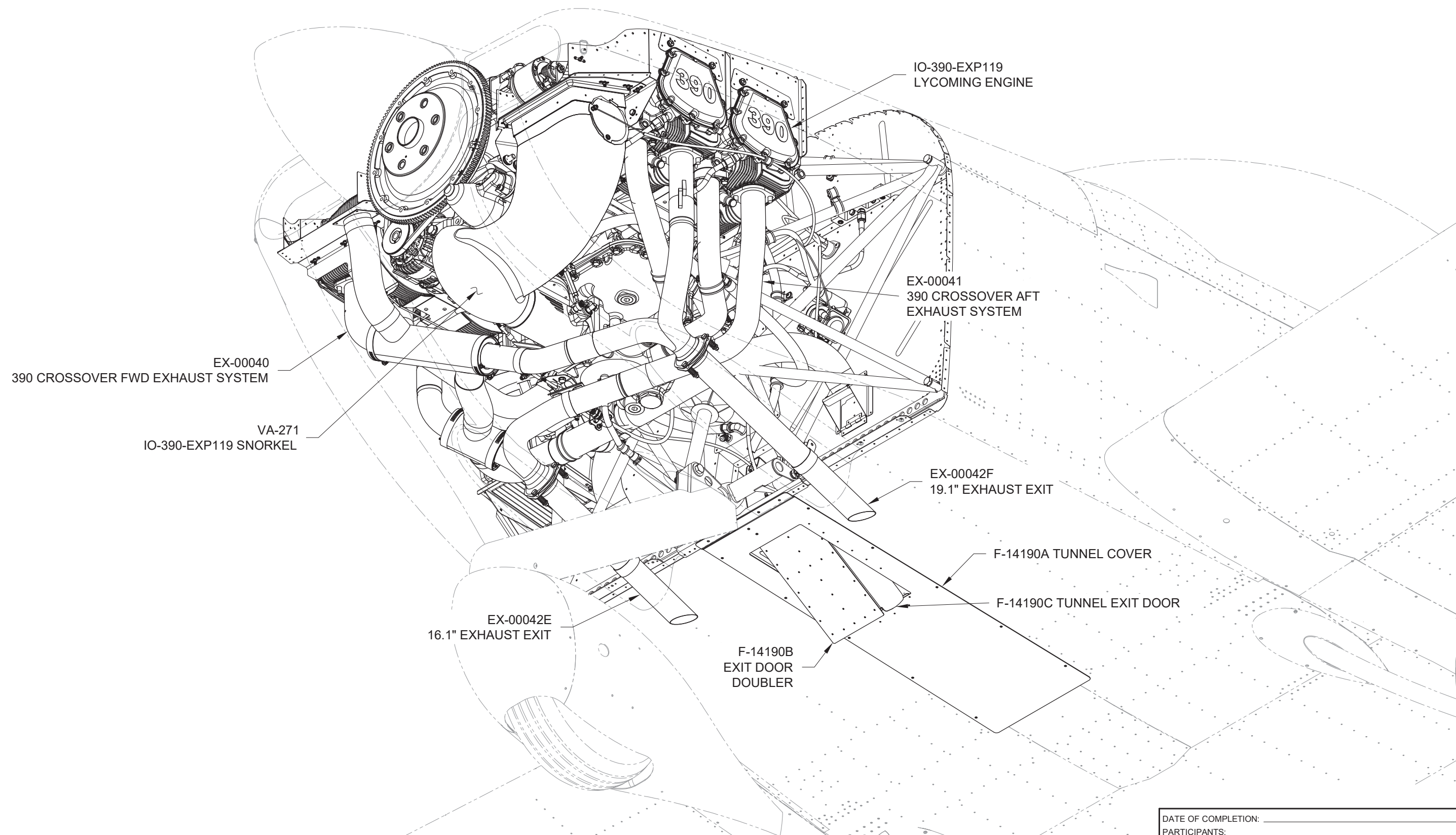




SECTION OP-62:

RV-14 IO-390-EXP119 ENGINE INSTALLATION





This plans section will highlight the differences in installation between the IO-360/IO-390-A and the IO-390-EXP119 engine options for the RV-14. These steps are supplemental to the Kit Assembly Instructions and are meant to be used in conjunction with the main KAI sections.

Steps in this Optional Plans section will be grouped by the plans section in your RV-14/14A kit, starting with the fuselage assembly sections.

KAI Section 28:

Perform the following steps in lieu of KAI Section 28, Page 28-07 Steps 2 through 5.

NOTE: Mirror call-outs about the aircraft centerline.

Step 2A: Modify the F-14133-1 Cowl Attach Plates and F-14134C Cowling Hinge Shims as shown in Figure 1A.

Step 3A: Dimple the modified F-14134C as shown in Figure 2A.

Step 4A: Machine countersink the #40 holes in the modified F-14133-1 as shown in Figure 2A.

Step 5A: Rivet the nutplates to the modified F-14133-1, then cleco and rivet the modified F-14134C and F-14133-1 to the F-01401B-L & -R Firewall Sides and F-01483-L & -R Forward Bottom Skins as shown in Figure 2A.

Rivet the forward bottom skins to the firewall sides as shown in Figure 2A. **DO NOT** rivet the outboard hole on each side.

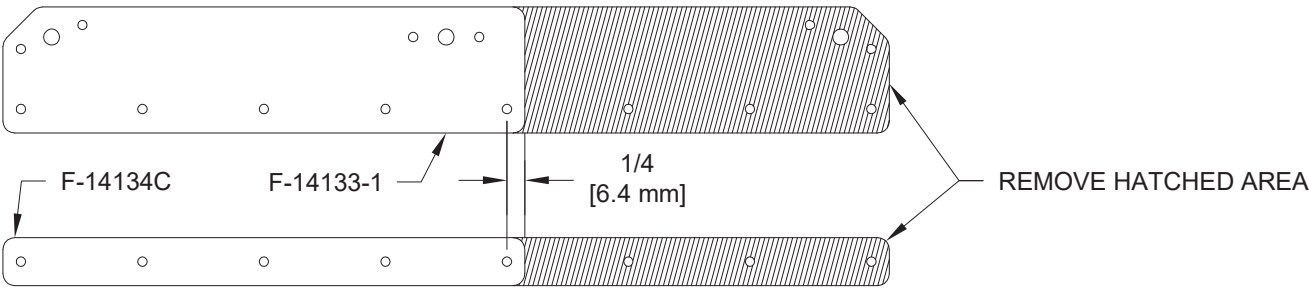


FIGURE 1A: F-14133-1 AND F-14134C MODIFICATIONS

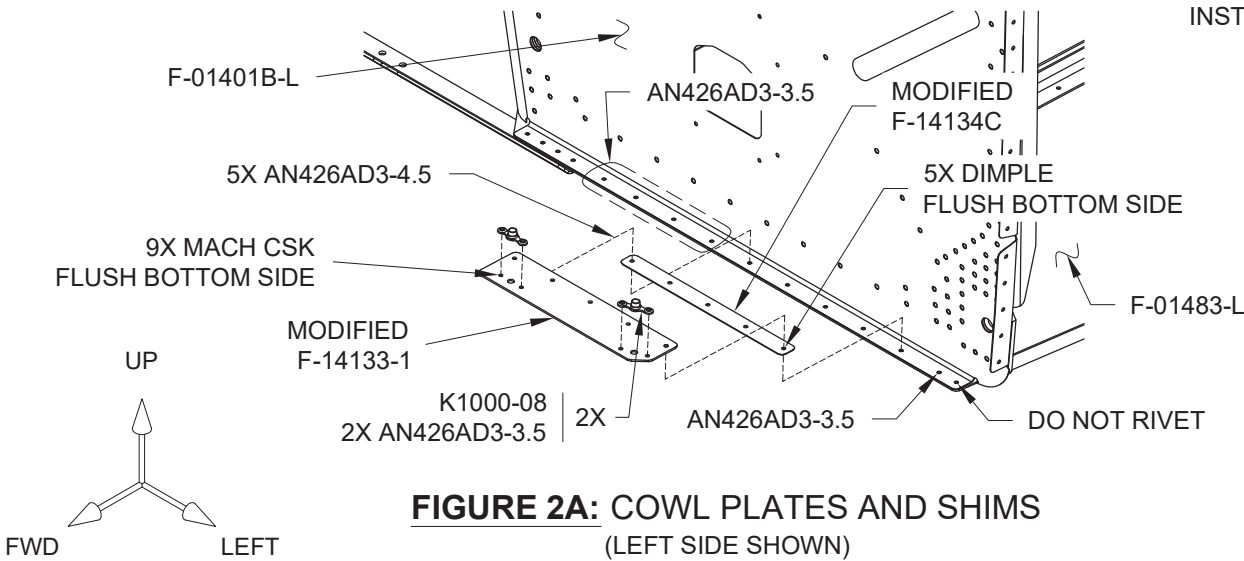


FIGURE 2A: COWL PLATES AND SHIMS
(LEFT SIDE SHOWN)

Perform the following steps in lieu of KAI Section 28, Page 28-07 Step 6.

NOTE: Mirror call-outs about the aircraft centerline.

Step 6A: Except for the locations shown in Figure 3A, rivet the F-01415-L & -R Tunnel Sides to the F-01483-L & -R Forward Bottom Skins as shown in Figure 3A and KAI Section 28 Page 07 Figure 3. **DO NOT** rivet the aft-most hole in the tunnel sides.

Step 6B: Install nutplates at each location as shown in the detail view in Figure 3A.

