

# **TOTAL PERFORMANCE VAN'S AIRCRAFT**

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## **DOCUMENTATION INVOLVED:**

**Page 42N-02 REV 1:** In Step 3, 4, and Figure 2, "GSU 25" was "GMU 25".

**Page 42N-07 REV 1:** In Step 2, "GSU 25" was "GMU 25".

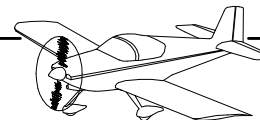
**Page 42N-11 REV 1:** In Step 4, Figure 1, Figure 2, changed backup battery installation location.

**Page 42N-14 REV 1:** Before Step 2, added "NOTE: If installing the optional Garmin ADS-B Out Kit, skip the following steps and complete Section 61 before proceeding to the next page."

In Figure 3, "AN526C832R6" was "AN526C632R8".

**Page 42N-21 REV 1:** In NOTE, "... These pages do not apply if not installing the XM option or if installing the optional Garmin ADS-B Out Kit. ..." was "... If not installing the XM option, these pages do not apply. ...".

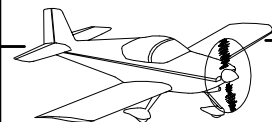
In Figure 1, added missing call out for F-00069.



# SECTION 42N: GARMIN G3X TOUCH





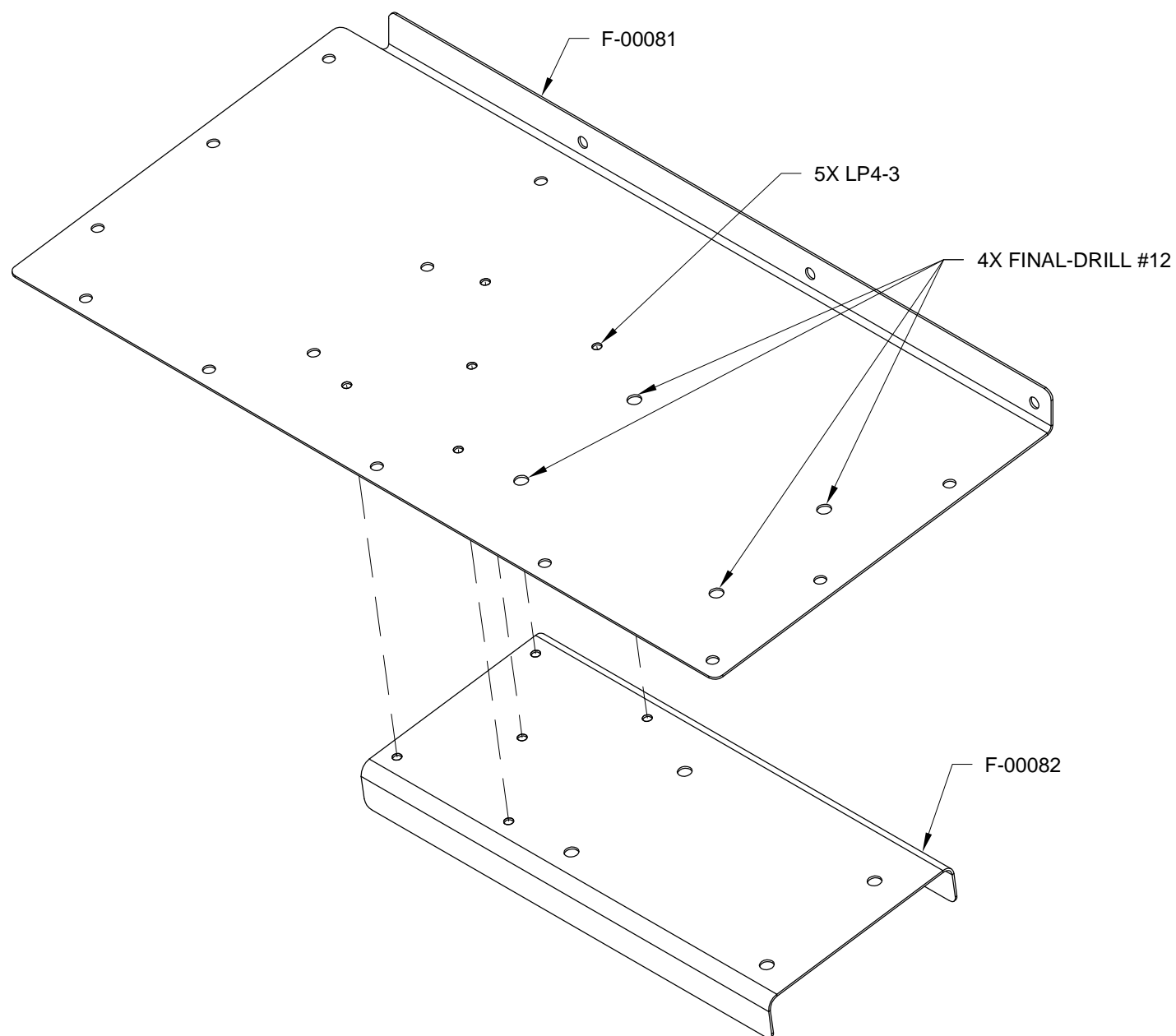


Step 1: Remove and discard the F-1206E Baggage Cover if installed. See Page 33-03.

Step 2: Cleco F-00082 ADAHRS Stiffener to the F-00081 ADAHRS Baggage Floor. Final-Drill #12 the four holes indicated in Figure 1.

Un-cleco the stiffener from the baggage floor. Deburr the parts. Prime if desired.

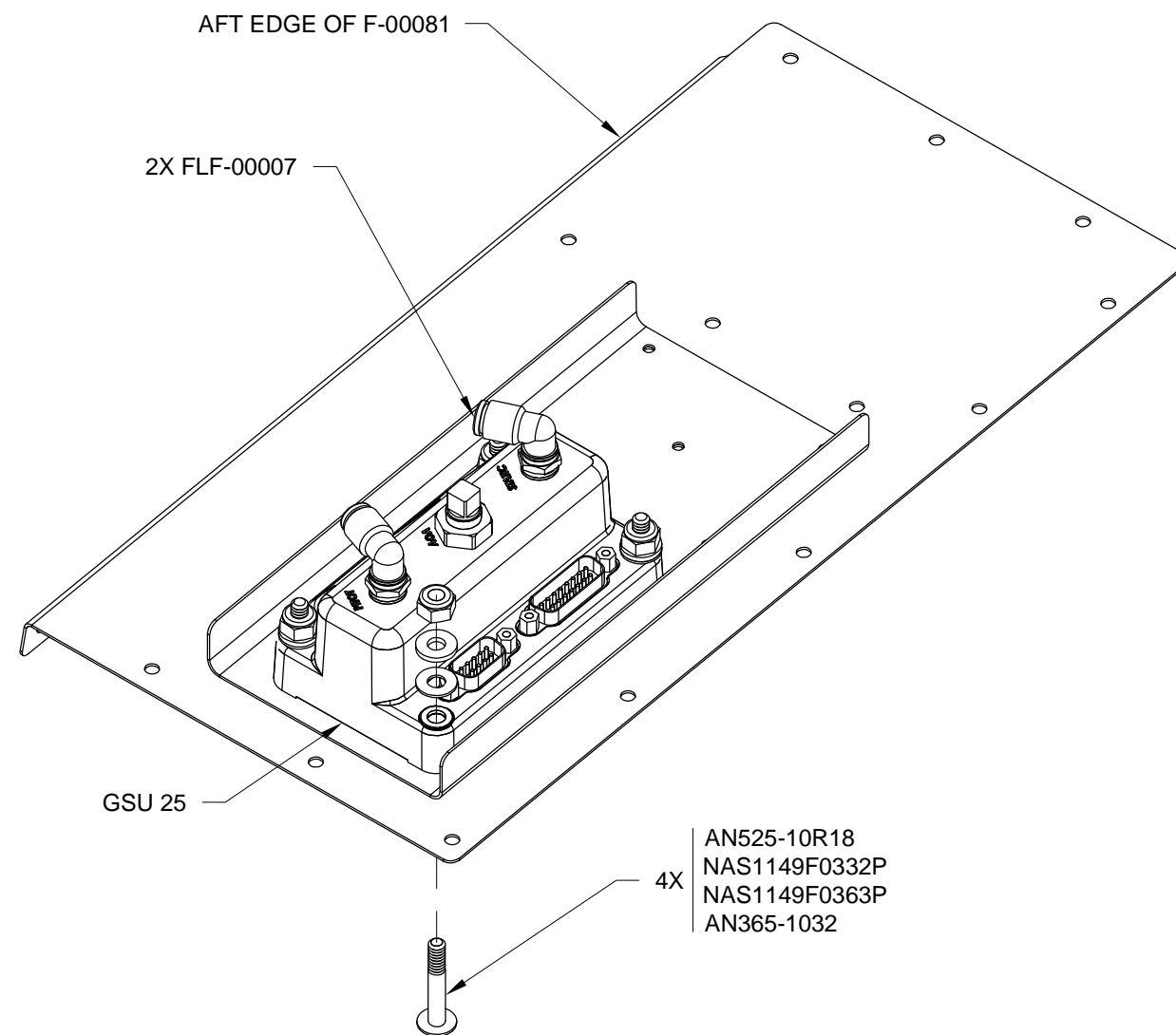
Rivet the stiffener to the baggage floor. This will form the ADAHRS Baggage Floor Assembly See Figure 1.



**FIGURE 1: BAGGAGE FLOOR  
ASSEMBLY**

Step 3: Bolt the GSU 25 ADAHRS to the ADAHRS Baggage Floor Assembly. See Figure 2.

Step 4: Install FLF-00007 Push to Connect .25 Tube X .125NPT Elbows into the Pitot and Static ports of the GSU 25 ADAHRS.



**FIGURE 2: INSTALLING THE  
ADAHRS**

**Step 1:** Hold the ES-00301 Tie-Wrap Clip in place as shown in Figure 1.

Mark on the F-12107B Baggage Bulkhead the center of the ES-00301 Tie-Wrap Clip attach hole.

**Drill #27** the F-1207B Baggage Bulkhead at that mark.

Install the clip to the bulkhead using the hardware called out in Figure 1.

**Step 2:** Disconnect and discard the F-00013 Static Line Tee - ADAHRS from the forward facing connection of the F PLASTIC TEE at the top of the F-1208 FRAME. Leave the F-00014 Static Line Tee Upsize in place. See Figure 2 and Section 10.

**Step 3:** Install one end of the F-00086 Garmin Static Line over the F-00014 Static Line Tee Upsize and the forward connection of the F PLASTIC TEE. Heating the end of the tube in hot water will help with installation.

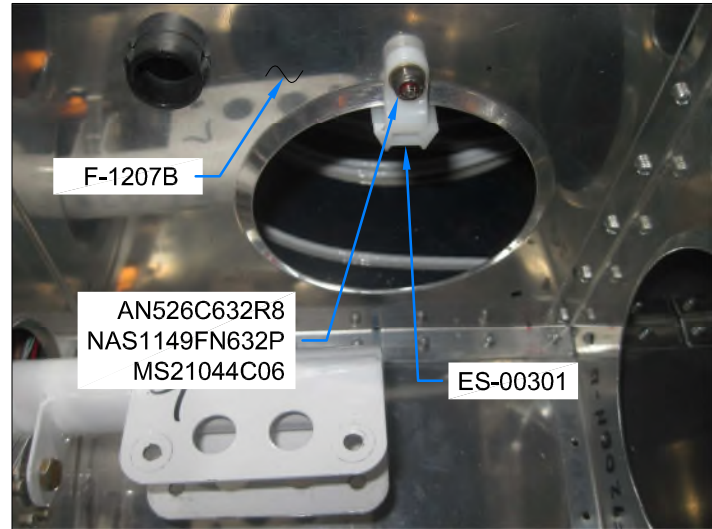
**Step 4:** Remove all the tie-wraps on the left side of the aircraft that attach the AFT PITOT LINE, WH-00046 Fuselage Wiring Harness and WH-00060 OAT Wiring harness to the F-1208 Bulkhead Frame and the J-channel on the aft fuse side skin.

**Step 5:** Fold the fuselage and OAT wiring harnesses back along their own routing so that the 9-pin d-sub and OAT Molex connector are at the point where the wires jump from the skin to the bulkhead frame. See Figure 4.

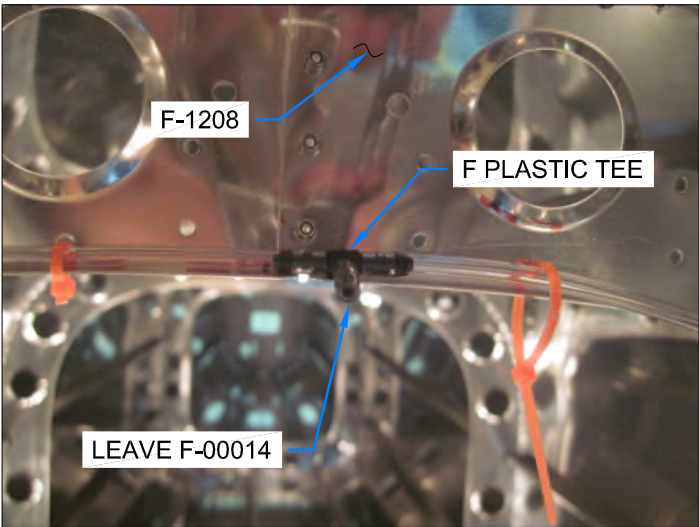
**Step 6:** Route the Garmin Static Line down and forward following along the J-channel and following the OAT and fuselage wiring harnesses.

**Step 7:** Pull the AFT PITOT LINE away from the bulkhead and J-channel and back through the snap bushing in the F-1207D-L Baggage Bulkhead Channel. See Pages 31B-20 and 31B-21.

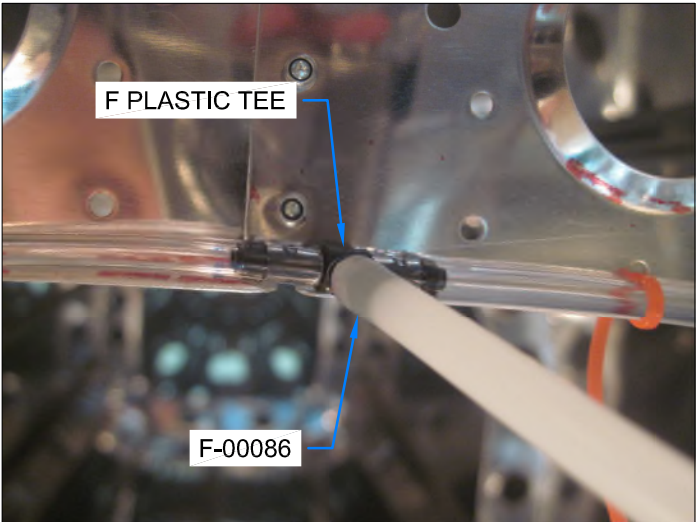
**Step 8:** Cut off the AFT PITOT LINE approximately 18 inches from where the line exits the snap bushing in the F-1207B Baggage Bulkhead.



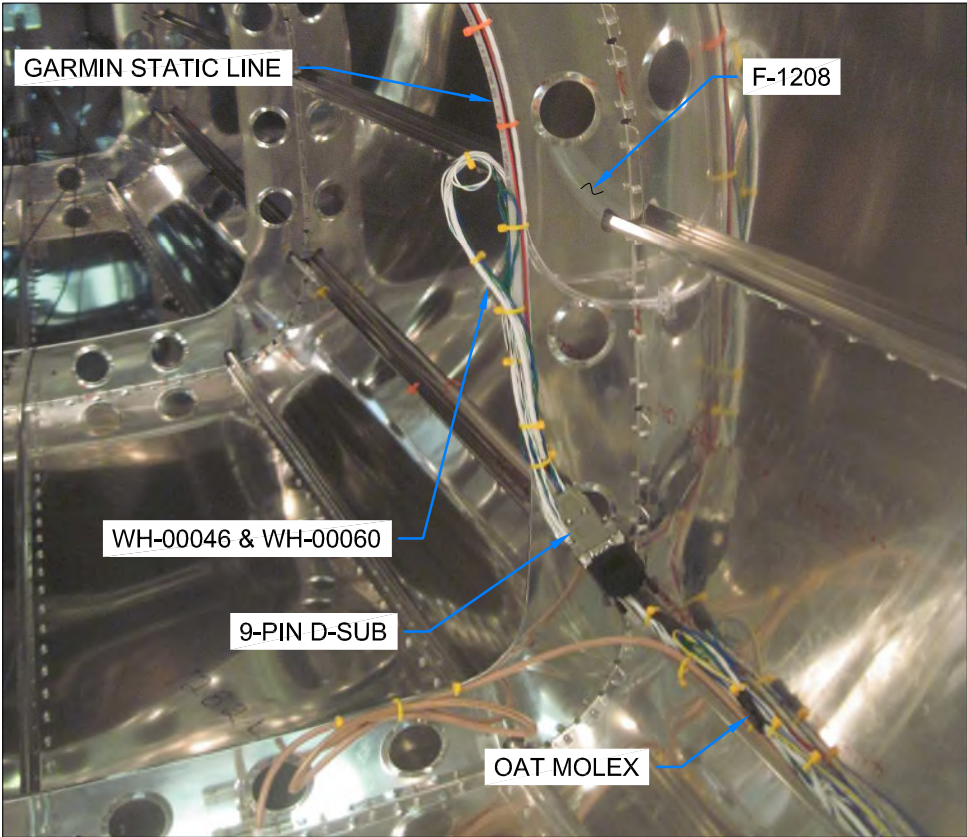
**FIGURE 1: INSTALLING THE TIE-WRAP CLIP**  
 (SEE PAGE 42N-05 FIGURE 3 FOR A WIDER VIEW OF THIS FIGURE)



**FIGURE 2: RECONFIGURING THE F PLASTIC TEE**



**FIGURE 3: INSTALLING THE GARMIN STATIC LINE**



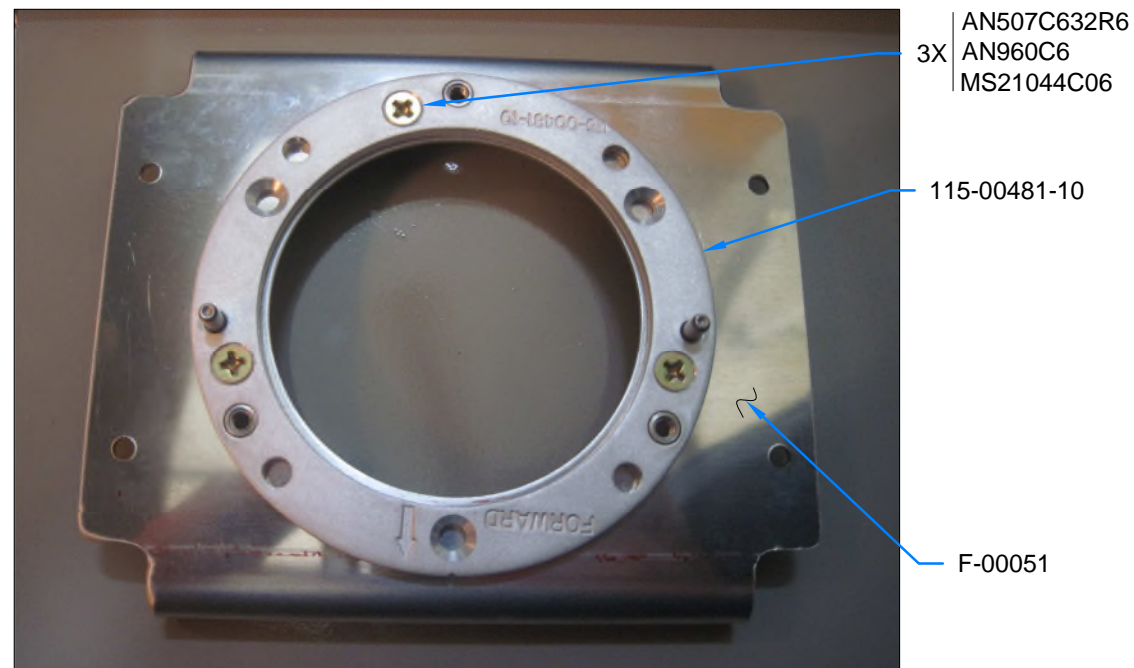
**FIGURE 4: REROUTING THE TAILCONE WIRING**  
 (TIE-WRAPS SHOWN INSTALLED FOR CLARITY)





**NOTE:** When working with hardware installed near the GMU 22 never use magnetic tipped screw drivers or other magnetized objects. The GMU 22 is very sensitive and may be influenced by any magnetized hardware.

Step 1: Attach the 115-00481-10 Mounting Ring to the F-00051 GMU 22 Attach Plate using the hardware called out in Figure 1.

