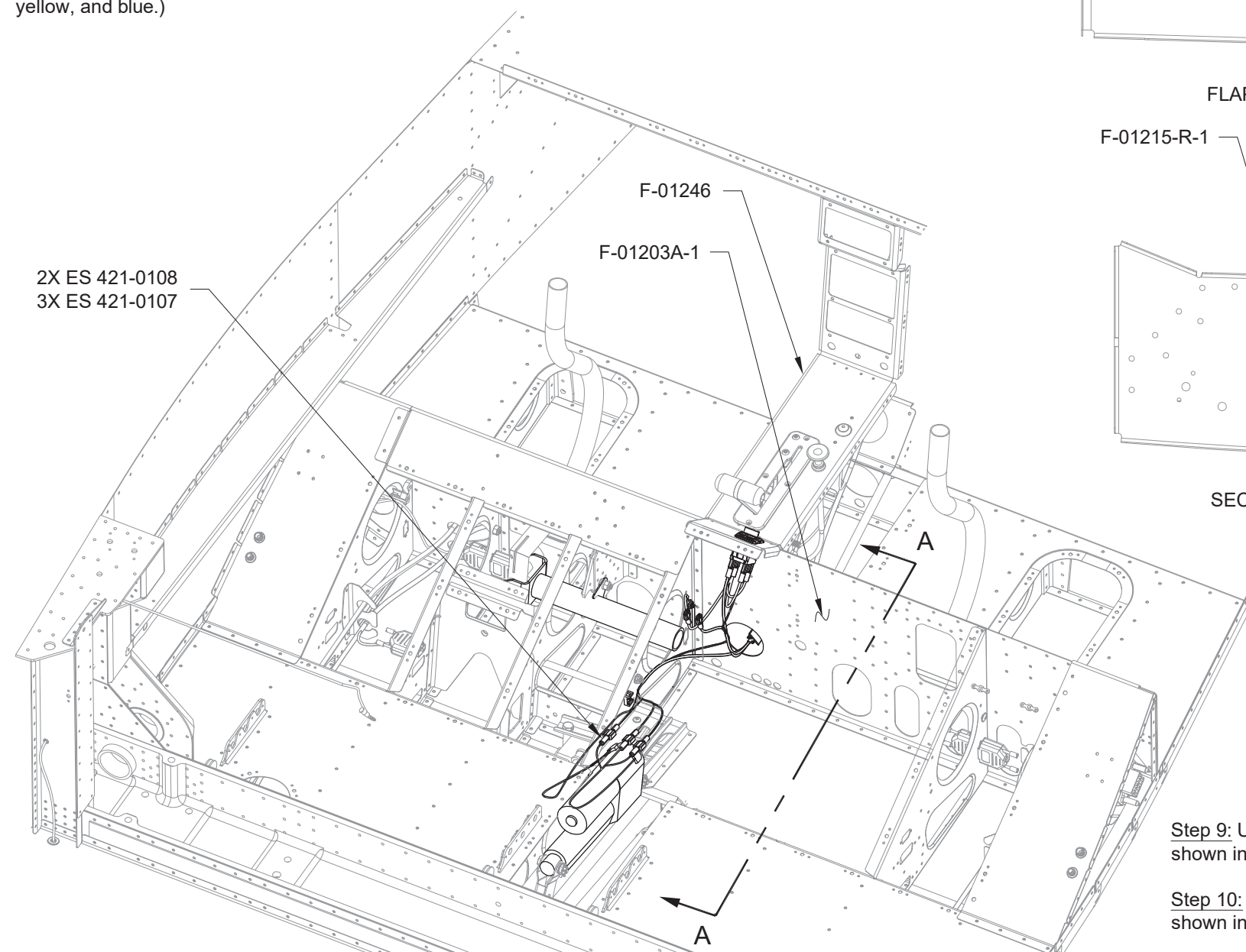
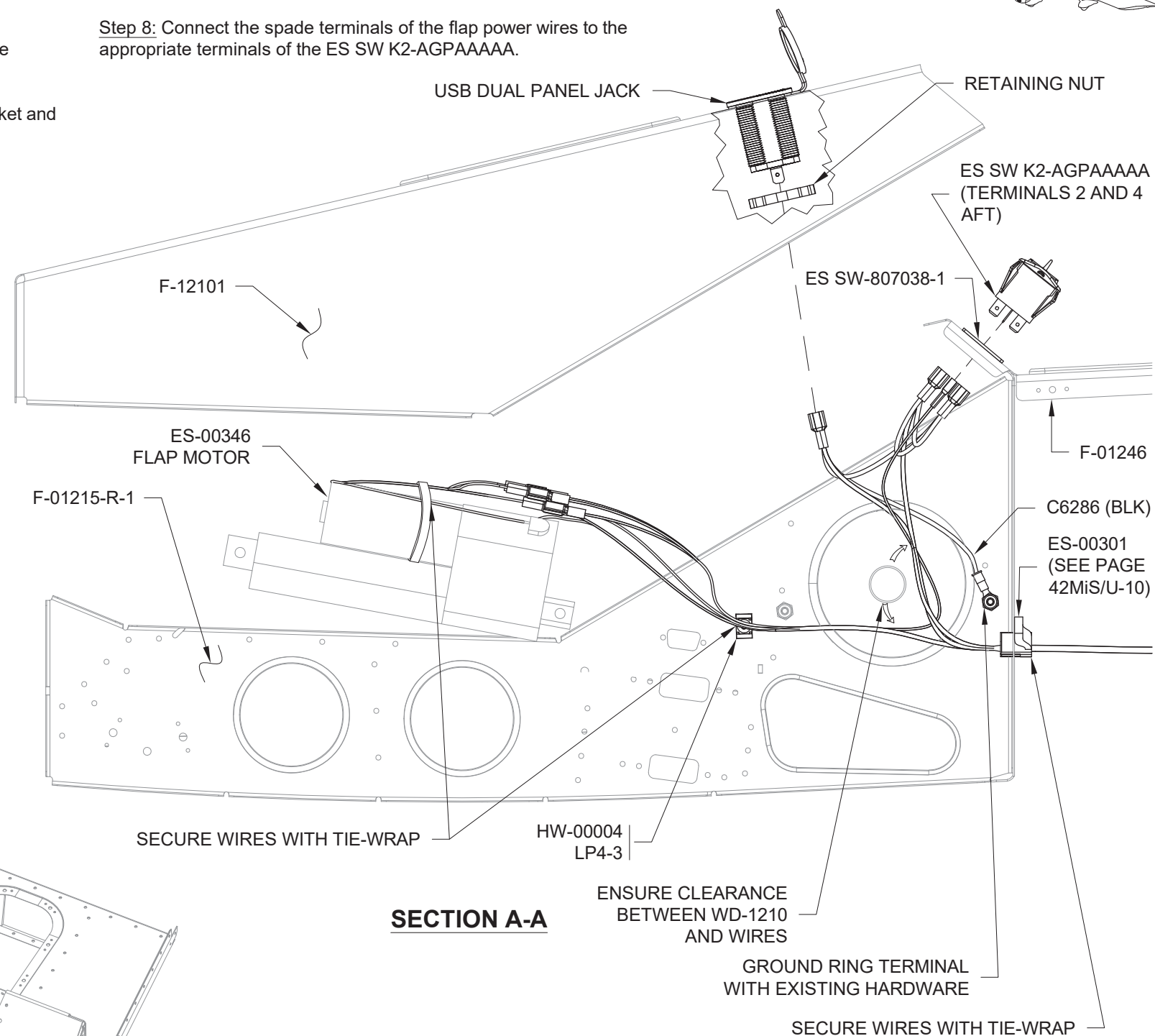


FIGURE 1: FLAP AND POWER OUTLET WIRING

Step 7: Connect the spade terminals of the flap signal wires to the appropriate wires in the main harness.

Step 8: Connect the spade terminals of the flap power wires to the appropriate terminals of the ES SW K2-AGPAAAAA.



SECTION A-A

Step 9: Use tie-wraps to secure wires to the ES-00301 and HW-00004, bundling and securing any extra wire to the Flap Motor as shown in Section A-A. Ensure that there is clearance between the WD-1210 Control Column throughout its range of motion.

Step 10: Install the USB Dual Panel Jack onto the F-12101 and connect the wires to the appropriate spade connectors as shown in Section A-A.

Step 11: Reinstall the F-12101, see Section 49iS/U.

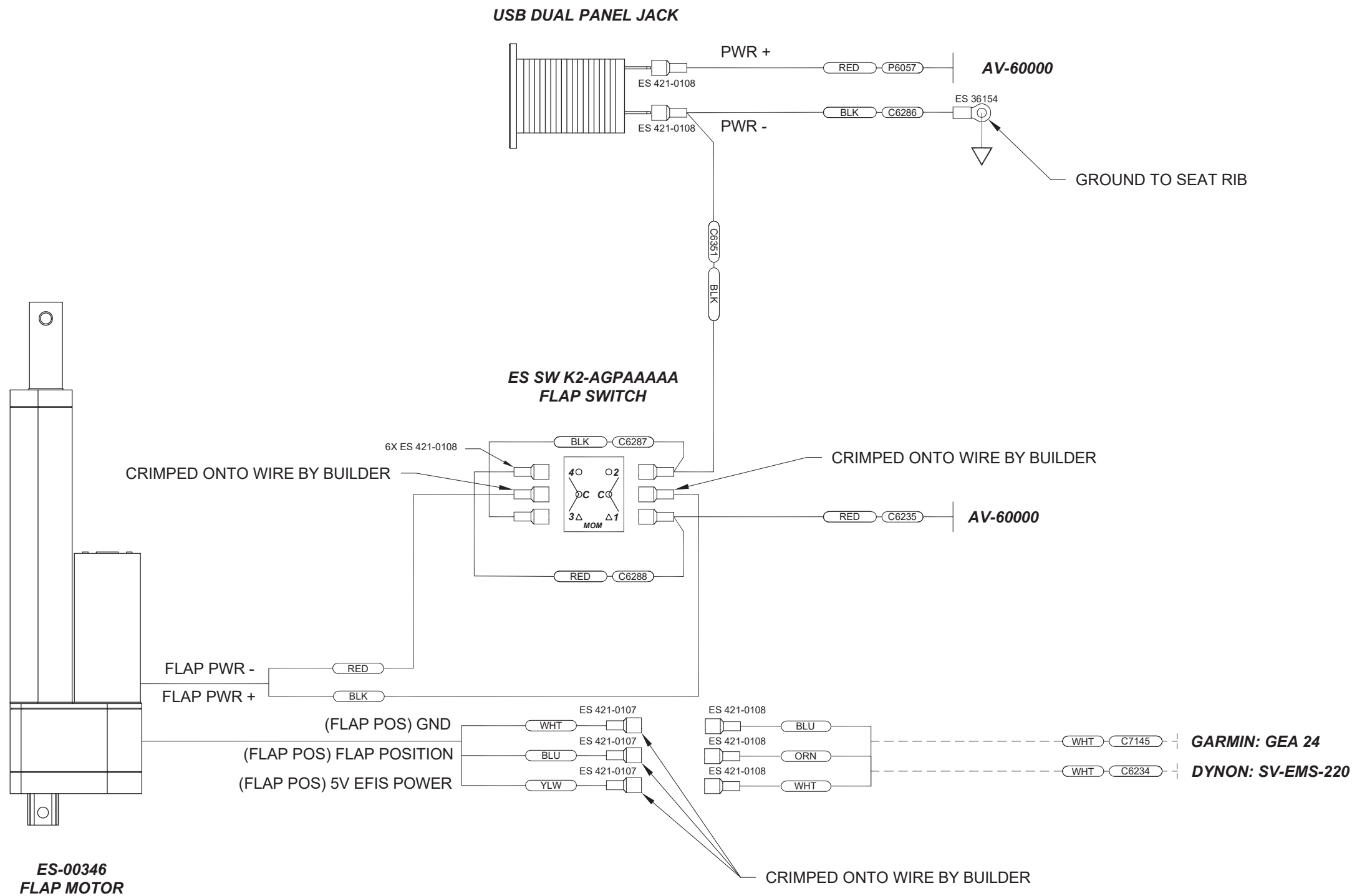
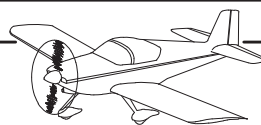


FIGURE 1: FLAP AND POWER OUTLET WIRING



Step 1: Drill out the first and sixth rivet from the left on the bottom of the Mid Fuse Brace, then install the HW-00004s as shown in Figure 1.

Step 2: Route the wires for the fuel sender and spar pin switch up through the holes in the F-01224-L-1, F-01204F-L-1, and F-01204G-L-1 as shown in Figure 1 and Figure 2.

Step 3: Pass the spar pin switch wires through the holes in the F-01204B-L-1 and F-1204C-L.

Step 4: Connect the spar pin switch wires to the center spade (labeled "NO"), and the outboard spade (labeled "COM") of the ES E22-50K Spar Pin Switch as shown in Figure 2. It does not matter which wire goes to which spade.

Step 5: Route the fuel sender wiring along the bottom of the Mid Fuse Brace, securing them to the HW-00004 with a tie wrap. See Figure 1 for wire routing and callouts, and Figure 3 for wire securing details.

Step 6: Install snap bushings in the F-01204F-L-1, F-01204B-L-1, F-01204G-L-1, and F-1204C-L as shown in Figure 1 and Figure 2. Slit the snap bushing prior to installation. Repeat for the right side of the aircraft.

Step 7: Connect the fuel sender wires to the fuel sender on the fuel tank.