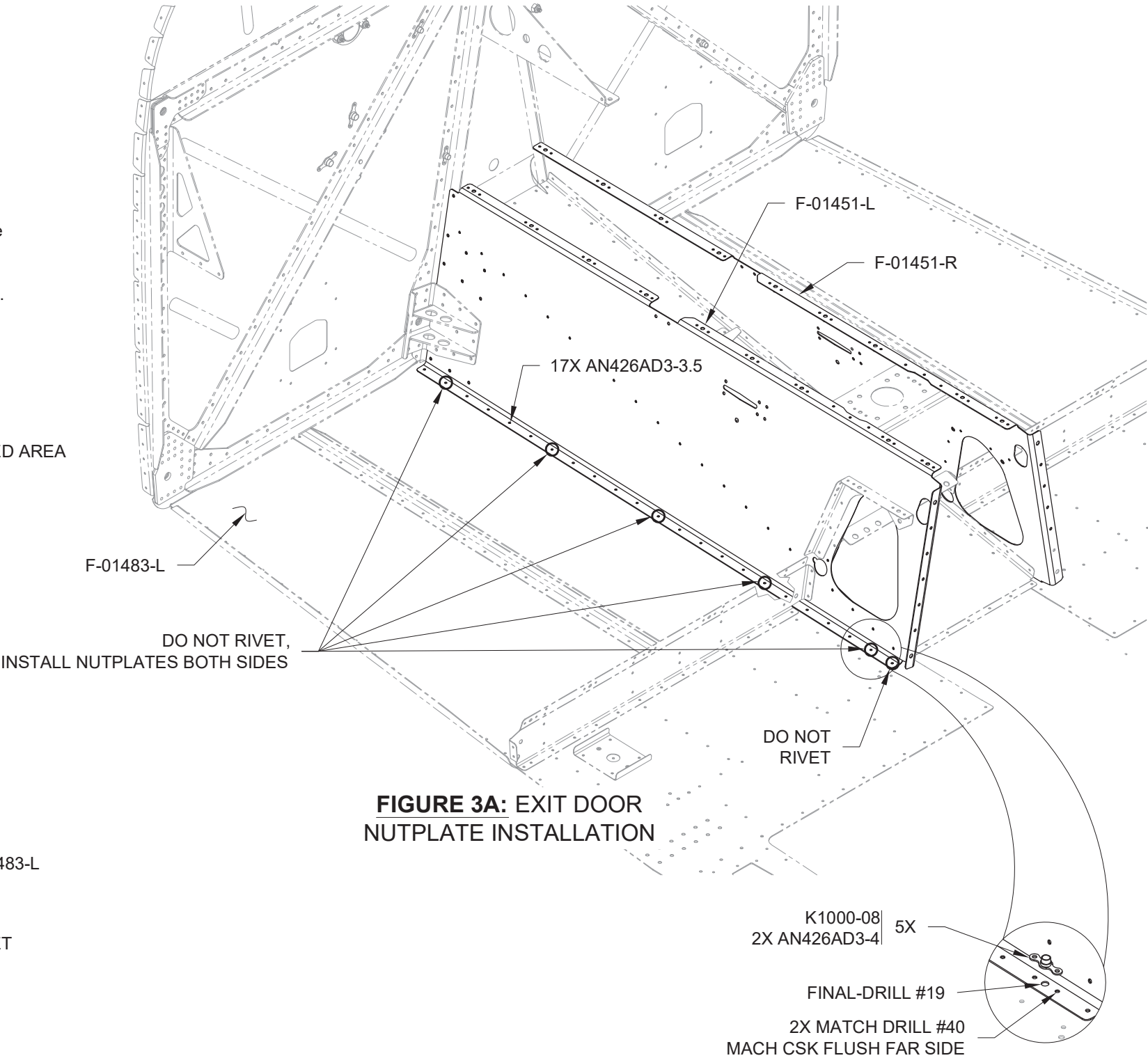


FIGURE 3A: EXIT DOOR
NUTPLATE INSTALLATION

KAI Section 28, Page 28-08: Perform the following steps after Step 6 on Page 28-08.

Step 7: Using the template provided in Figure 1A, locate and drill the three engine control cable passthrough holes as shown in Figure 2A.

Step 8: Install the CT-00102 Double Spherical Grommet as shown in Figure 2A. Do not fully tighten the nuts.

10 9/16
[268.3 mm]

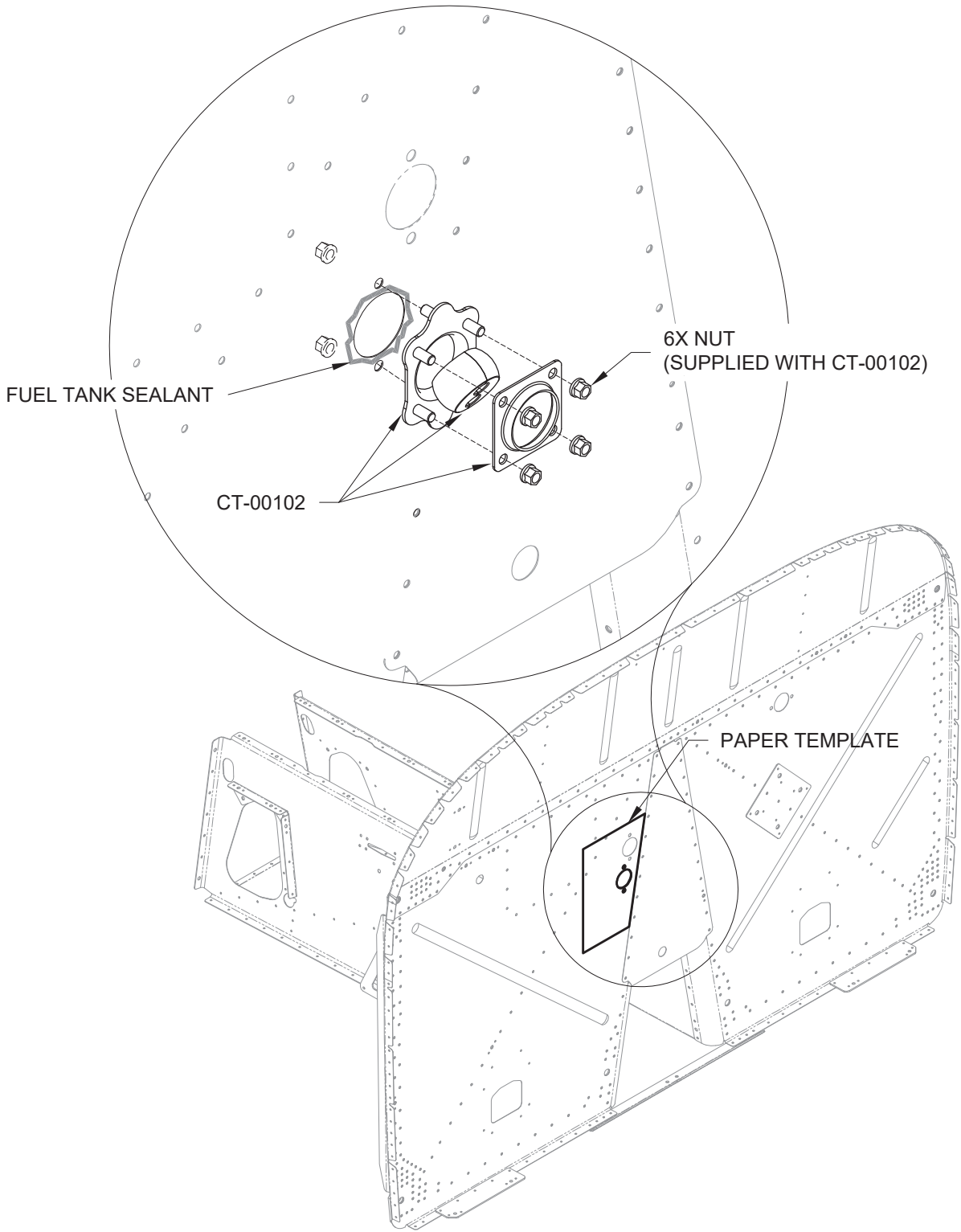


FIGURE 2A: CT-00102 INSTALLATION

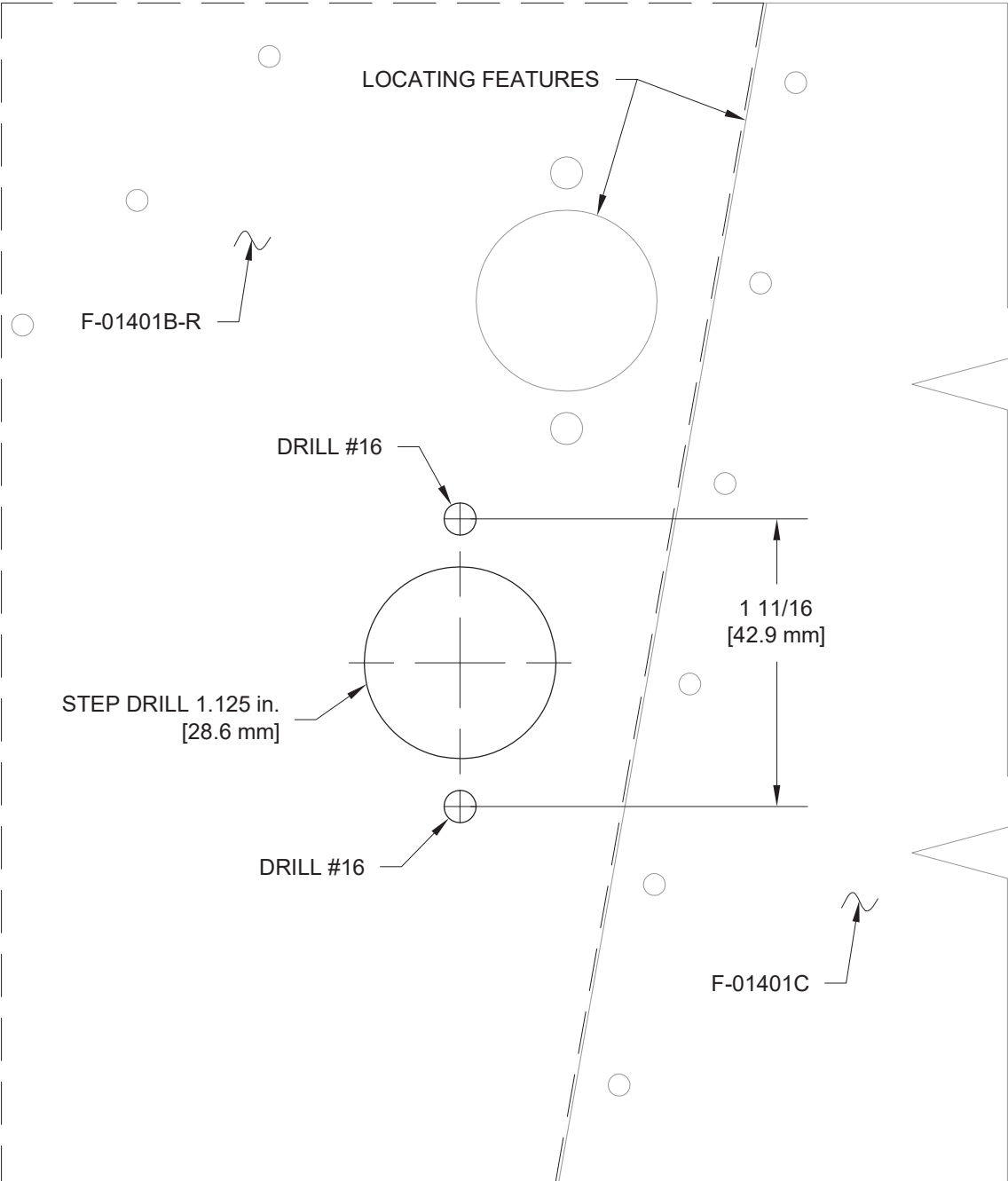
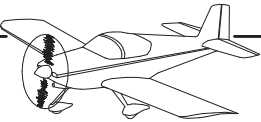


FIGURE 1A: FIREWALL PENETRATION TEMPLATE
(NOTE: CHECK PRINTED SCALE 1:1 PER SECTION 3 BEFORE USING THE TEMPLATE!)