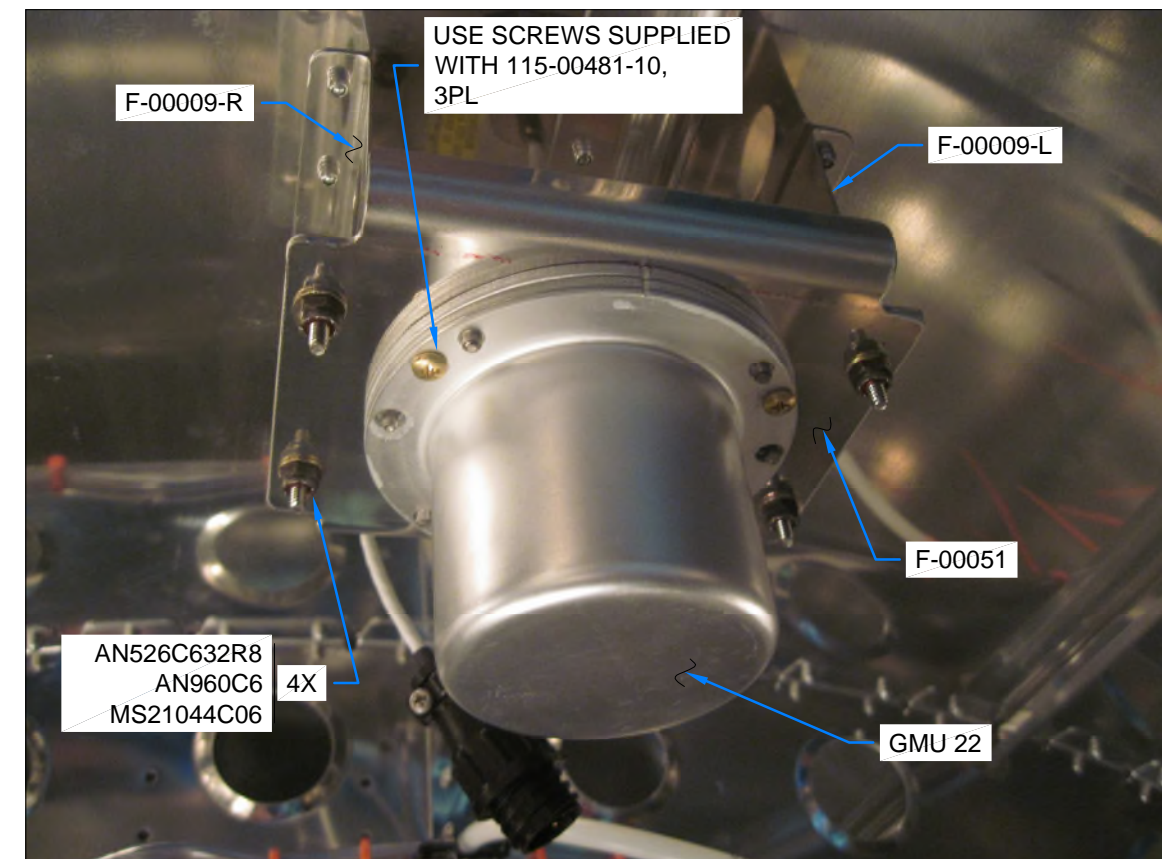


**FIGURE 1:** MOUNTING RING ATTACH

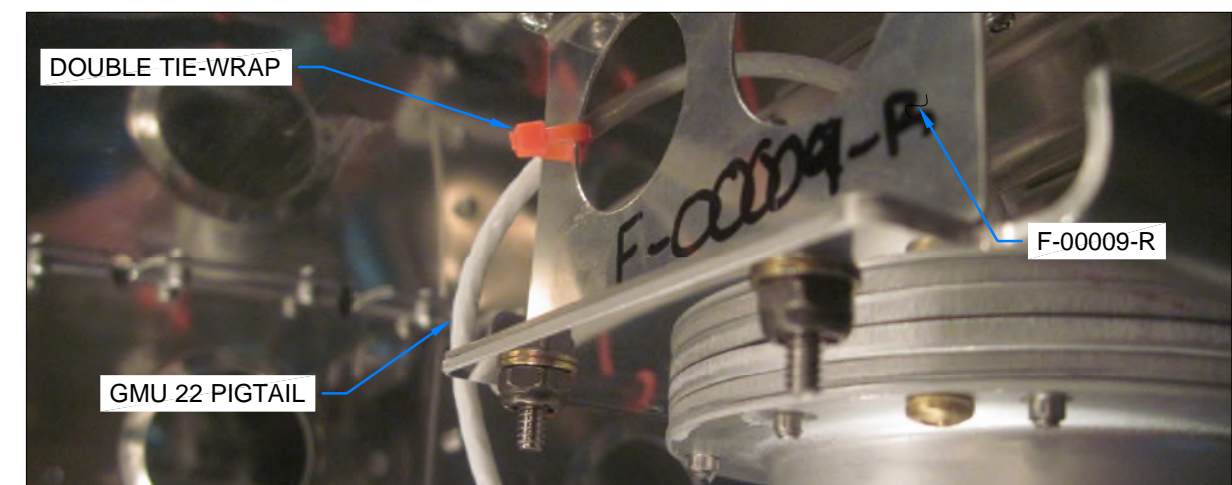
Step 2: Attach the GMU 22 Magnetometer to the 115-00481-10 Mounting Ring using the screws supplied in the 011-00871 GMU 22 Install Kit. See Figure 2.

Step 3: Attach the F-00051 GMU 22 Attach Plate to the F-00009-L & -R ADAHRS Brackets using the hardware shown in Figure 2. Note the "FORWARD" arrow and text go towards the front of the aircraft.

Step 4: Using two tie-wraps attach the wiring pigtail of the GMU 22 to the aft edge of the F-00009-R ADAHRS Bracket. Attach the first tie-wrap through the aft lightening hole and around the aft edge of the bracket. Install the second tie-wrap through the first tie-wrap and around the wires. Insure that the wires will not rub on the aft edge of the bracket.

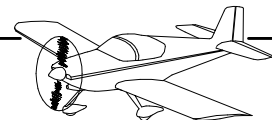


**FIGURE 2:** MOUNTING THE MAGNETOMETER ASSEMBLY



**FIGURE 3:** DOUBLE TIE-WRAP





**NOTE:** For the remainder of this section the WH-00107 GSU 25 GMU 22 Tailcone Harness will be referred to as the Garmin Tailcone Harness. The remaining steps on this page refer to the routing of this harness.

The Garmin Tailcone Harness has a common node marked by a band of heat shrink located about three feet from the connector labeled "FUSELG". The goal is to place the common node then route all the connections.

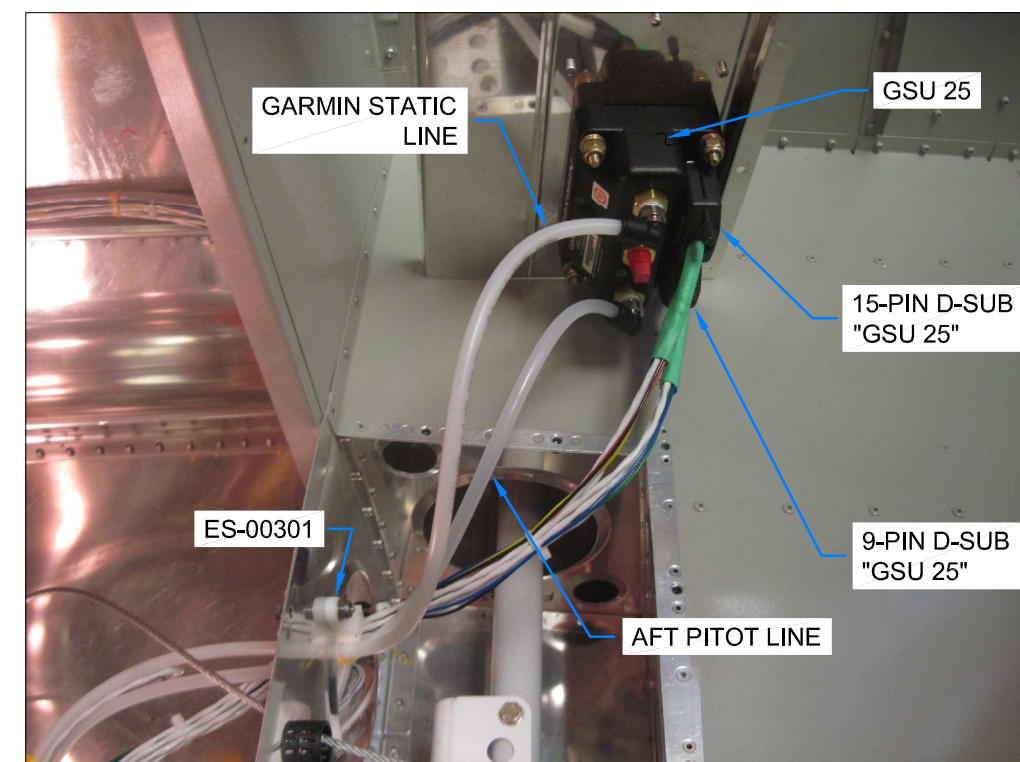
**Step 1:** Find the band of heat shrink marking the common node. Place the common node half way between the forward end of the J-Channel and the F-1207D-L Baggage Bulkhead Channel. Temporarily tape the harness to the existing wires and the Garmin Static Line.

**Step 2:** Route the 9-pin and 15-pin D-Sub connectors labeled "GSU 25" behind the F-1207D-L Baggage Bulkhead Channel and through the lightening hole with the ES-00301 Tie Wrap Clip installed on Page 42N-03, Step 1 and up through the baggage floor.

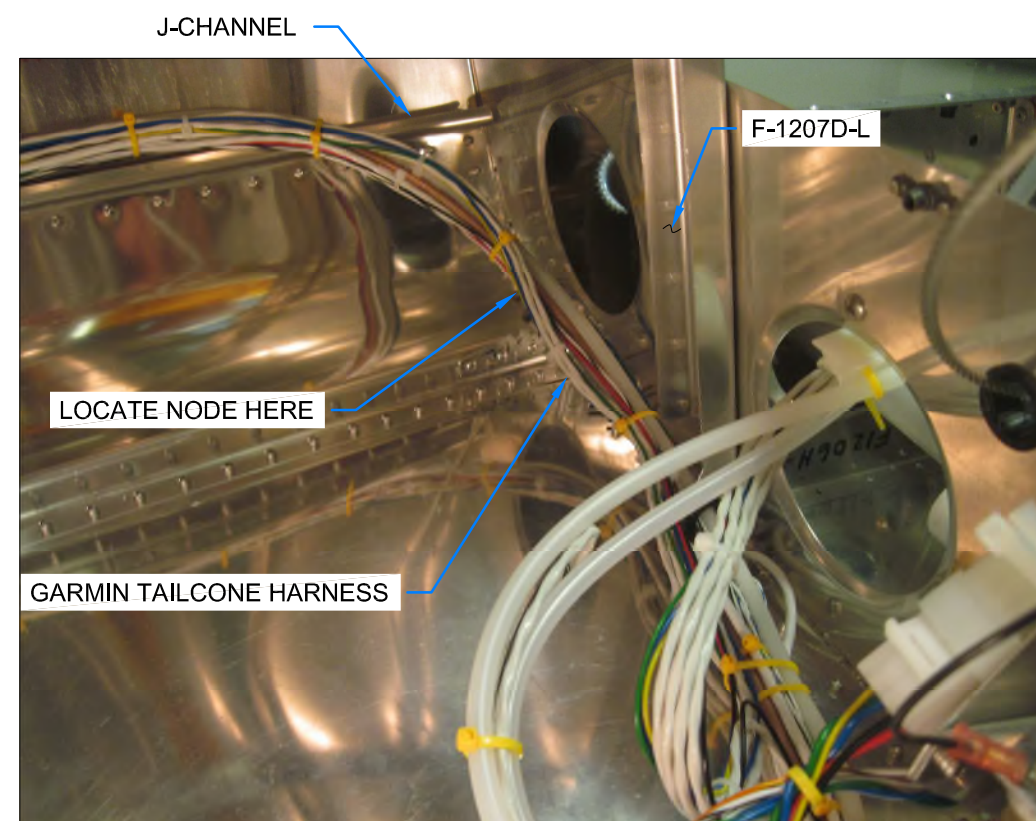
Connect the d-sub to the GSU 25 ADAHRS. Connect the AFT PITOT LINE (the line routing from the front of the fuselage) into the elbow fitting labeled "Pitot". Connect the Garmin Static Line to the elbow fitting labeled static. See Figure 2.

**Step 3:** Route the 15-pin d-sub connector labeled "R-SERVO" and the ES-00009 Molex Receptacle, 9 Position connector to the position of the roll servo.

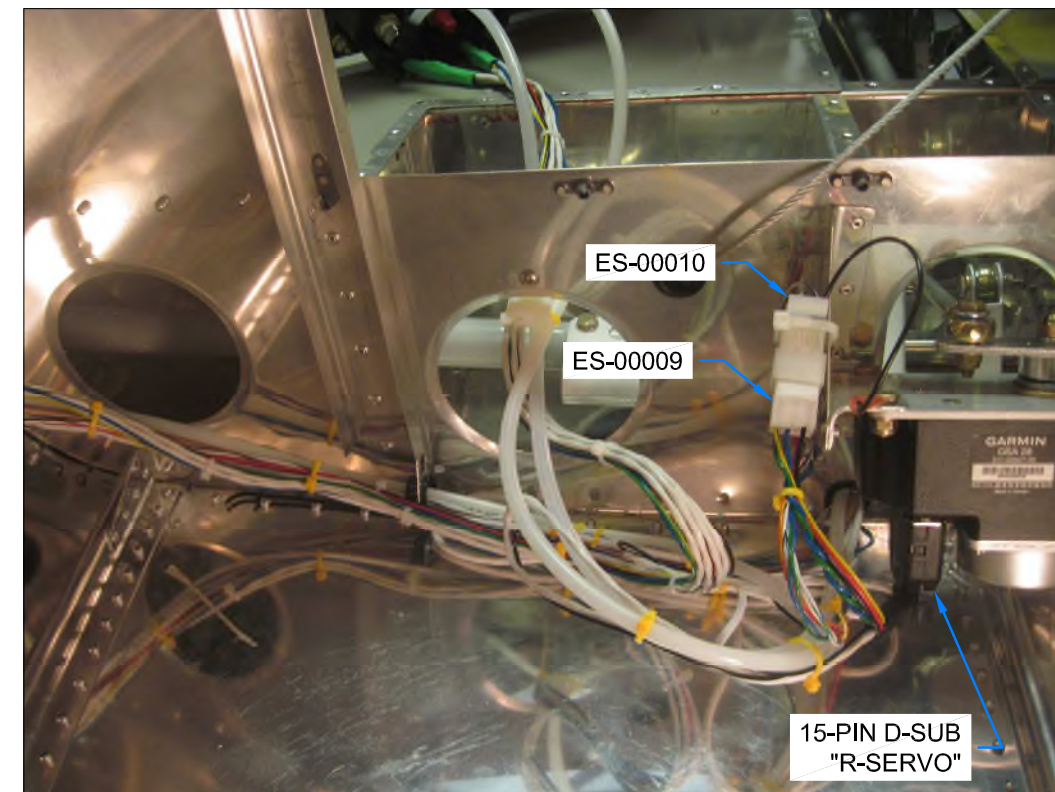
Mate the ES-00009 Molex Receptacle to the ES-00010 Molex Plug. See Figure 3.



**FIGURE 2:** WIRING AND PLUMBING THE GSU 25



**FIGURE 1:** LOCATING AND ROUTING THE GARMIN TALICONE HARNESS



**FIGURE 3:** INSTALLING THE ROLL SERVO PIGTAIL



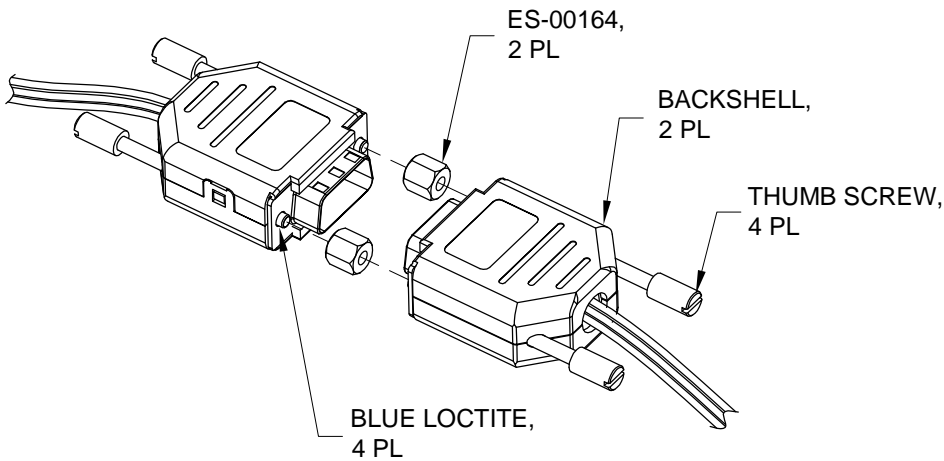
Step 1: Route the 9-pin d-sub labeled "FUSELG" to the 9-pin d-sub coming from the WH-00046 harness (previously doubled back on itself and moved to the lower edge of the F-1208 Bulkhead Frame).

Connect the d-sub's together using ES-00164 4-40 F/F .250 1/4 Hex Standoffs as shown in Figure 1. Place a drop of blue Loctite on the threads of each thumb screw then fully tighten them into the Hex Standoffs.

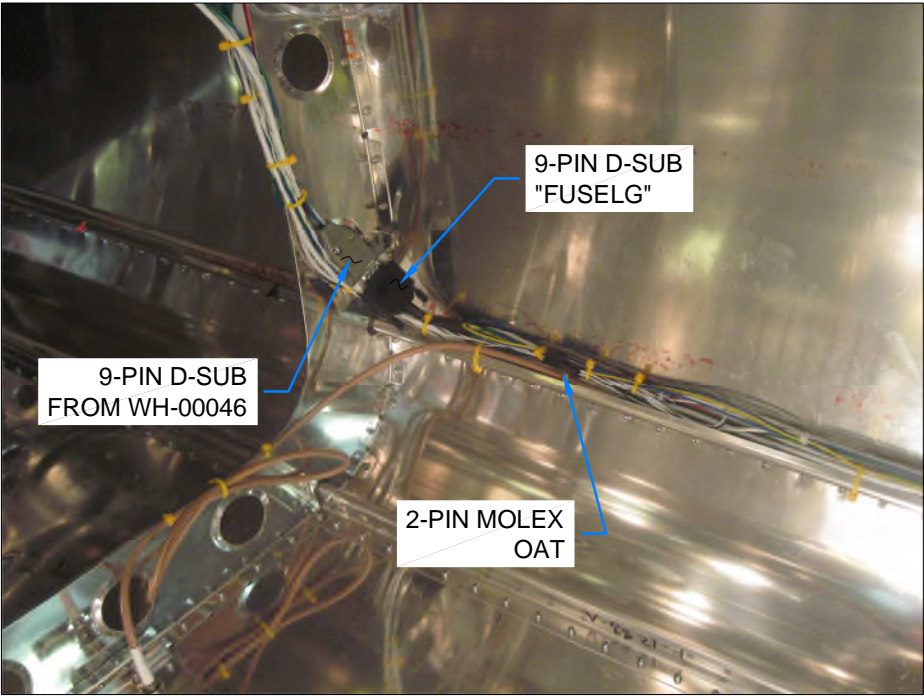
Step 2: Mate the 2-pin Molex connector on the WH-00060 OAT Harness to the 2-pin Molex connector coming from the Garmin Tailcone Harness. See Figure 2.

Step 3: Route the Garmin Tailcone Harness round 206485-1 CPC connector to the top of the F-1208 Bulkhead Frame. Loosely install tie-wraps around all wires and the Garmin Static Tube as you route the CPC connector. Make the tie-wraps just tight enough that the harness may be repositioned slightly.

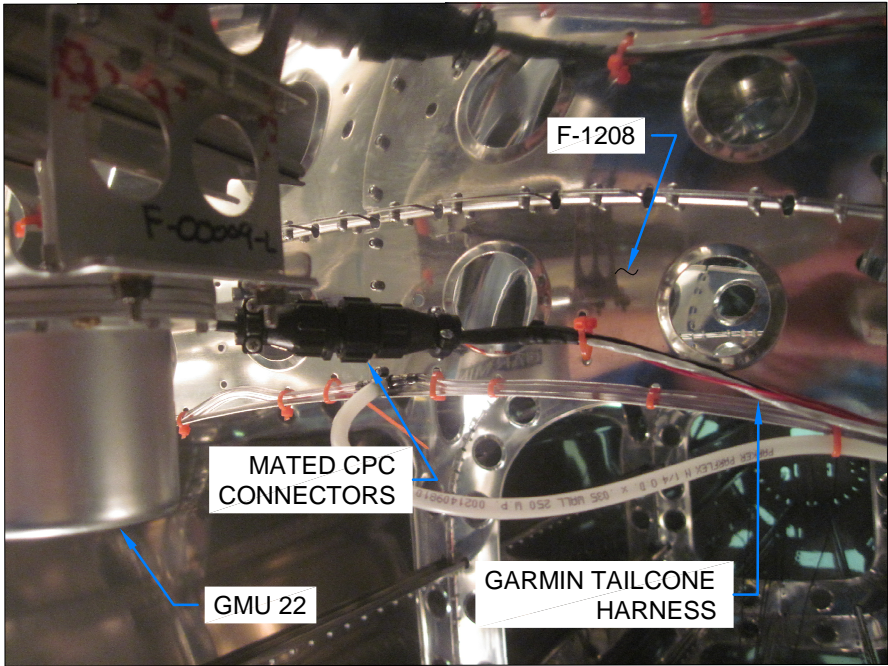
Step 4: Connect the round CPC connector to the connector coming from the GMU 22 Magnetometer. See Figure 3.



**FIGURE 1:** CONNECTING D-SUB TO D-SUB  
(BACKSHELL TYPE MAY VARY)



**FIGURE 2:** WIRE AND CONNECTOR ROUTING



**FIGURE 3:** WIRING THE GMU 22





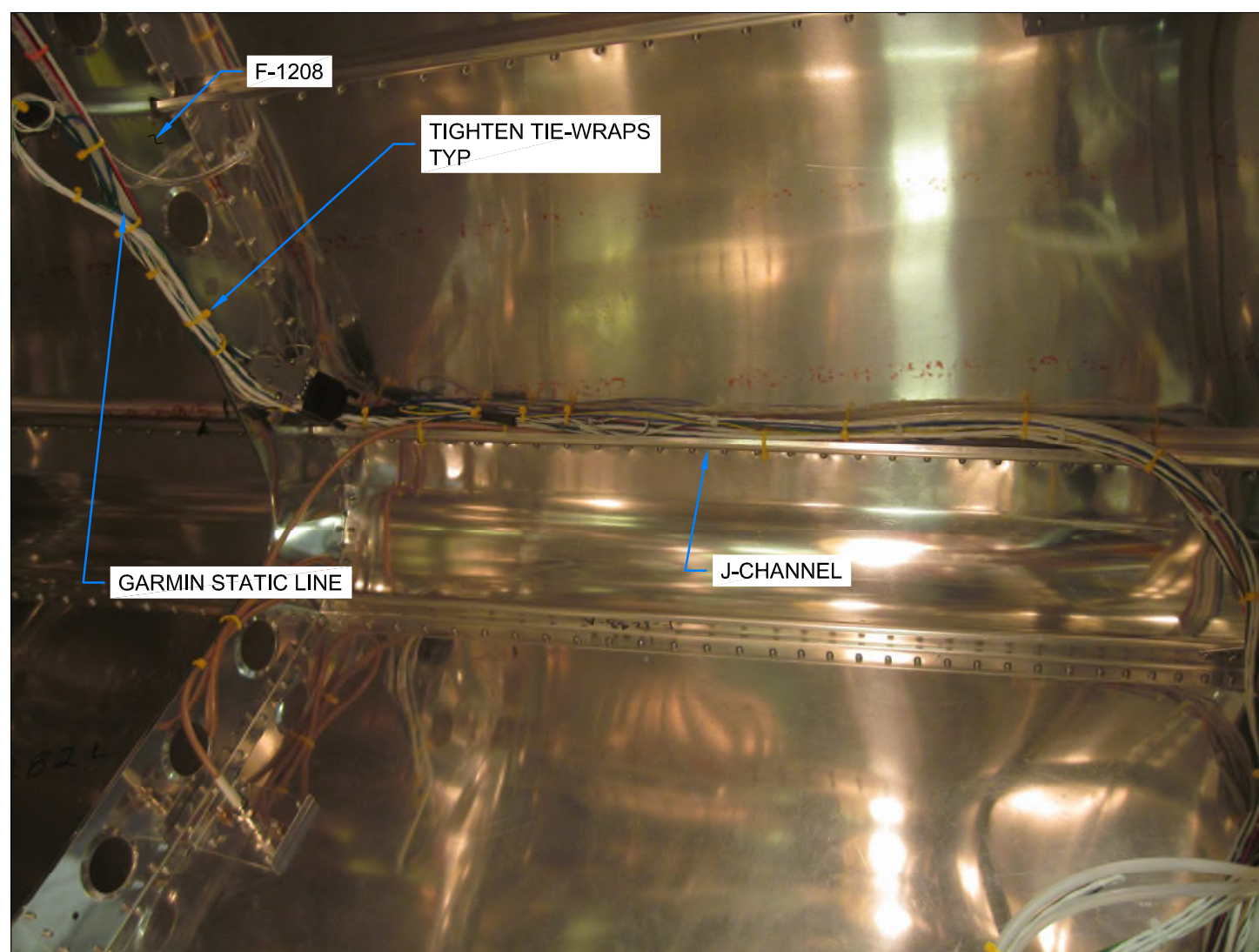
**Step 1:** Working down and forward along the harness from the top of the F-1208 Bulkhead Frame, tighten the tie-wraps holding the wires and the static lines to the F-1208 Bulkhead Frame.