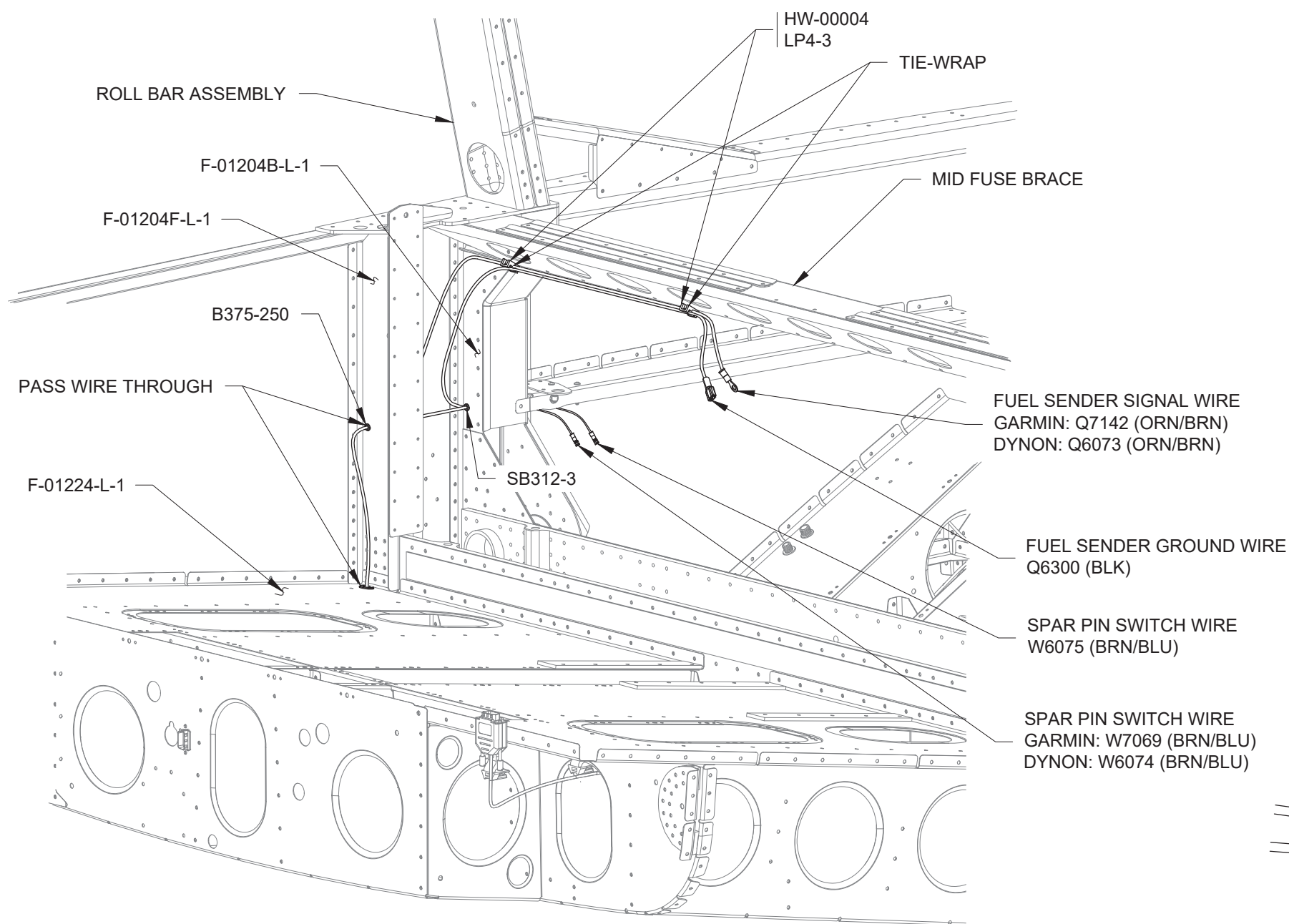


FIGURE 1: WIRE ROUTING THROUGH CENTER SECTION BULKHEAD

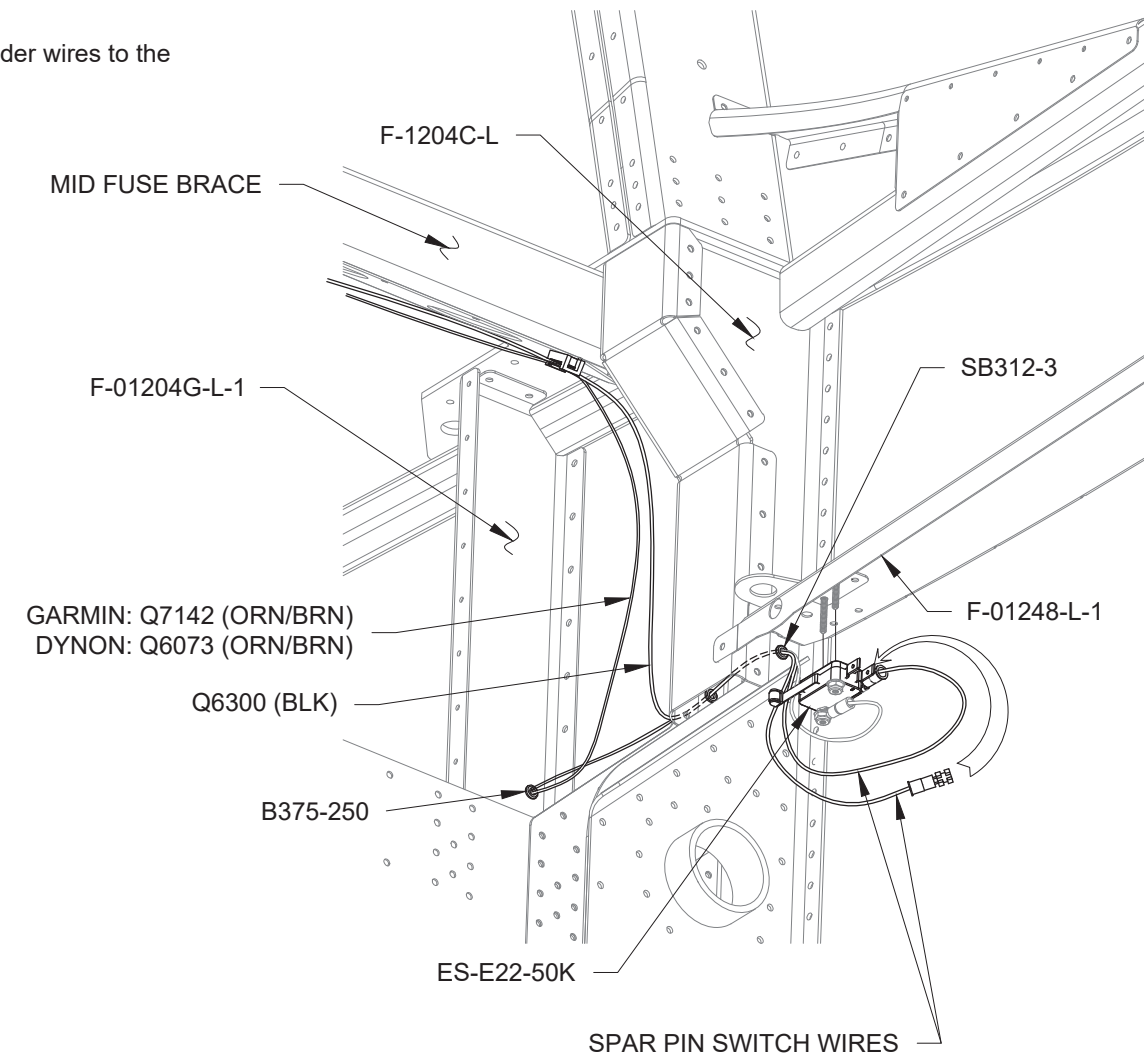


FIGURE 2: CONNECTING THE LEFT SPAR PIN SWITCH

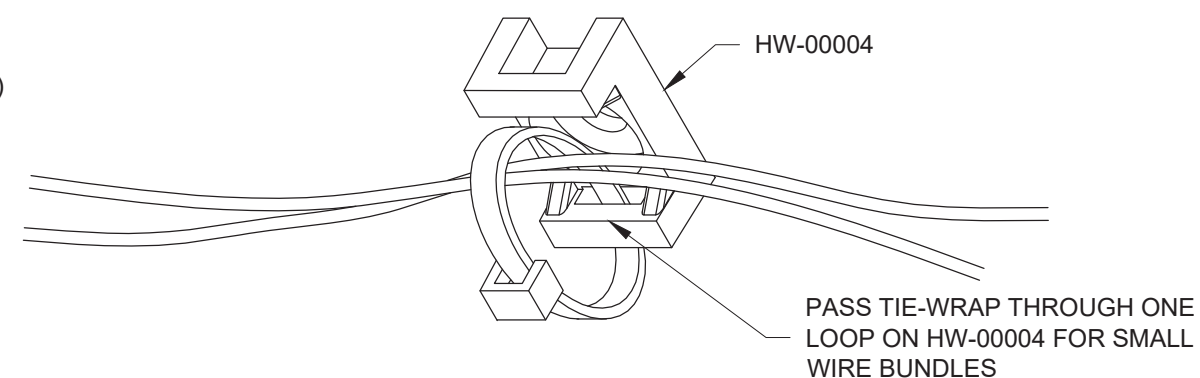
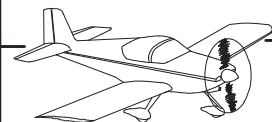


FIGURE 3: SECURING SMALL BUNDLES TO HW-00004



Step 1: Secure the spar pin switch and fuel sender wiring to the ES-00301 as shown in Figure 1.

Step 2: Route the COM Antenna Coax Cable through the center section bulkhead and attach the COM BNC Connector to the AV-00008 COM Antenna as shown in Figure 1.

Step 3: Install the ES-00301 onto the F-01206H-L-1 baggage rib as shown.

Step 4: Route the Roll Servo Connector through the F-01206H-L-1 as shown in Figure 1. Secure the connector clear of flight controls with a tie-wrap until the optional autopilot is installed.

Step 5 (Garmin): Route the ADAHRS connectors through the F-01206H-L-1 as shown in Figure 1. These will be connected in Section 42NiS/U.

NOTE: Reference to fuel pump and fuel pressure connections in Steps 6 through 8 are for Rotax 912iS installations only. See Page 42MiS/U-40 for 912ULS fuel pump wiring.

Step 6: Route the Fuel Pump 1, Fuel Pump 2, Fuel Pressure Sensor, and Magnetometer (Garmin) or ADAHRS (Dynon) connectors through the F-1207C-L and into the tailcone as shown until the blue tie-wrap is flush with the bulkhead. See Figure 1.

NOTE: See Section 5.27 for detailed fluid fitting assembly instructions.

Step 7: Remove the tape covering the aft-facing port on the FLF-00013 adapter, then install the appropriate fuel pressure sensor as shown in the Detailed View of Figure 1. Connect the fuel pressure sensor connector after installing the sensor.

Step 8: Install the fuel pump power connectors as shown in the detail view of Figure 1.

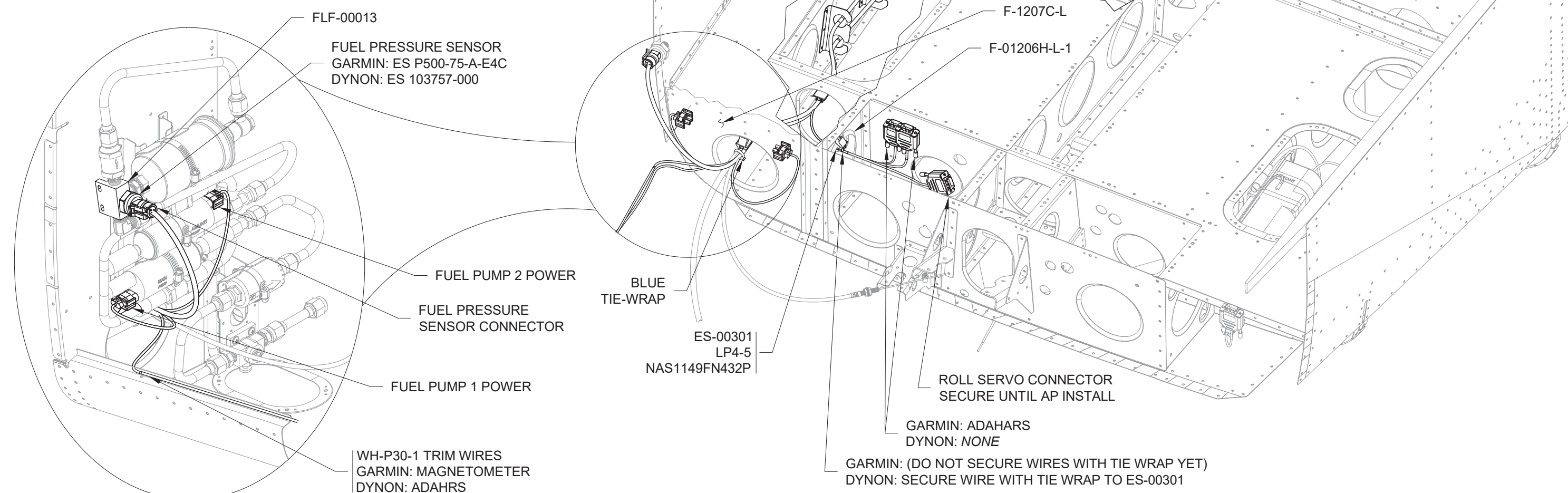
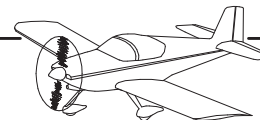


FIGURE 1: BAGGAGE AREA CONNECTIONS



Step 1: Route the Magnetometer (Garmin) or ADAHRS (Dynon) wiring inside the "hook" of the J-Stiffener on the F-1281-L Lower Skin then up the flange of the F-1208 Frame following the Aft Pitot Line. See Figure 1.

Temporarily secure the wiring with tape or loose tie-wraps as shown.

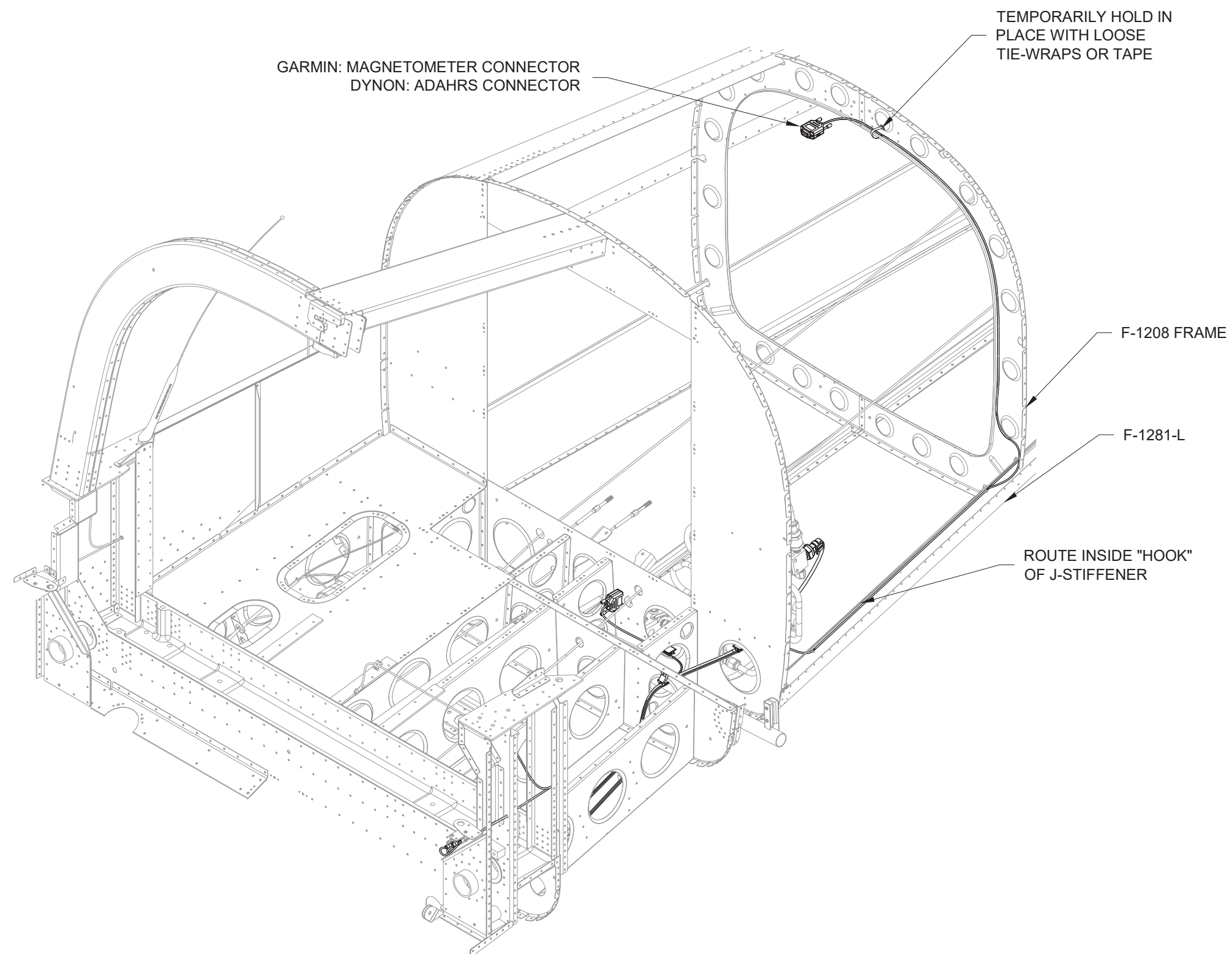


FIGURE 1: ROUTING TAILCONE WIRING

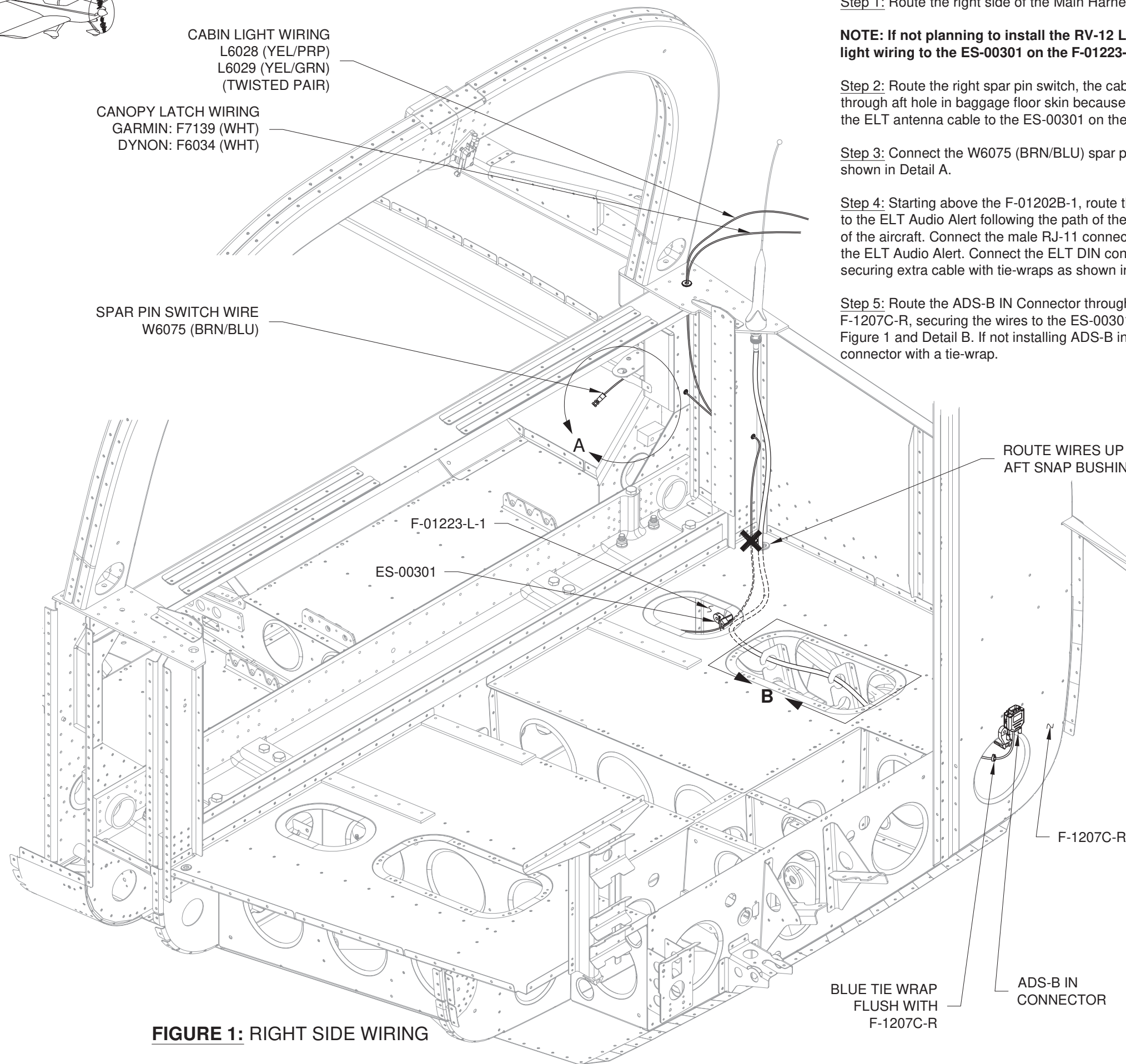


FIGURE 1: RIGHT SIDE WIRING

Step 1: Route the right side of the Main Harness through the right side of the aircraft, mirroring the route taken by the left side.

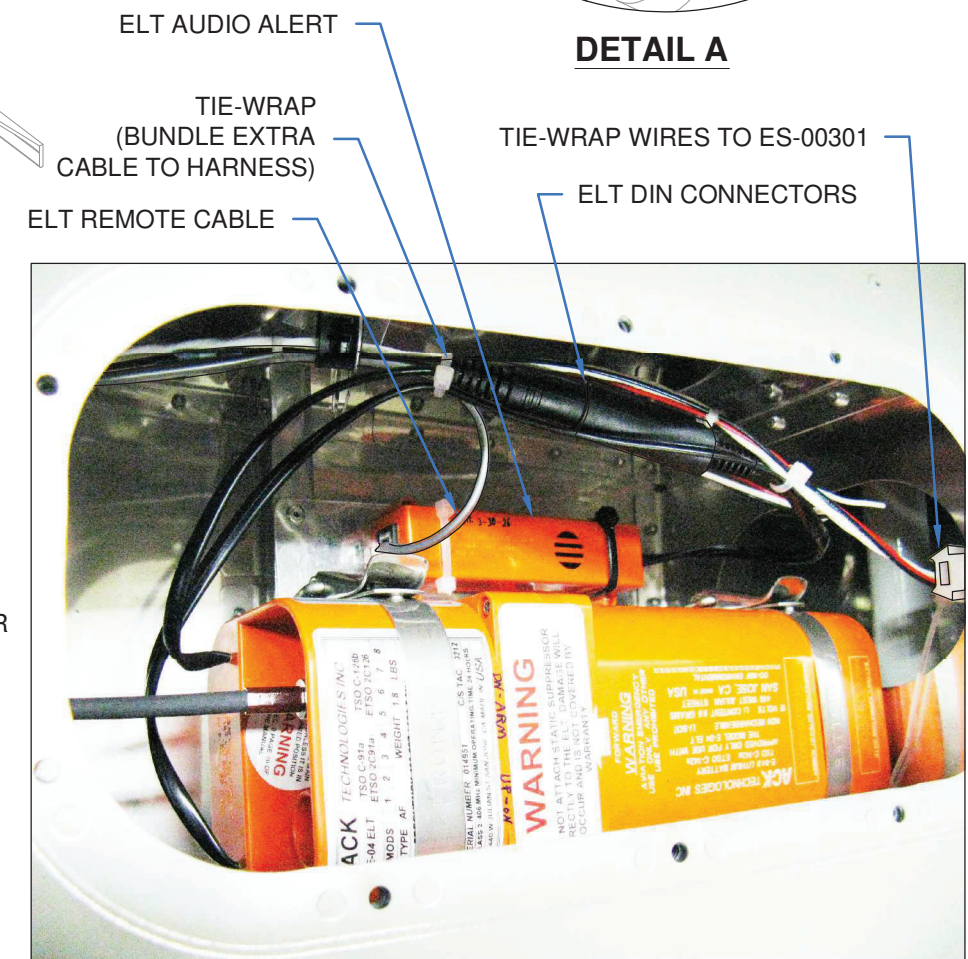
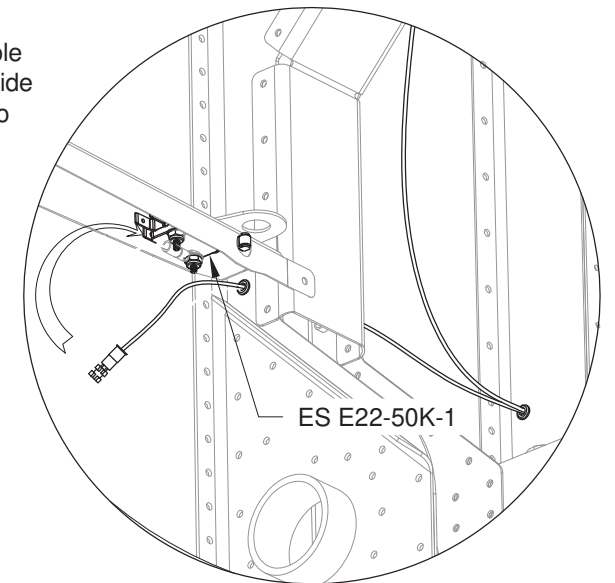
NOTE: If not planning to install the RV-12 Light Kit-SV, cover the ends with heat shrink, then bundle and secure the cabin light wiring to the ES-00301 on the F-01223-L-1.