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KAI Section 43

Perform the following steps in lieu of the steps in KAI Section 43, Page 43-09.

Step 1: Fabricate the FF-01417 Transducer Mounting Plate from AS3-125X1X9.313 aluminum as shown in Figure 1A.

Step 2: Attach the loose ends of the VA-102 Fuel Pressure Hose-4X15.25 and the FF-0019 Hose Assembly to the fuel pump fluid fittings as described in KAI Section 49.

Step 3: Install the IE DYNON FF Fuel Flow Transducer as shown in Figure 2A. See KAI Page 43-09, Figures 2 and 3 for the clocking of the inlet fluid fitting. For more information on installing fluid fittings, see KAI Section 5.27.

Step 4: Route and install the FF-00015 and FF-00019 Hose Assemblies as described in KAI Section 49.

Step 5: Install the EA LW-75444 Sniffle Valve into the bottom of the induction housing assembly where shown in Figure 3A.

Step 6: Install the WD-00110 IO-390C Cables Bracket as shown in Figure 3A. Torque the bolts per the Lycoming documentation.

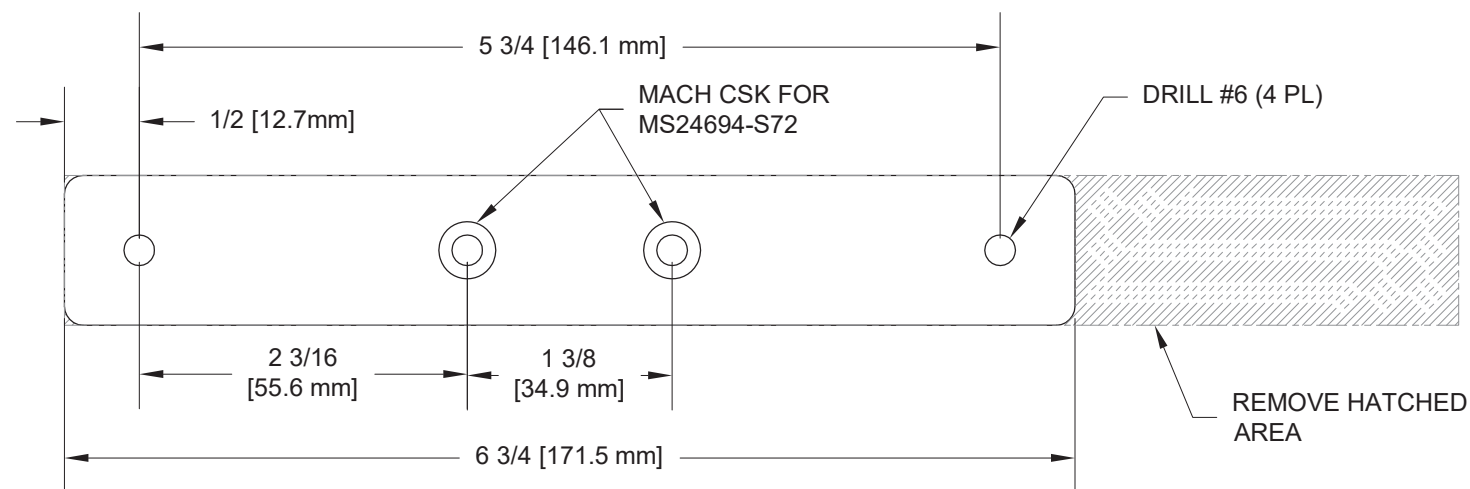
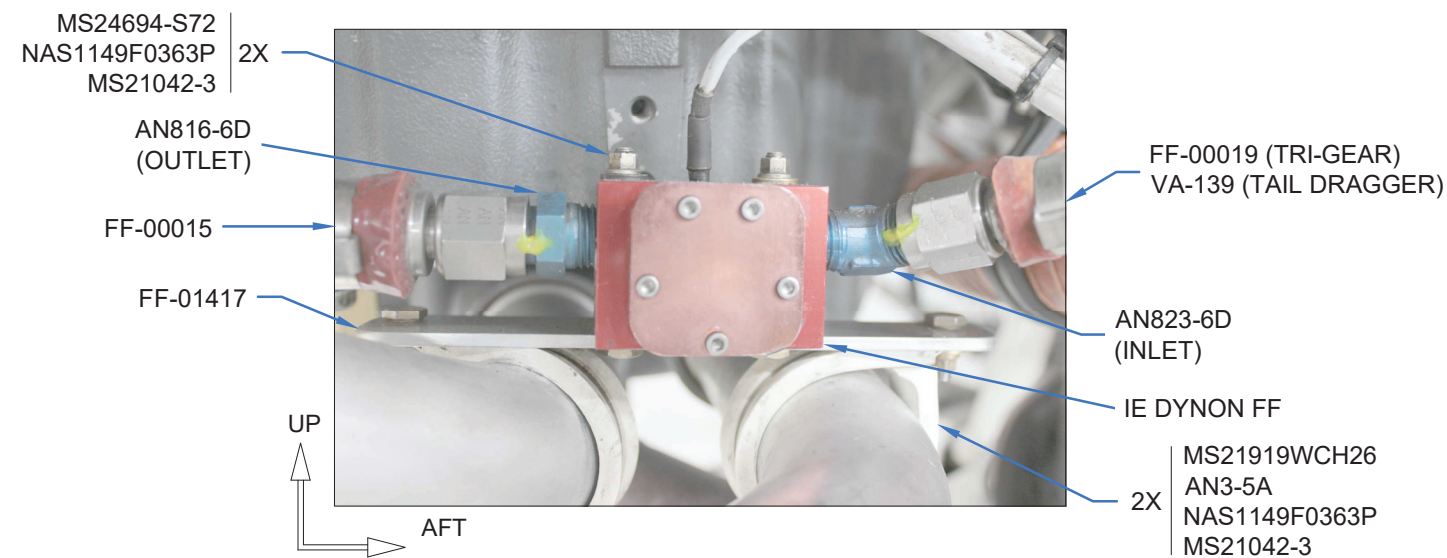
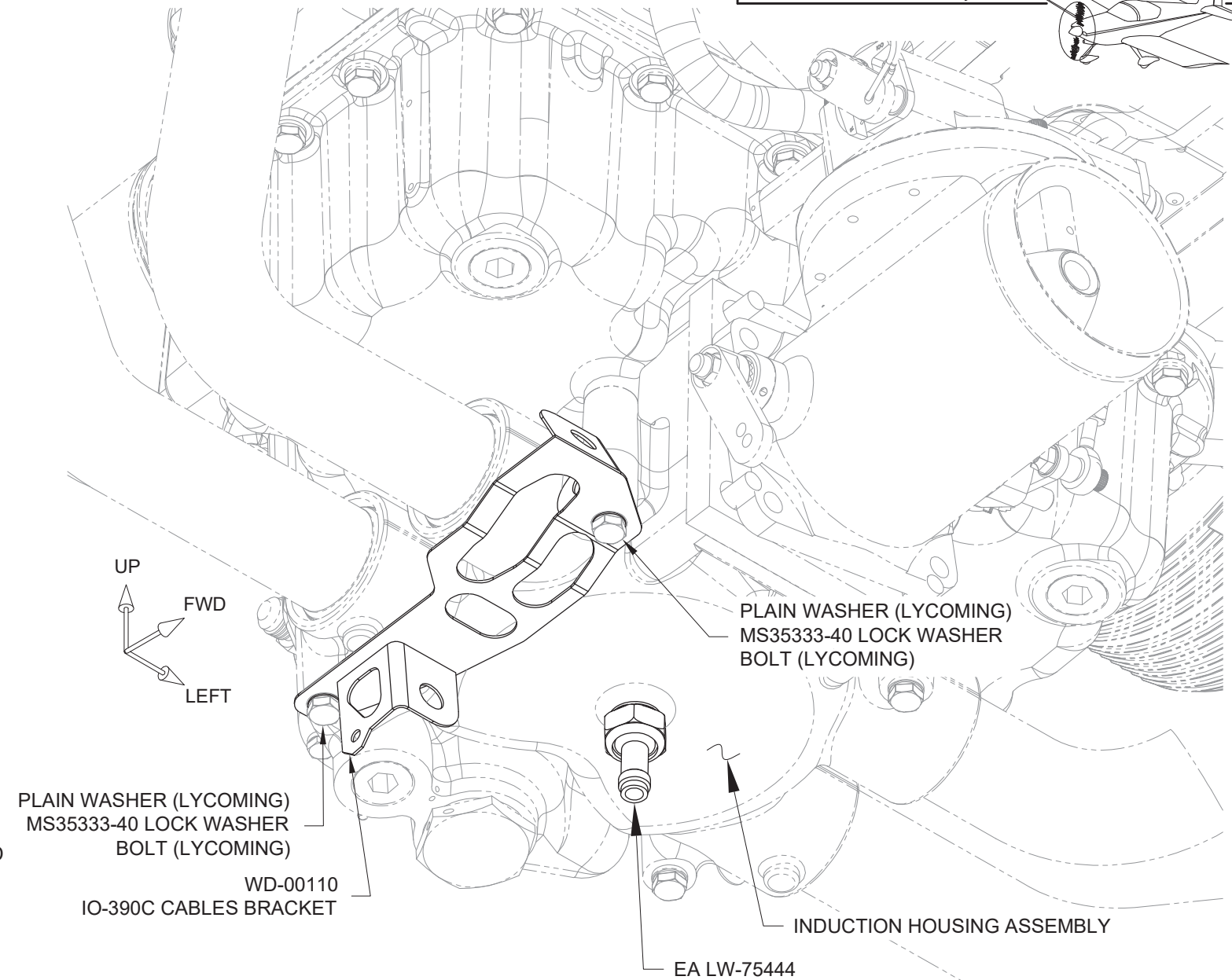


FIGURE 1A: FABRICATE THE FF-01417 TRANSDUCER MOUNTING PLATE



**FIGURE 2A: FUEL FLOW TRANSDUCER INSTALLATION
(TRI-GEAR SHOWN)**



**FIGURE 3A: SNIFFLE VALVE & WD-00110
INSTALLATION**

KAI Section 43, Page 43-11

Omit Step 7, do not install the VA-163 Mixture Bracket.