Tighten the tie-wraps holding the Garmin Static Line and wires to the J-channel. As this process takes place move the harness as required to remove any "bunching". See Figure 1.

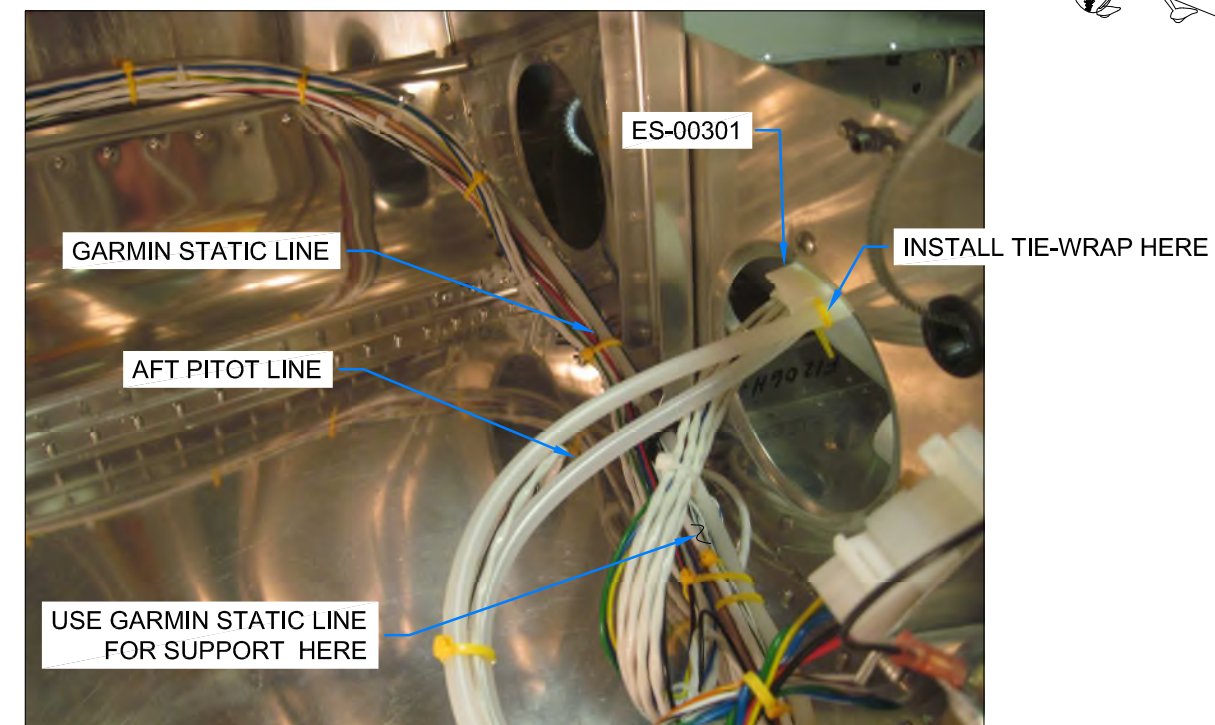
Add new tie-wraps as required to the wires, Garmin Static Line and AFT PITOT line between the J-Stiffener and the roll servo. Use the pitot and static lines to support the harness as it passes behind the F-1207D-L Baggage Bulkhead Channel. See Figure 2.

**Step 2:** Lift the ADAHRS Baggage Floor Assembly. Install a tie-wrap through the ES-00301 Tie-Wrap Clip and around the AFT PITOT LINE, Garmin Static Line, and the wires going to the GSU 25. Tighten the tie-wrap just snug enough to fully support the bundle but loose enough to allow it to still slide through the tie-wrap.

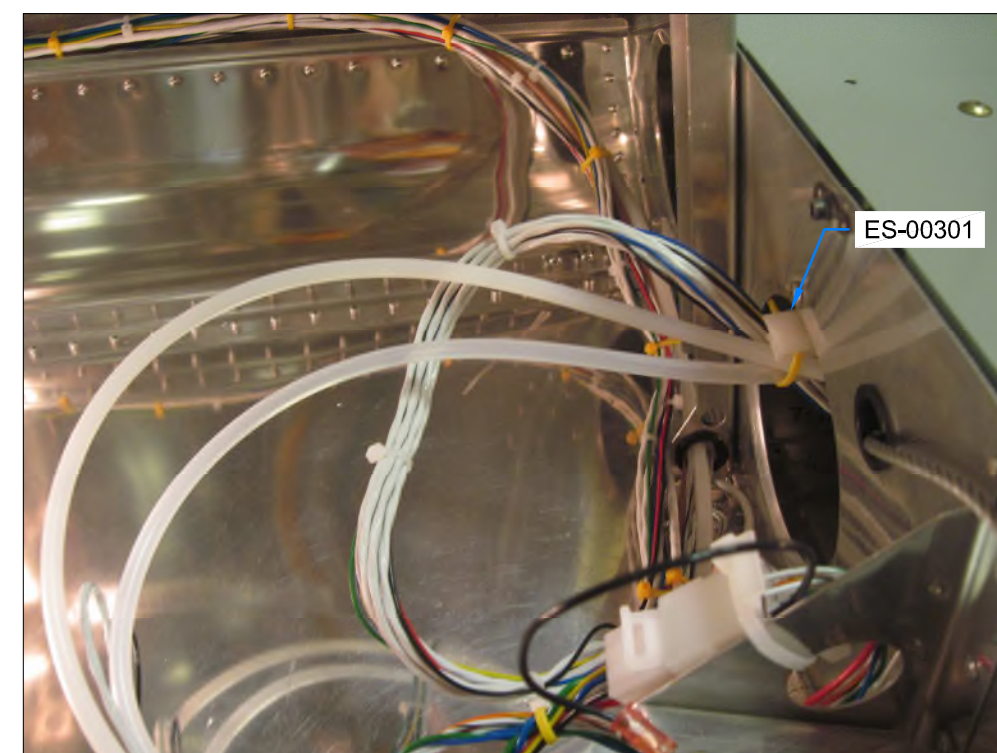
Push the bundle back through the tie-wrap in the clip and place the floor assembly in the installed position.



**FIGURE 1:** SECURING THE TAILCONE WIRING



**FIGURE 2:** INSTALLING WIRING AND PLUMBING THROUGH THE TIE WRAP CLIP



**FIGURE 3:** ADAHRS BAGGAGE FLOOR ASSEMBLY IN INSTALLED POSITION





Step 1: Install the F-1240 Upper Forward Fuselage Skin and F-1202D-L Panel Attach Strip if not already installed. See Section 29A.

Temporarily install the F-00043 G3X Panel using screws in about every third hole.

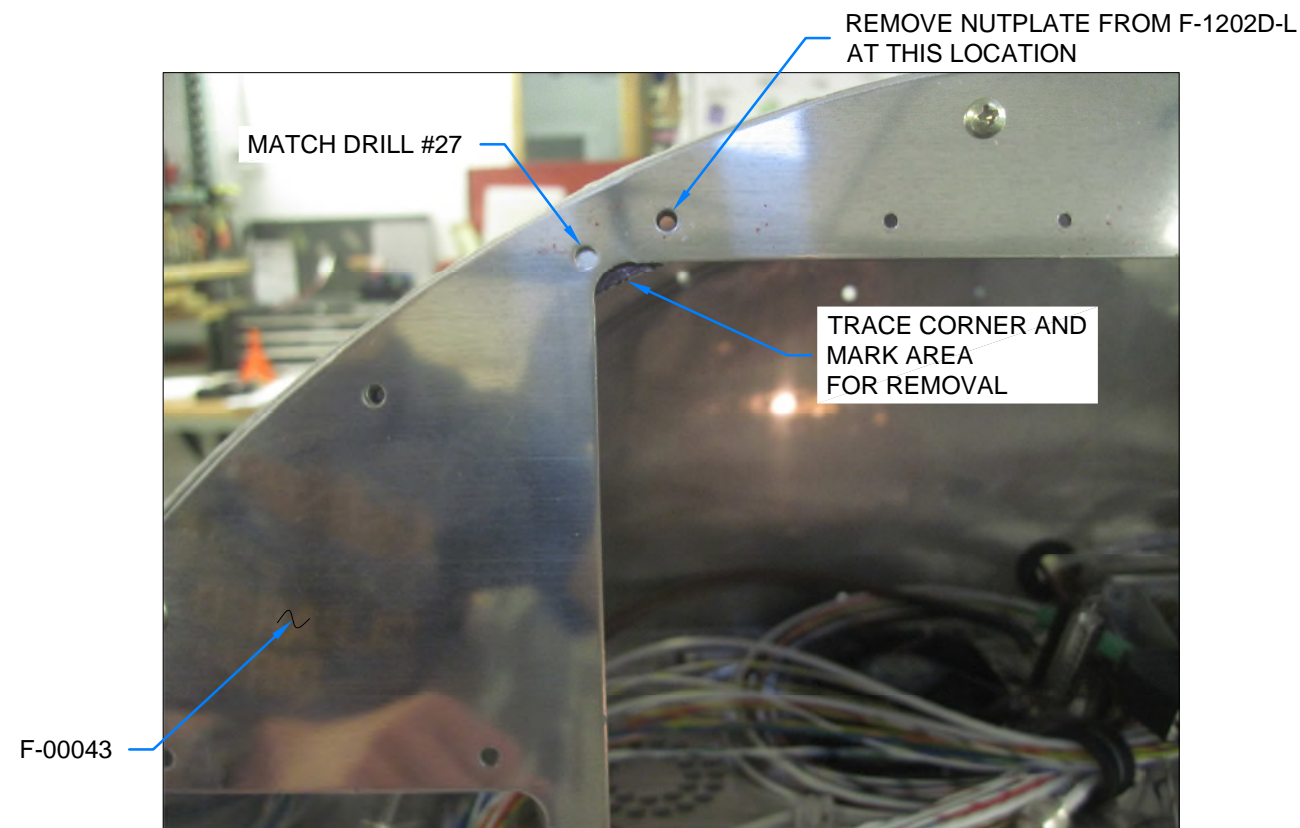
Step 2: Trace the upper left corner of the cutout in the F-00043 G3X Panel for the G3X display onto the F-1202D-L Panel Attach Strip. See Figure 1.

Match-Drill #27 the hole indicated in Figure 1 into the panel attach strip.

Remove the G3X panel.

Step 3: Using the line traced in the previous step as a guide, remove material from the F-1202D-L Panel Attach Strip to match the G3X display cutout shape in the F-00043 G3X Panel.

Step 4: Remove the specified nutplate from the F-1202D-L Panel Attach Strip. See Figure 1.



**FIGURE 1:** MARKING THE EFIS CUTOUT

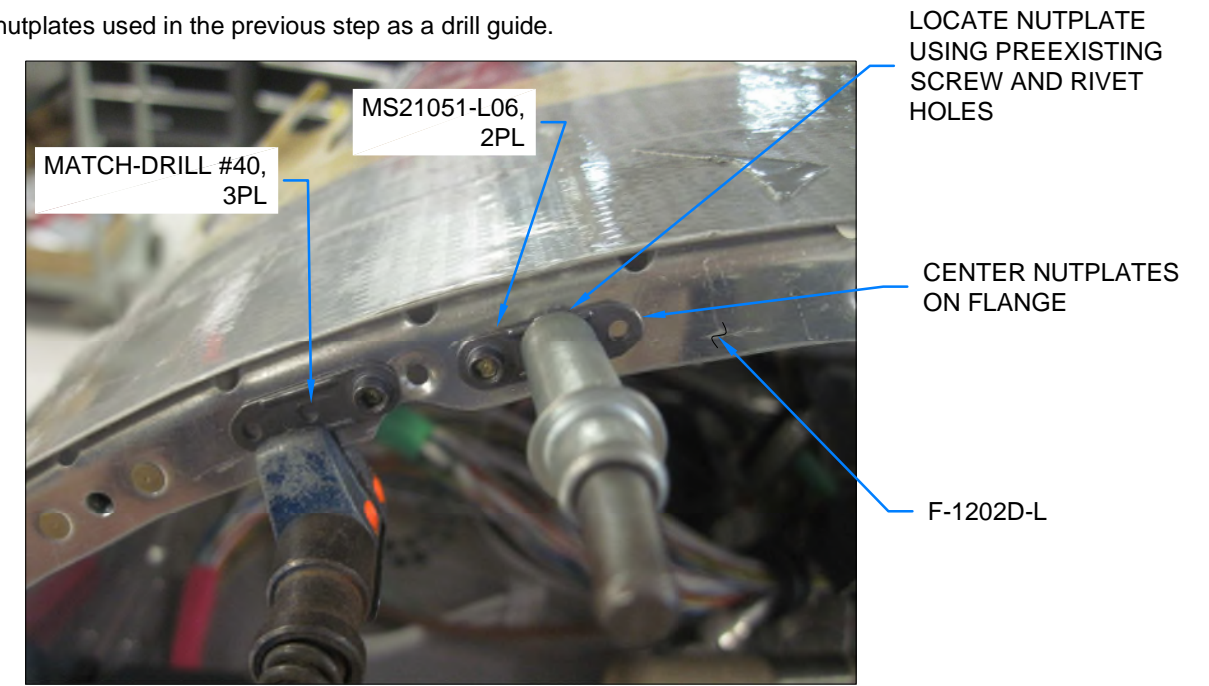
Step 5: Use a screw to attach the nutplates called out in Figure 2 to the aft (pilot) side of the F-1202D-L Panel Attach Strip. Use the hole drilled in the previous step to locate the left nutplate. Use the preexisting hole to locate the right nutplate. Center the nutplates on the flange of the strip.

Step 6: Match-Drill #40 the nutplate attach holes into the panel attach strip.

Remove the nutplates and deburr the holes.

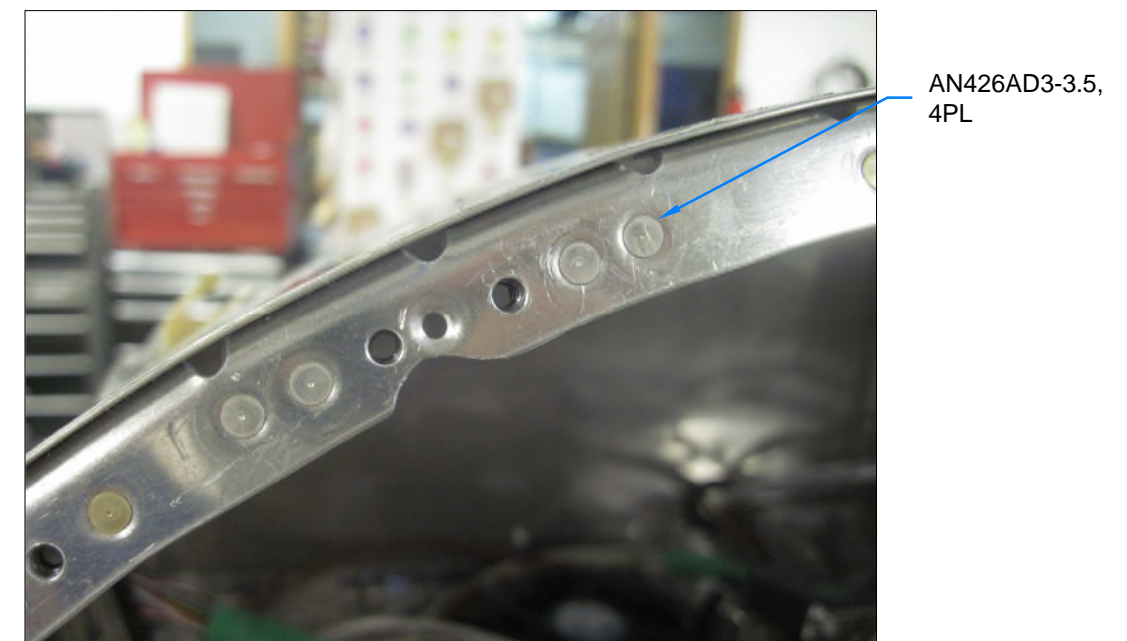
Step 7: Dimple the nutplate attach holes drilled in the previous step.

Step 8: Dimple the nutplates used in the previous step as a drill guide.



**FIGURE 2:** NOTCH FOR EFIS & NEW NUTPLATES

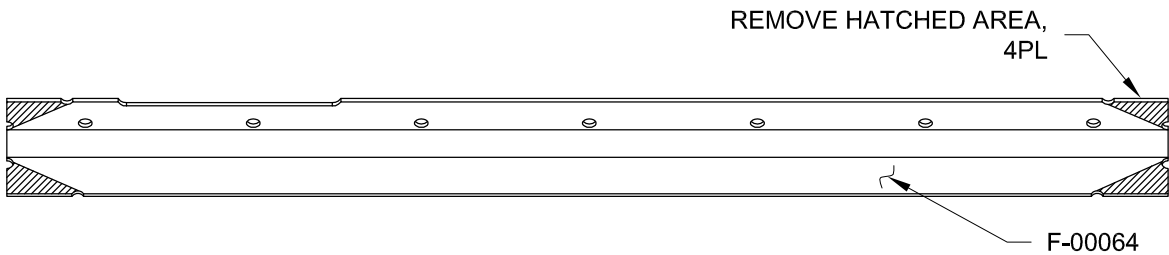
Step 9: Rivet the nutplates to the F-1202D-L Panel Attach Strip. See Figure 3.



**FIGURE 3:** RIVETING THE NEW NUTPLATES



Step 1: Remove the hatched areas shown in Figure 1 from the F-00064 Stiffener Angle.



**FIGURE 1: PREPARING THE STIFFENER**

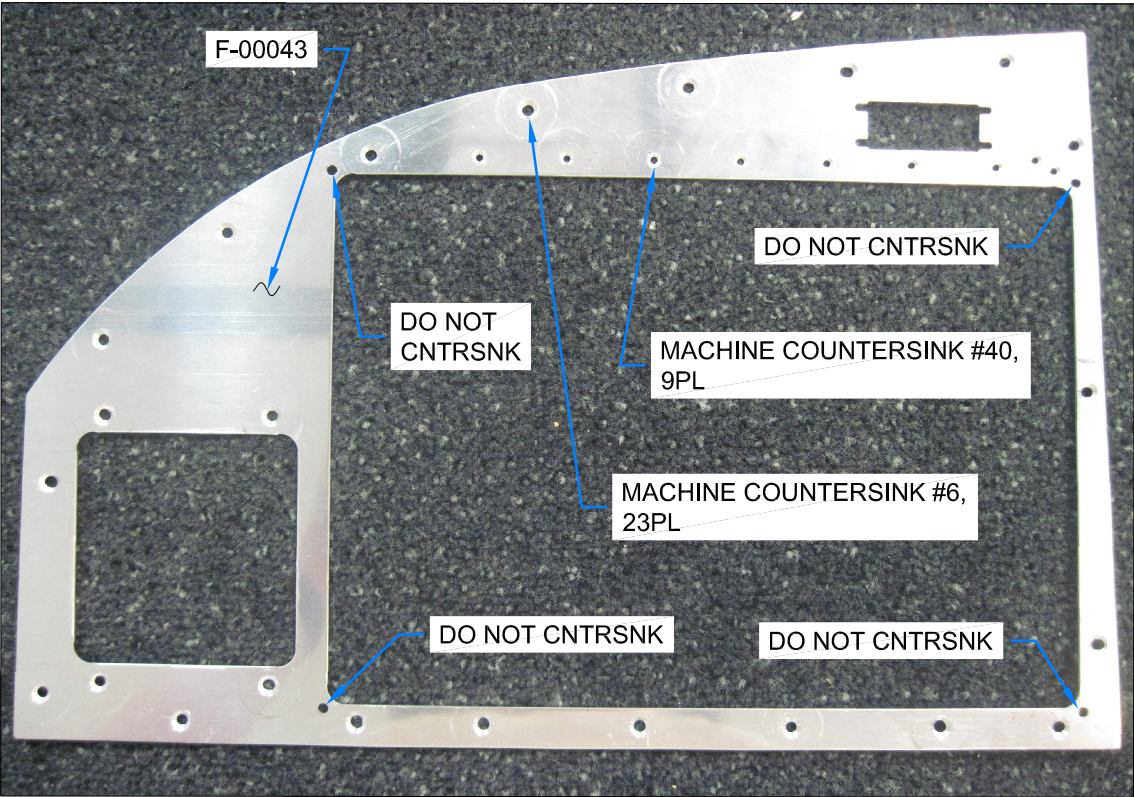
Step 2: Machine countersink the aft (pilot) side of the F-00043 G3X Panel at all the #6 screw locations except the four holes at the corners of the G3X display cutout. See Figure 2.

Machine countersink the nutplate attach holes in the G3X panel.