Step 2: Route the right spar pin switch, the cabin light, and canopy latch switch wiring as shown in Figure 1. Wires must pass through aft hole in baggage floor skin because fuel vent line will pass through forward hole. Use a tie-wrap to secure the wires and the ELT antenna cable to the ES-00301 on the F-01223-L-1.

Step 3: Connect the W6075 (BRN/BLU) spar pin switch wire spade terminal to the outboard "COM" spade of the ES E22-50K-1 as shown in Detail A.

Step 4: Starting above the F-01202B-1, route the E-04.10.5 ELT Remote Cable to the ELT Audio Alert following the path of the Main Harness down the right side of the aircraft. Connect the male RJ-11 connector on the ELT Remote Cable to the ELT Audio Alert. Connect the ELT DIN connectors together, bundling and securing extra cable with tie-wraps as shown in Detail B.

Step 5: Route the ADS-B IN Connector through the F-1206A-1 and F-1207C-R, securing the wires to the ES-00301 on the F-01206A-1. See Figure 1 and Detail B. If not installing ADS-B in, secure the ADS-B in connector with a tie-wrap.



DETAIL B

NOTE: If not installing the RV-12 Light Kit-SV, ignore all reference to the L6028 (YEL/PRP) and L6029 (YEL/GRN) cabin light wires which were already secured under the baggage floor.

- Step 1: Drill #12 a hole in the bottom of the Roll Bar Assembly at the location shown in Figure 1.
- Step 2: Insert the snap bushing in the hole just made in the bottom of the Roll Bar Assembly as shown in Figure 1. The flange of the bushing will need to be trimmed away to allow the bushing to fit between the F-1231A-AR & FR Roll Bar Frames and fully snap in place.
- Step 3: Fabricate the F-12126 Wire Tube by cutting a 30 inch long piece of PT-035X1/4 plastic tube.
- Step 4: Route a piece of safety wire through the #12 hole made in Step 1 and down through the Roll Bar Assembly to the large hole at the base of the Roll Bar Assembly on the aft side near the F-01205B-1. See Figure 2.
- Tape the safety wire to the canopy latch and cabin light wires, then pull the wires through the F-12126 and up into the Roll Bar Assembly with the safety wire. Stop when the wires have exited the #12 hole as shown in Figures 1 and 2.
- Step 5: Crimp the ES DV18-188M Spade Terminal onto the canopy latch wire as shown in Figure 1.
- Step 6: Connect the spade terminal to the center spade (labeled "NO") of the Canopy Latch Switch as shown in Figure 1.

See Section 40iS/U for further installation of the optional cabin light wires.

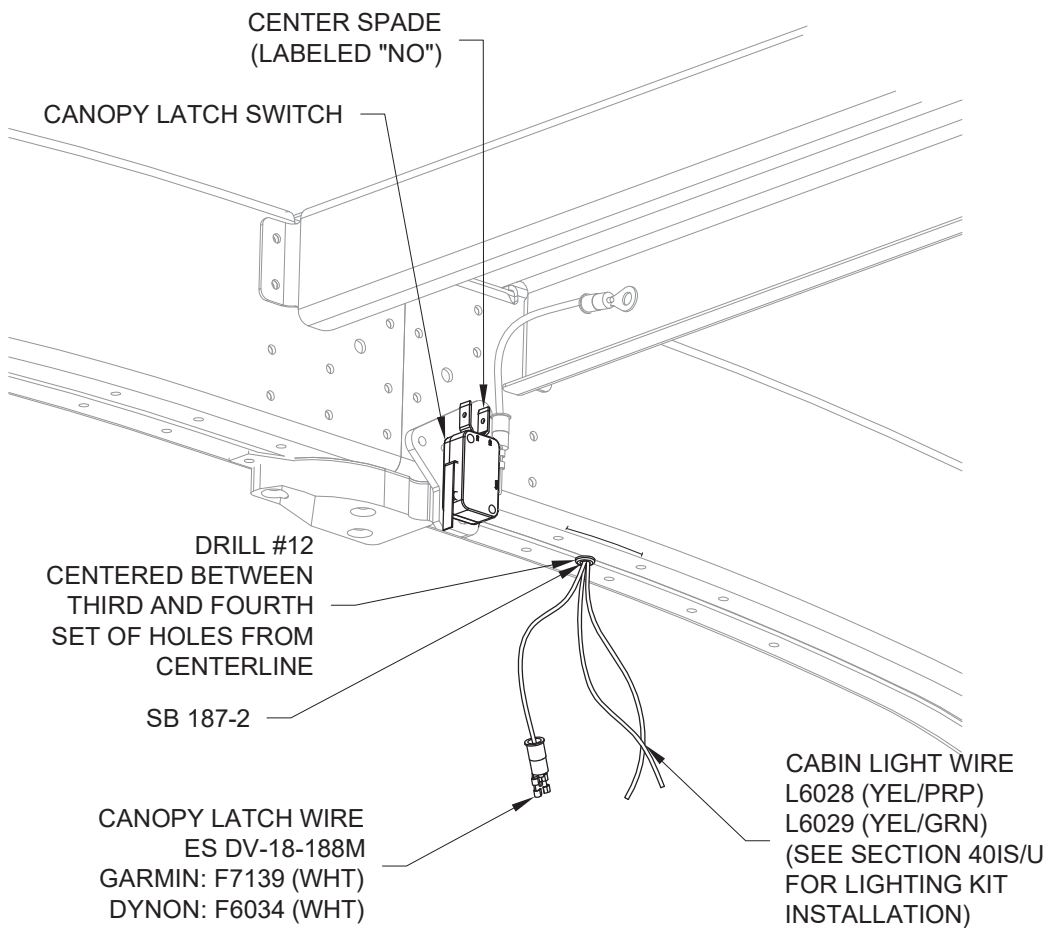


FIGURE 1: DRILLING ROLL BAR

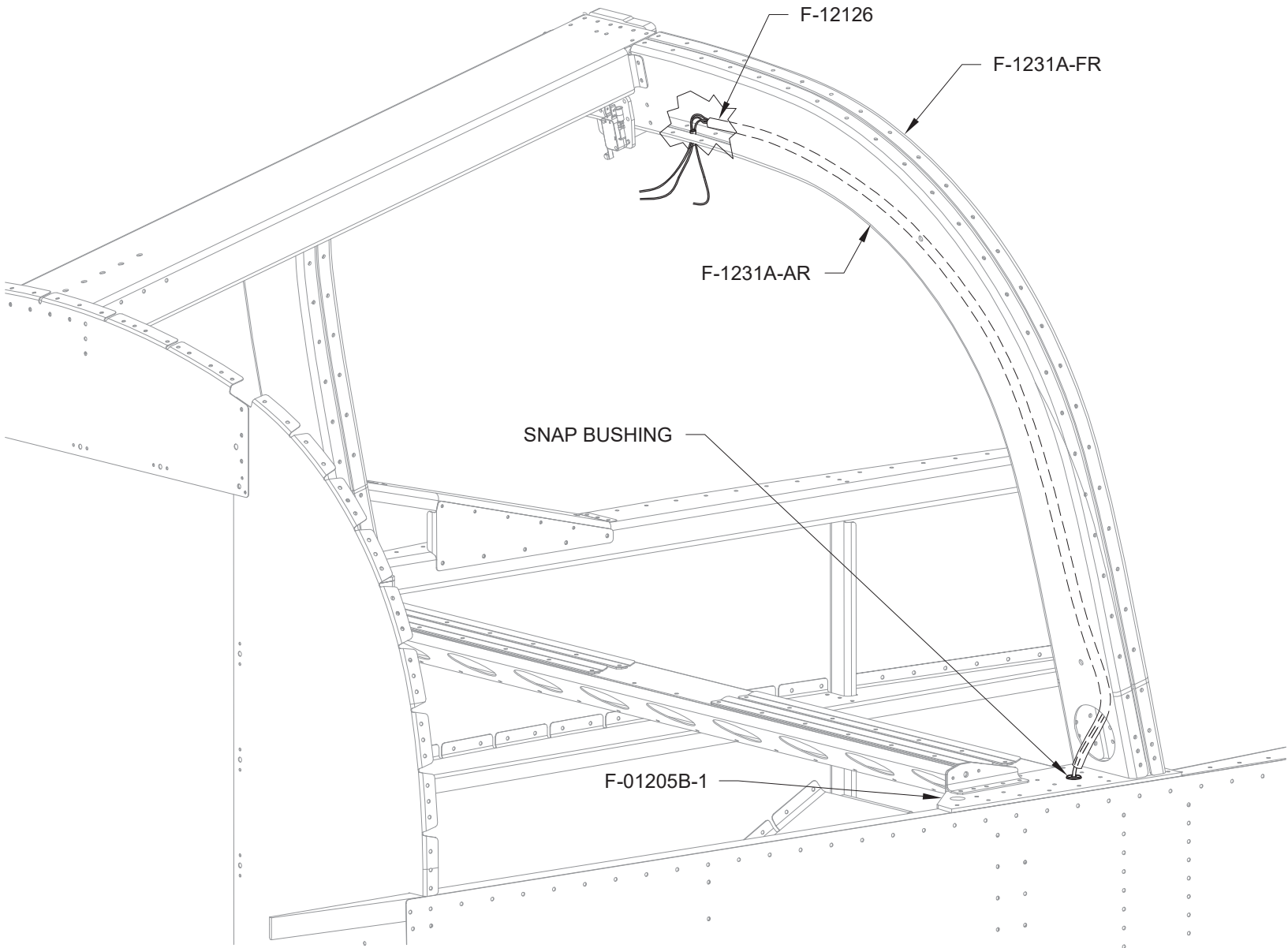


FIGURE 2: WIRE ROUTING THROUGH ROLLBAR

Step 1: Secure all wires of the main harness that pass through the F-01202B-1 in the two HW-00009 clamps on the F-01230-1 as shown in Figure 1.

Step 2: Install the F-01212A Wire Routing Brackets to the two center F-01212-L-1s and the two center F-01212-R-1s with wires passing through them. Once riveted in place, route the wires through the F-01212As. See Figure 1.

Step 3: Starting at the F-12103 and working back to the tailcone (down both sides), install a Bushing SB750-10 in every wire routing bracket with wires passing through. See Figure 1 and 2. Cutting a slit in the bushings allows them to be easily slipped over wires and pressed into brackets.

When finished, ensure no wires of the Main Harness are subject to chafing from sheet metal edges throughout the aircraft.

Ensure adequate separation between all portions of the Main Harness and all flight controls.

Step 4: Connect one end of the E-04.10.3 ELT Audio Alert Cable to the ELT Remote Cable as shown in Figure 1

Step 5: Reinstall the Fuel Tank as shown in Section 26iS or 26U.

Step 6: Peel off the adhesive backing on one side of the F-12123B Velcro Tape and adhere the F-12123B to the F-12123A Fuse Holder as shown in Figure 3.

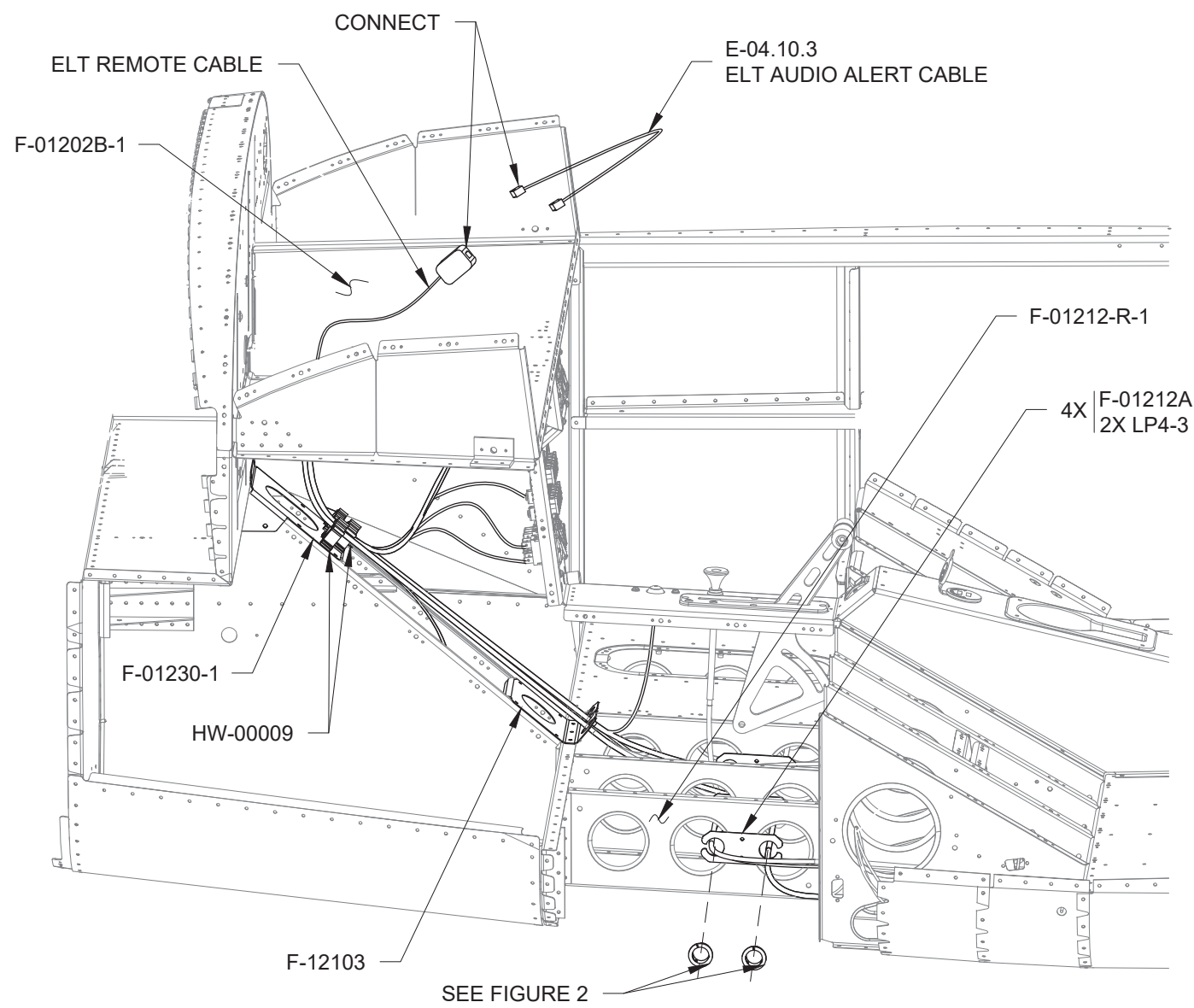


FIGURE 1: SECURING HARNESS

Step 7: Insert the required spare fuses into the slot on the side of the F-12123A as shown in Figure 3. Insert two of each of the following fuses: 3A, 5A, 7.5A, 10A, and 30A.

Step 8: Peel off the remaining adhesive backing from the F-12123B, and press the F-12123A and F-12123B onto the bottom of the F-01202B-1 in a location that is easy to reach while seated in the aircraft. See Figure 3.