Cooling Flap Assembly and Installation

Perform the following steps to assemble and install the F-14190 Cooling Flap Assembly.

NOTE: The MS21919 clamps can be located on either side of the Cable Support. Place the hole through the VA-219-2 on the same side as the clamps.

Step 1: Assemble the F-14190G Cable Support and hardware as shown in Figure 1A. Do not fully tighten the nuts at this time.

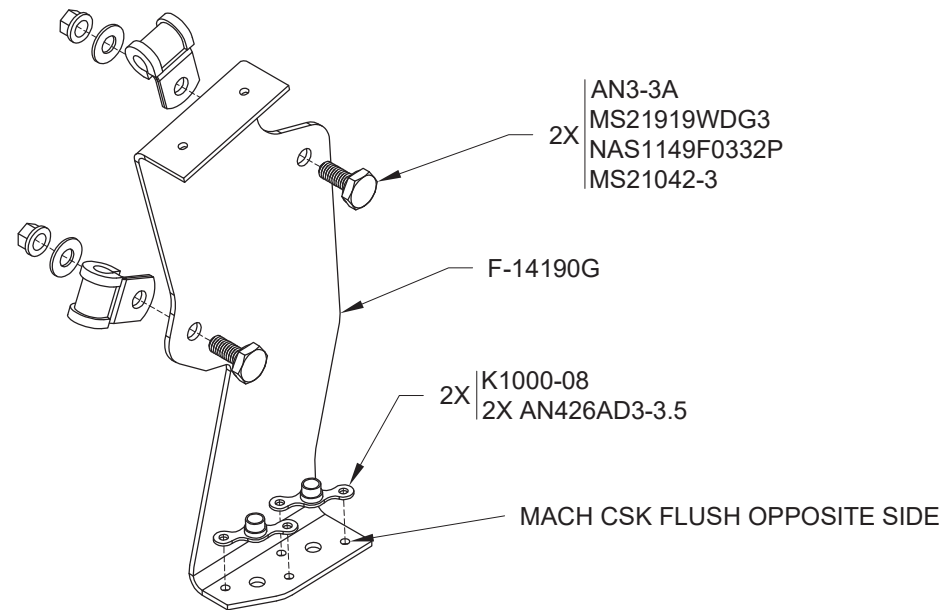


FIGURE 1A: CABLE SUPPORT ASSEMBLY

Step 2: Trim the hatched areas from the F-14190C Tunnel Exit Door as shown in Figure 2A.

Step 3: Assemble the F-14190B Exit Door Doubler, F-14190C, F-14190F Cable Brackets and hardware as shown in Figure 2A. Do not fully tighten the nut at this time.

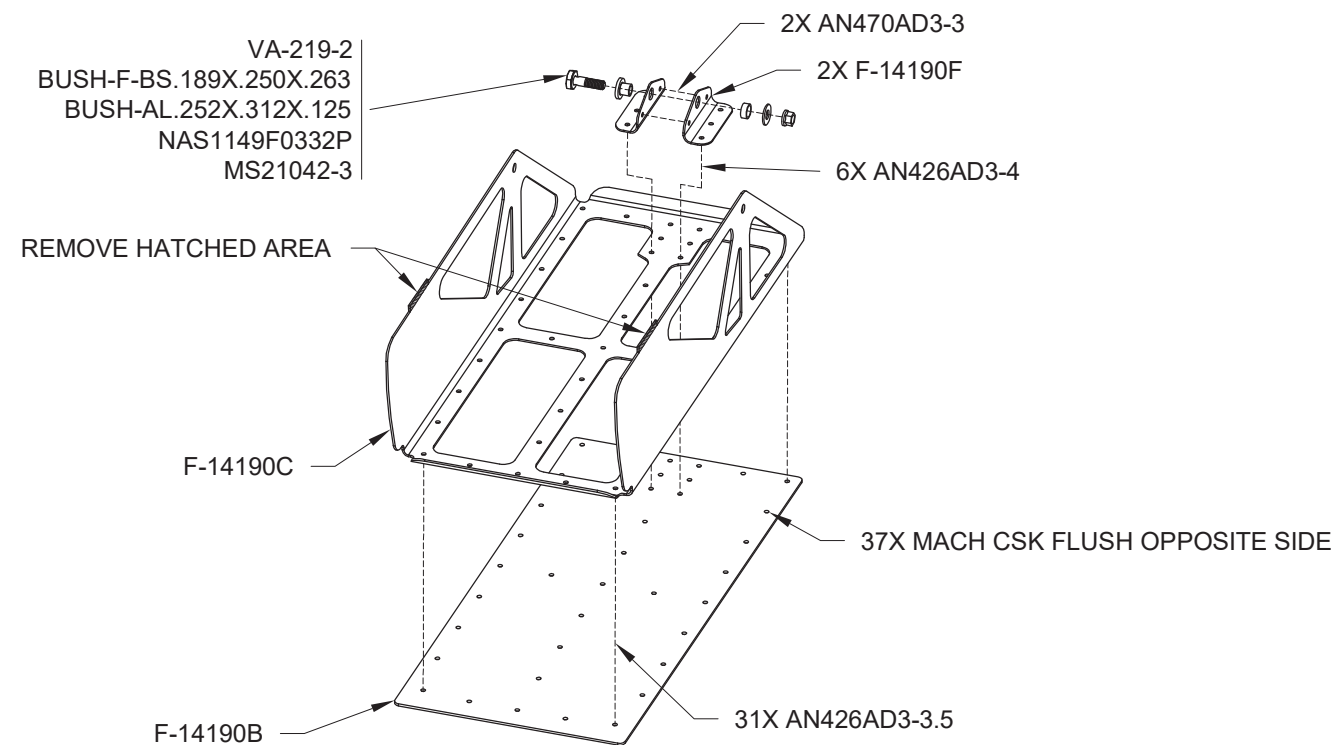


FIGURE 2A: EXIT DOOR ASSEMBLY

Step 4: Temporarily install the F-14190A Tunnel Cover as shown in Figure 3A.

Step 5: Match-Drill the four holes in the F-14132 Tunnel Angle as shown in Figure 3A.

Step 6: Remove the F-14190A and debur the holes in the F-14132.

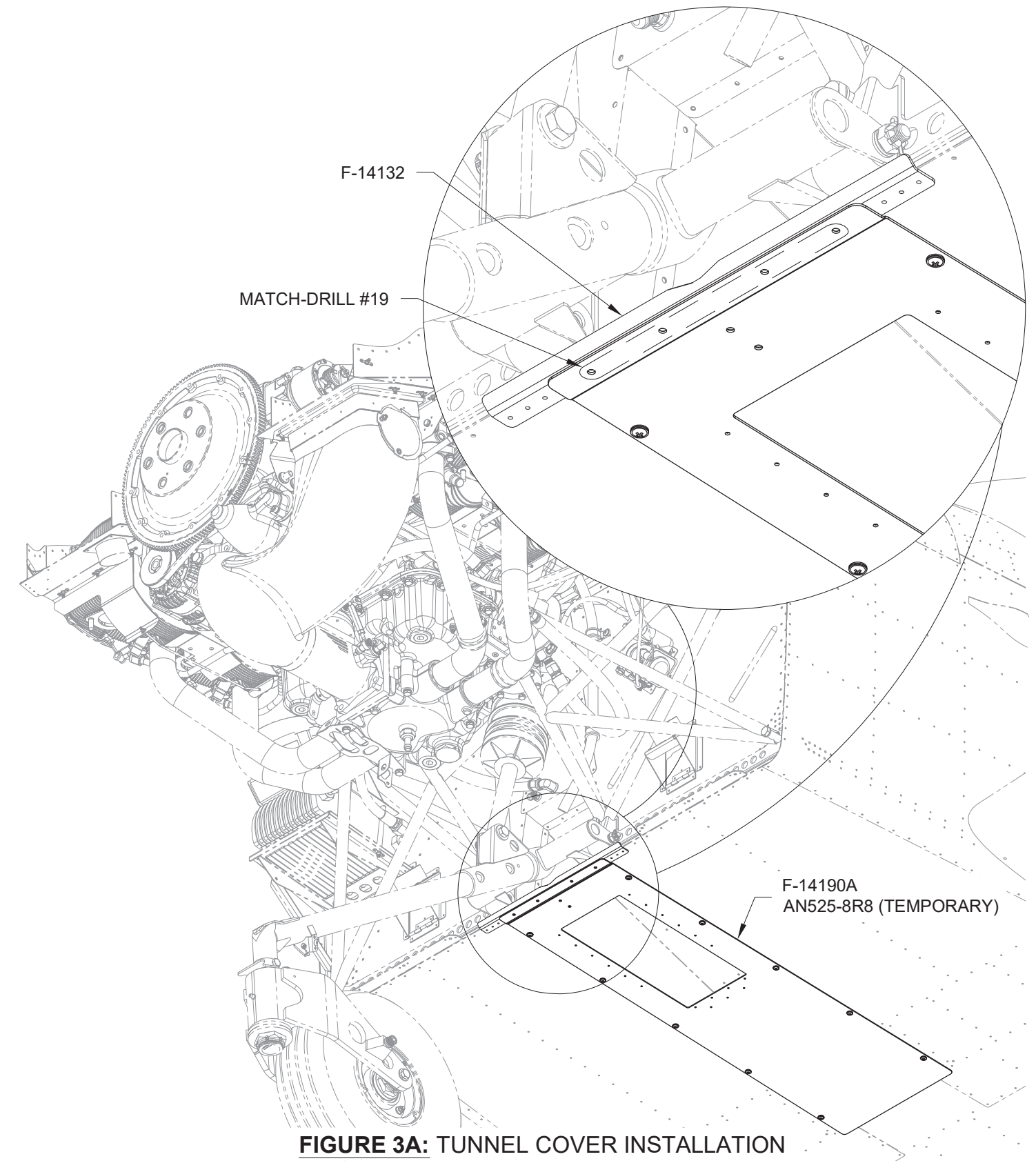


FIGURE 3A: TUNNEL COVER INSTALLATION



Step 1: Cleco together all parts of the the F-14190 Closeout Assembly as shown in Figure 1A.