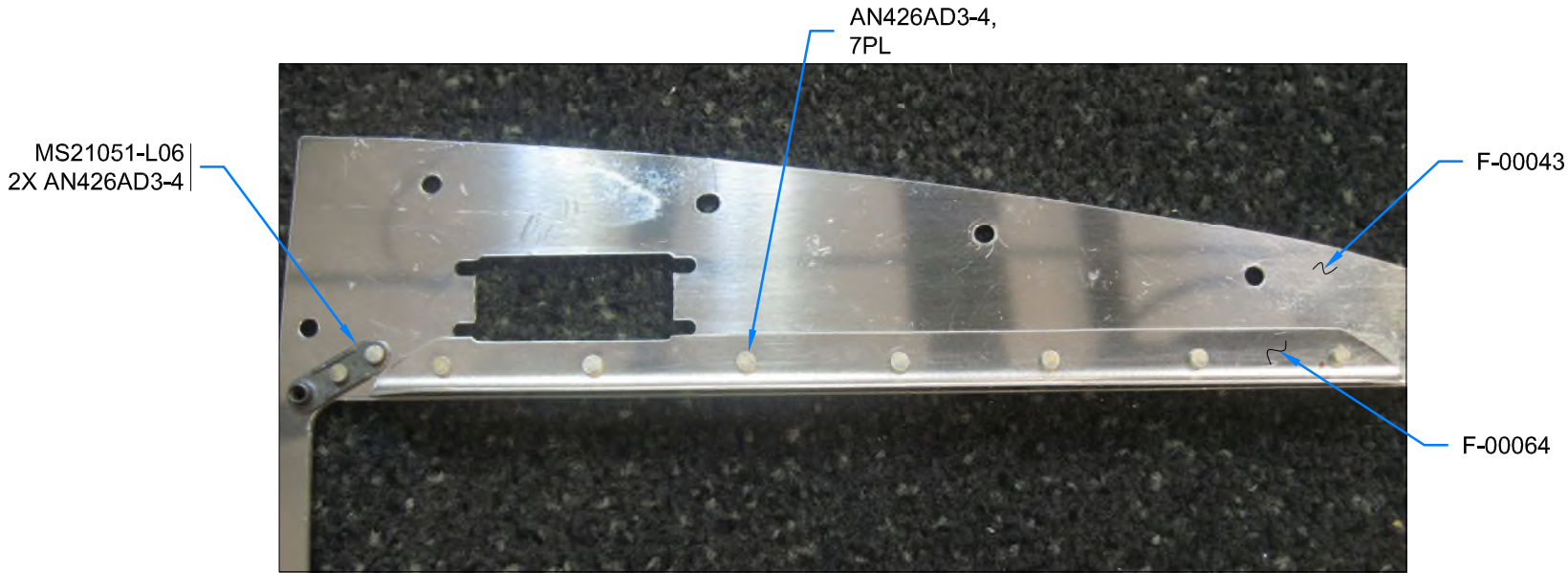
Machine countersink the holes that will attach the F-00064 Stiffener to the G3X panel.

Step 3: Rivet the F-00064 Stiffener to the F-00043 G3X Panel. See Figure 3.

Step 4: Rivet a nutplate to the F-00043 G3X Panel. See Figure 3.



**FIGURE 2: COUNTERSINKING THE G3X PANEL**



**FIGURE 3: ATTACHING THE STIFFENER**



**NOTE:** There is a hole in the F-1202B Panel Base flange that will be ignored. Do not match-drill this hole into the F-00063 Doubler. See Figure 4.

**Step 1:** Temporarily install the F-00063 Doubler onto the aft (pilot) side of the aft flange of the F-1202B Panel Base. Nutplates previously installed in the area occupied by the doubler will need to be removed. Double check using Figure 1 that the doubler is in the correct position. Mark the location of the doubler on the panel base for future reference.

**Step 2:** Match-Drill #27 and #40 all hole locations not found in the flange of the Panel Base. Note the two upper screw holes (found near the ears sticking up from the doubler) will make notches in the top edge of the panel base flange. See Figure 1.

Remove the doubler and deburr the holes made in the panel base.

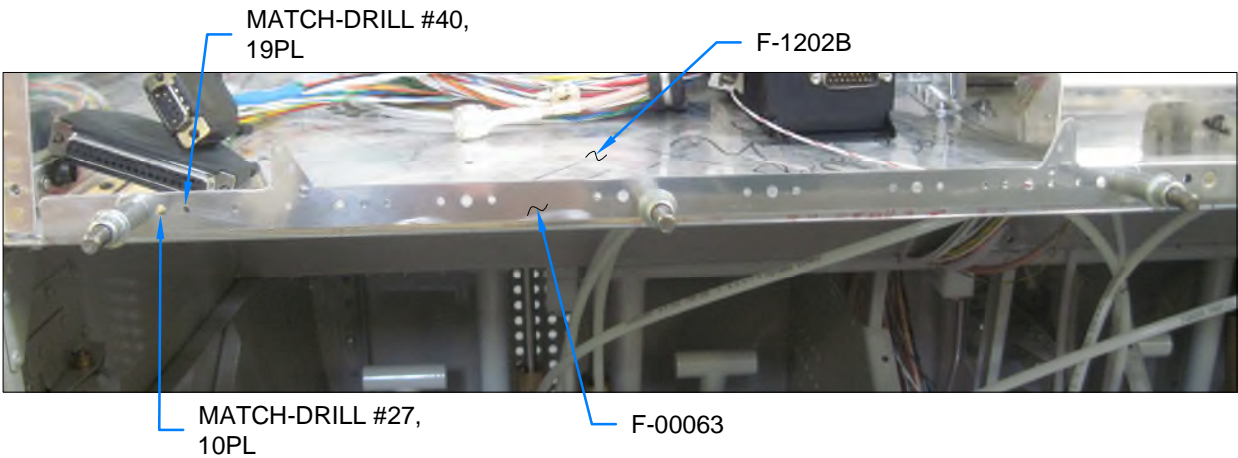
**Step 3:** Machine countersink the rivet holes in the aft side of the panel base flange.

**Step 4:** Machine countersink on the aft side of the doubler the four rivet holes that will attach the two nutplates common to only the doubler. These holes are found in the two ears that stick up from the part.

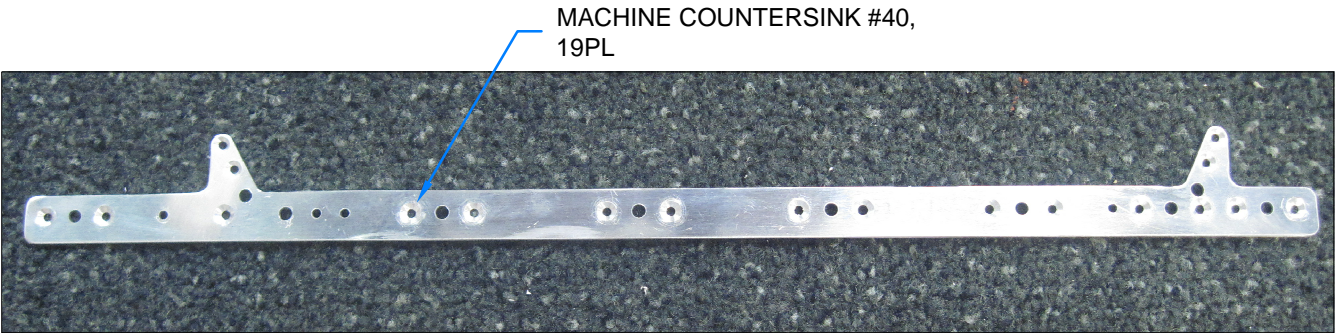
Machine countersink on the aft side of the doubler, the holes that correspond to the dimpled holes in the aft flange of the panel base. See Figure 2.

**Step 5:** Rivet the two nutplates common to only the F-00063 Doubler.

**Step 6:** Rivet the doubler and nutplates called out in Figure 3 to the fwd (firewal) side of the aft flange of the F-1202B Panel Base. See Figure 3.



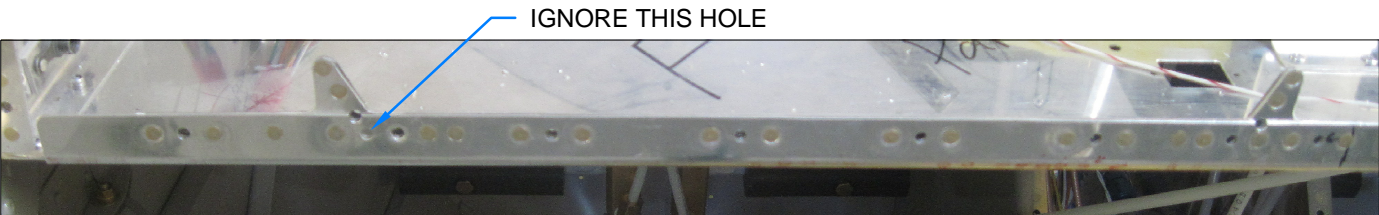
**FIGURE 1:** MATCH-DRILLING HOLES FOR THE DOUBLER



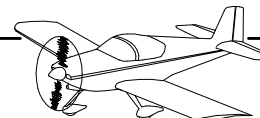
**FIGURE 2:** COUNTERSINKING THE DOUBLER  
(PILOT SIDE SHOWN)



**FIGURE 3:** INSTALLING THE DOUBLER  
(VIEW FROM FIREWALL SIDE)



**FIGURE 4:** IGNORED HOLE



**Step 1:** Place the ES BATT TCW 3AH Backup Battery at the approximate location shown in Figure 1.

Mark the center of each of the four backup battery attach holes on the F-1202B Panel Base.

Match-Drill #19 each attach hole location into the panel base.

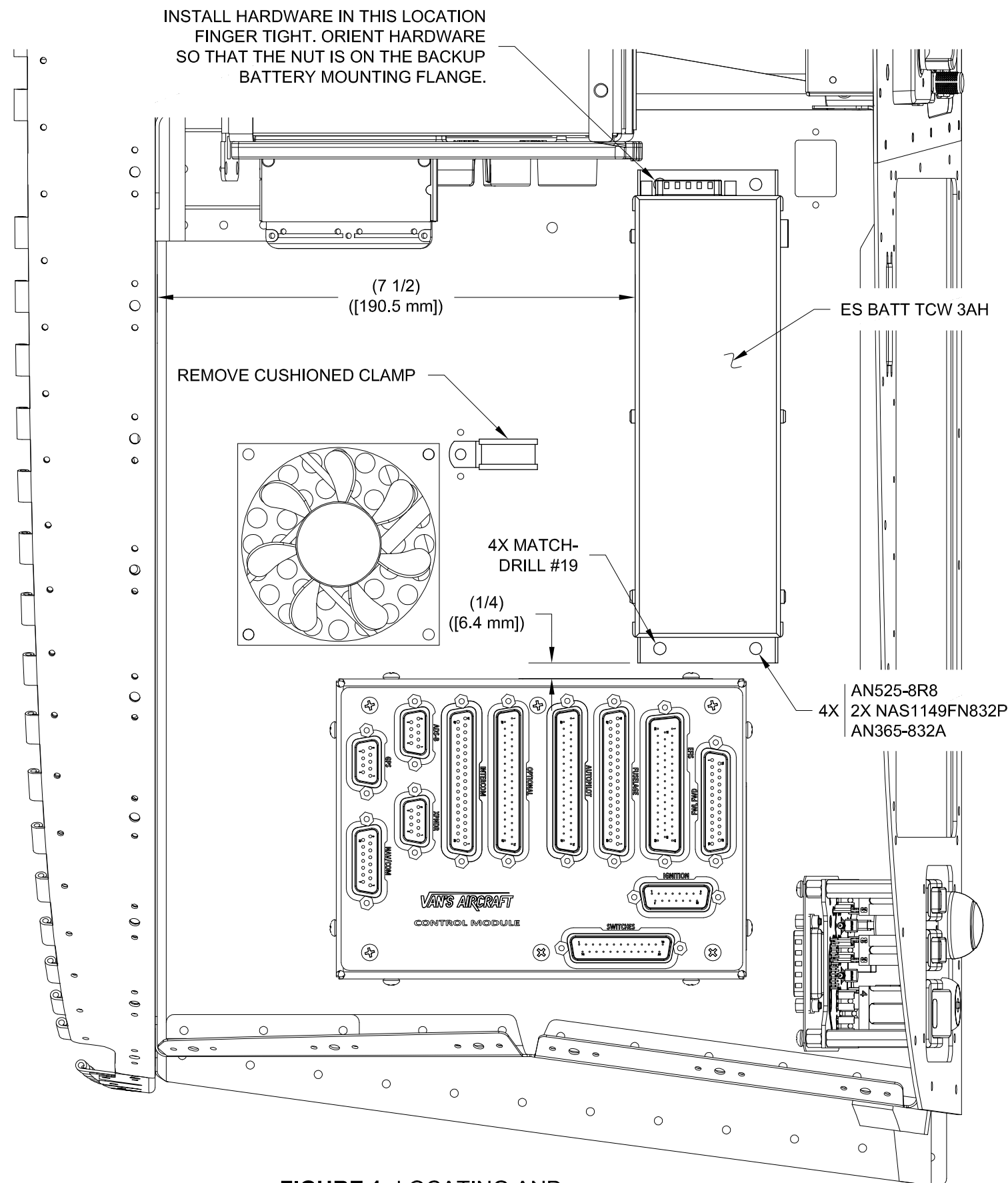
Deburr the holes.

**Step 2:** Attach the ES BATT TCW 3AH Backup Battery to the F-1202B Panel Base using the hardware called out in Figure 1. Leave the called out fastener finger tight. This will be used to ground the battery when the wiring is installed.

Install the hardware called out in Figure 1 so that the head of the screw is on the Backup Battery mounting flange except where noted.

**Step 3:** Disconnect and discard the cushioned clamp near the ES CPU Fan. See Figure 1.

Tie-wrap the wire bundle and add a dab of RTV sealant as required in areas where the wire bundle may rub.



**FIGURE 1: LOCATING AND  
ATTACHING THE BACKUP BATTERY**





Step 1: Align the F-00084 G3X RV-12 Fwall Template to the aft side of the F-1201A Firewall Upper as shown in Figure 1. Center the 1/4 inch holes in the Fwall Template over the heads of previously installed rivets. See Figure 1.

Holding the Fwall Template in position by hand, match-drill #30 then cleco the holes in the Fwall Template into the firewall at the two locations shown. See Figure 1

Remove the Fwall Template and deburr the holes drilled in the firewall upper.

Step 2: Separate the F-00074-L & -R Garmin Xpndr Fwall Brkts by removing the hatched areas. See Figure 2.

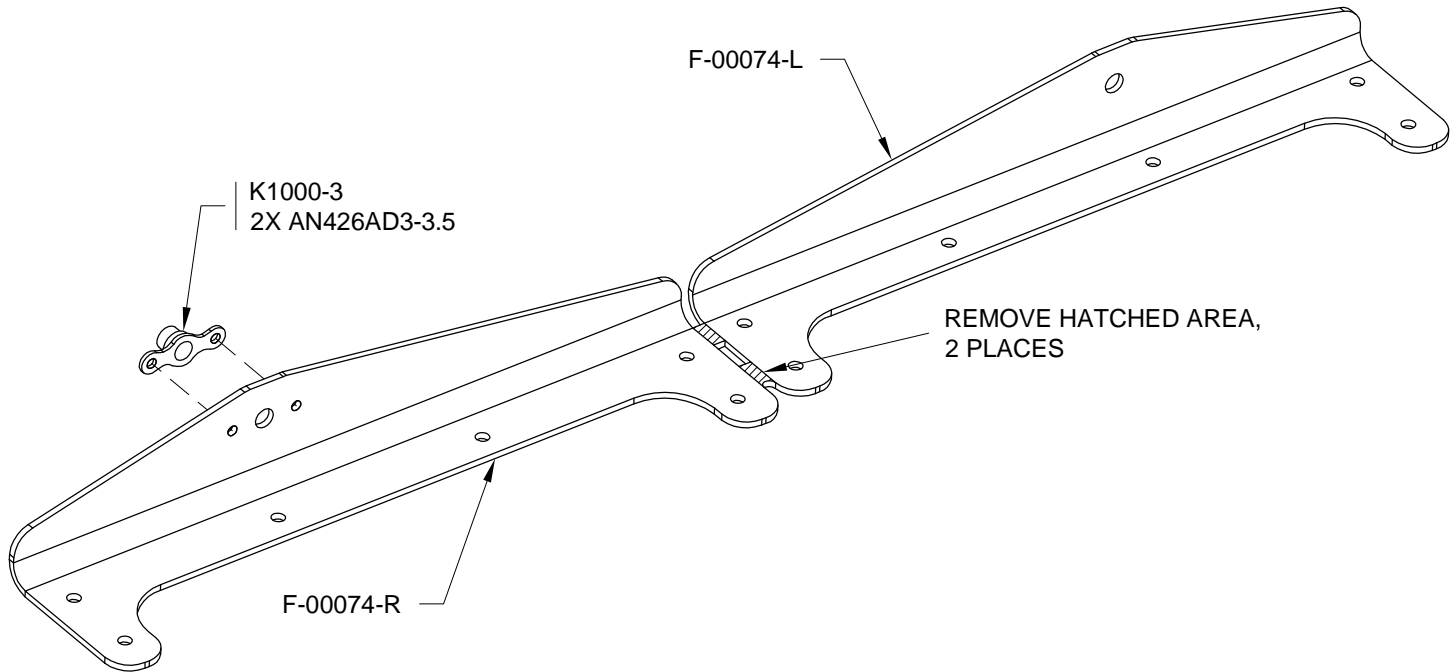
Step 3: Machine countersink the nutplate attach holes in the F-00074-R Garmin Xpndr Fwall Brkt.

Rivet a nutplate to the bracket as shown in Figure 2.

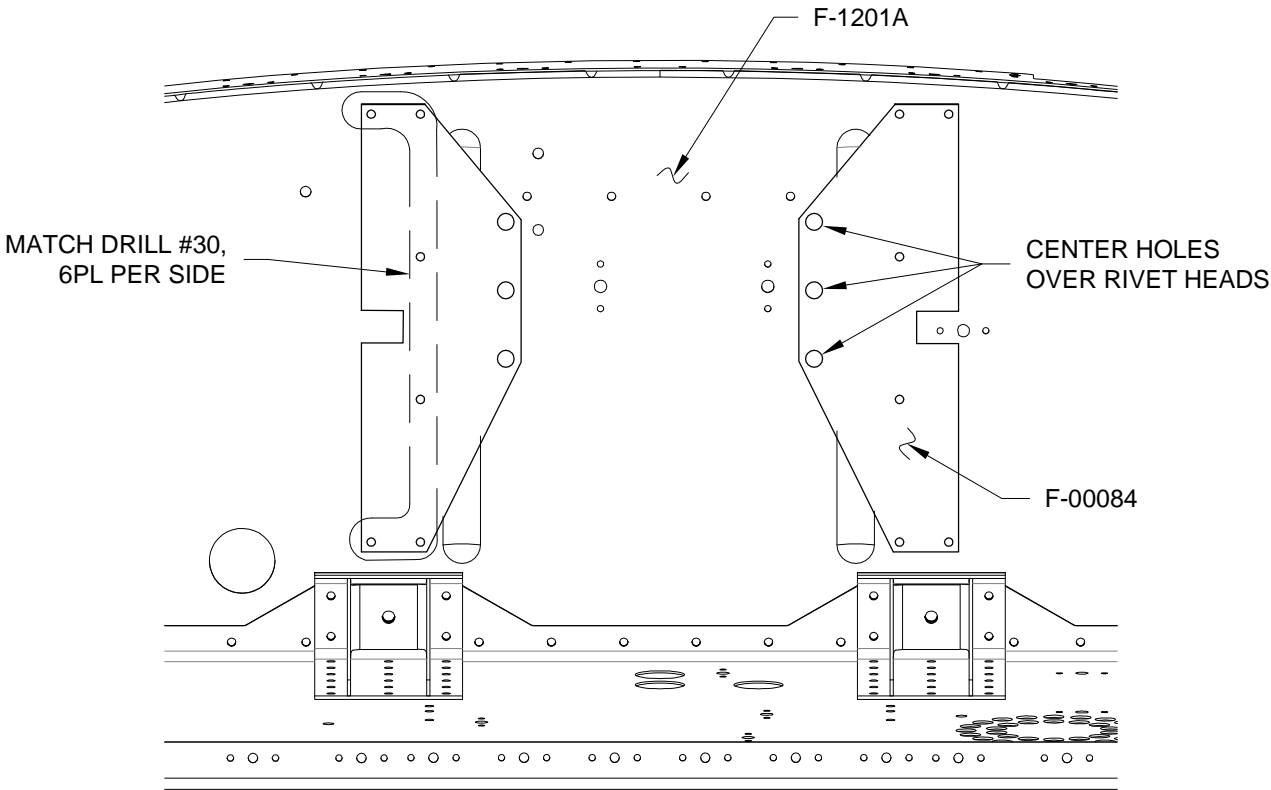
Step 4: Rivet the F-00074-L & -R Garmin Xpndr Fwall Brkts to the F-1201A Firewall upper using the rivets called out in Figure 3. Place the manufactured head of the rivets on the forward face of the firewall.

Cover the head of each rivet with fuel tank sealant.