END OF SECTION

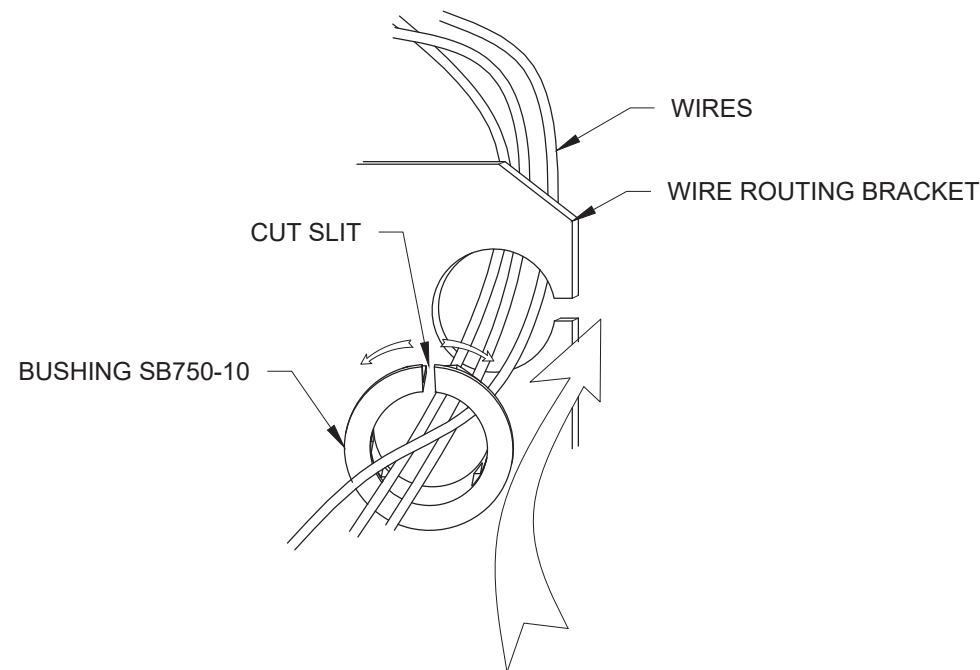


FIGURE 2: INSTALLING SNAP BUSHINGS

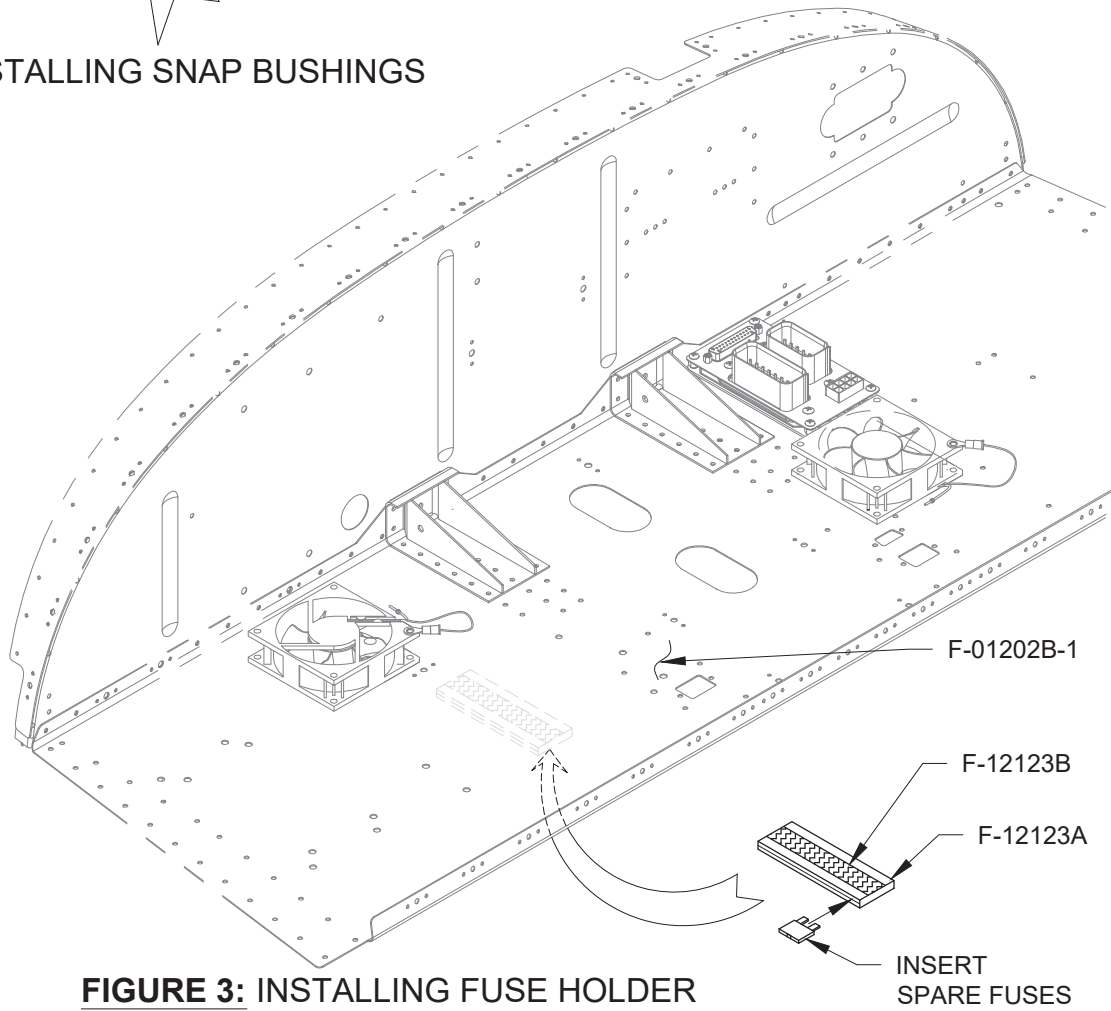
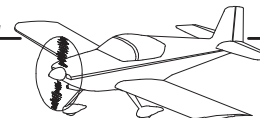
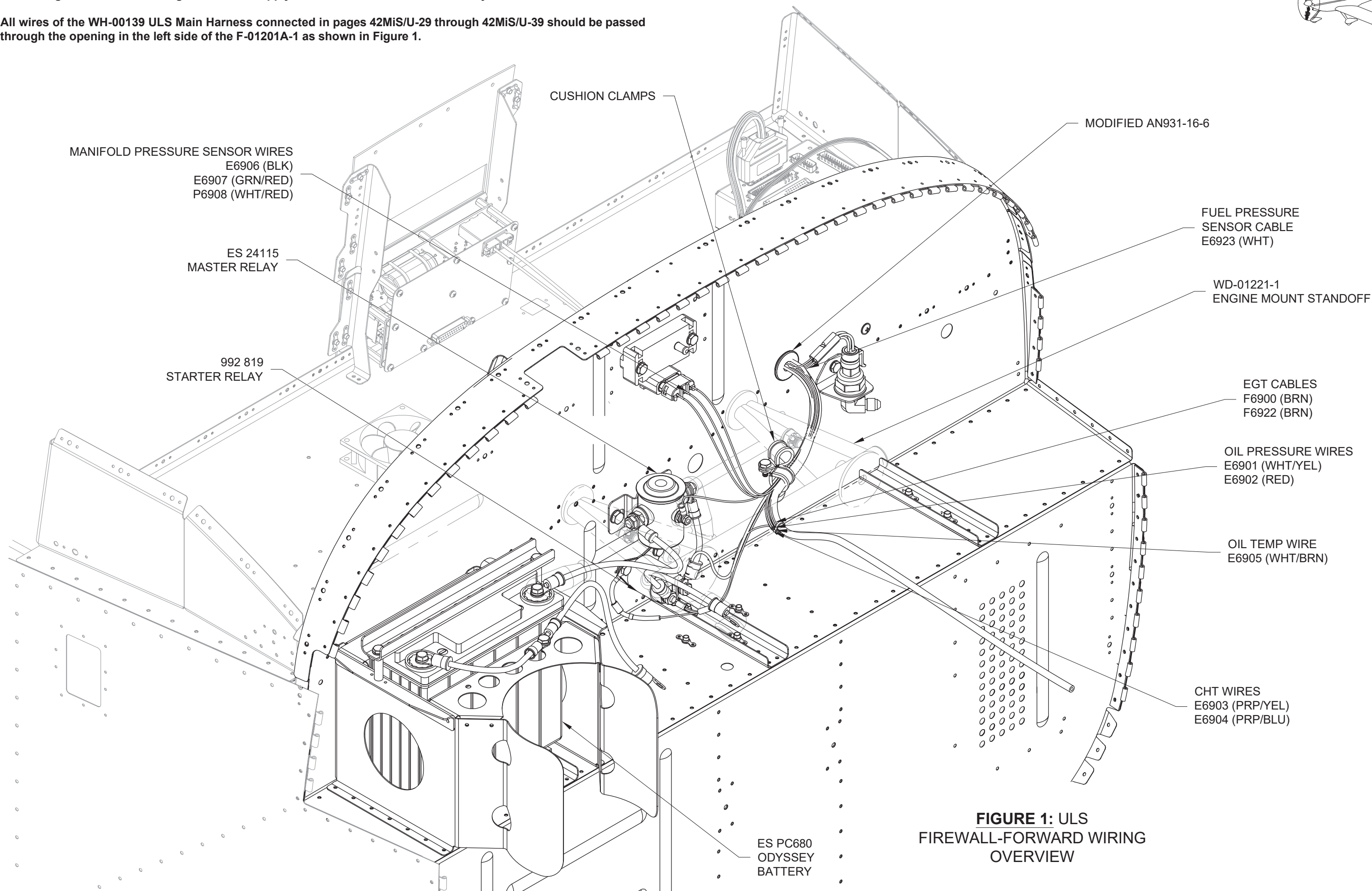


FIGURE 3: INSTALLING FUSE HOLDER

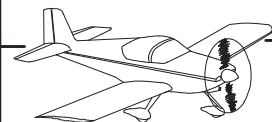


NOTE: Pages 42MiS/U-29 through 42MiS/U-40 apply to Rotax 912 ULS installations only.

All wires of the WH-00139 ULS Main Harness connected in pages 42MiS/U-29 through 42MiS/U-39 should be passed through the opening in the left side of the F-01201A-1 as shown in Figure 1.



**FIGURE 1: ULS
FIREWALL-FORWARD WIRING
OVERVIEW**



Step 1: Ensure that the edges of the F-00036 Fuel Pressure Sensor Bracket are deburred.

Step 2: Insert a grommet into the large hole in the F-00036 as shown in Figure 1.

Step 3: Attach the F-00036 to the F-01201A-1 Firewall Top as shown in Figure 1.

NOTE: See section 5.27 for detailed fluid fitting assembly instructions.

Step 4: Insert the female pipe thread end of the F 4 DTX-S elbow into the grommet from below as shown in Figure 1.

Step 5: Attach the 103755-000 Fuel Pressure Sensor into the elbow from above. Apply a small amount of pipe thread sealant to the threads prior to installation.

Step 6: Cut the three wires coming from the 103755-000 Fuel Pressure Sensor 1 1/2 in. [38.1 mm] from where they exit the sensor body.

Step 7: Locate the E6923 (WHT) fuel pressure sensor cable on the WH-00139. Strip back the insulation and shielding 2 in. [50.8 mm] to reveal the three wires inside.

Step 8: Strip the insulation on each wire of the E6923 (WHT) cable, then crimp on butt splices to connect the wires to those coming from the 103755-000 Fuel Pressure Sensor. See Figure 2 for exact connections.

Step 9: Remove the plug from the fitting, then connect the fuel pressure side of the VA-216 Fuel Return Asy to the F 4 DTX-S on the 103755-000 Fuel Pressure Sensor. Reference Section 46U.

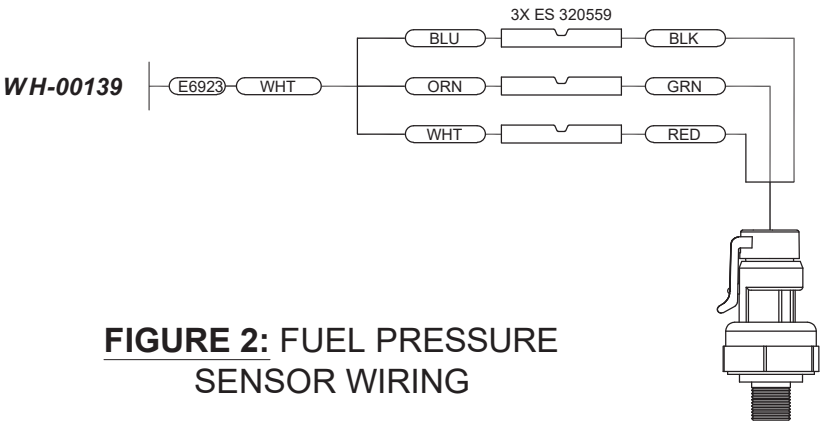


FIGURE 2: FUEL PRESSURE SENSOR WIRING

**FUEL PRESSURE
103755-000**

**FIREWALL
PENETRATION
GROMMET**

**AN3-3A
NAS1149F0332P**

AN931-6-16

WH-00139

3X ES-320559

103755-000

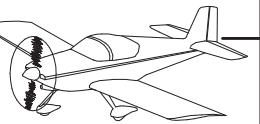
F-00036

F 4 DTX-S

F-01201A-1

CONNECT VA-216

FIGURE 1: INSTALLING THE FUEL PRESSURE SENSOR



Step 1: Locate the two 100405-001 Dynon EGT Sensors. Cut off the four existing connectors but leave as much wire as possible. Strip the ends of the four wires and then crimp one ES 421-0108 spade connector onto the end of each wire.

Step 2: Install one of the two EGT sensors into the EX-00018 Cylinder #4 Exhaust as shown in Figure 1.

Route the sensor wire along the left carburetor fuel hose upward and inboard to the top of the engine. Connect the EGT sensor spade connectors to the wires of corresponding color in the F6900 (BRN) "EGT-L" cable.

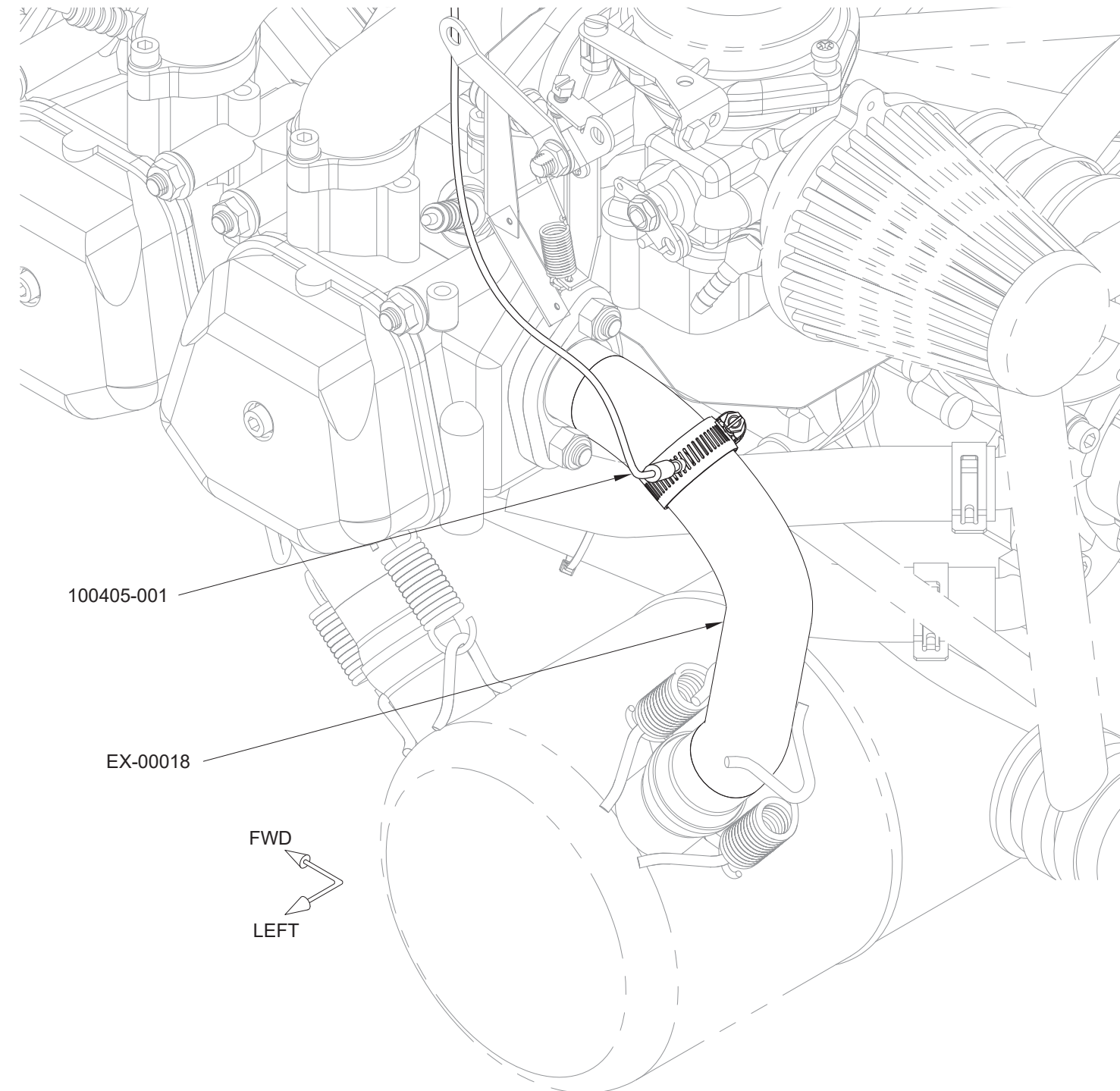


FIGURE 1: INSTALL LEFT EGT SENSOR

Step 3: Install the remaining EGT sensor in the EX-00016 Cylinder #3 Exhaust as shown in Figure 2.

Route the sensor wire along the #3 cylinder coolant hose aft/inboard and then upward to the top of the engine. Connect the EGT sensor spade connectors to the wires of corresponding color in the F6922 (BRN) "EGT-R" cable.

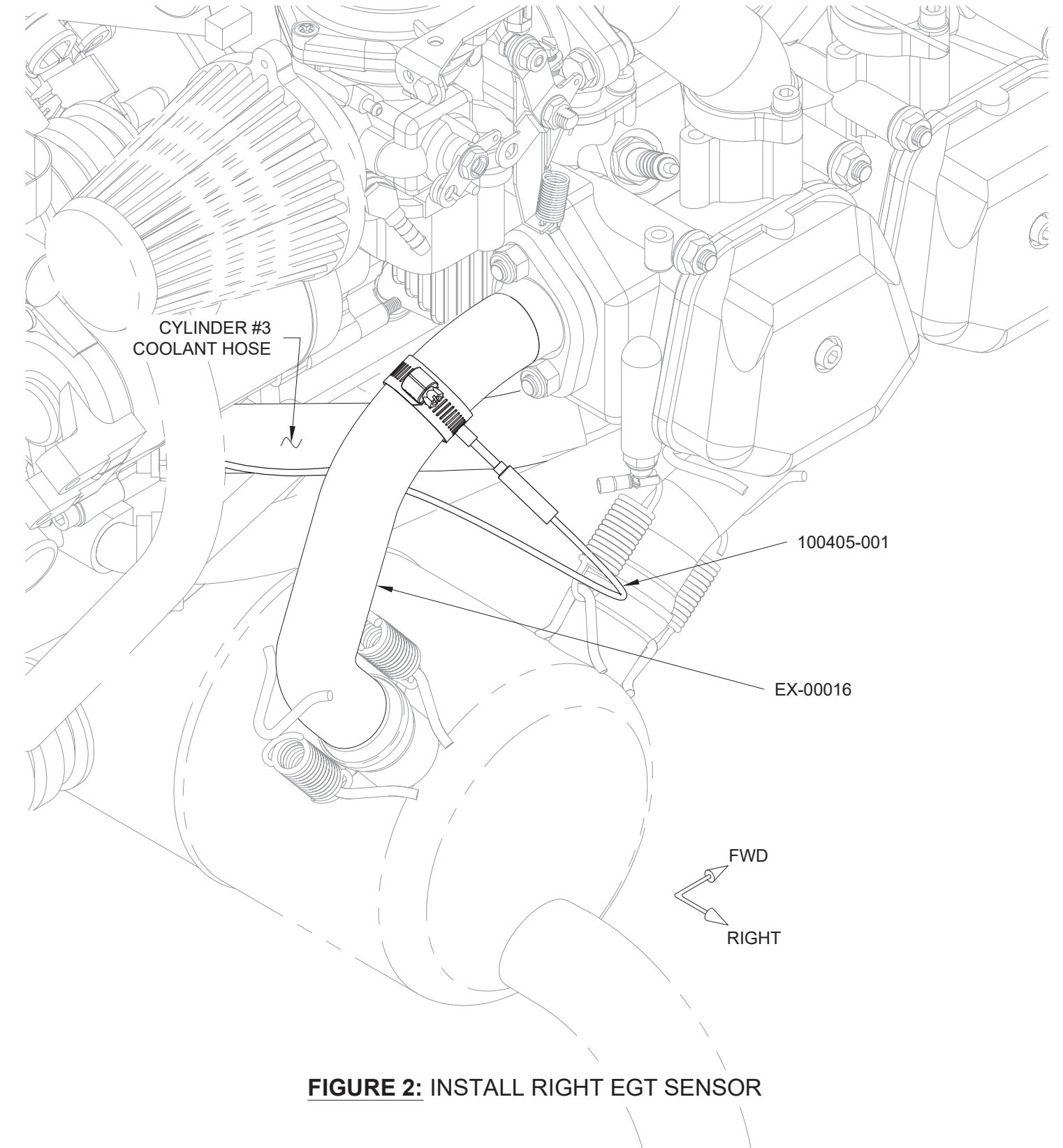
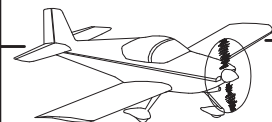


FIGURE 2: INSTALL RIGHT EGT SENSOR



Step 1: Locate the E6906 (BLK) Manifold Pressure A, E6907 (GRN/RED) Manifold Pressure B, and E6909 (WHT/RED) Manifold Pressure C manifold pressure sensor wires on the WH-00139 and insert them into the Weatherpack three position connector as shown in Figure 1.

Gently tug on the wires to verify that they are secure. Close the connector housing.

Step 2: Insert the Weatherpack three position connector into the 100434-000 Manifold Pressure Sensor as shown in Figure 2.