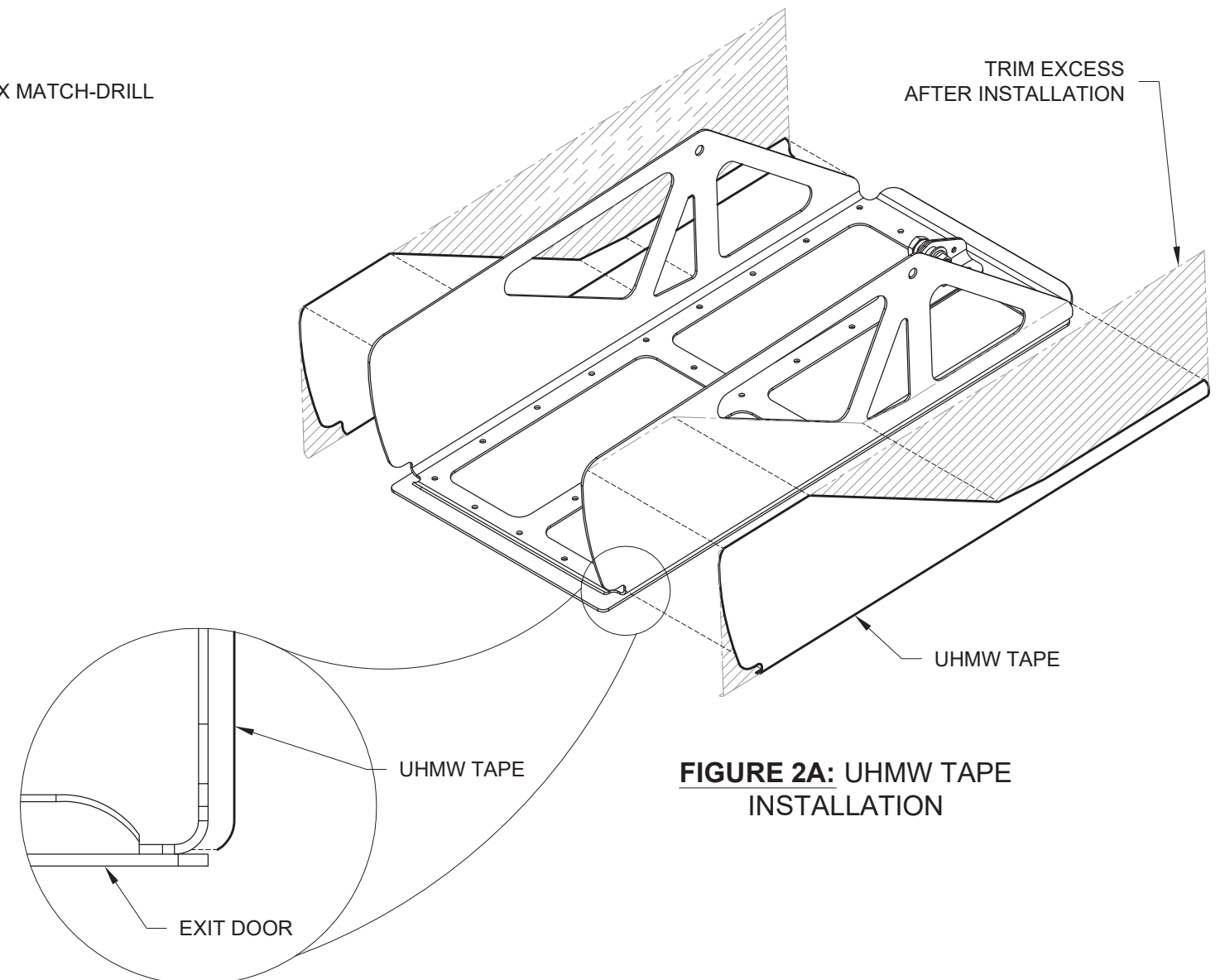
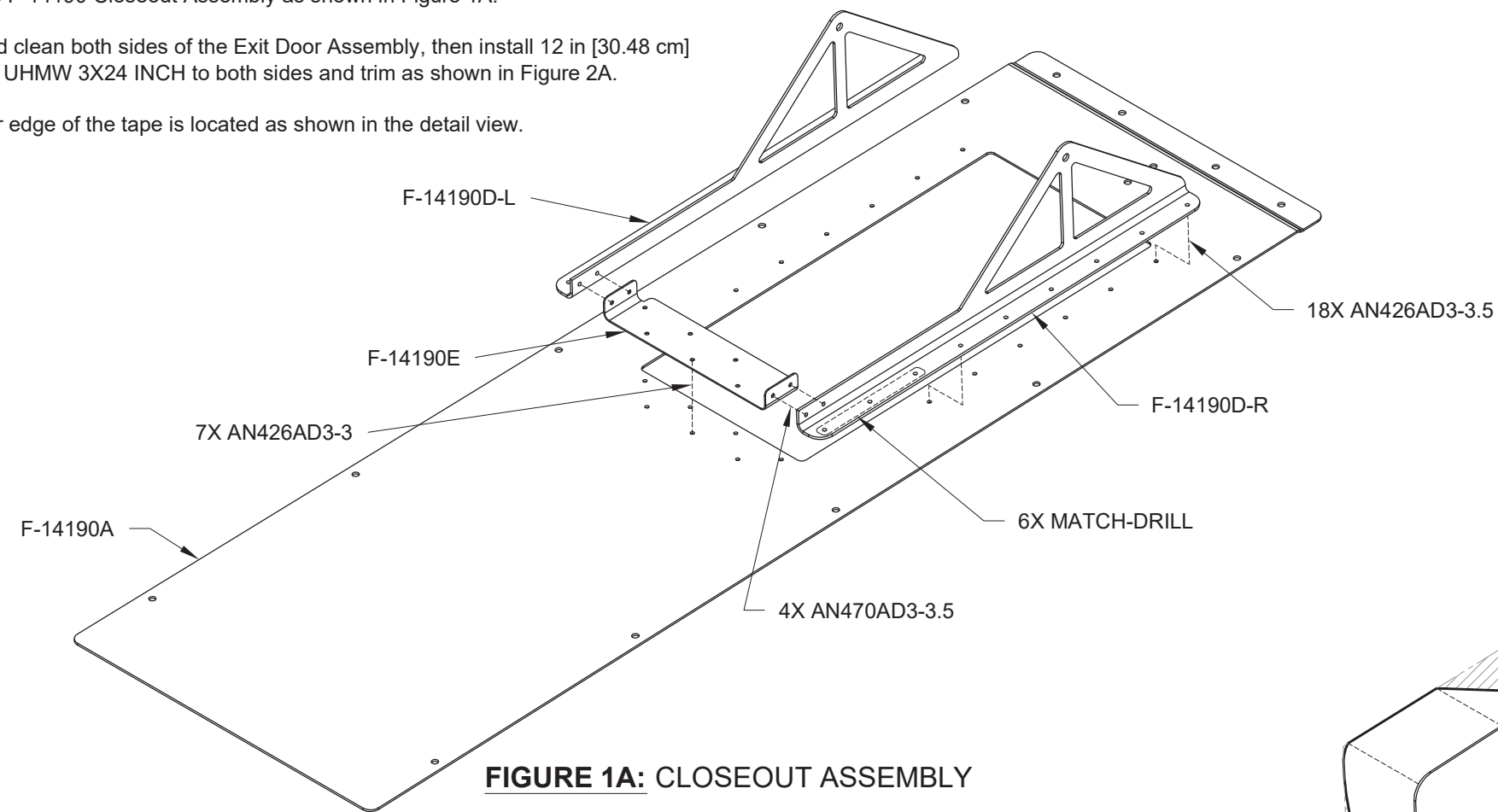
Step 2: Match-Drill #40 the holes of the F-14190D-L & -R into the F-14190 as indicated in Figure 1A.

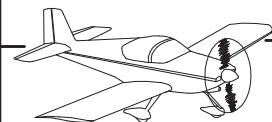
Step 3: Disassemble, machine countersink all of the #40 holes in the F-14190A (flush bottom side), and debur the holes indicated in Figure 1A.

Step 4: Rivet the F-14190 Closeout Assembly as shown in Figure 1A.

Step 5: Scuff and clean both sides of the Exit Door Assembly, then install 12 in [30.48 cm] lengths of TAPE UHMW 3X24 INCH to both sides and trim as shown in Figure 2A.

Ensure the lower edge of the tape is located as shown in the detail view.





Step 1: Temporarily install the Closeout Assembly and Cable Support Assembly as shown in Figure 1A.

Step 2: Match-Drill #30 the F-01454 Muffler Shroud Ramp as shown in Figure 1A.

Step 3: Disassemble, deburr, then rivet the Cable Support Assembly to the F-01454 as shown in Figure 1A.