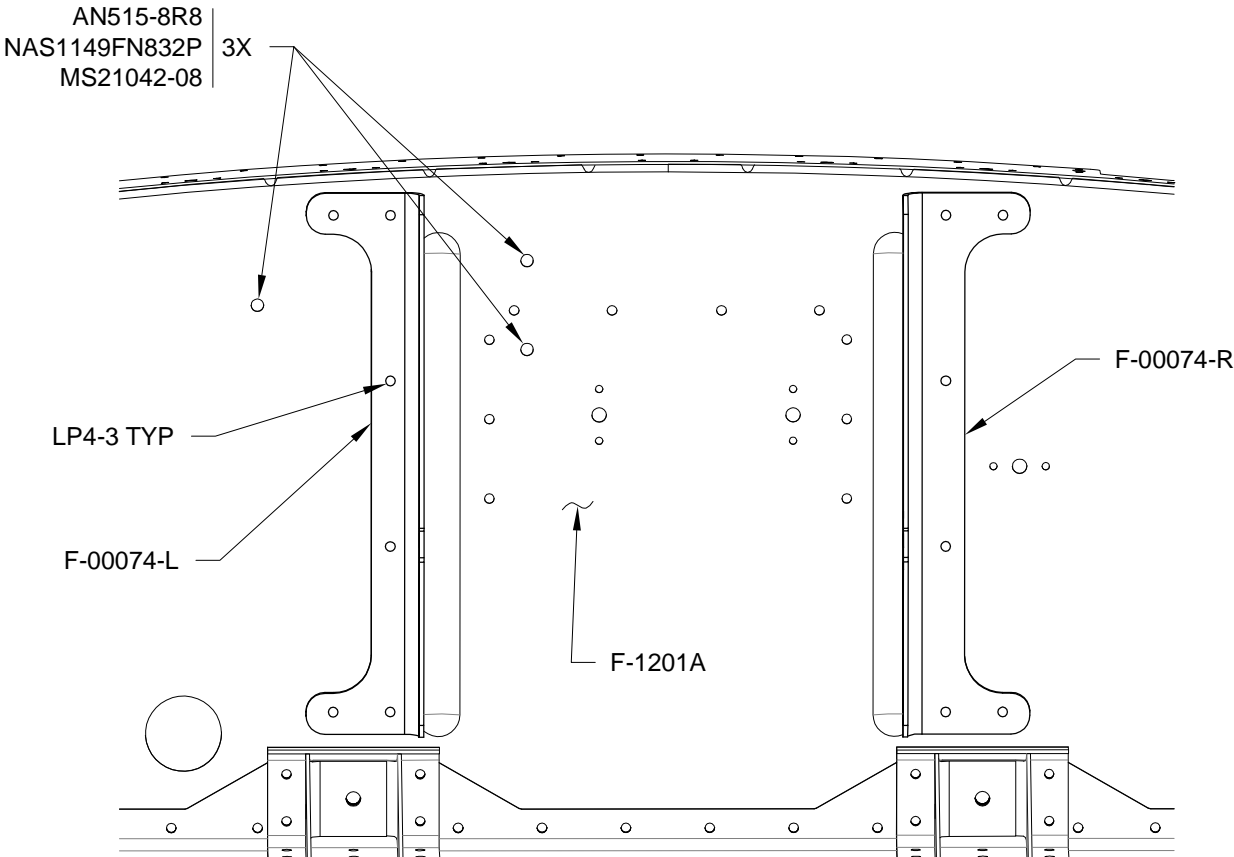
Step 5: Fill the three holes indicated in the firewall with screws. See Figure 3.



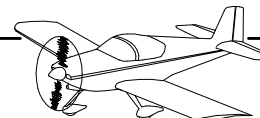
**FIGURE 2: PREPARING THE BRACKETS**



**FIGURE 1: MATCH-DRILLING HOLES WITH THE TEMPLATE  
(USE SAME TEMPLATE FOR BOTH SIDES)**



**FIGURE 3: ATTACHING THE BRACKETS**

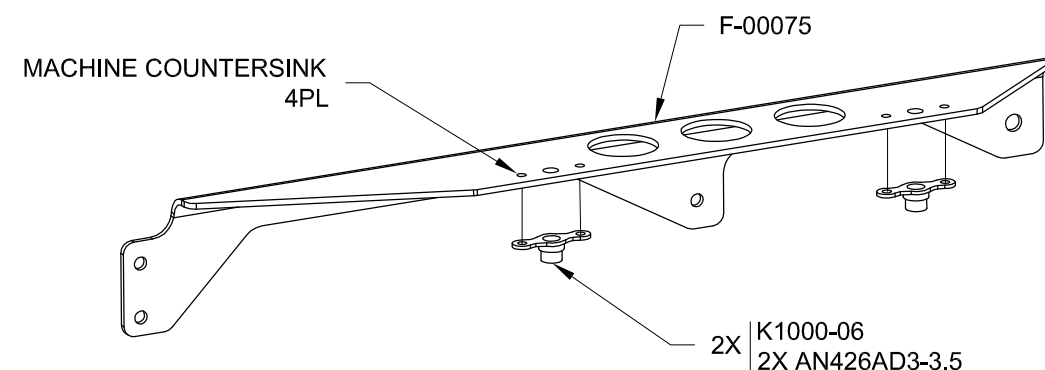


**NOTE:** Before continuing in this section finish Sections 42M, 53B (optional ADS-B), 44B and 42G. When attaching the com radio tray only fasten the screws that hold the tray finger tight. Do not install the radio into the tray during installation.

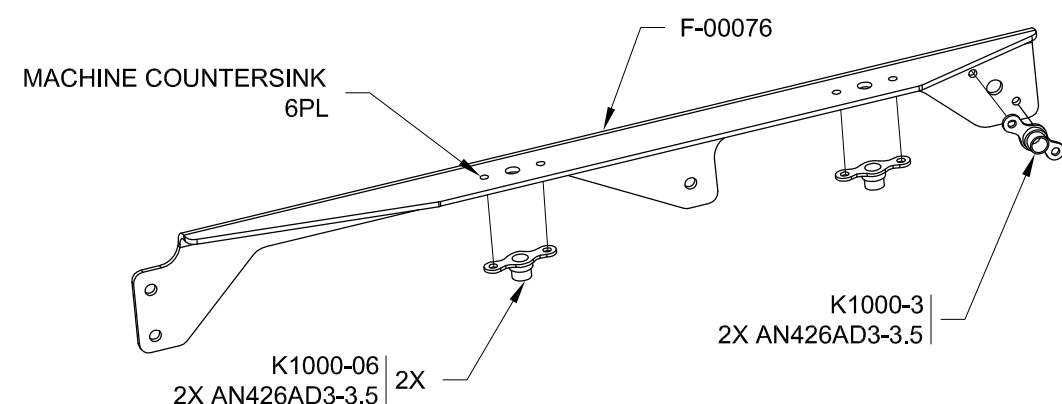
If installing the optional GMC 305 Autopilot Control Head as part of the optional autopilot system make a cutout for the control head using the dimensions given in the autopilot installation instructions or order the F-00044G-1 Cntr Inst Pnl GTR 200 GMC 305 which already has the cutout. See Section 44B.

Step 1: Locate the F-00075 Garmin Xpndr Bracket Right and the F-00076 Garmin Xpndr Bracket Left. Machine countersink the holes shown in Figure 1 and Figure 2.

Step 2: Install nutplates to the F-00075 Garmin Xpndr Bracket Right and F-00076 Garmin Xpndr Bracket Left. See Figure 1 and Figure 2.

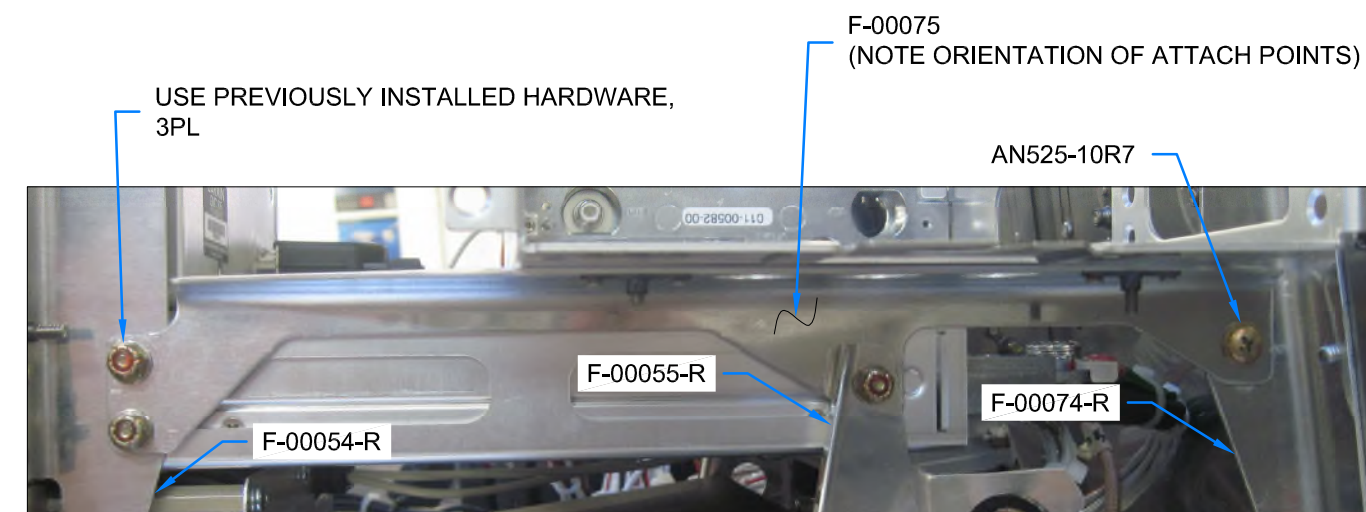


**FIGURE 1:** PREPARING THE GARMIN XPNDR BRACKET RIGHT

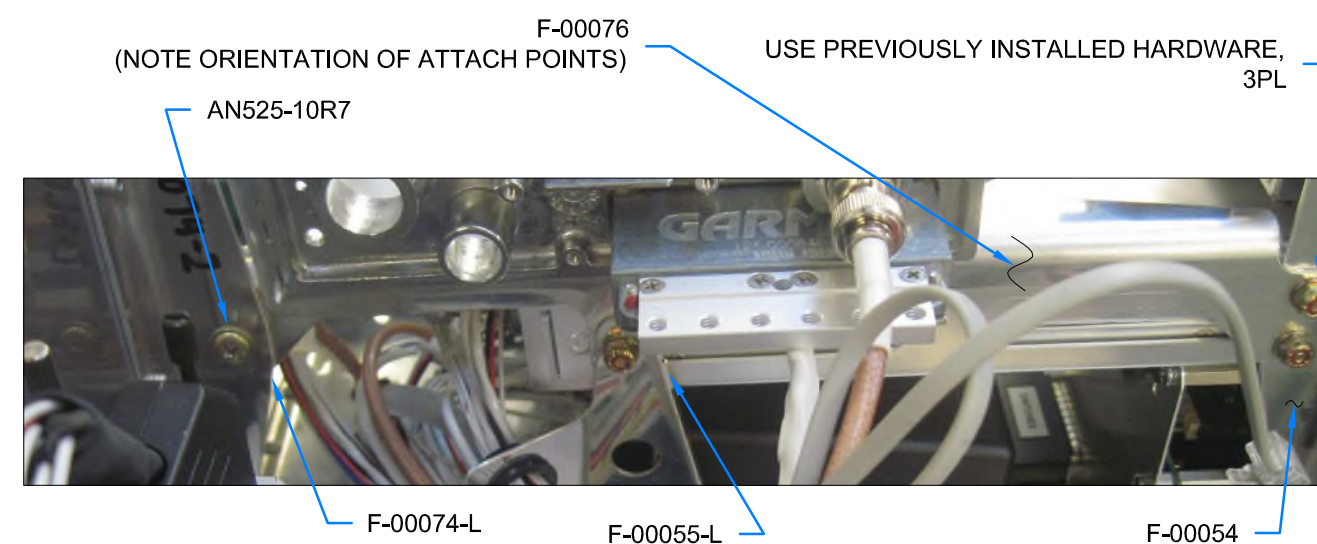


**FIGURE 2:** PREPARING THE GARMIN XPNDR BRACKET LEFT

Step 3: Attach the F-00075 Garmin Xpndr Bracket Right and F-00076 Garmin Xpndr Bracket Left to the F-00074-L & -R Garmin Xpndr Fwall Brkts, F-00055-L & -R Support Brackets GTR200 and F-00054-R Inst Stack Angles as shown in Figure 3 and Figure 4. Final install hardware.



**FIGURE 3:** INSTALLING THE GARMIN XPNDR BRACKETS  
(RIGHT SIDE SHOWN)

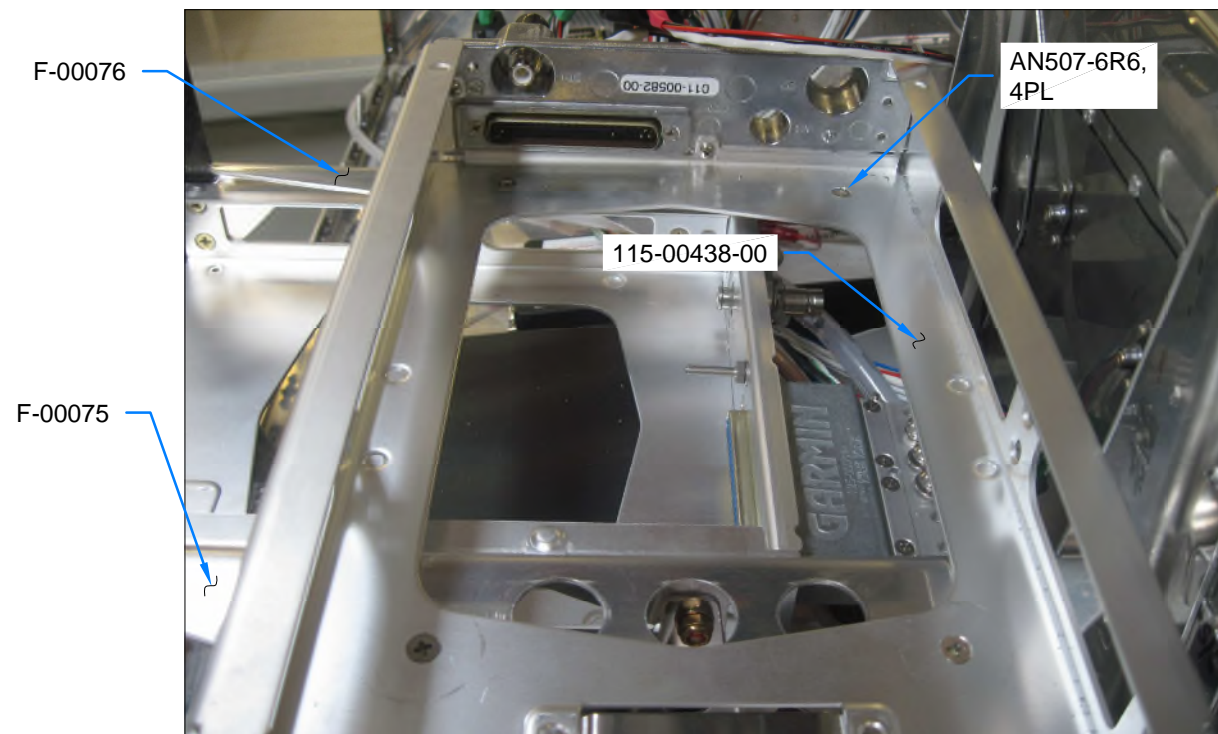


**FIGURE 4:** INSTALLING THE GARMIN XPNDR BRACKETS  
(LEFT SIDE SHOWN)





Step 1: Attach the 115-00438-00 Garmin Transponder Tray to the F-00075 Garmin Xpndr Bracket Right and F-00076 Garmin Xpndr Bracket Left (with the closed end of the tray oriented left). See Figure 1.



**FIGURE 1:** INSTALLING THE GARMIN TRANSPONDER TRAY

**NOTE:** If installing the optional ADS-B Out G3X Kit, skip the following steps and complete Section 61 before proceeding to the next page.

**Step 2:** Machine countersink the two holes in the F-00069 G3X Antenna Plate that will be used to install the GA 26C GPS Antenna. See Figure 2.

**Step 3:** Locate and install the GA 26C GPS Antenna to the F-00069 G3X Antenna Plate using the screws supplied in the packaging. Use a small amount of thread locker on each screw. Do not over-tighten the screws.

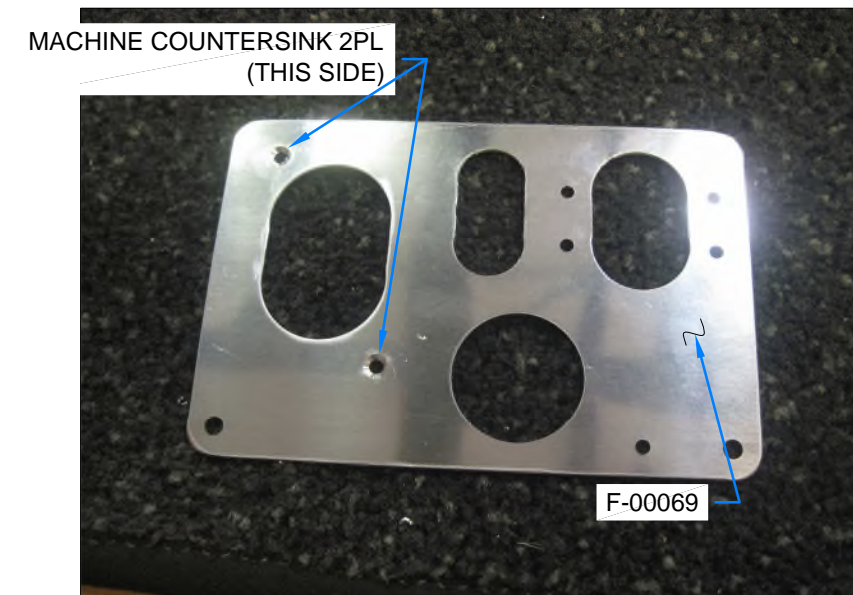
**Step 4:** Install the F-00069 G3X Antenna Plate to the F-1201R Antenna Shelf. See Figure 3.

**Step 5:** Remove the firewall penetration grommet.

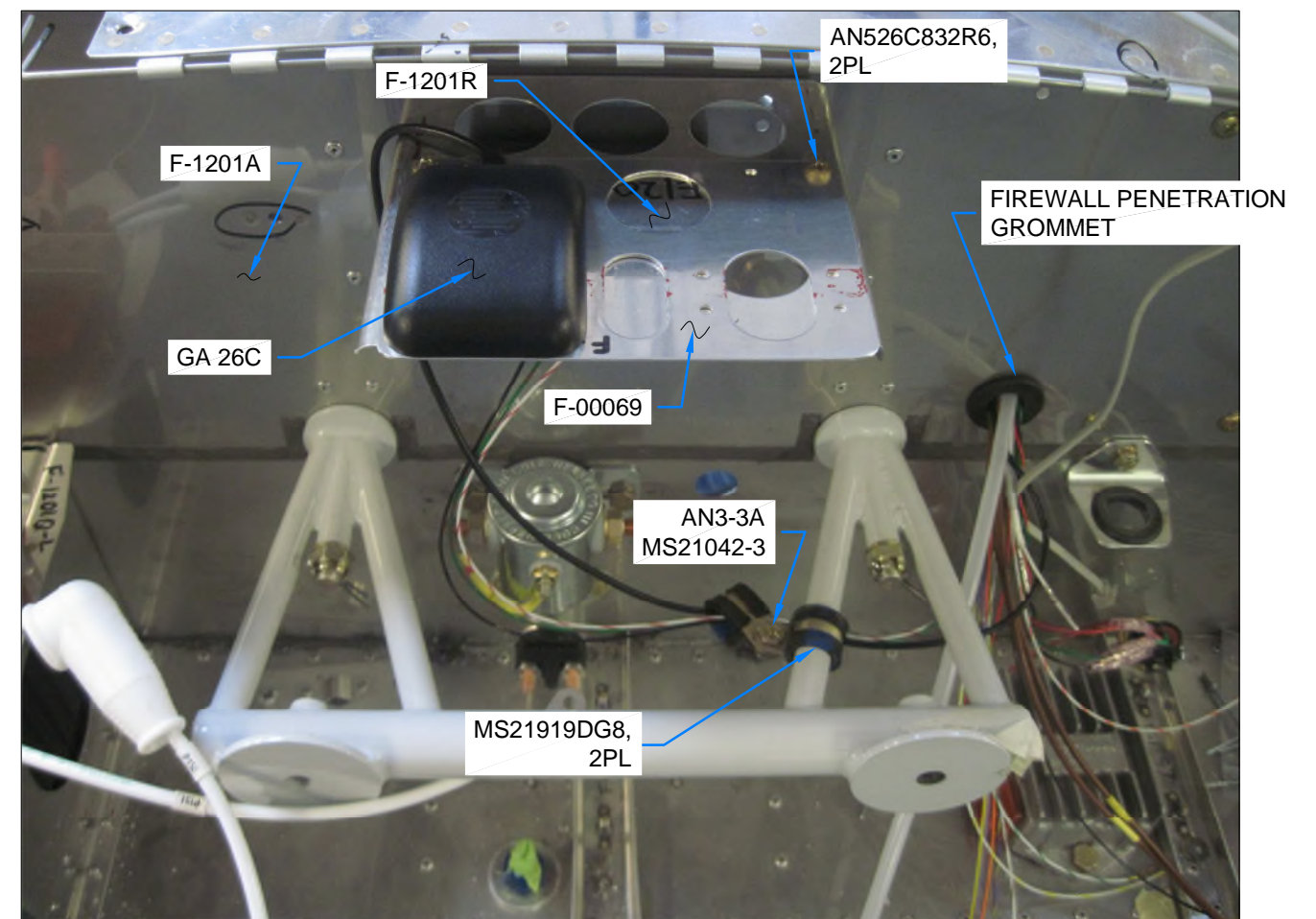
**Step 6:** Route the BNC connector coming from the GA 26C GPS Antenna aft through the uninstalled firewall penetration grommet and aft through the hole in the F-1201A Firewall Upper.

**Step 7:** Install two cushioned clamps together and around a tube of the WD-1221 Engine Mount Standoff as shown in Figure 3. Install the lower clamp around the wire coming from the GA 26C GPS Antenna.