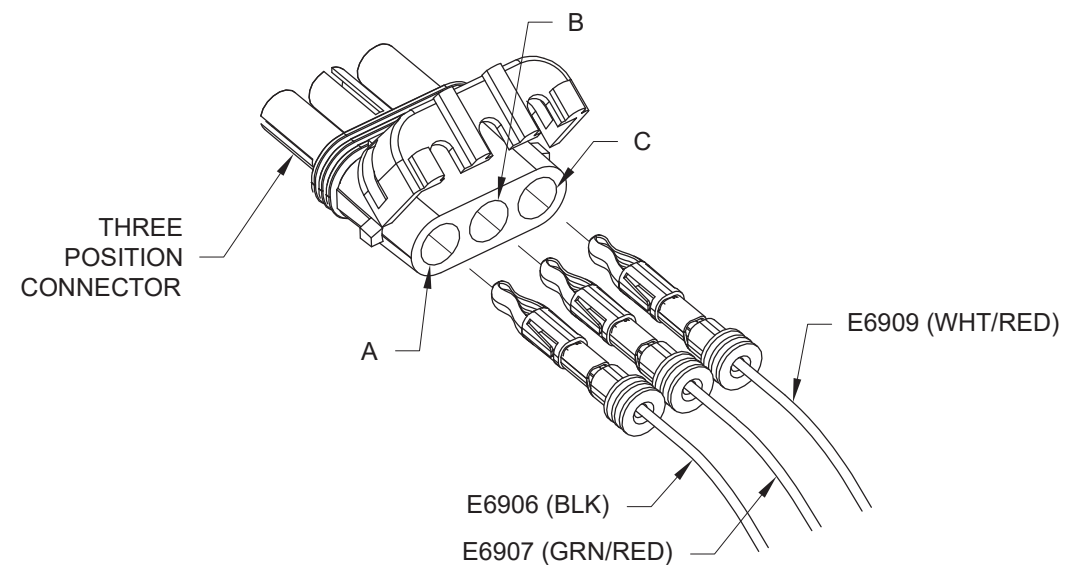


FIGURE 1: POPULATE THE MANIFOLD PRESSURE CONNECTOR

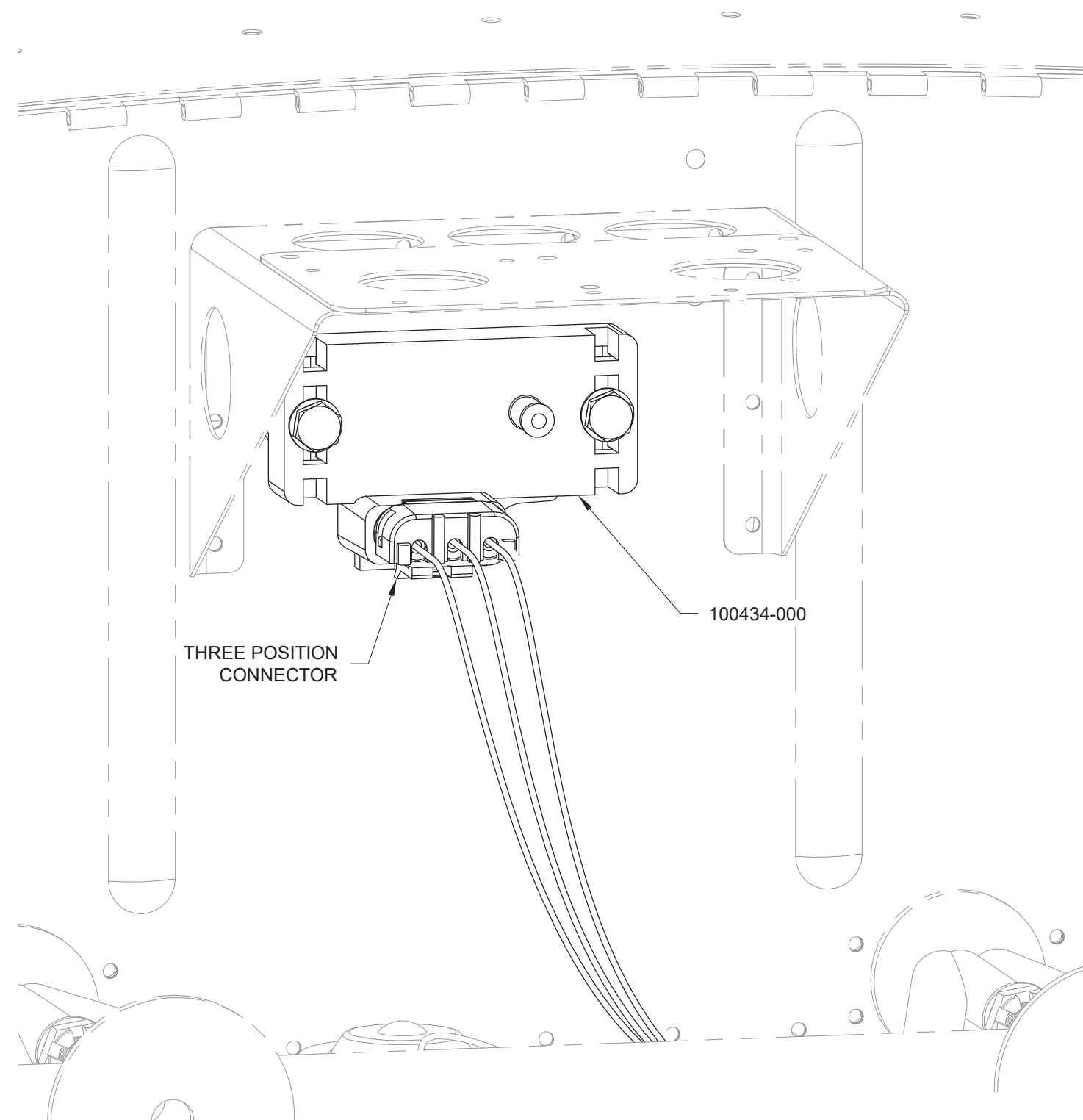


FIGURE 2: INSTALL THE MANIFOLD PRESSURE CONNECTOR

Step 1: Fabricate the FF-1222-1 Manifold Pressure Hose from EA HOSE H173 rubber hose as shown in Figure 1.

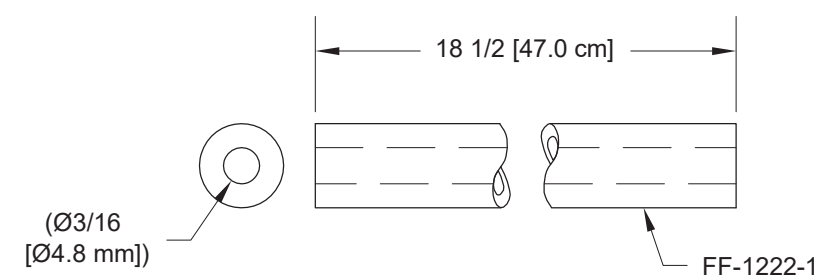


FIGURE 1: FABRICATE THE MANIFOLD PRESSURE HOSE

Step 2: Remove the small plug from the nipple on the compensating tube assembly as shown in Figure 2.

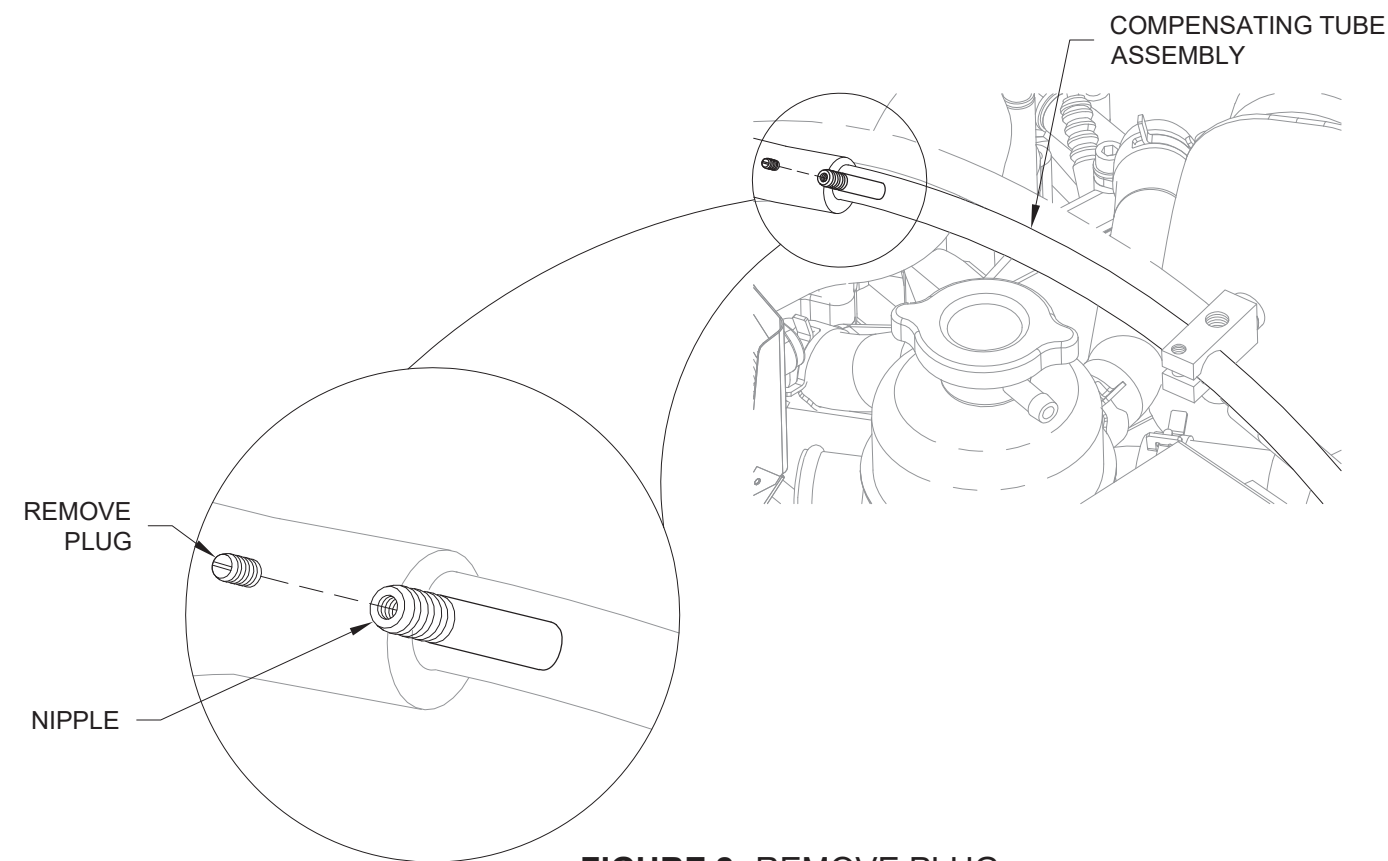


FIGURE 2: REMOVE PLUG

Step 3: Attach one end of the FF-1222-1 Manifold Pressure Hose to the nipple on the compensating tube assembly. Attach the opposite end to the nipple on the Manifold Pressure Sensor. Hose clamps are not required. See Figure 3.

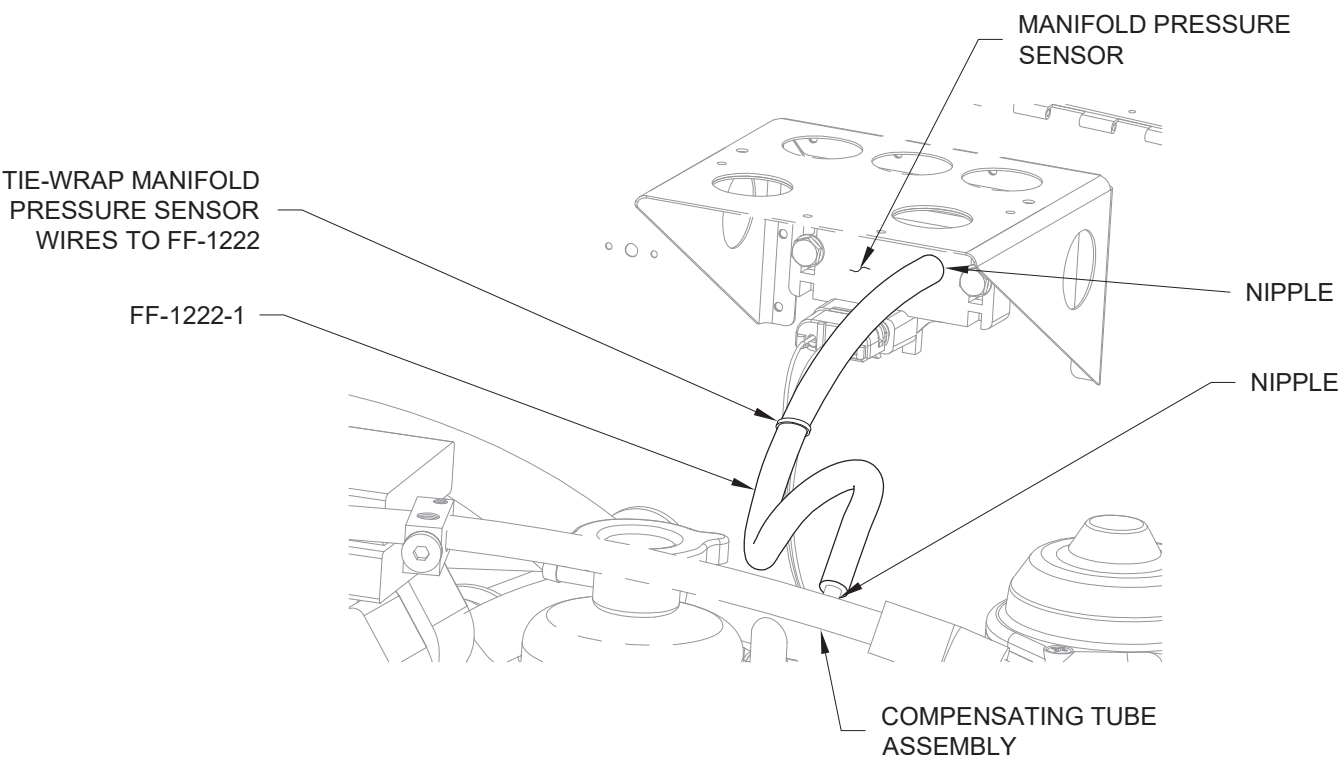


FIGURE 3: ATTACH THE MANIFOLD PRESSURE HOSE



Step 1: Locate the J6914 (WHT/BLU) Ignition B Wire and the J6915 (BLU) Ignition A Wire (inside the ES AMP 1-480319-0 Female Connector) on the WH-00139.

Step 2: Connect the J6914 (WHT/BLU) Ignition B Wire and the J6915 (BLU) Ignition A Wire to the wires of corresponding color on the WH-RV-12-IGNITION using the female and male connectors as shown in Figure 1. Refer to Section 46U as required.

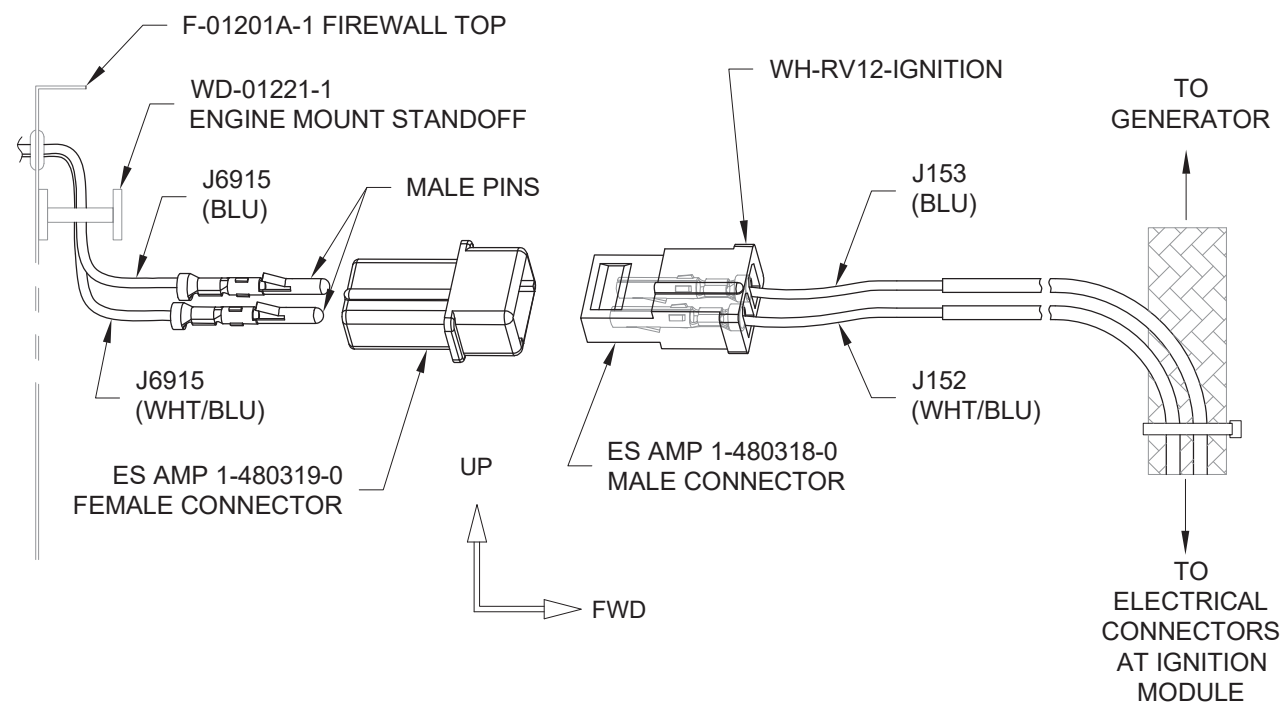
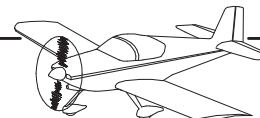


FIGURE 1: CONNECT THE IGNITION HARNESS
(NOT TO SCALE)



Step 6: Repeat the previous two steps for the E6904 (PRP/BLU) CHT 2 (RIGHT) Wire. See Figure 2.

Step 1: Connect the WH-00096 Oil Pressure Sensor Harness to the 456180 Oil Pressure Sensor as shown in Figure 2. Route the harness aft under the right side of the engine as shown in Figure 2. Tie-wrap it to the valve pushrod assembly, coolant hose, as shown in Figure 3.

Step 2: Locate the E6901 (WHT/YEL) Oil Pressure Wire and the P6902 (RED) Oil Pressure Power Wire on the WH-00139. Strip the ends and then crimp on the spade connectors shown in Figure 1.

Step 3: Connect the E6901 (WHT/YEL) and E6902 (RED) of the WH-00139 to the E1074 (WHT) and P1075 (RED) (respectively) on the WH-00096 as shown in Figure 2.

Step 4: Locate the E6903 (PRP/YEL) CHT 1 (LEFT) Wire on the WH-00139 and route it forward and along the Left Forward Water Tube as shown in Figure 1.

Step 5: Attach the spade connector on the E6903 (PRP/YEL) to the terminal post on the #2 cylinder as shown in Figure 1.