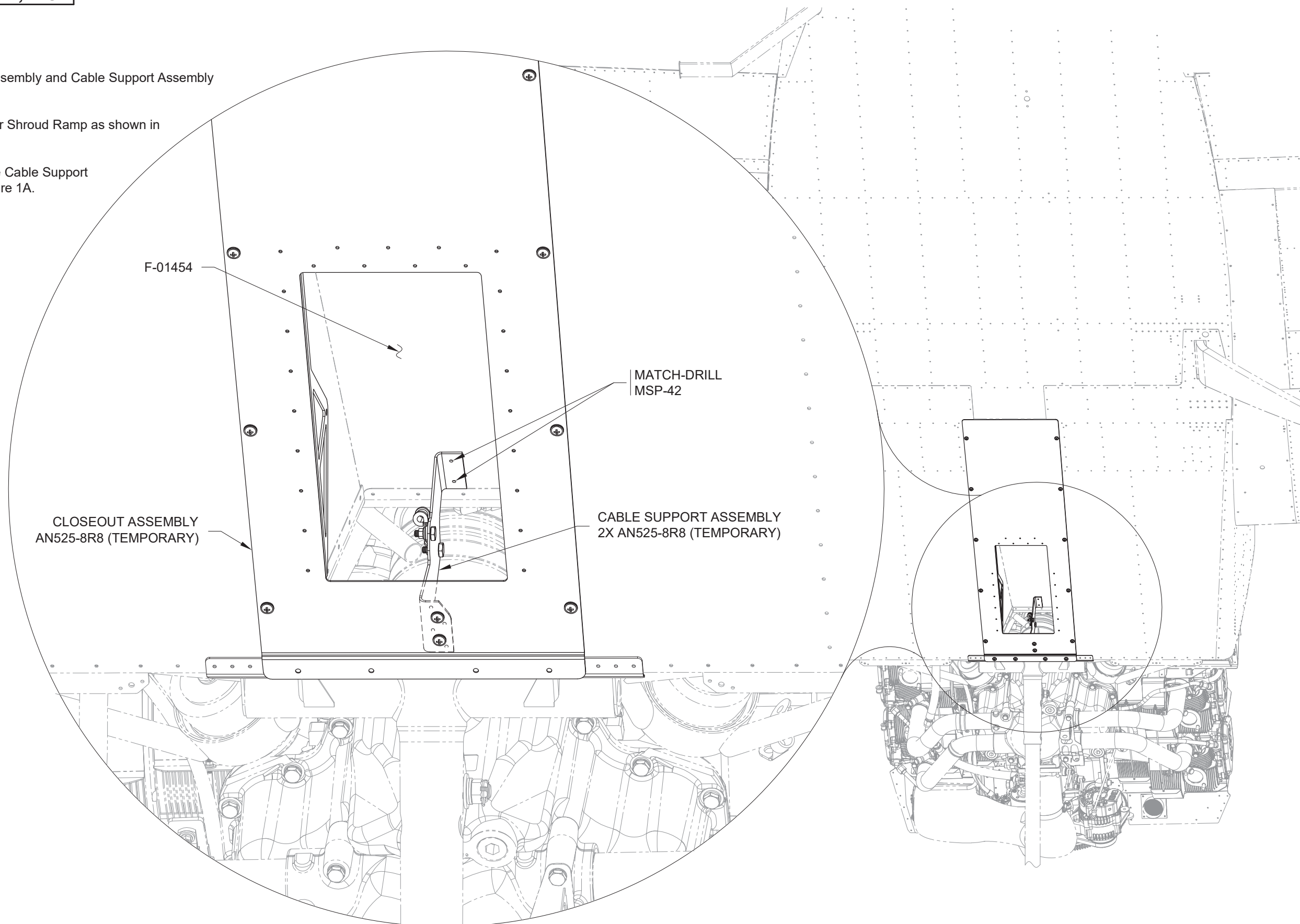


FIGURE 1A: CABLE SUPPORT ASSEMBLY INSTALLATION



Step 1: Install the Exit Door Assembly in the Closeout Assembly as shown in Figure 1A.
Hardware is mirrored about the centerline.

Tighten the nuts until finger tight, then back off to the next castellation and install the cotter pin. Ensure the bolt can be rotated with fingers after cotter pin is installed.

Set the assembly aside for now. It will be installed after the engine control cables.

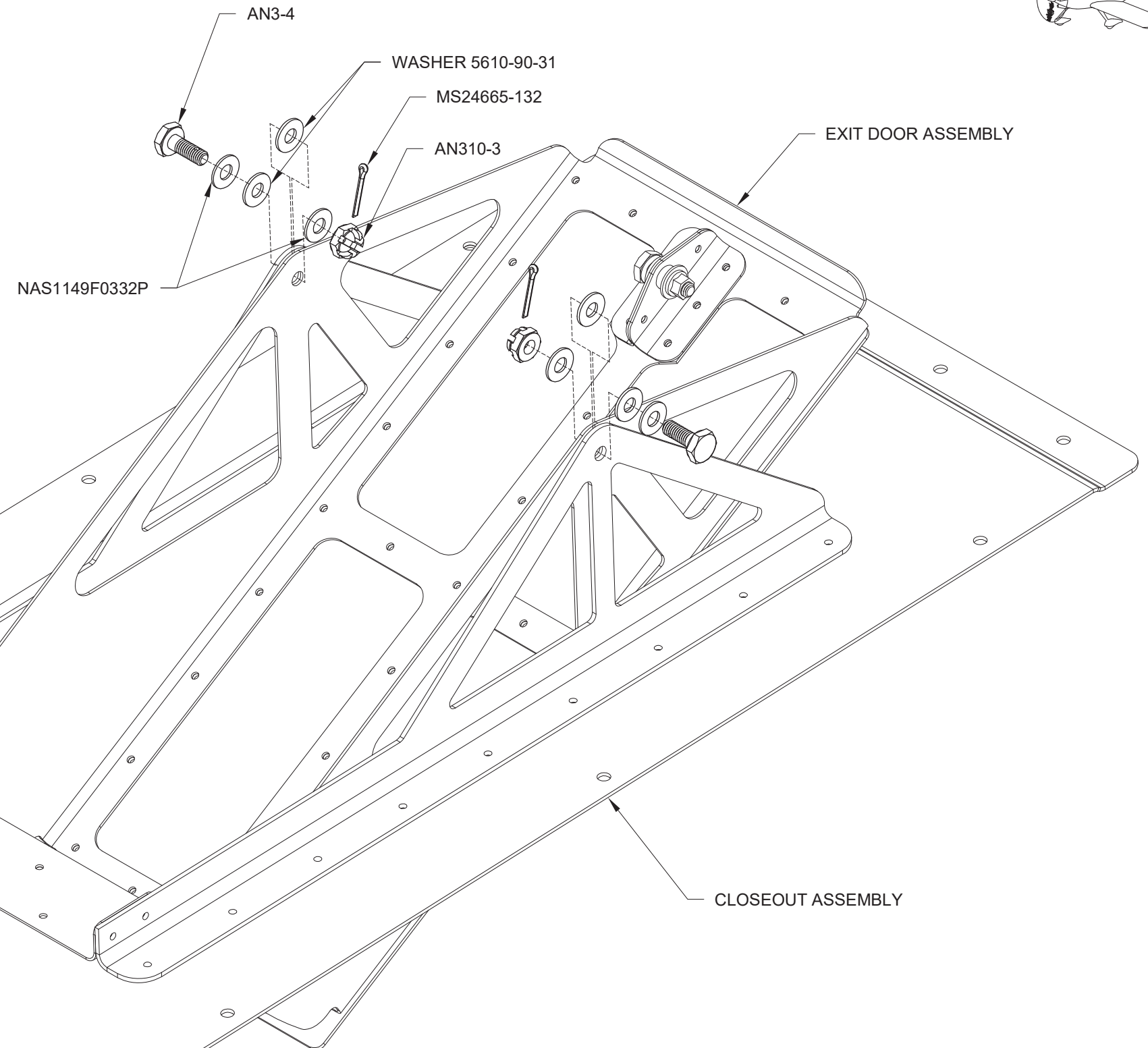


FIGURE 1A: EXIT DOOR INSTALLATION



KAI Section 45

Although the COWL-00013 X-Over RV-14 Lwr Cowl has a different shape than the COWL-00002 Bottom Cowl, the fitting and installation process is identical except for the bottom edge. Refer to KAI Section 45, Pages 45-01 through 45-20 for cowl fit and installation.

Perform the following steps in lieu of KAI Section 45, Page 45- 21 Steps 3 through 7.

NOTE: For all drilling operations on this page, keep the drill bit perpendicular to the surface of the cowl.

Step 3A: Trim the F-14133-1 Cowl Attach Plate drill template that was supplied with the Finish Kit as shown in Figure 1A.

Step 4A: Align the rivet holes in the drill template with the rivets in the F-01483-L & -R Forward Bottom Skins as shown in Figure 2A, Details A and B. Use the dimples in the rivet heads to center the holes.

Step 5A: Secure the drill template with tape.

Step 6A: Match-Drill #19 the two nutplate screw holes into the COWL-00013 X-Over RV-14 Lwr Cowl using the drill template as a guide.

Only match-drill the bottom cowl. Match-Drilling too deep can damage the nutplates.

Step 7A: Repeat Steps 4A-6A for the right side of the lower cowl.

Step 8A: Match-Drill #19 the four screw holes in the F-14132 into the COWL-00013 as shown in Figure 2A.

Step 9A: Temporarily mark the center of the exhaust exits on the F-01483-L & -R skins for reference during the exhaust system installation. Masking tape and a fine-tipped marker work well.