**Step 8:** Reinstall the firewall penetration grommet.



**FIGURE 2:** PREPARING THE RETAINING PLATE



**FIGURE 3:** INSTALLING THE GPS ANTENNA



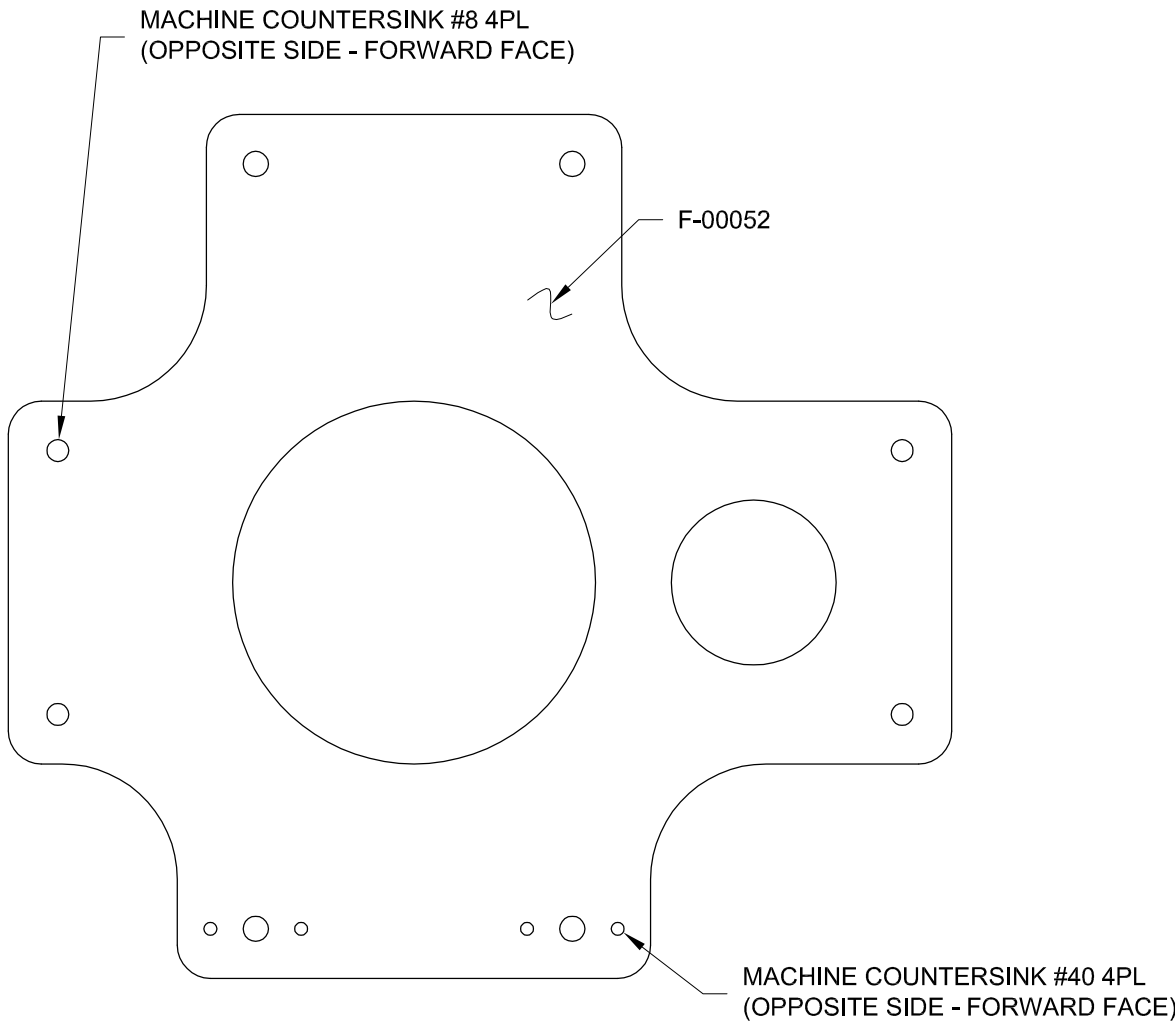
Step 1: Machine countersink the nutplate attach holes in the forward face of the F-00052 GEA 24 Attach Plate. Mark the correct orientation of the part if necessary. See Figure 1.

Machine countersink the forward side of the Attach Plate for the head of a #8 screw. See Figure 1.

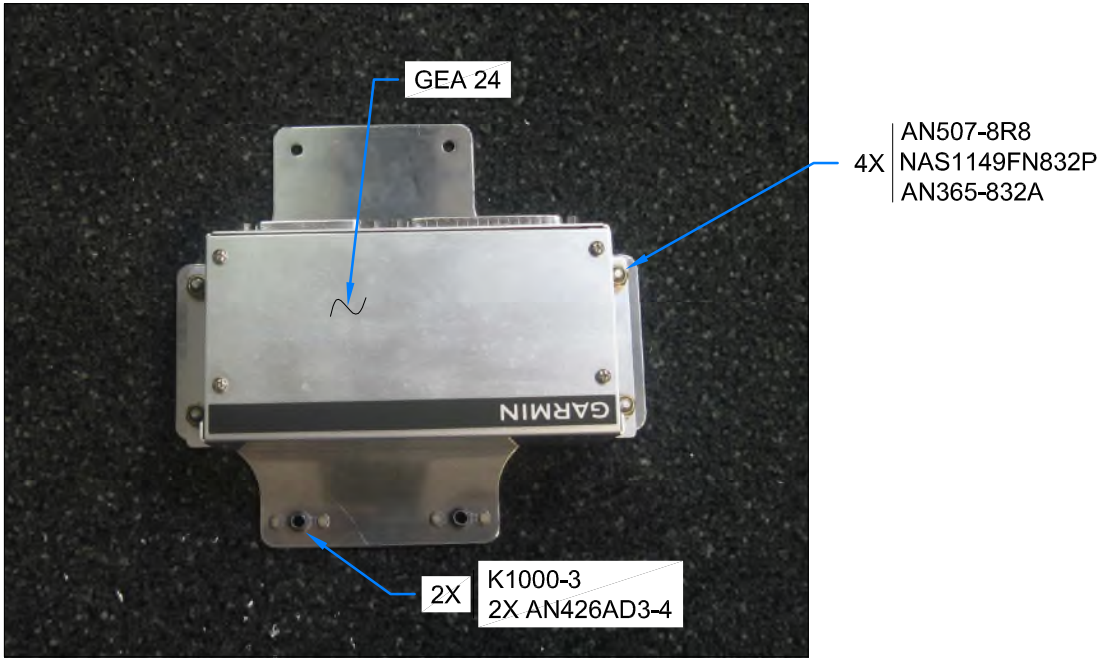
Rivet nutplates to the lower edge of the GEA 24 attach plate. See Figure 2.

Step 2: Using the hardware called out in Figure 2 attach the GEA 24 to the aft face of the F-00052 GEA 24 Attach Plate.

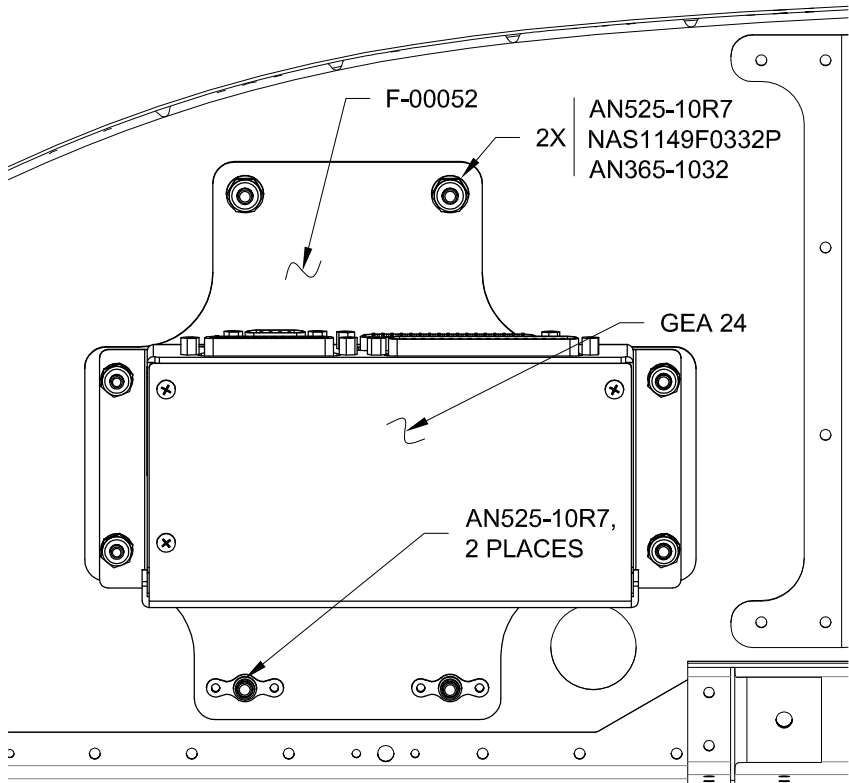
Step 3: Using the hardware called out in Figure 3 attach the F-00052 GEA 24 Attach Plate to the F-1201A Firewall Upper. Place the heads of the screws on the forward face of the firewall.



**FIGURE 1: PREPARING THE ATTACH PLATE**  
(AFT FACE SHOWN)



**FIGURE 2: ATTACHING THE GEA 24 TO THE ATTACH PLATE**



**FIGURE 3: ATTACHING THE GEA 24 TO THE FIREWALL**





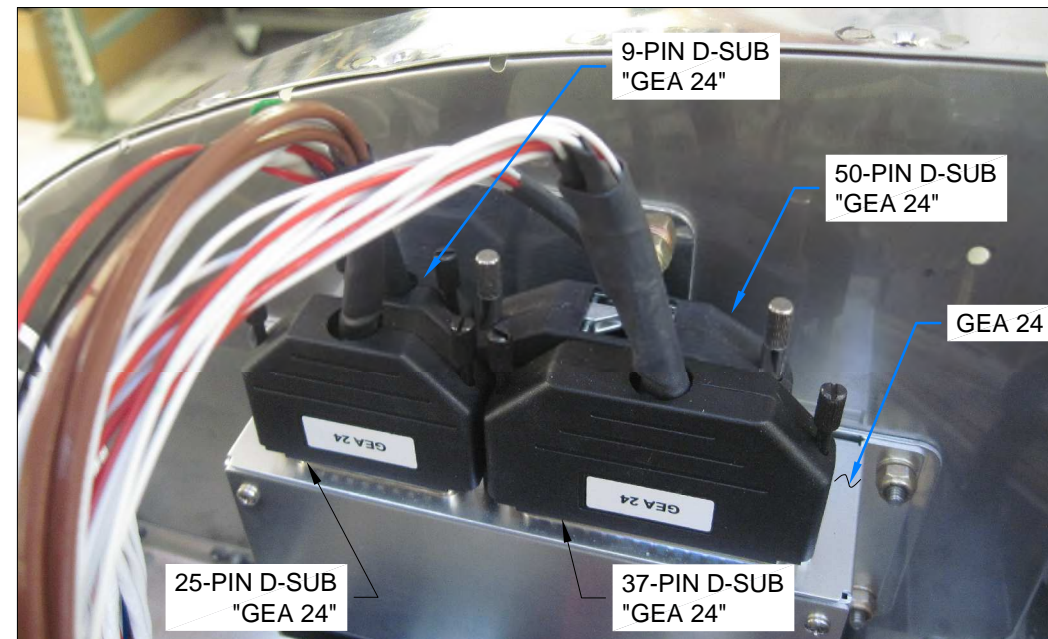
Step 1: Locate the WH-00101 G3X Touch Harness. Install the 50-pin, D-Sub labeled "EFIS" to the AV-50000A Control Module at the receptacle labeled "EFIS".

Step 2: Install the 37-pin, 50-pin, 9-pin, and 25-pin, D-Subs labled "GEA 24" from the G3X Touch Harness to the corresponding receptacles on the GEA 24. See Figure 1.

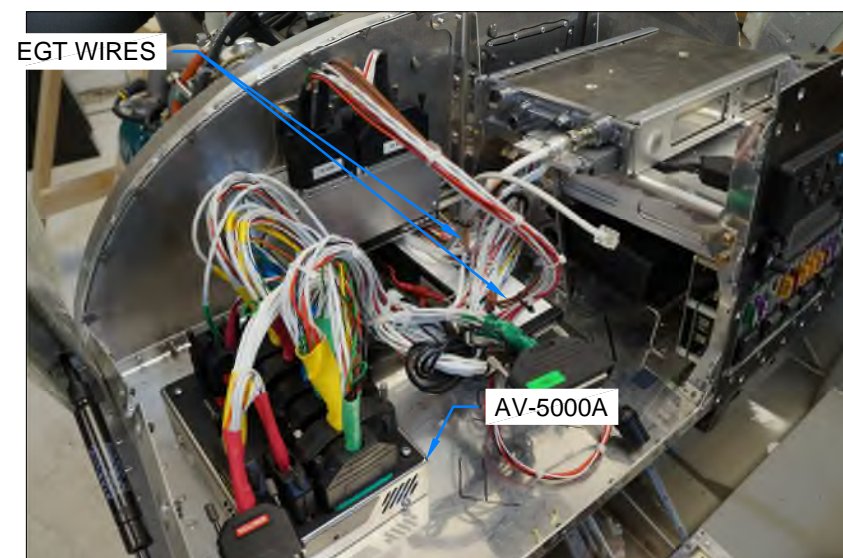
Step 3: Route the WH-J1183 (BRN) and WH-J1184 (BRN) EGT wires forward through the Firewall Penetration Grommet. See Figure 2.

**CAUTION: SECURE THE WIRES COMING FROM THE GEA 24 WITH TIE-WRAPS IN SUCH A WAY THAT THEY WILL NOT MAKE CONTACT WITH THE F-1240 UPPER FORWARD FUSELAGE SKIN WHEN INSTALLED.**

Step 4: Install the 9-Pin, D-Sub labled "GPS" to the receptacle labled "GPS" on the AV-50000A Control Module.



**FIGURE 1:** WIRING THE GEA 24

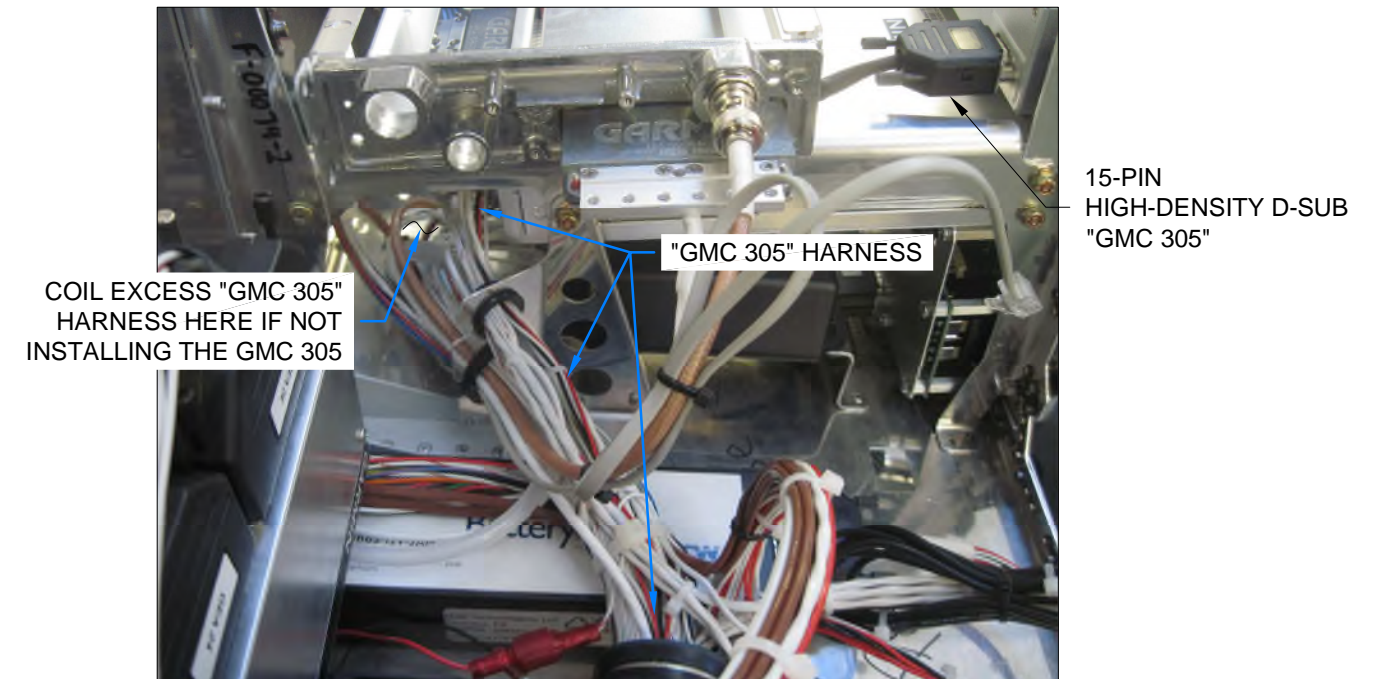


**FIGURE 2:** GENERAL HARNESS ROUTING REFERENCE

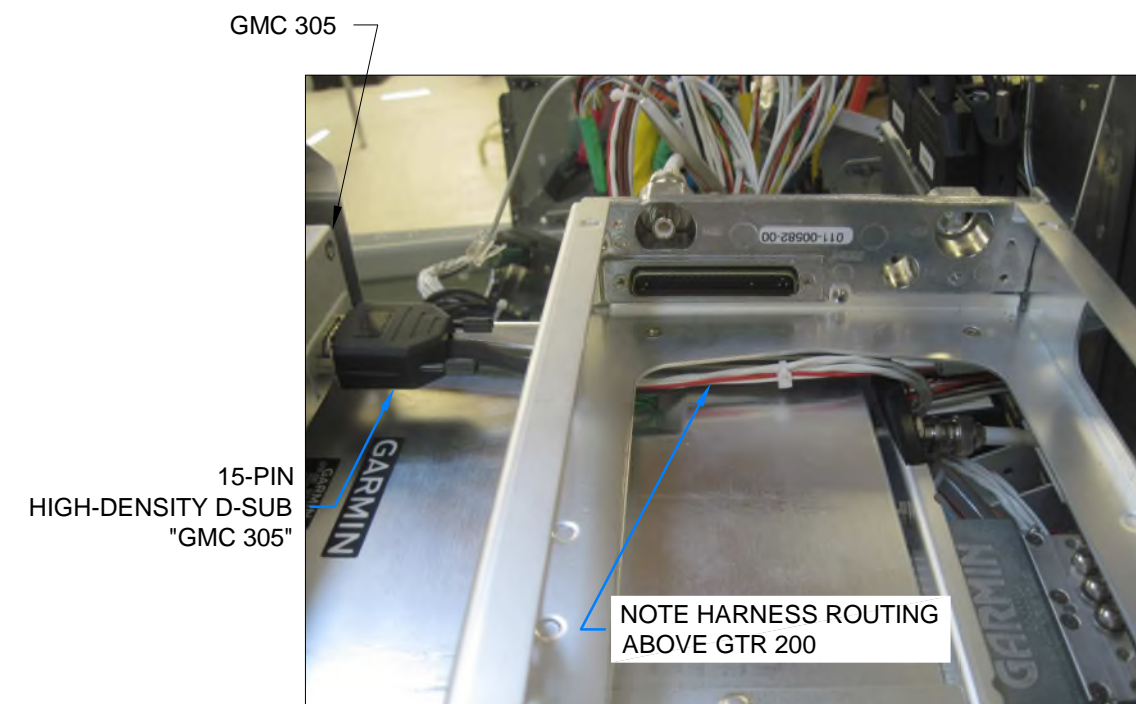
Step 5: Route the 37-pin, D-Sub labeled "AUTOPILOT" from the WH-00101 G3X Touch Harness and install it to the receptacle labeled "AUTOPILOT" on the AV-50000A Control Module.

Step 6 (IF INSTALLING GMC 305): Route the 15-pin, high-density D-Sub labeled "GMC 305" to the position of the GMC 305 as shown in Figures 3 and 4.

Step 6 (IF NOT INSTALLING GMC 305): Route the "GMC 305" Harness as shown in Figure 3 to the point where the harness jumps to the GTR 200 tray. Coil excess harness length including the 15-pin high-density D-Sub labeled "GMC 305" in front of the GTR 200 tray and secure it with tie-wraps.



**FIGURE 3:** ROUTING THE "GMC 305" D-SUB

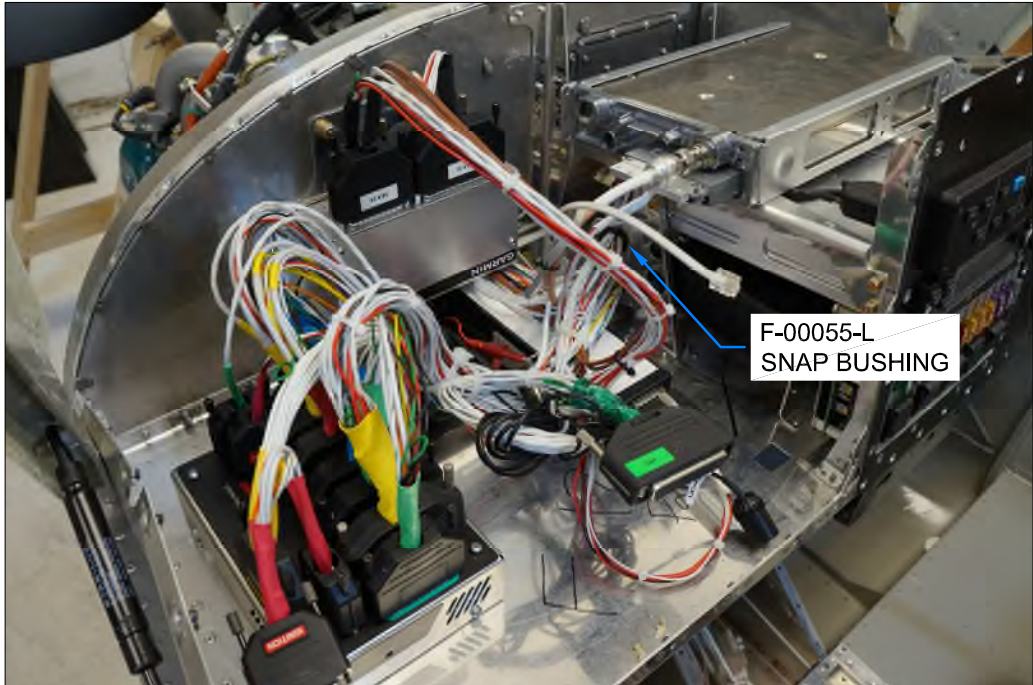


**FIGURE 4:** INSTALLING THE "GMC 305" D-SUB



Step 1: From the WH-00101 G3X Touch Harness D-Sub connector labeled "AUTOPILOT" on the AV-50000A Control Module route the WH-F926 (WHT), WH-C916 (BLK), WH-L917 (YEL/PRP), and WH-L918 (YEL/GRN) through the cushion clamp, through a snap bushing in the F-00055-L Support Bracket GTR 200, and down through a snap bushing in the F-1202 Panel Base, following the path of the WH-00046 Options and WH-00045 Fuselage Harnesses. See Figure 1 and Figure 2.

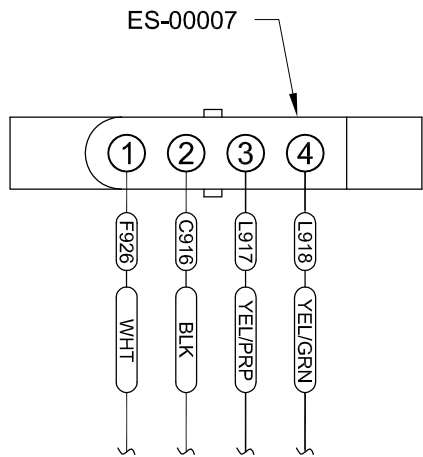
Install the Molex pins into an ES-00007 4-pin, Molex Receptacle. See Figure 3.