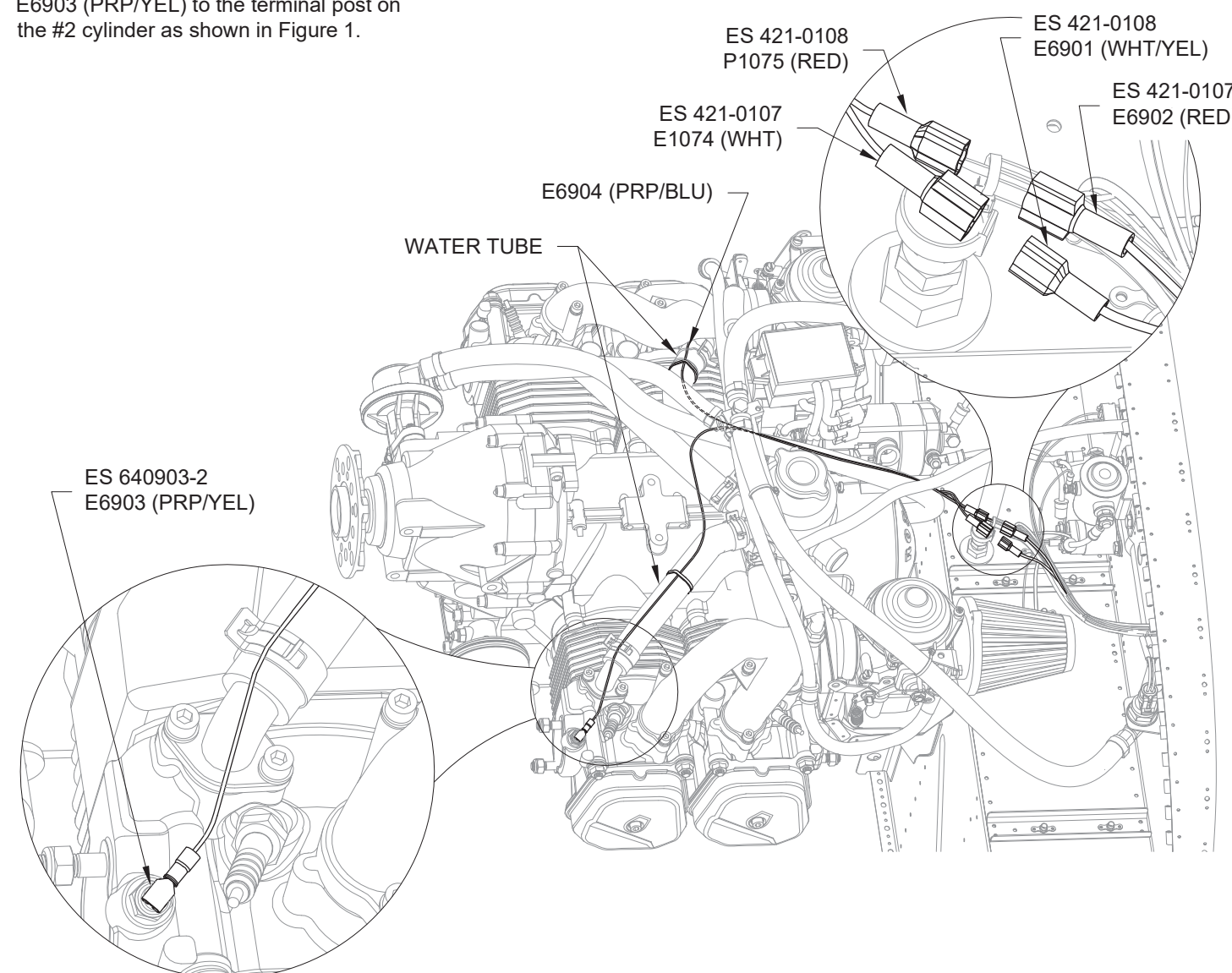


FIGURE 1: OIL PRESSURE CONNECTIONS & LEFT SIDE CHT WIRE

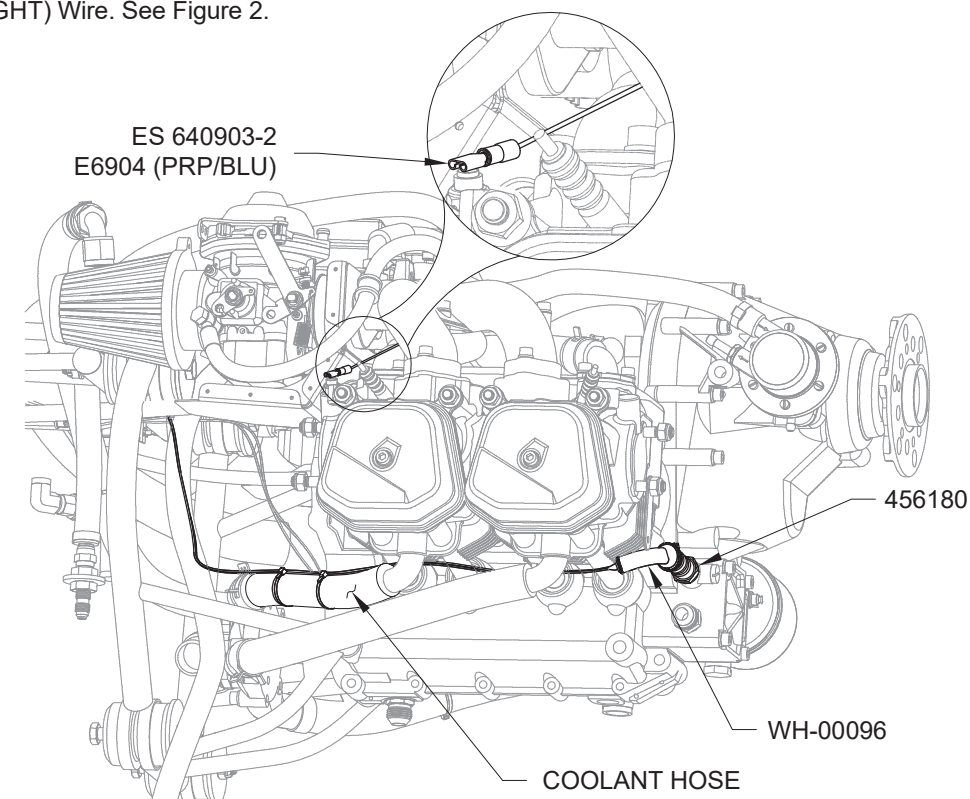


FIGURE 2: OIL PRESSURE SENSOR & RIGHT SIDE CHT WIRE

Step 7: Locate the E6905 (WHT/BRN) Oil Temperature Wire on the WH-00139 and route it forward under the left side of the engine. Secure the wire with tie wraps as shown in Figure 3. Cut the wire to length, strip the end, crimp on the connector and attach it to the terminal post near the base of the oil filter as shown in Figure 3.

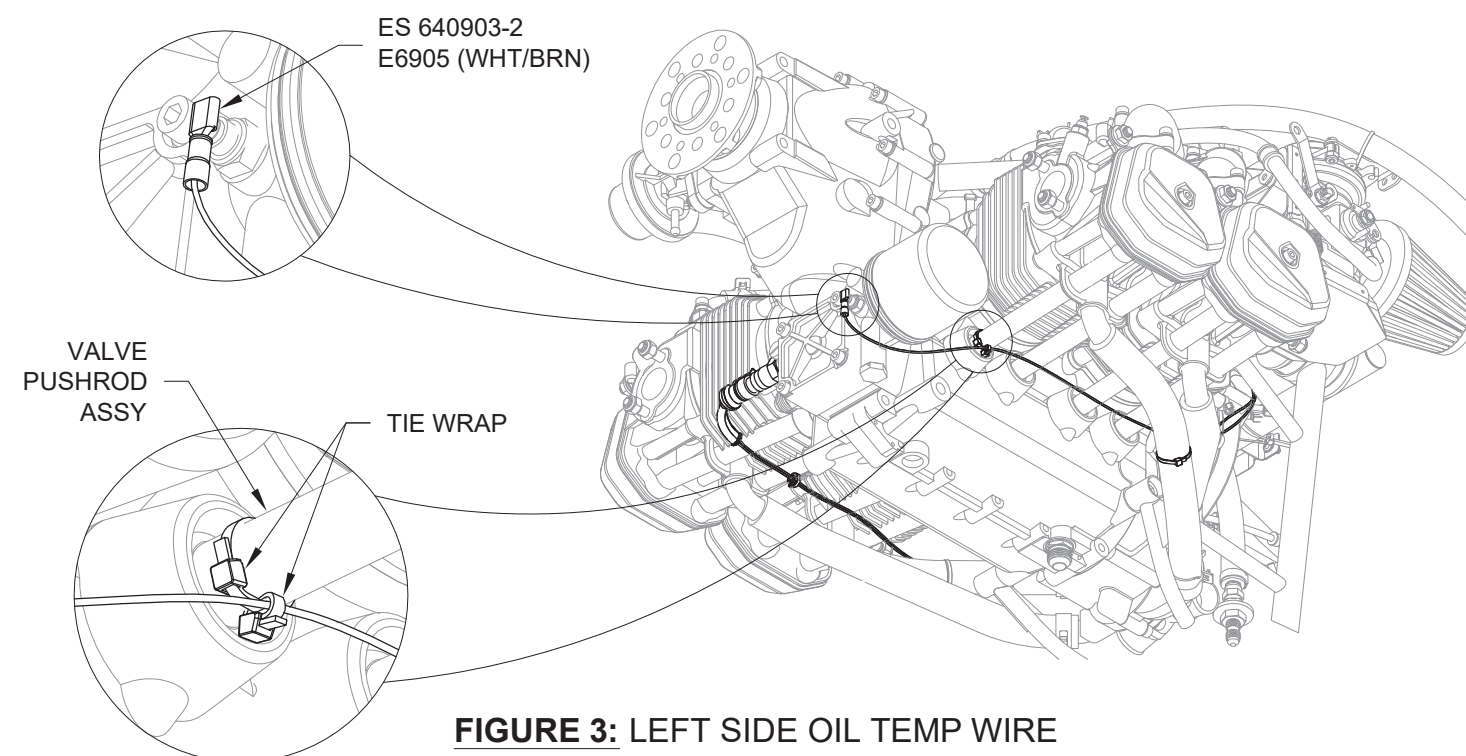


FIGURE 3: LEFT SIDE OIL TEMP WIRE



Refer to Figure 1 for all steps on this page.

- Step 1: Remove the outer nut and washer from the front stud of the ES 24115 Master Relay. **DO NOT** remove the nut that lies against the body of the ES 24115.
- Step 2: Connect the ring terminal on the P6916 (WHT/ORN) Master Relay wire to the stud on the front of the ES 24115 as shown. Use the nut and lock washer provided with the ES 24115 to tighten the terminals down on the stud.
- Step 3: Remove the outer nut and washer from the left stud on the 992 819 Starter Relay.
- Step 4: Locate the K6258 (RED) Battery Power Wire on the WH-00139. Slip the ring terminal through the insulated boot and onto the stud on the 992 819 as shown. Use the existing nut and lock washer to tighten the terminals down on the stud.
- Step 5: Connect the ES-00189 Piggyback Connector (crimped onto the WH-K768 (ORN) wire) to the lower center male spade terminal on the 992 819.
- Step 6: Remove the right side bolt and washer holding the 992 819 to the firewall.
- Step 7: Locate the ES-00165 Starter Relay Protection Diode ring terminal (covered in blue heatshrink) spliced onto the K768 (ORN). Install the ring terminal against the 992 819 using the bolt and washer from the previous step.
- Step 8: Routing the WH-00139 wires and FF-1216 Pitot Line through the lower clamp, install the two cushion clamps together and around the inboard tube of the WD-01221-1 Engine Mount Standoff as shown in Figure 1.

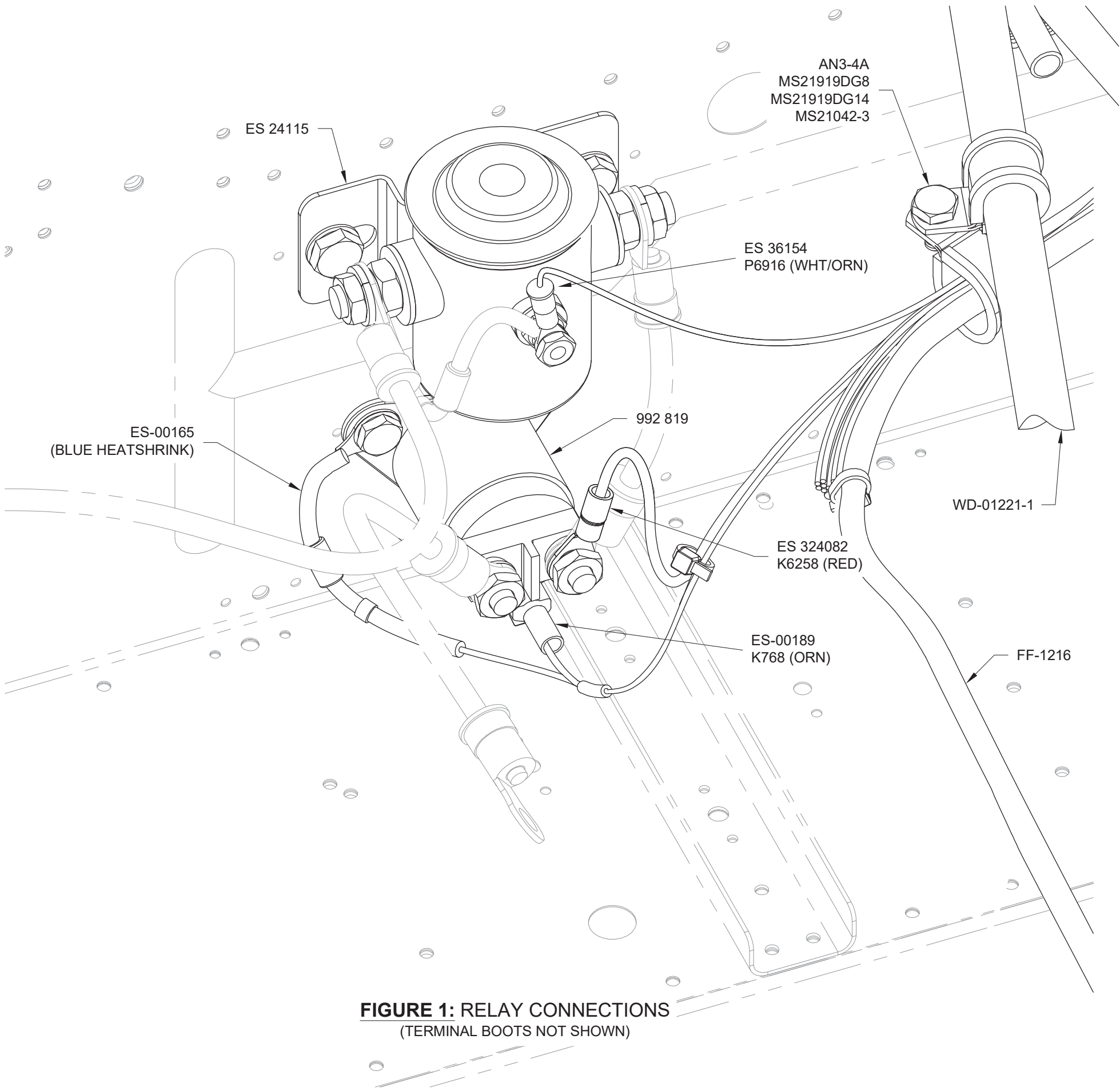


FIGURE 1: RELAY CONNECTIONS
(TERMINAL BOOTS NOT SHOWN)



Step 1: Locate the 964 090 Soft Start (Rotax nomenclature "Easy Start") black wire that Y's together out of the bottom of A2 and B2 Connectors on the engine. Refer to Section 46U as required.

Step 2: Route the 964 090 along the K768 (ORN) wire down to the 992 819 Starter Relay.

Step 3: Attach the spade connector on the 964090 to the piggyback terminal on the K768 (ORN) wire as shown in Figure 1.

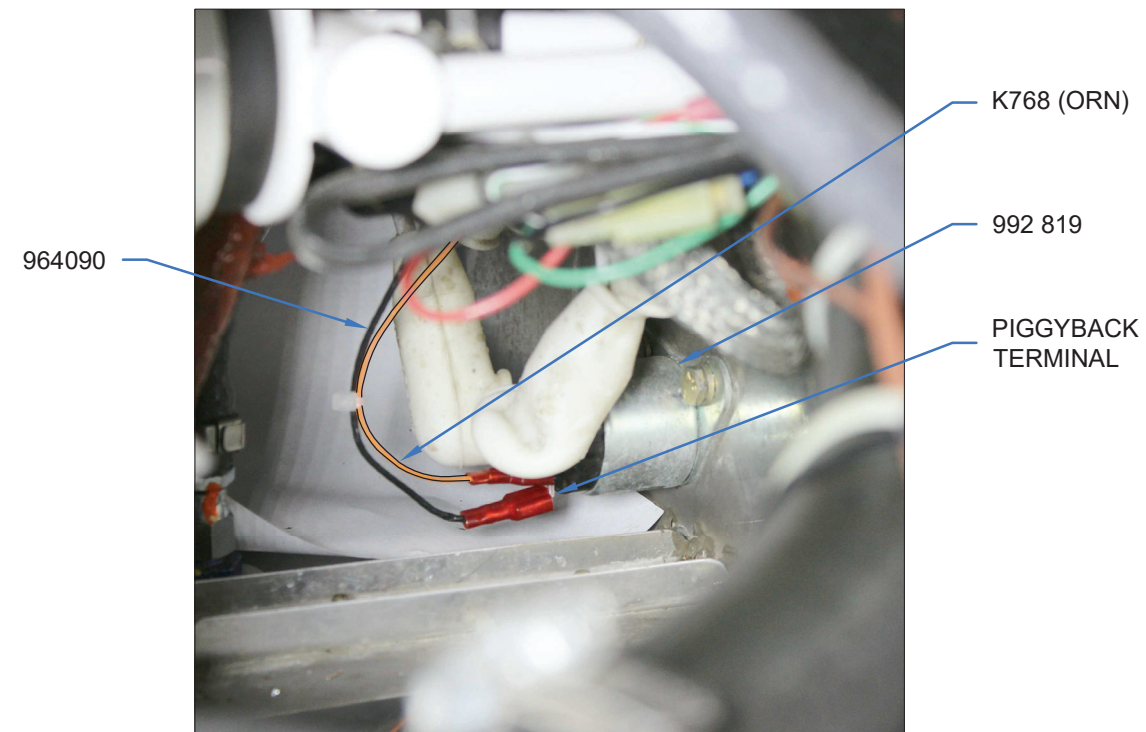


FIGURE 1: CONNECT SOFT START TO STARTER RELAY PIGGYBACK

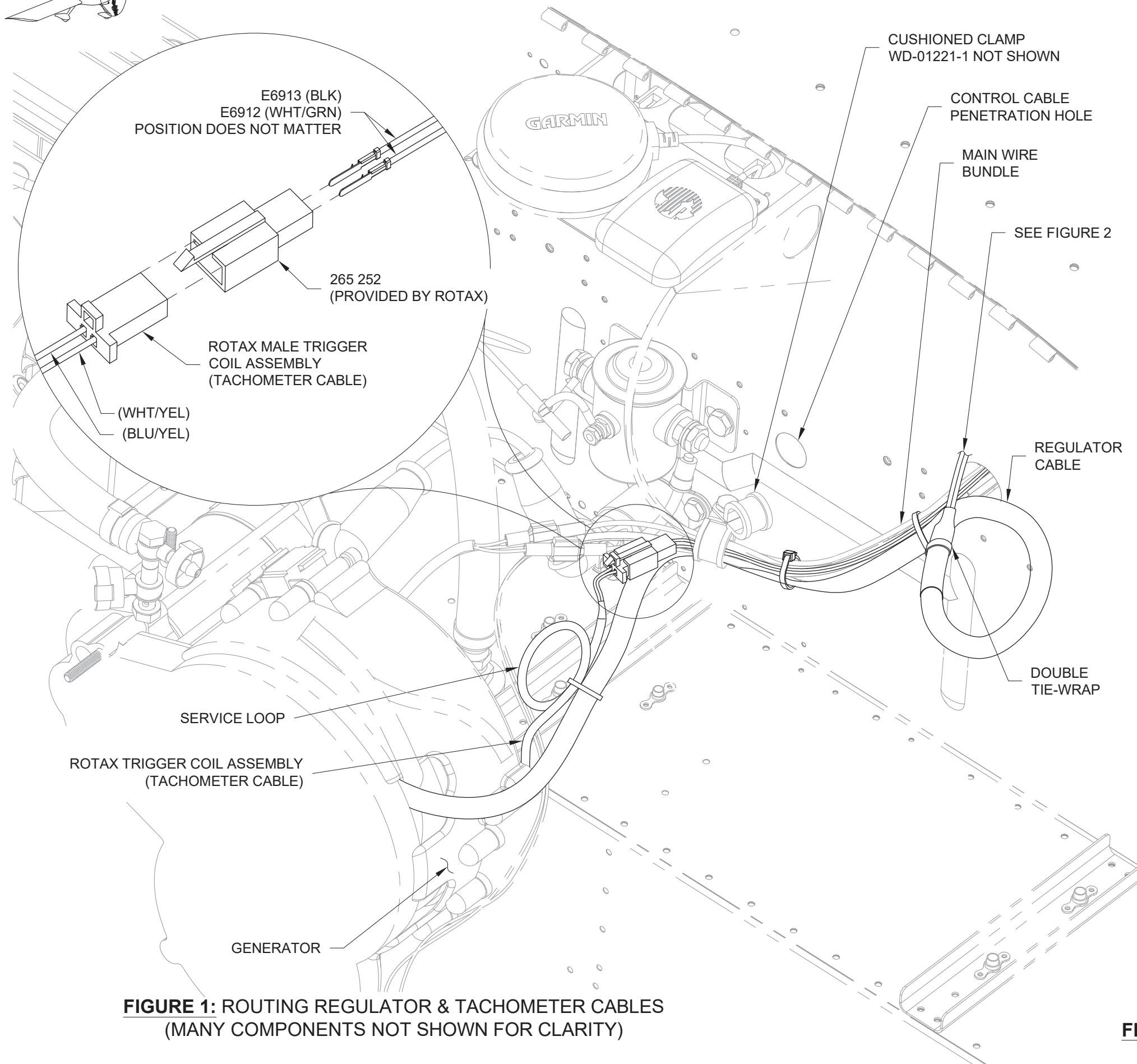


FIGURE 1: ROUTING REGULATOR & TACHOMETER CABLES
(MANY COMPONENTS NOT SHOWN FOR CLARITY)

Step 1: Locate the Generator to Rectifier Regulator Cable (hereafter referred to as the Regulator Cable) which is a shielded two conductor cable of 0.4 in. [10.2 mm] diameter and is approximately 26 in. [660.4 mm] long.