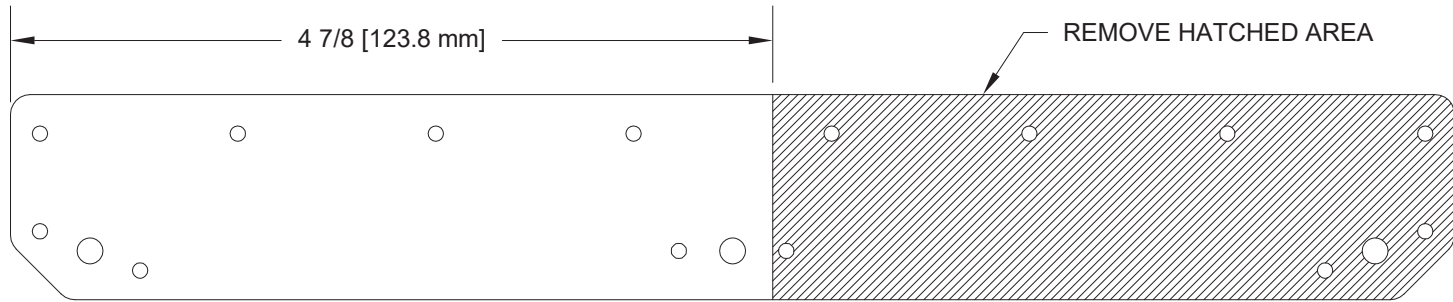


FIGURE 1A: TRIM THE F-14133-1 COWL ATTACH PLATE

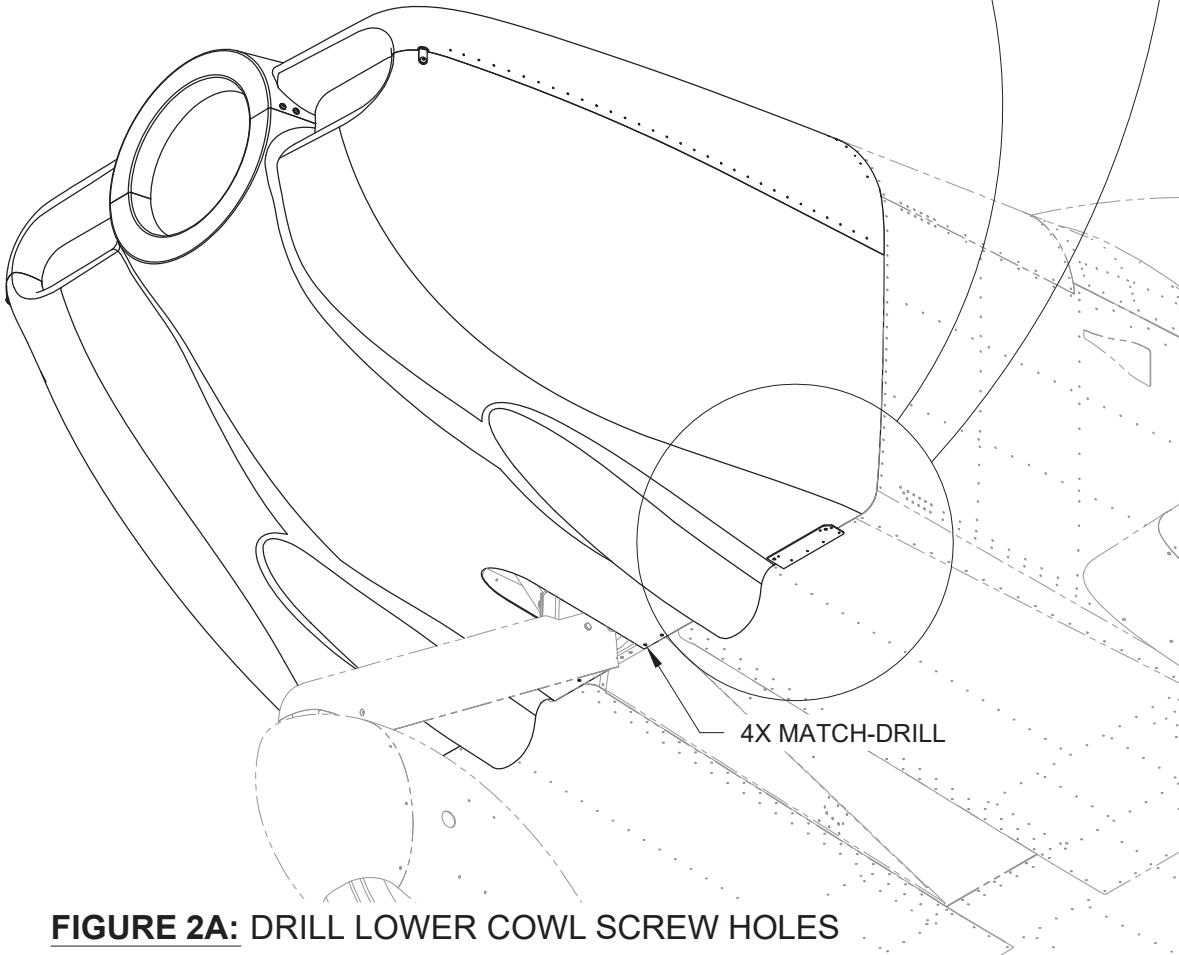
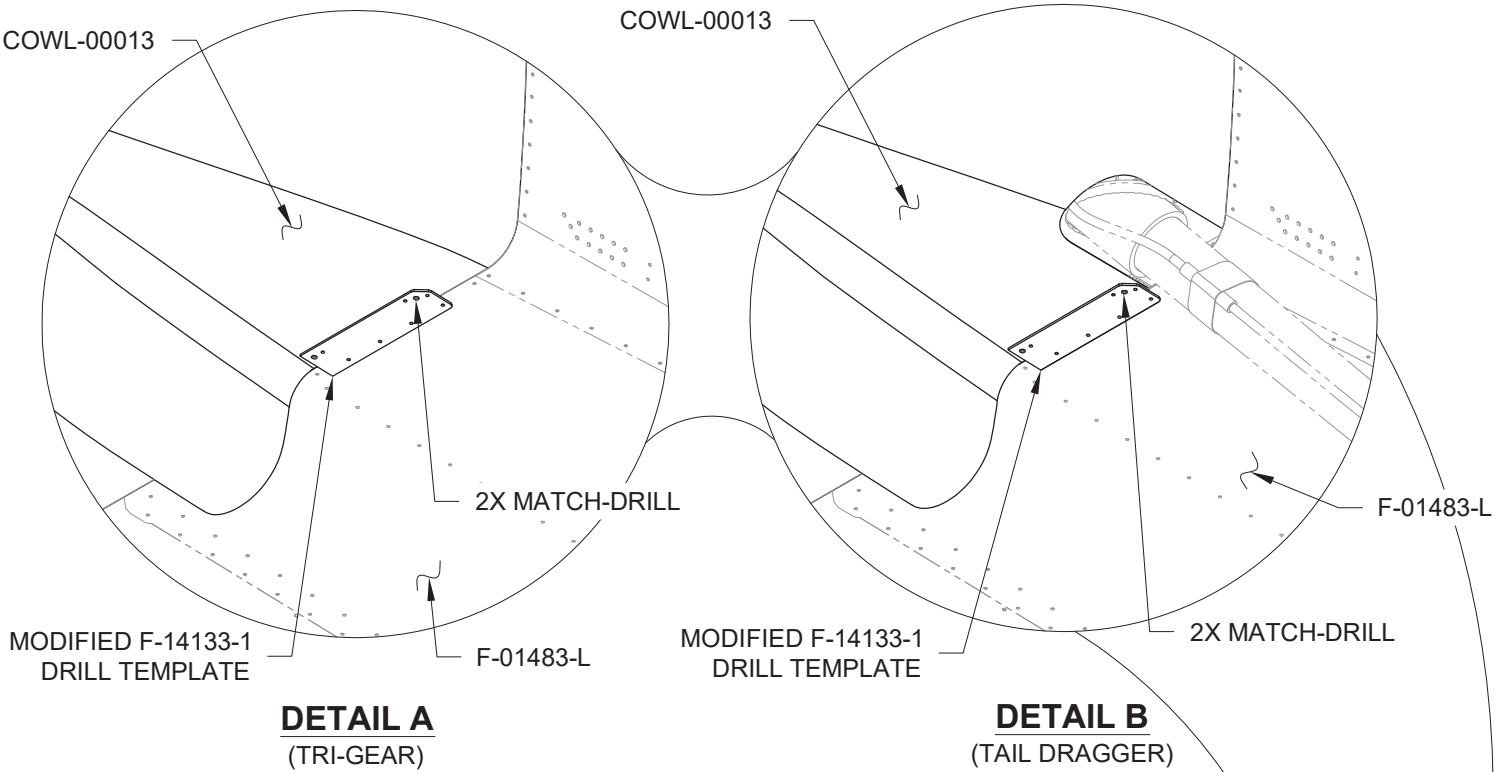
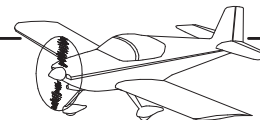


FIGURE 2A: DRILL LOWER COWL SCREW HOLES



Step 1: Match-Drill #40 the nutplate attach rivet holes into the F-14132, then machine countersink the rivet holes flush on the lower side.

Step 2: Install the nutplates on the F-14132 as shown in Figure 1A.

Step 3: Continue with KAI Section 45 Pages 22 through 25.