**FIGURE 1:** GENERAL HARNESS ROUTING REFERENCE



**FIGURE 2:** ROUTING  
AUTOPILOT DISCONNECT  
WIRES



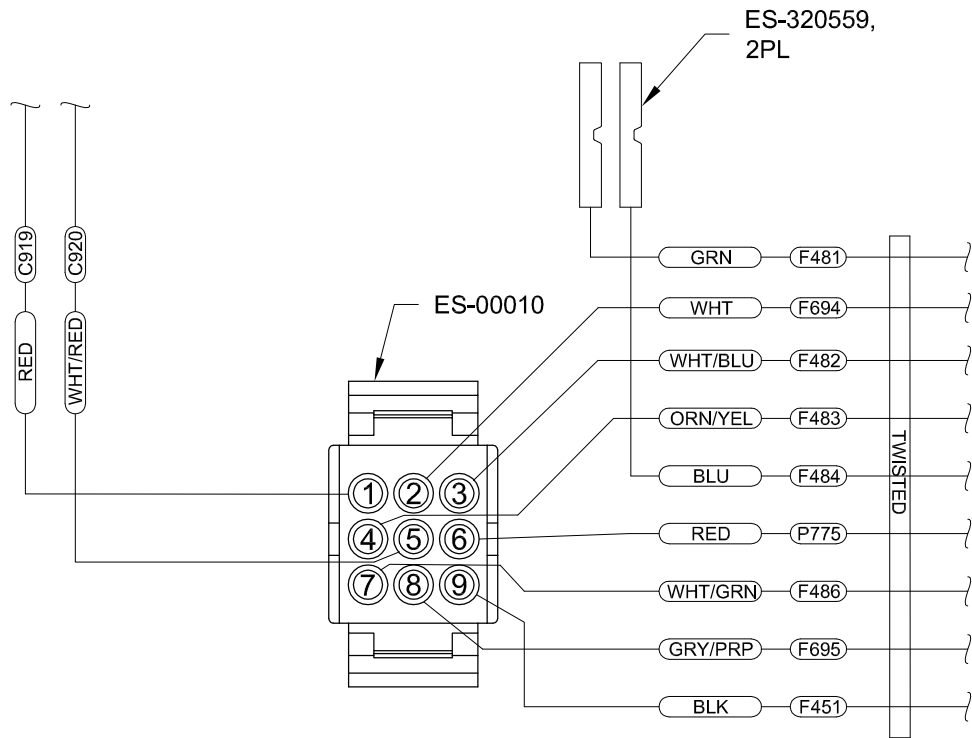
**FIGURE 3:** AUTOPILOT  
HARNESS DIAGRAM  
(VIEW FROM WIRE INSERTION SIDE)

Step 2: Locate the WH-C919 (RED) and WH-C920 (RED/WHT) wires. These wires are very long and have molex pins crimped to their ends. Route these wires to the location of the autopilot pitch servo (located under the pilot seat) using the WH-00045 Options Harness as a guide. See Section 31B for more detailed information on this routing.

Step 3: Remove the WH-F481 (GRN) and WH-F484 (BLU) wires from the ES-00010 9-pin Molex connector at the pitch servo location. See Figure 4 and Section 31B.

Cut the molex pins off the ends of these wires and crimp on butt splices. This will isolate the ends of the wires from shorting to structure etc.

Step 4: Insert the WH-C919 (RED) and WH-C920 (RED/WHT) wires into the ES-00010 9-pin Molex connector. See Figure 4.



**FIGURE 4:** ADDING NEW WIRES

Step 5: If not installing the optional Garmin Dual Axis Autopilot at this time, install the WH-00108 Garmin NO-AP Jumper Harness to the ES-00010 9-pin Molex connector.

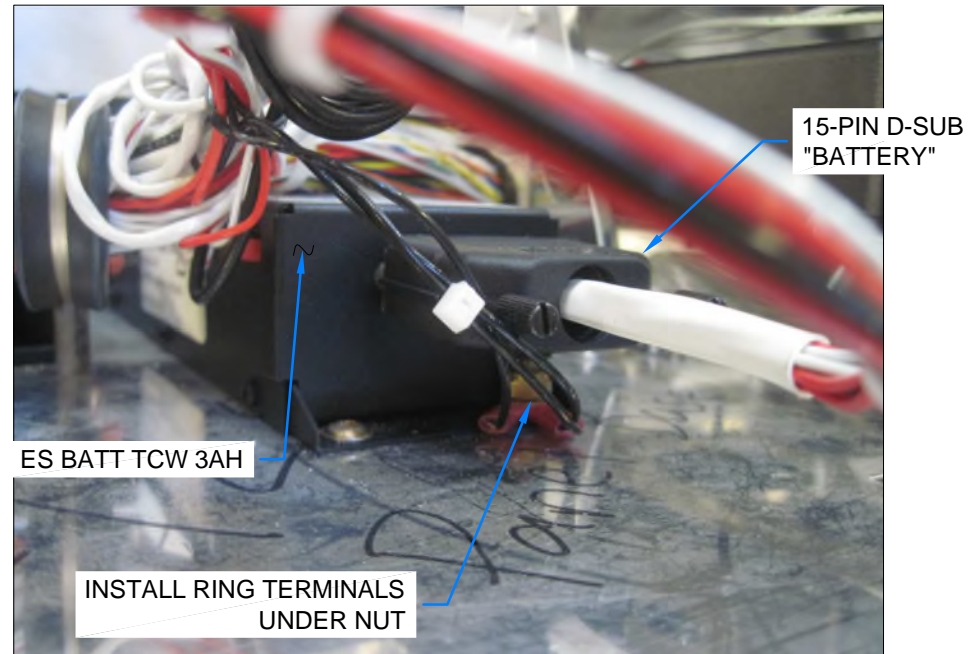




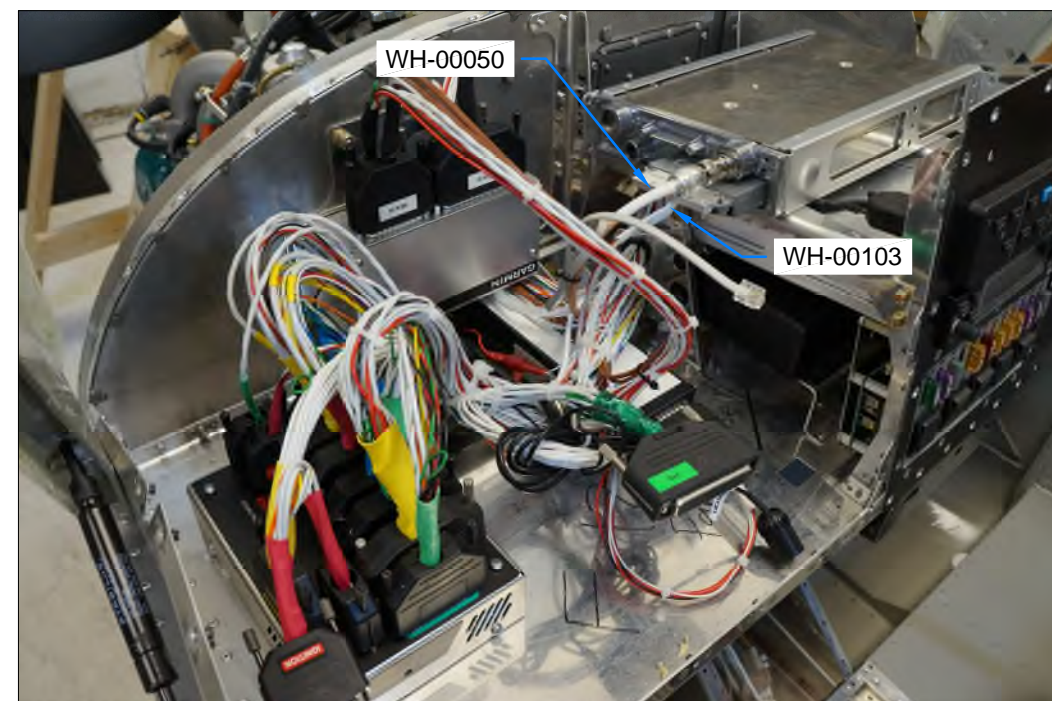
Step 1: Locate the WH-F1166 (BLK) and WH-F1163 (BLK) wires. Install the already crimped on ring terminals under the nut of the hardware left finger tight used to secure the ES BATT TCW 3AH Backup Battery. Final install hardware. See Figure 1.

Step 2: Install the 15-pin, D-Sub labeled "BATTERY" from the G3X Touch Harness to the receptacle on the ES BATT TCW 3AH Backup Battery. See Figure 1 and Figure 2.

Step 3: Route the WH-P1123 (WHT) and WH-P1122 (RED) wires from the ES BATT TCW 3AH forward through the Firewall Penetration Grommet. These wires will be connected to the Master Relay in the Powerplant Kit Section 45A.



**FIGURE 1:** WIRING THE BACKUP BATTERY



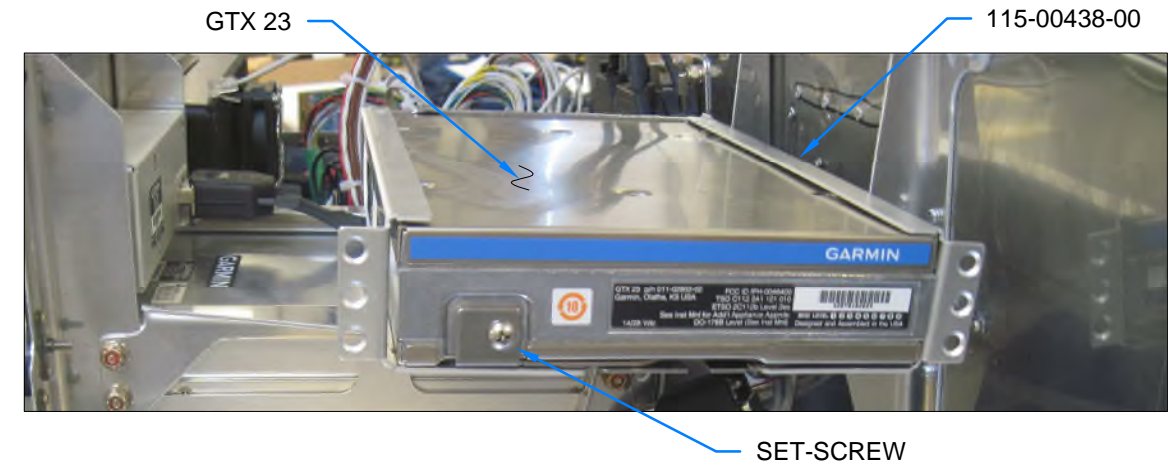
**FIGURE 2:** GENERAL HARNESS ROUTING REFERENCE

Step 4: Install the GTX 23 into the 115-00438-00 Garmin Transponder Tray by latching it into place and screwing in the set-screw. See Figure 3.

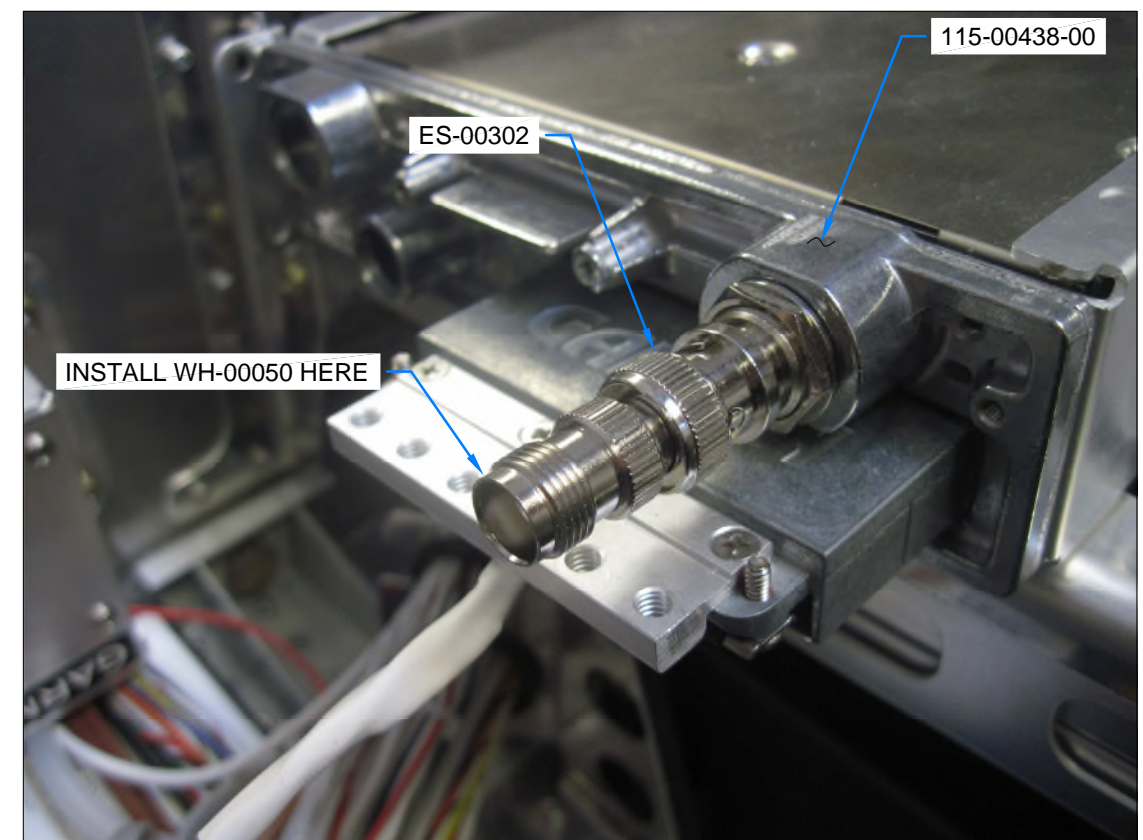
Step 5: Install the ES-00302 TNC to BNC Adapter to the BNC port on the Garmin Transponder Tray. See Figure 4.

Install the TNC connector on the WH-00050 Transponder Antenna Cable to the TNC port on the TNC to BNC Adapter.

Step 6: Locate the WH-00103 Transponder Harness (attached to the Garmin Transponder Tray). Install the 9-pin, D-Sub labeled "XPNDR" to the receptacle on the AV-50000A Control Module labeled "XPNDR". Route the WH-00103 Transponder harness as shown in Figure 2.



**FIGURE 3:** INSTALLING AND WIRING THE GTX 23



**FIGURE 4:** INSTALLING THE TNC TO BNC ADAPTER



- Step 1:

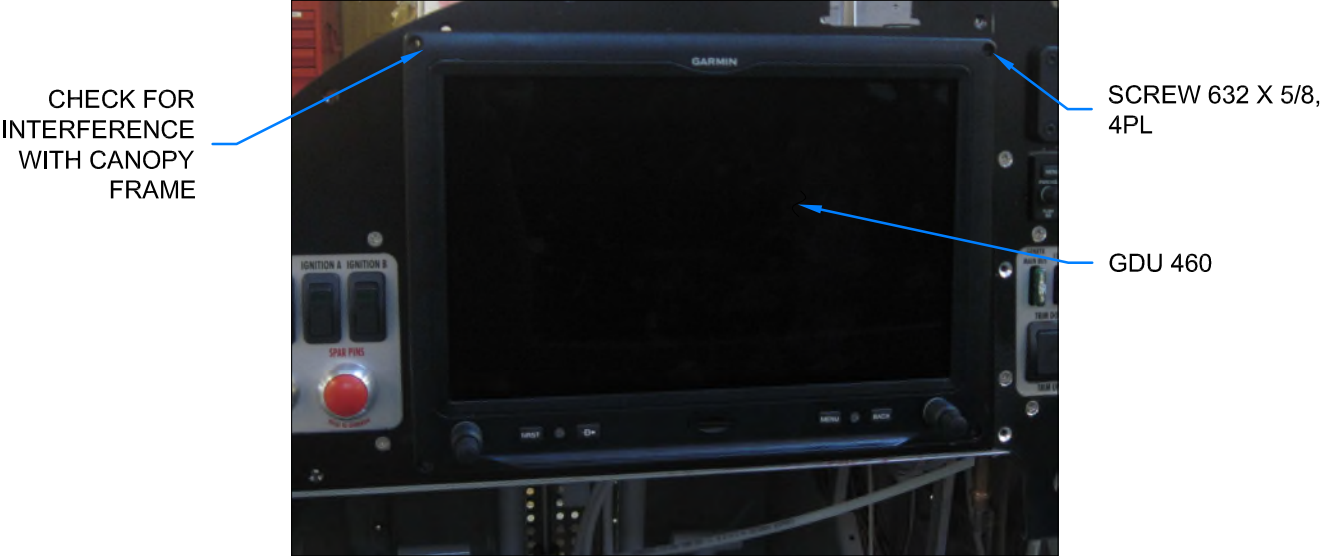
Install the GDU 460 PFD using the hardware called out in Figure 1.
- Step 2:

Install the BNC connector coming from the GA 26C GPS Antenna to the BNC port on the back of the GDU 460 PFD labeled "GPS". See Figure 2. Coil the wire coming from the GA 26C GPS Antenna and secure it with tie-wraps as shown in Figure2.
- Step 3:

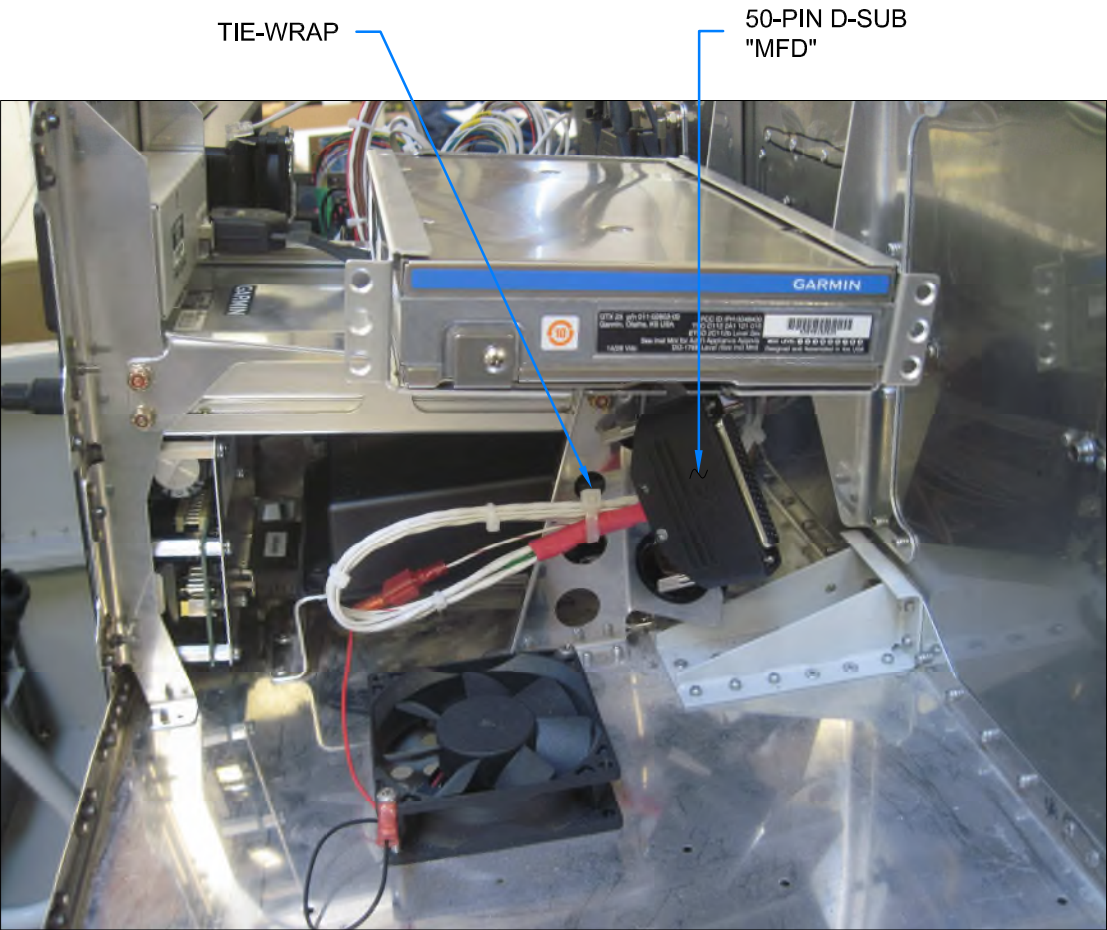
Install the 50-pin, D-Sub labeled "PFD" coming from the WH-00101 Harness to the receptacle on the back of the GDU 460 PFD. See Figure 2.
- Step 4:

Route the 50-pin, D-Sub labeled "MFD" coming from the WH-00101 Harness and secure it with tie-wraps as shown in Figure 3.
- Step 5:

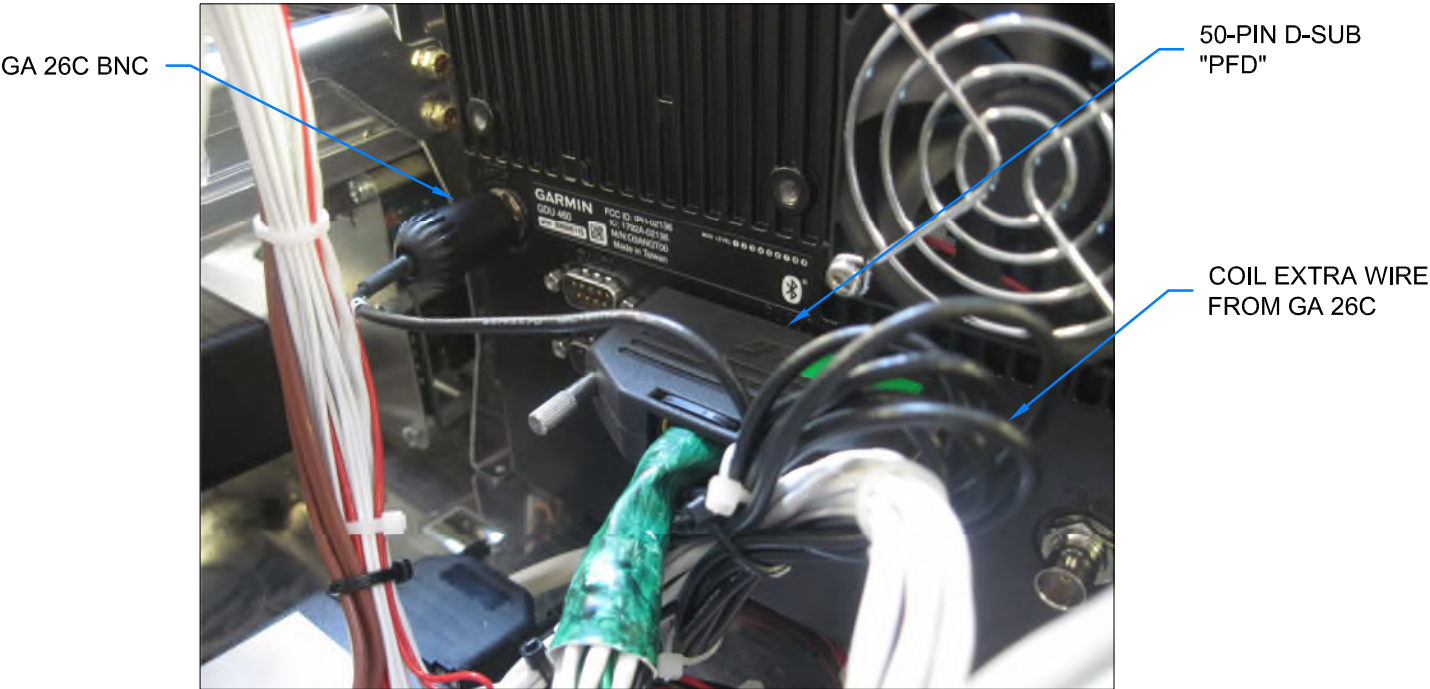
Place a piece of masking tape over the upper left corner of the PFD. Close the canopy and check for interference between the canopy frame and the bezel of the PFD. If interference exists it is permissible to file away the canopy frame to remove the interference. Do not file through the wall thickness of the frame. If this much interference exists contact Van's Aircraft for further guidance.