The Regulator Cable exits the upper left side of the generator and has two spade connectors attached to yellow wires at the free end. See Figure 1.

Step 2: Route the Regulator Cable through the cushioned clamp as shown in Figures 1 and 2.

Step 3: Loosely tie wrap the Regulator Cable to the main wire bundle at suitable points between the firewall and the cushioned clamp attached to the WD-01221-1 Engine Mount Standoff.

The minimum bend radius of the Regulator Cable is 3/4 in. [19.1 mm]. Fully tighten the tie wraps after the cable is connected to the voltage regulator on the next page.

Step 4: Insert the E6913 (BLK) and E6912 (WHT/GRN) wires into the back of the Rotax 265 252 Two Pole Connector Housing as shown in the detail view of Figure 1. Their position in the connector does not matter.

Step 5: Locate the Rotax Male Trigger Coil Assembly connector on the engine. Determine the length necessary to reach the ROTAX 265 252 then make a service loop from the excess cable and tie wrap it to the Regulator Cable.

Step 6: Connect the male and female connectors as shown in the detail view of Figure 1.



FIGURE 2: ROUTING REGULATOR & TACHOMETER CABLES
(MANY COMPONENTS NOT SHOWN FOR CLARITY)



NOTE: Cover all bare spade connectors in heat shrink.

Step 1: Locate the Regulator Cable referenced on the previous page and connect the spade connectors to the EA-XB100-1 B&C AVC1 Voltage Reg as shown in Figures 1 and 2.

Step 2: Attach the P3068 (WHT) to the EA-XB100-1 as shown in Figures 1 and 2.

Step 3: Connect the P6920 Warning Wire to the EA-XB100-1 as shown in Figure 1.

Step 4: Connect the P204 (WHT), P205 (WHT), and P3069 (YEL) wires to the EA-XB100-1 as shown in Figure 1.

Step 5: Install the Modified Grommet as shown on page 42MiS/U-29, then seal any gaps in the grommet with fuel tank sealant.

Return to page 42MiS/U-15.

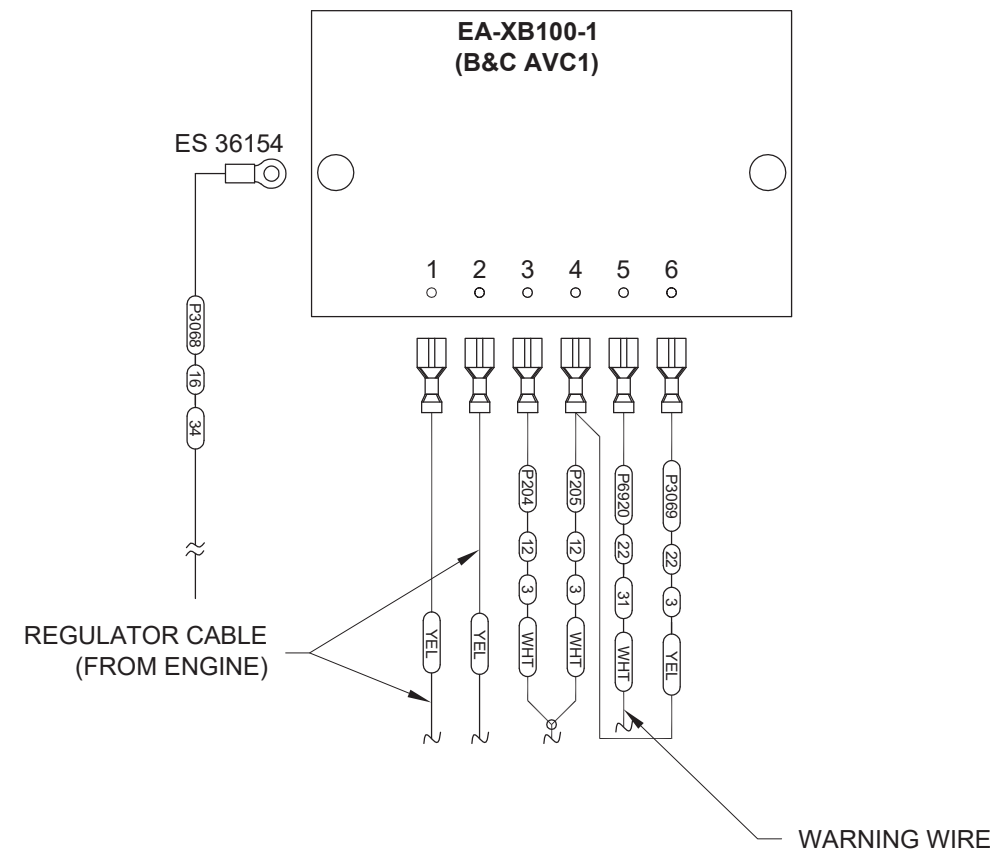


FIGURE 1: REGULATOR WIRING

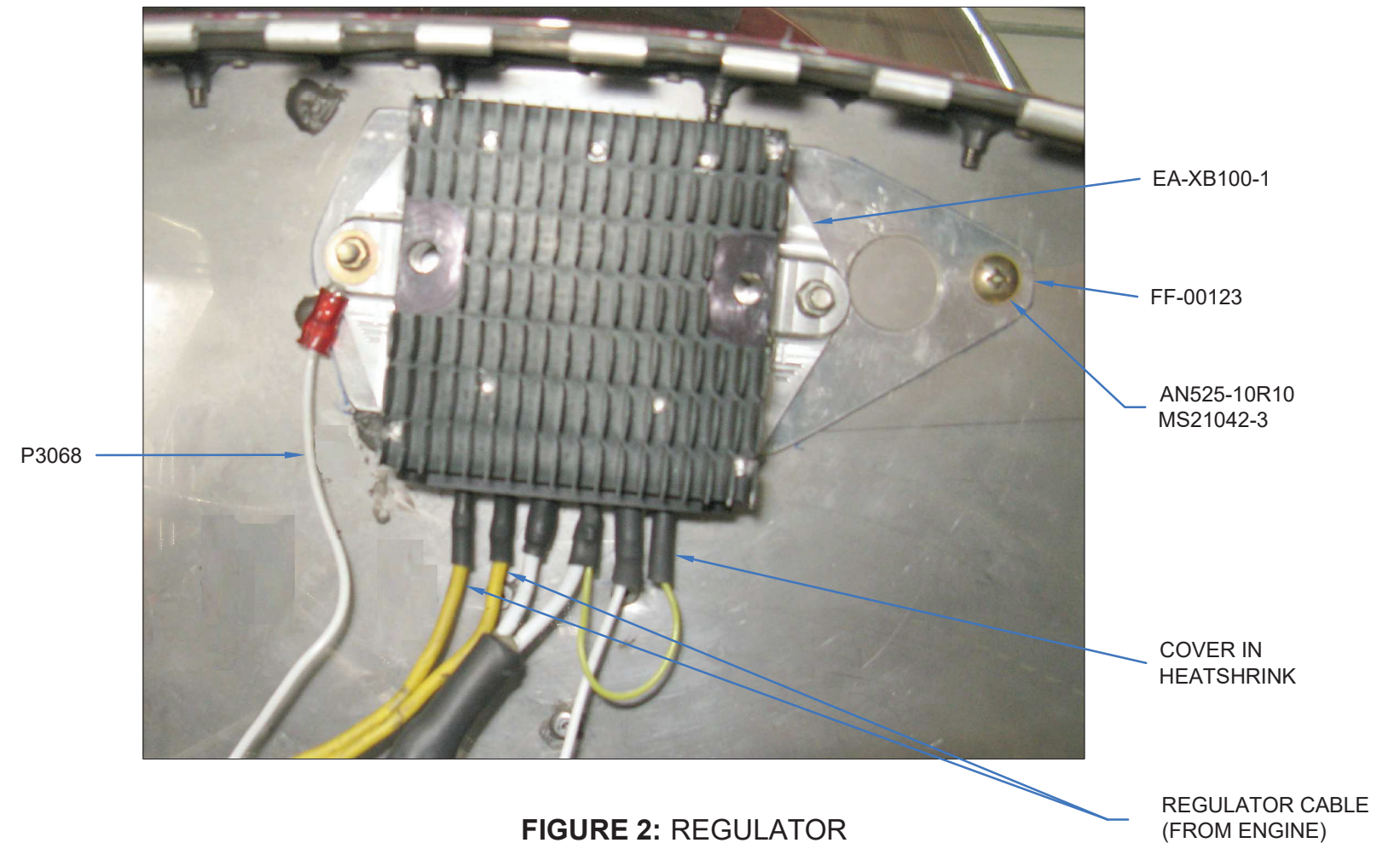
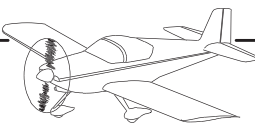


FIGURE 2: REGULATOR



Return to page 42MiS/U-24.

FIGURE 1: CONNECT FUEL PUMP POWER WIRE



NOTE: The steps on this page apply to builders installing the Garmin Nav/Com avionics kit only.

Step 1: If installed, remove the Tunnel Cover Assembly from the aircraft. See Figure 1 and Section 49iS.

NOTE: When removing electrical connectors, be sure to pull by the terminal, connector, or backshell body rather than pulling directly on the wires.

Step 2: Disconnect the d-sub connectors, ring terminals, and spade connectors of the WH-00136-2 from the back of the AV-60000.

NOTE: Builders with F-01202B-1s with dual openings need to pass the WH-00136-2 through the foremost opening. Later F-01202B-1s have only one (enlarged) opening which should be used as shown in Figure 1.

NOTE: Builders with F-01202B-1s with dual opening may remove the hatched area shown in Figure 2 from the F-01202B-1, as to allow easier pass-through of electrical connectors through the opening. Smooth and deburr all edges when finished.

Step 3: Place the WH-00136-2 into the airframe from above the F-01202B-1, passing all wires and connectors through the opening.

Feed the WH-00136-2 through the opening until the blue tie-wrap is level with the F-01202B-1. See Figure 1.

Step 4: With the WH-00136-2 routed through the F-01202B-1, position the wires and connectors in their approximate positions as shown in Figure 1. Wires passing through the firewall are identified and routed in following pages.

Step 5: Slide a piece of ES HST-3/16X2 heat shrink over wires K6297 (ORN) and K6298 (ORN), then connect to the red power leads of the ES CPU Fans. Once connected, shrink the heat shrink over the pins to insulate.

NOTE: Older F-01202B-1s with dual openings will need a 6.4 in. [16.26 cm] length of MS21266-1N Grommet around the forward opening only, instead of the F-00218 called out in Step 6. For openings which have been expanded (as per Figure 2), the MS-21166-1N will have to be fit to the opening.

Step 6: Make the F-00218 by cutting a 9.6 in. [24.38 cm] length of MS21266-1N Grommet. Install the F-00218 around the perimeter of the harness pass-through slot in the F-01202B-1. See Figure 1.

Step 7: Connect the 25-pin d-sub and the 8-pin screw terminal connectors labeled "HIC" to the AV-60009-2 as shown in Figure 1. Secure the 8 pin connector wire harness to F-12335 with plastic tie-wrap 5.5". See Page 3.

Step 8: Connect the two HIC connectors on the Rotax ECU cables (not shown) to the appropriate receptacles on the AV-60009-2.

Step 9: Secure the IS Can Bus Connector on cable E6023 (WHT) to the top of the F-01202B-1 with the hardware shown in Figure 1.

NOTE: Gases escaping from a cracked engine exhaust can potentially enter the cabin and cause elevated levels of carbon monoxide. Van's recommends that a carbon monoxide detector be installed. Common wire harnesses manufactured after January 6th, 2020 have all the necessary wires to install an Aithre carbon monoxide detector.

Step 10: See Service Letter SL-00010 for installation of optional carbon monoxide detector.

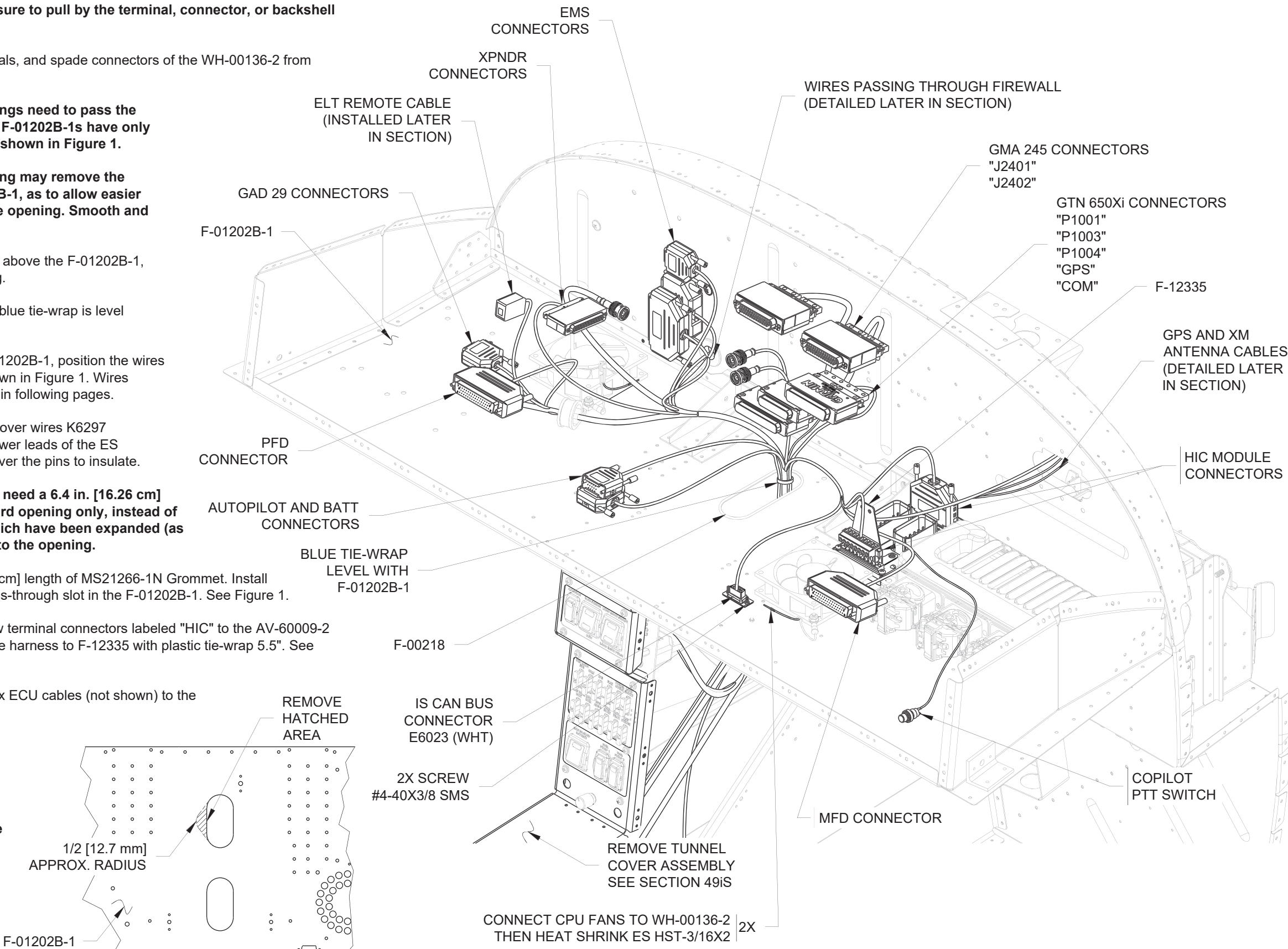


FIGURE 2: EARLY F-01202B-1 OPENINGS

FIGURE 1: F-01202B-1 WIRE ROUTING



Note: The steps on this page apply to builders installing the Garmin Nav/Com avionics kit only.

Step 1: Reconnect the ring terminals, spade connectors, and 50-pin d-sub connector to the back of the AV-60000 as shown in Figures 1 and 2.

Step 2: Route the Fuel Pump 1 and Fuel Pump 2 connectors from the Rotax ECU harness through the firewall via the "Modified AN931-16-6" shown in Figure 1 of page 42MiS/U-41 then downward through the opening in F-01202B-1.

Step 3: Connect the Fuel Pump 1 (Main) and Fuel Pump 2 (Aux) connectors from the main harness to the corresponding connectors from the Rotax ECU harness. See Figure 2.

Step 4: Ground the Firewall Ground Ring Terminal to the F-01201A-1 at the location shown in Figure 2. Use the existing fastener, which is securing the F-01230-1 (not shown).