**FIGURE 1:** INSTALLING THE GDU 460

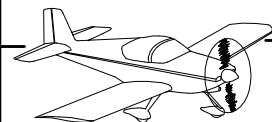


**FIGURE 3:** ROUTING AND SECURING THE 50-PIN D-SUB "MFD"



**FIGURE 2:** WIRING THE GDU 460

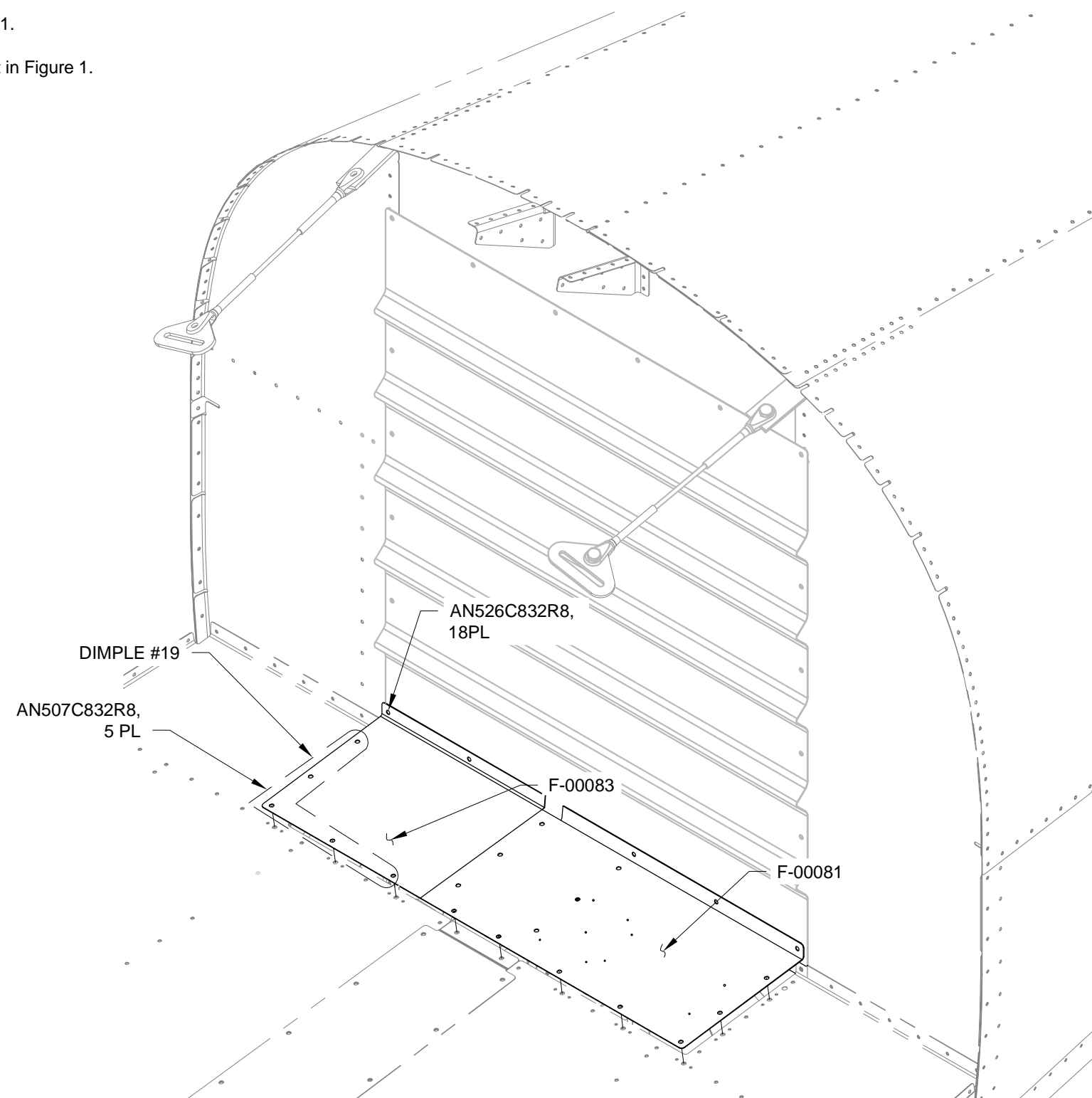
Step 5: Install the GTR 200 Com Radio into the GTR 200 Tray. See Section 42G for more detailed installation information.



Step 1: Dimple the F-00083 Baggage Floor at the locations shown in Figure 1.

Step 2: Install the F-00083 Baggage Floor using hardware called out in Figure 1.

Step 3: Install the F-00081 ADAHRS Baggage Floor using hardware called out in Figure 1.



**FIGURE 1: REPLACING THE BAGGAGE COVER**



**NOTE:** The XM option requires a GDU 465 PFD. If your aircraft has a GDU 460 PFD contact Vans about trading the GDU 460 for a GDU 465. If planning a dual screen installation, specify a GDU 465 MFD when the dual screen option is purchased.

**If planning a dual screen installation, complete Section 43C before continuing with the XM installation.**

**NOTE:** Page 42N-21 and Page 42N-22 apply only to the installation of the Garmin XM Antenna Kit. These pages do not apply if not installing the XM option or if installing the optional ADS-B Out G3X Kit.

Step 1: Remove the F-00069 G3X Antenna Plate from the F-1201R Antenna Shelf.

Machine Countersink the four mounting locations noted in Figure 1.

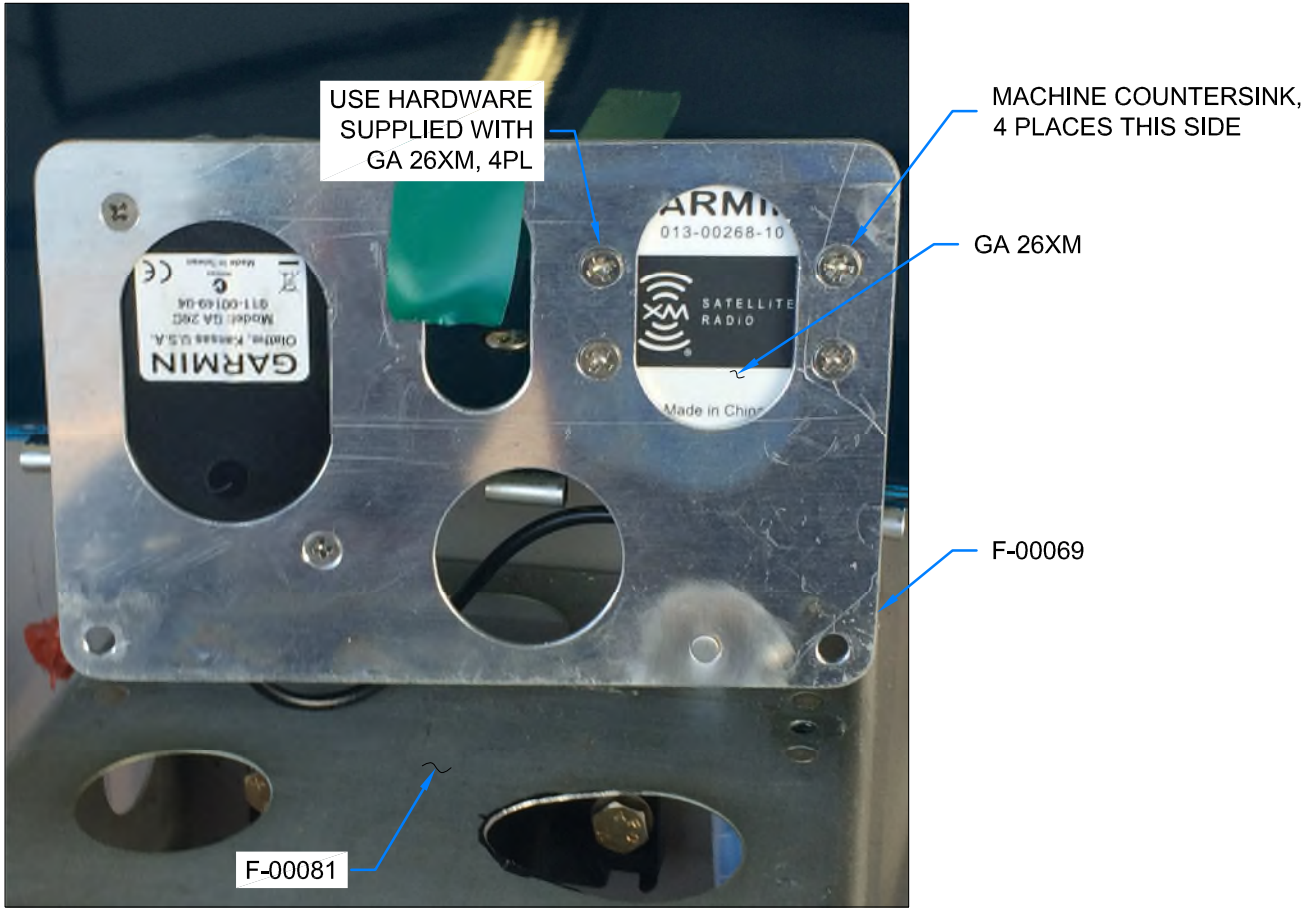
Step 2: Install the GA 26XM Antenna Kit to the antenna plate using the hardware supplied with the GA 26XM. Place a small amount of blue Loctite on the threads of each fastener before installation. See Figure 1.

Reinstall the antenna plate to the antenna shelf.

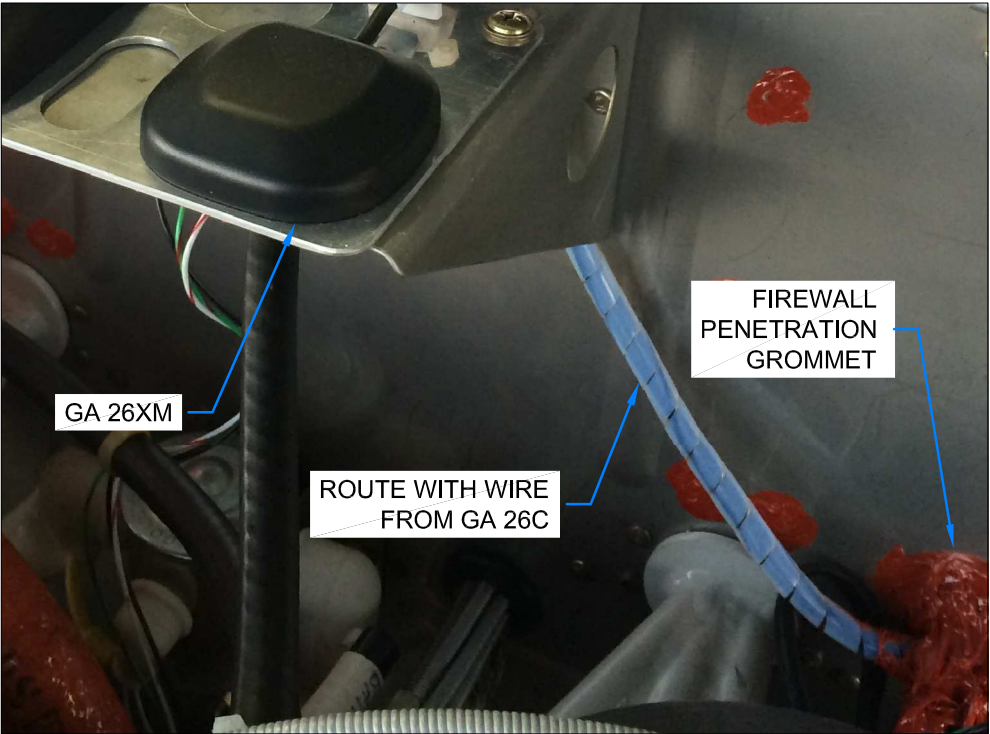
Step 3: Remove the firewall penetration grommet.

Step 4: Route the BNC connector coming form the GA 26XM aft through the uninstalled firewall penetration grommet and aft through the hole in the F-1201A Firewall Upper following the routing of the wire coming from the GA 26C GPS Antenna. See Figure 2.

Step 5: Reinstall the firewall penetration grommet.



**FIGURE 1:** INSTALLING THE XM ANTENNA



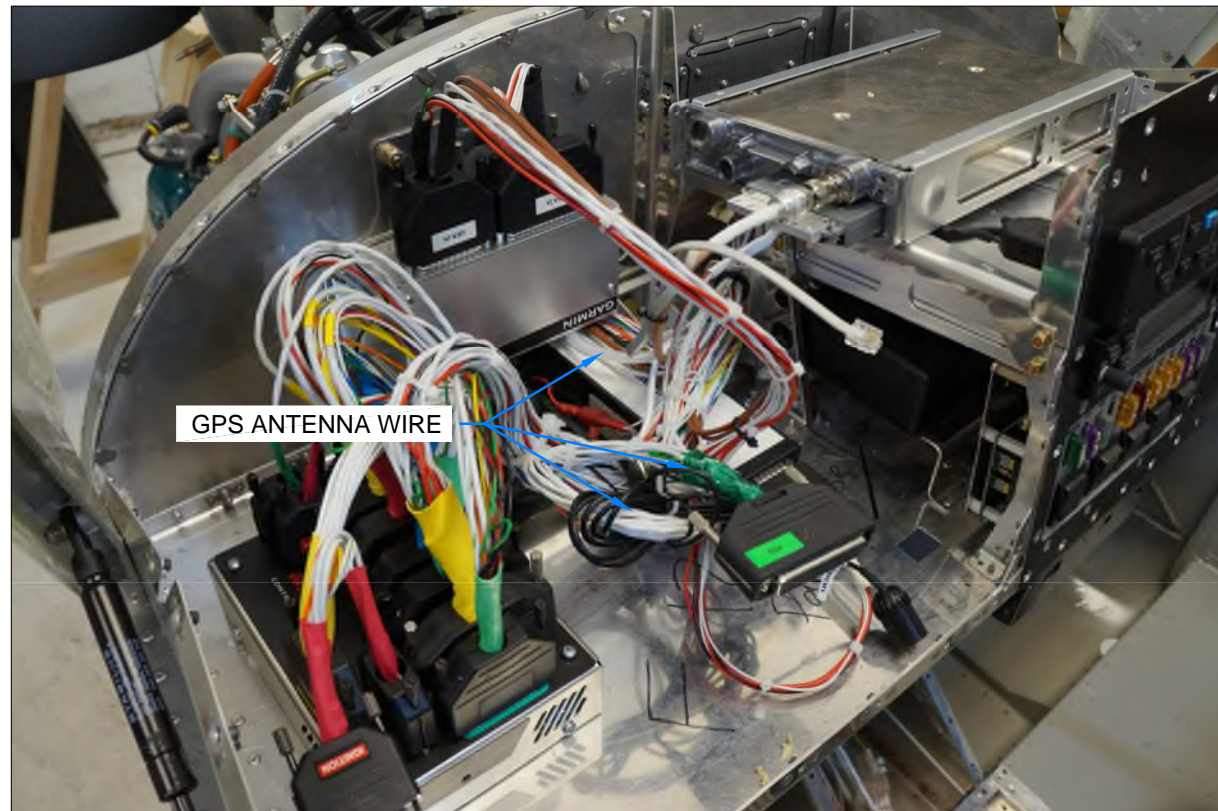
**FIGURE 2:** ROUTING THE XM ANTENNA WIRE





Step 1 (Single Screen): Route the BNC connector coming from the GA 26XM to the forward face of the GDU 465 PFD following the routing of the wire coming from the GPS antenna.

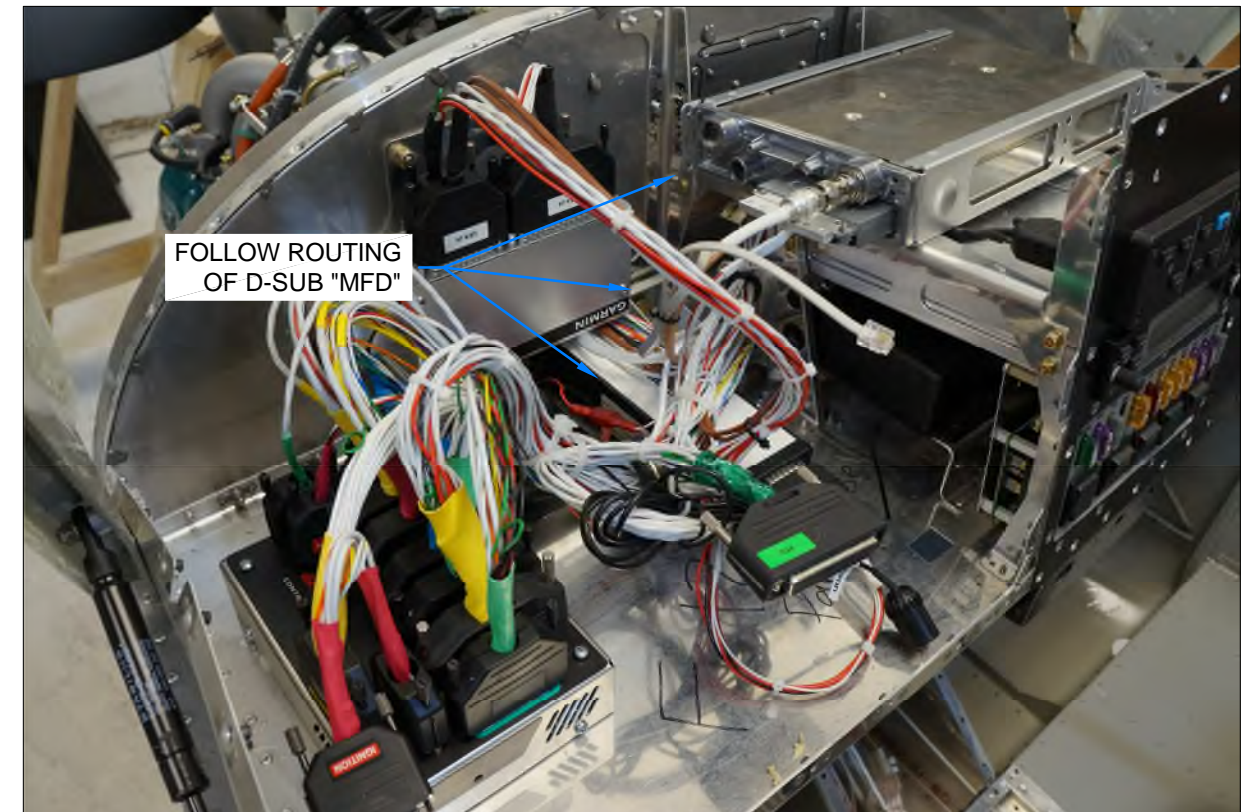
Install the BNC connector to the port on the forward face of the PFD labeled "SXM" directly below the port labeled "GPS". See Figure 2.



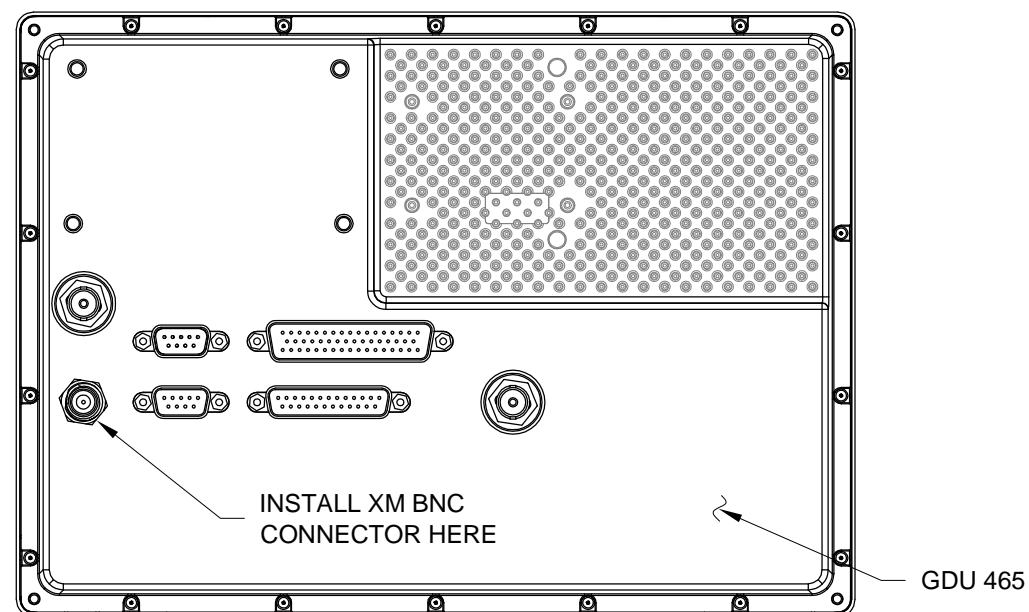
**FIGURE 1 (SINGLE SCREEN):** ROUTING THE XM ANTENNA WIRE

Step 1 (Dual Screen): Route the BNC connector coming from the GA 26XM to the forward face of the GDU 465 MFD following the routing of the 50-pin D-Sub labeled "MFD" coming from the WH-00101 G3X Touch Harness.

Install the BNC connector to the port on the forward face of the MFD labeled "SXM" directly below the port labeled "GPS". See Figure 2.



**FIGURE 1 (DUAL SCREEN):** ROUTING THE XM ANTENNA WIRE



**FIGURE 2:** FORWARD FACE OF GDU 465