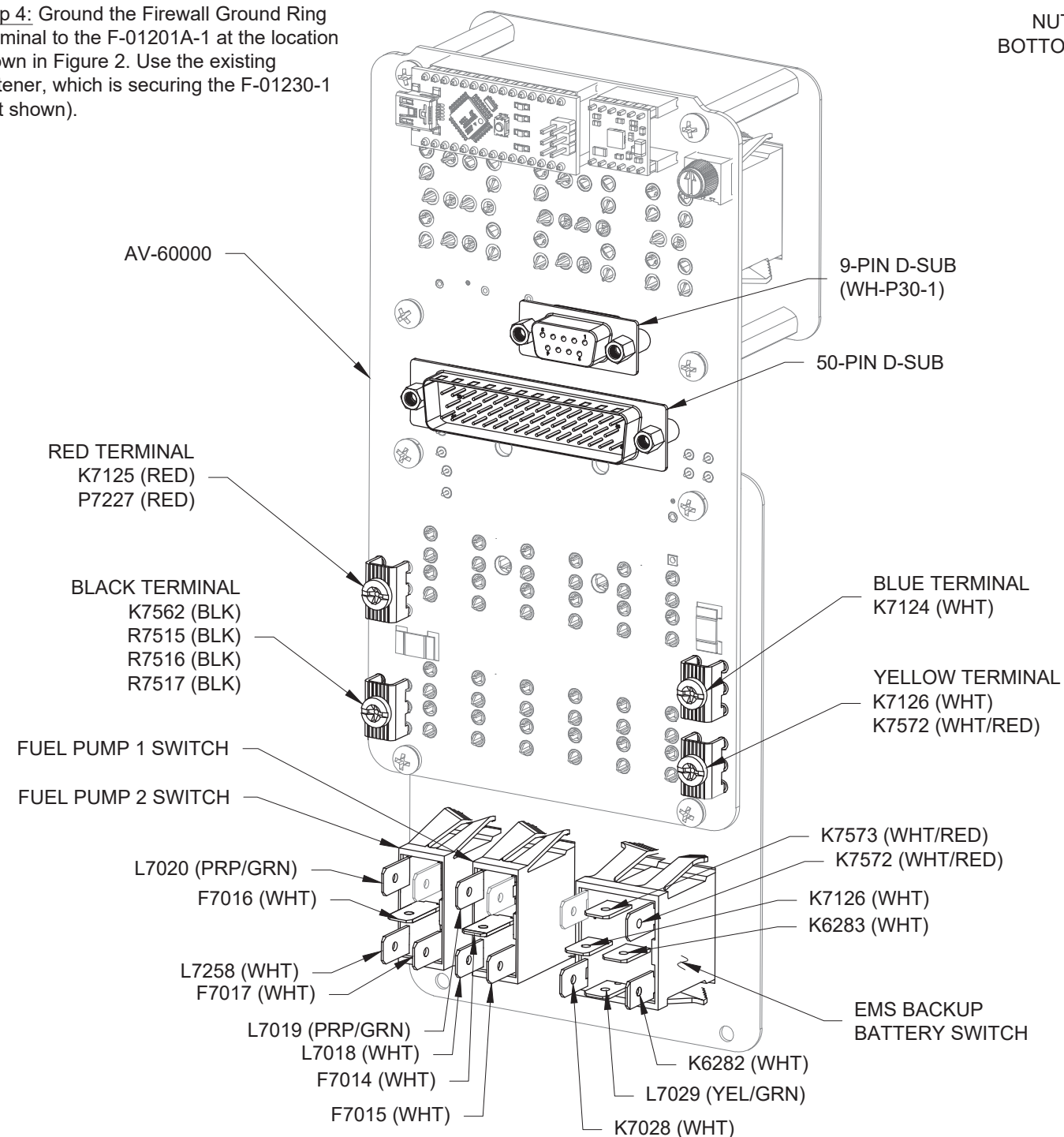


FIGURE 1: POWER MODULE CONNECTIONS

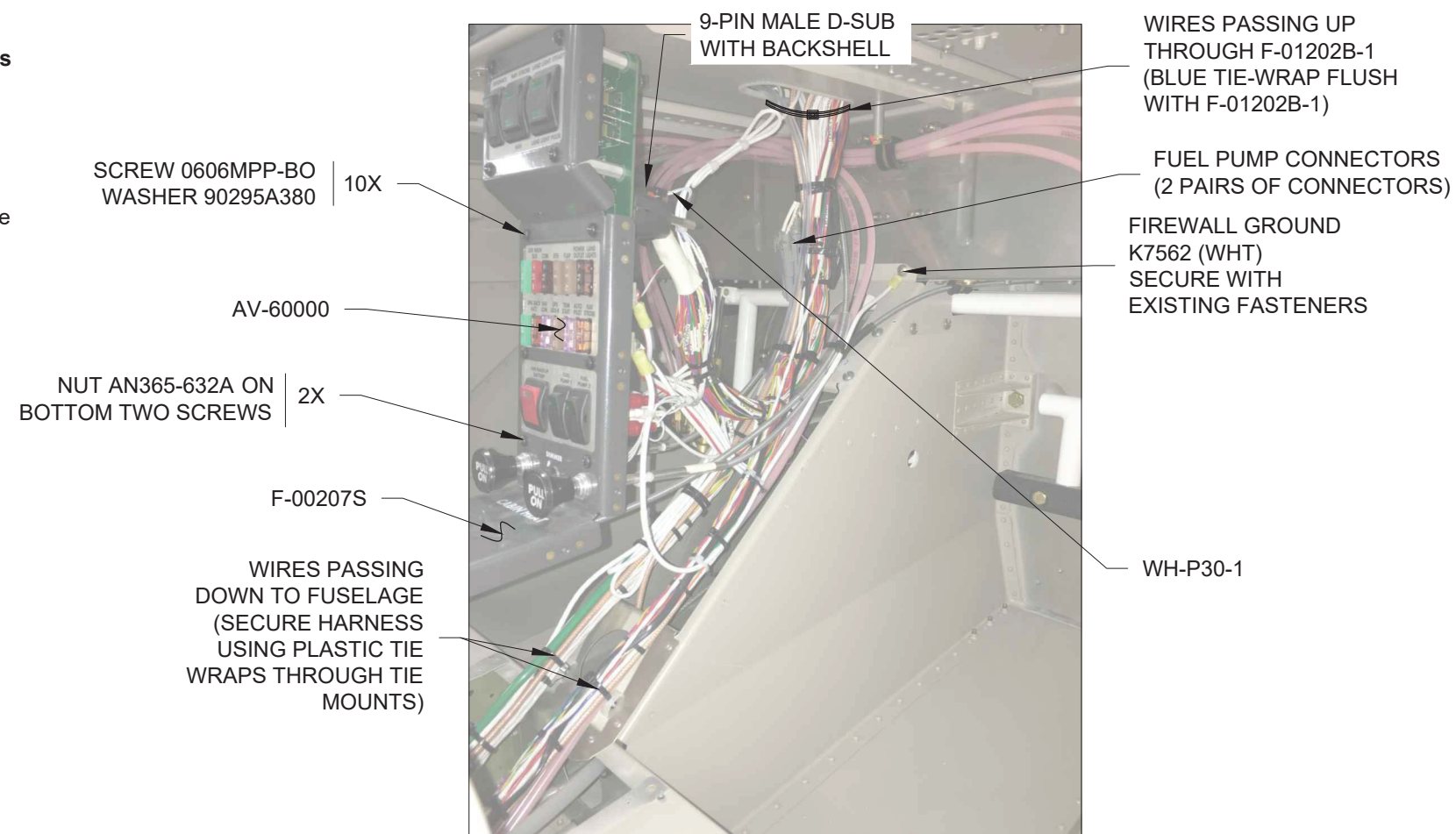


FIGURE 2: INSTALLING AV-60000

Step 5: Crimp on ES SA-1018 pins onto the WH-P30-1 trim wires, and populate the 9-pin male d-sub as shown in Figure 3. Install the backshell, then connect the 9-pin d-sub to the AV-60000 as shown in Figure 1 and 2.

Step 6: Install the F-00207S Nav/Com Tunnel Cover Assembly. Installation is identical to the Tunnel Cover Assembly install shown in Section 49iS.

Step 7: Secure the AV-60000 to the F-00207S as shown in Figure 2.

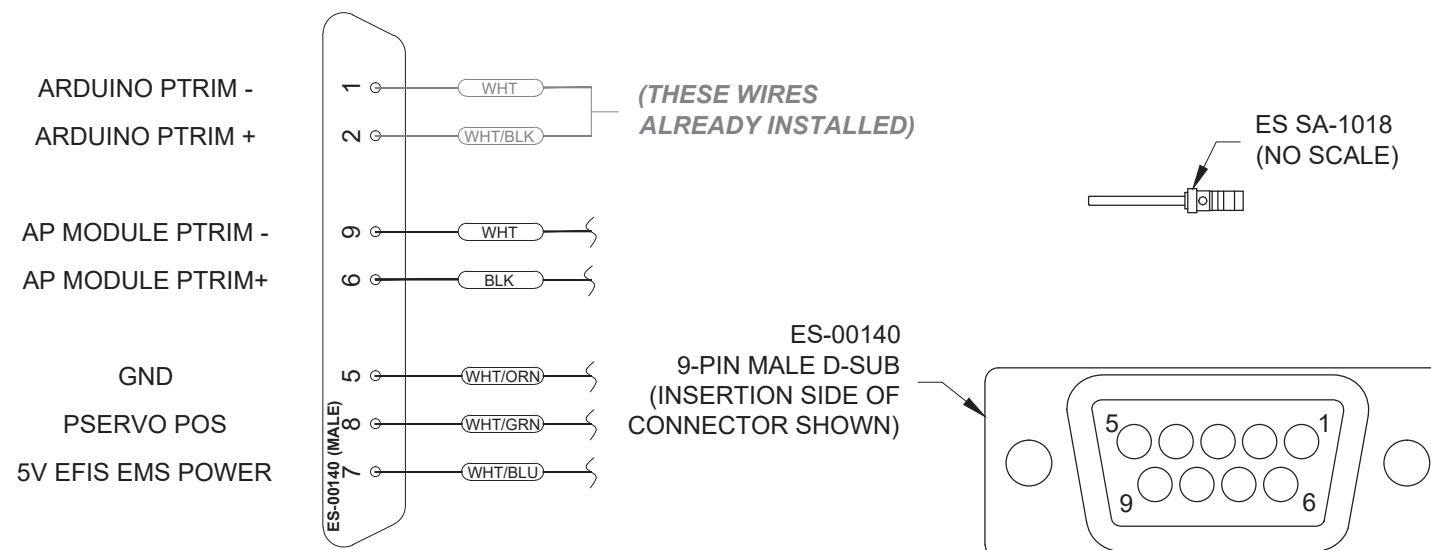
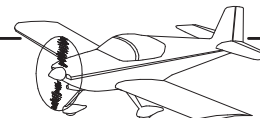


FIGURE 3: WH-P30-1 WIRING



Note: The steps on this page apply to builders installing the Garmin Nav/Com avionics kit only.

Step 1: Install the autopilot disconnect switch (red) onto the bottom of the F-00207S as shown in Figure 1.

Step 2: Install the take-off/go-around switch (green) onto the bottom of the F-00207S as shown in Figure 1.

Step 3: Install the ES-00195 Dimmer Potentiometer onto the F-00207S, then install the ES-00322 Dimmer Knob onto the shaft of the ES-00195.

If desired, the ES-00195 shaft can be trimmed to length with a cut off wheel for a closer fit of the ES-00322. See Figure 1.

Step 4: Connect the XPNDR coax cable to the AV-00012.

Step 5: Modify a grommet to be used for firewall penetration. Using a socket and a vise, squeeze one grommet at a time (as called out in Figure 2) until the socket shears through the grommet (this will be accompanied by a distinct crunching sound). See Figure 2.

Step 6: Repeat Step 5 two more times to end up with three modified grommets.

Return to Page 42MiS/U-14.

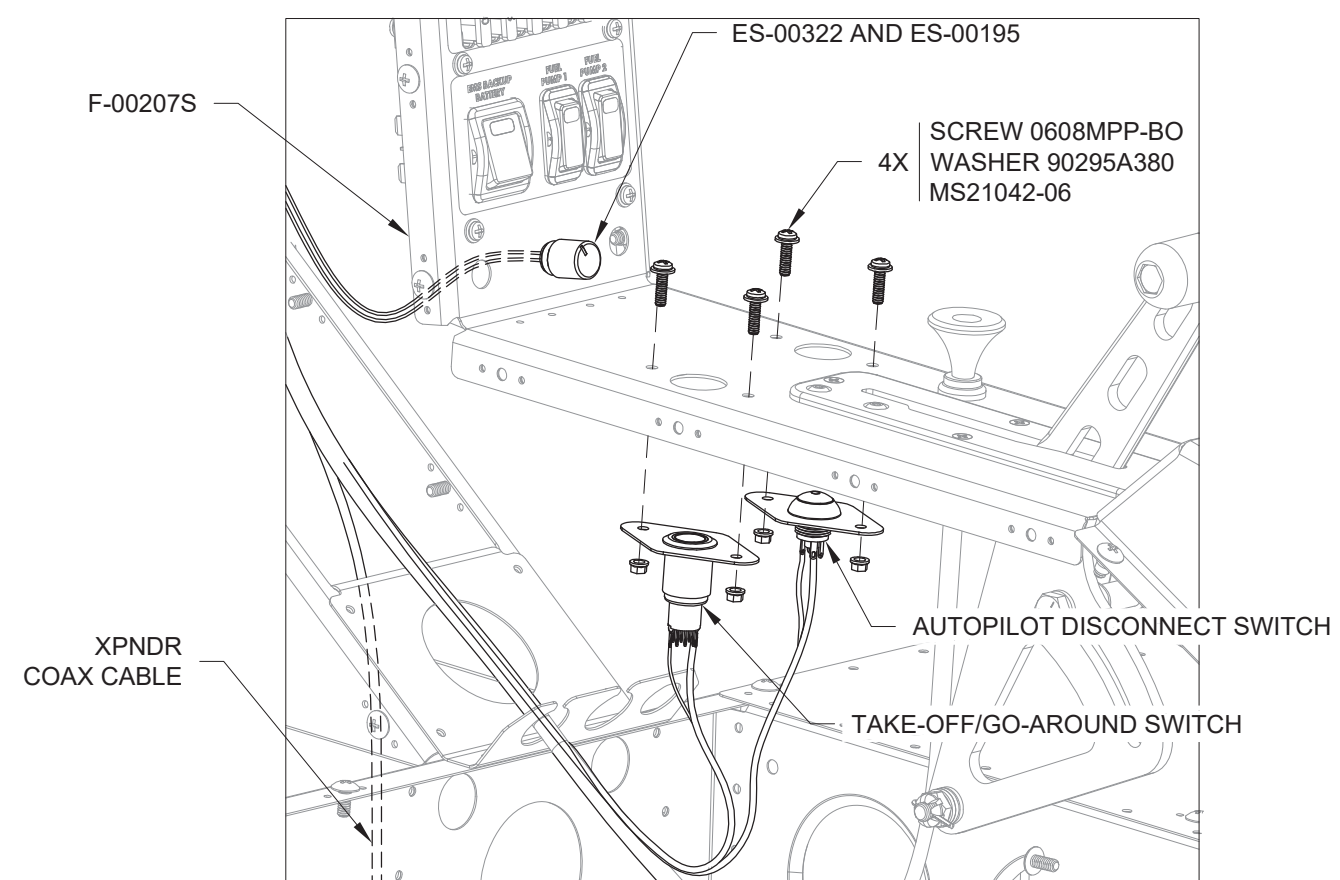


FIGURE 1: CENTER TUNNEL CONNECTIONS

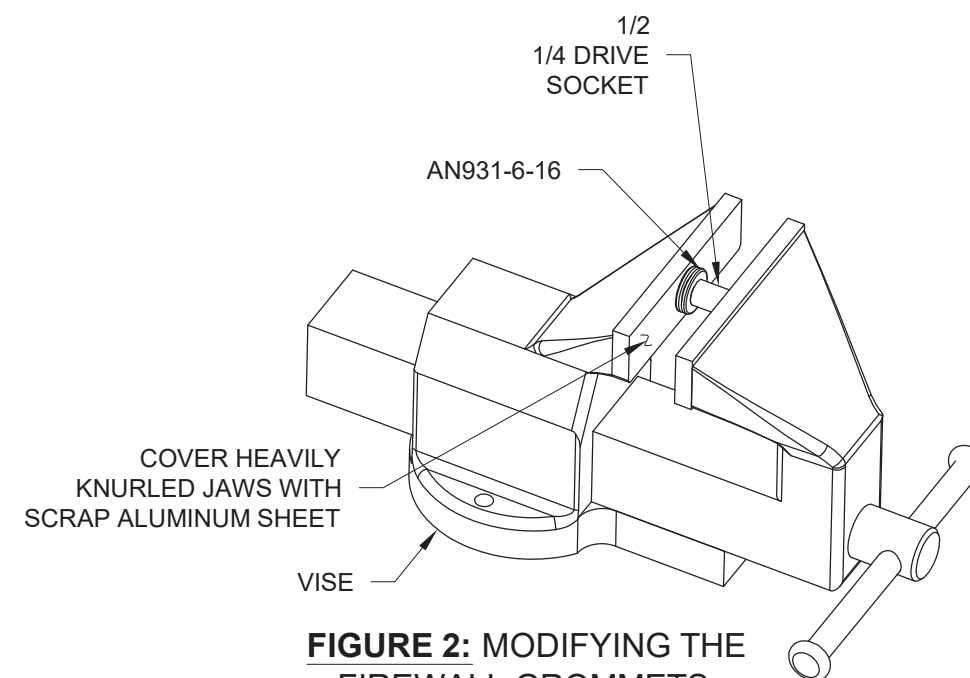


FIGURE 2: MODIFYING THE FIREWALL GROMMETS

NOTE: See page 42MiS/U-12, Step 3 which references Figure 1.

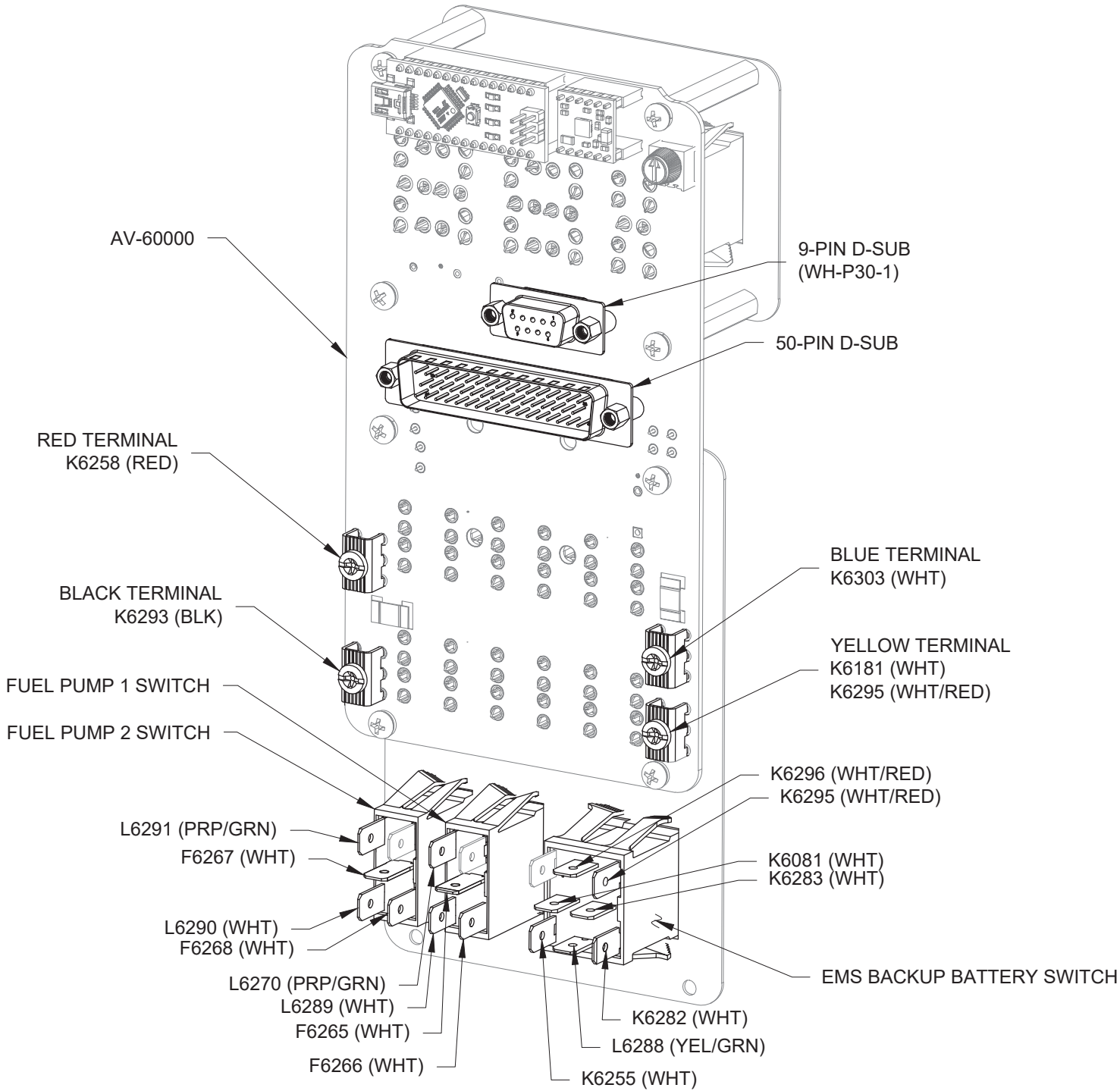


FIGURE 1: DYNON POWER MODULE CONNECTIONS