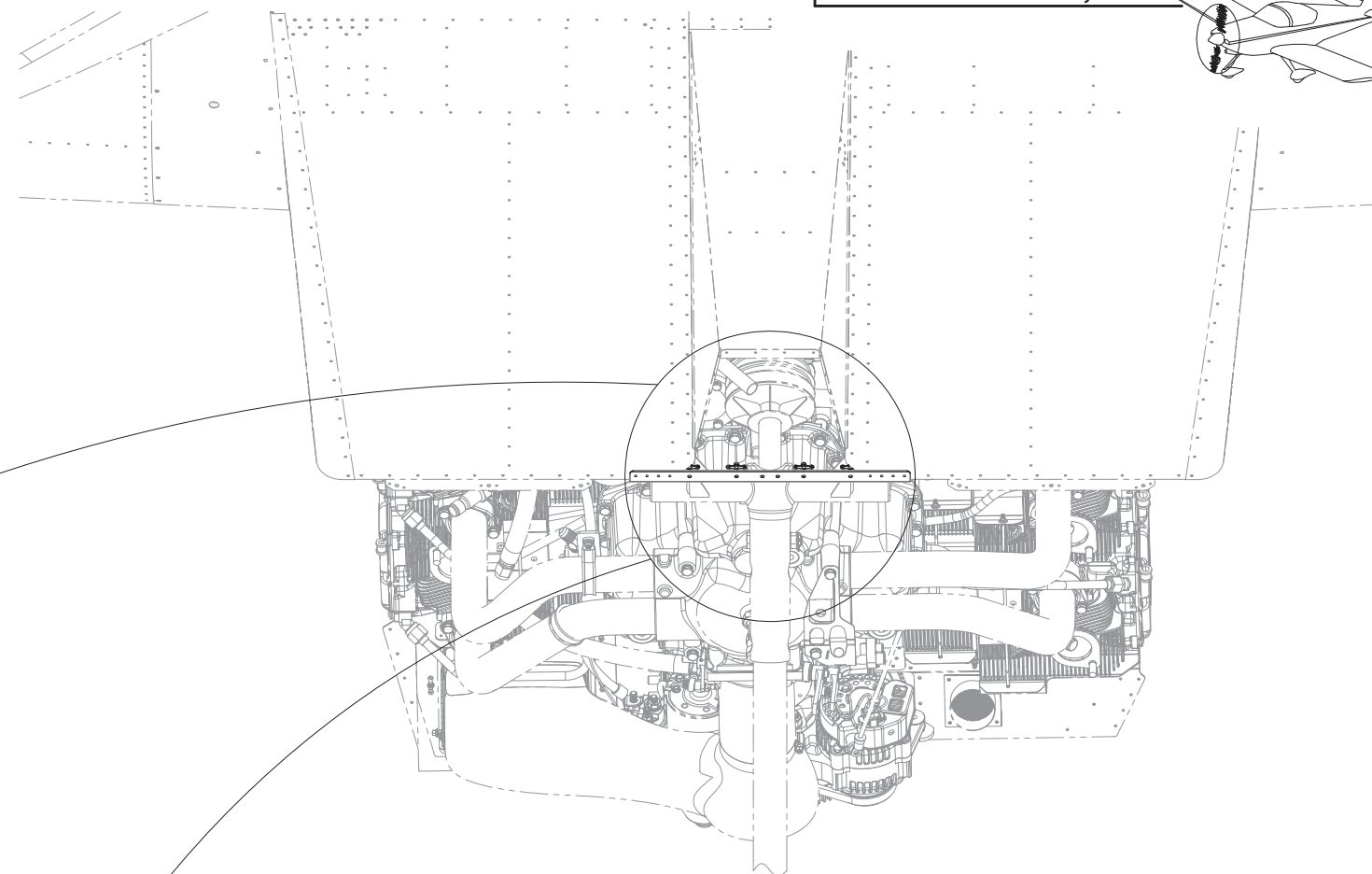
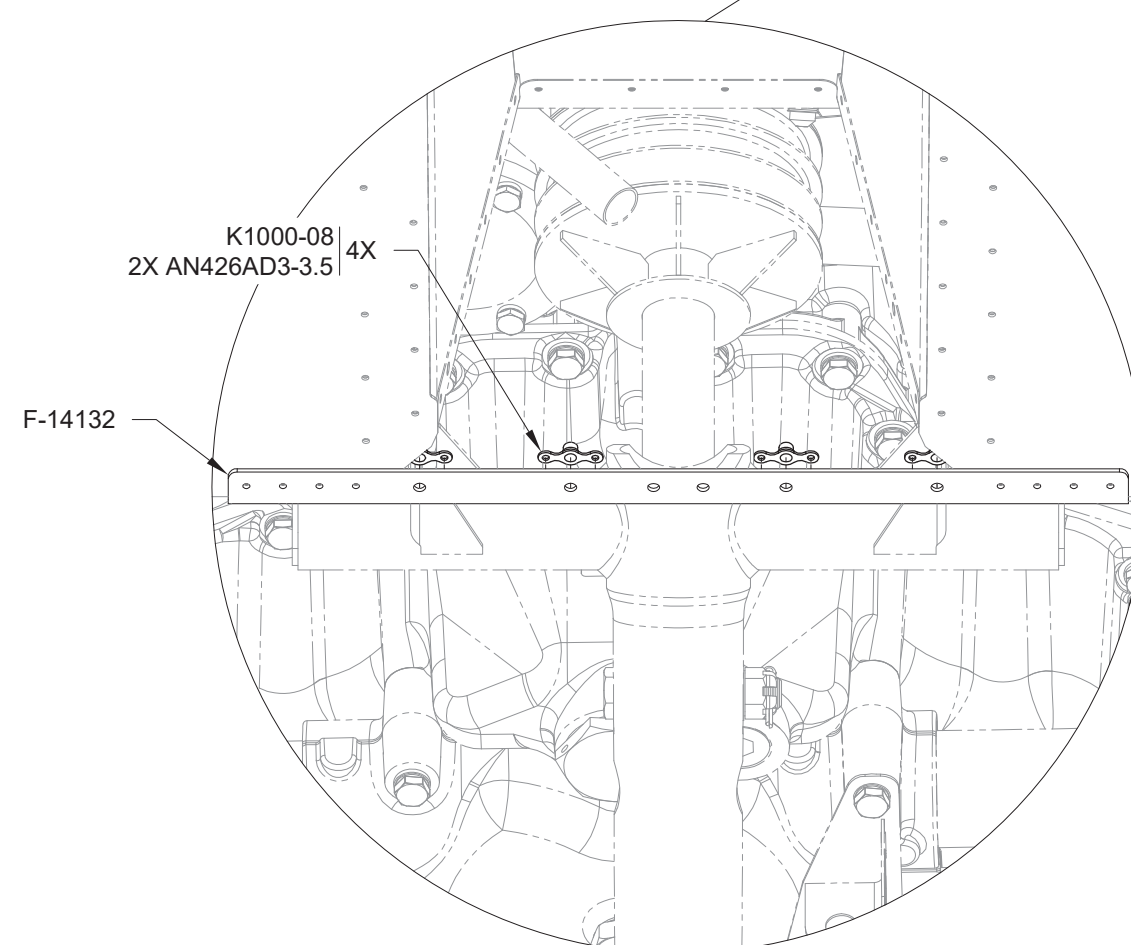


FIGURE 1A: NUTPLATE INSTALLATION



Perform the following steps in lieu of KAI Section 45, Page 45-26.

Step 1: Apply the EA EXHST/COWL SHIELD to the inside of the COWL-00013 as shown in Figure 1A. Dimensions shown are from the edges of the cowl to the corners of the shield.

Align the edge of each shield with the upper outboard edge of the COWL-00013 and work the shield slowly inboard and downward.

Remove the adhesive backing as you go (not all at once). The shield will conform to the shape of the COWL-00013.

When large wrinkles form, cut the shield along the wrinkle such that the shield overlaps onto itself.

Step 2: Rub all of the shields with a stiff plastic squeegee or hard roller to work the inevitable wrinkles and bubbles to an edge. Stubborn bubbles can be popped with a needle.

Step 3: Apply a thin layer of epoxy resin to the shield edges, even where the shields overlap. The epoxy should cover approximately 1/4 [6.4 mm] on either side of the edges.

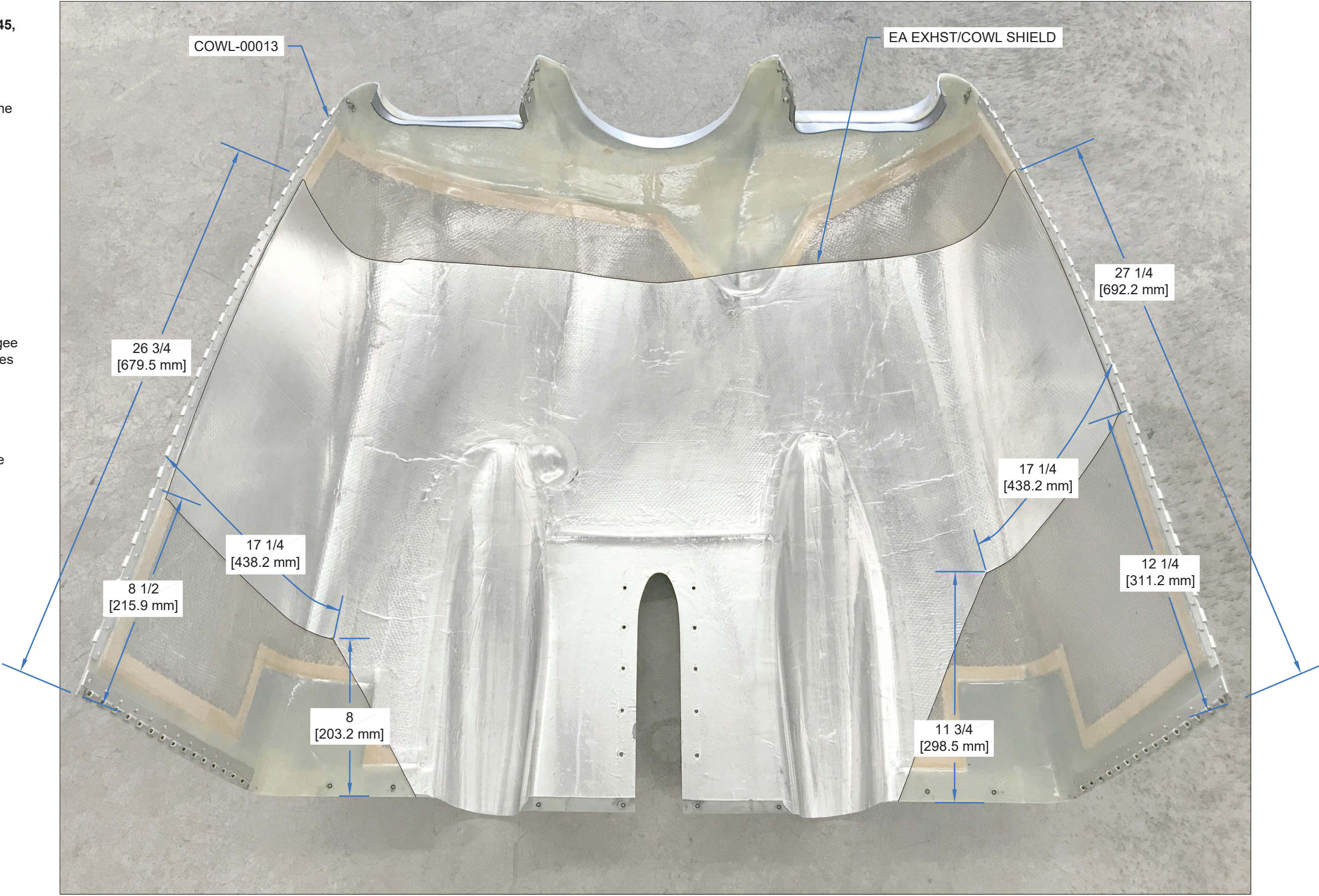


FIGURE 1A: COWL-00013 HEAT SHIELD
(TRI-GEAR SHOWN)

KAI Section 46A (Tri-Gear Only)

Perform the following steps in lieu of KAI Section 46A, Page 46A-30.

Step 1: Remove the COWL-00013.

Step 2: Attach the FF-01414 RV-14 X-Over Cowl Close-Out to the inside of the COWL-00013 using temporary hardware in the two aft holes.

Step 3: Secure the FF-01414 to the inner surface of the COWL-00013 with clamps and tape.

NOTE: For all drilling operations on this page, keep the drill bit perpendicular to the surface of the cowl. Cleco each drilled hole before drilling the next. Be aware of debris between parts as drilling progresses. Disassemble and clean every few holes or as necessary.

Step 4: Match-Drill #19 the screw holes in the COWL-00013 using the FF-01414 as a guide. Instead of clecos, #8 screws can be used.

Press a wooden support block against the FF-01414 during match-drilling to keep the close-out in contact with the inner surface of the COWL-00013 if/as required.

Step 5: Remove the FF-01414 from the COWL-00013.

Step 6: Dimple all of the rivet holes in the FF-01414 as shown in Figure 1A.

Step 7: Rivet the nutplates to the FF-01414 as shown in Figure 1A.

Step 8: Install the COWL-00013 and FF-01414 on the aircraft. Attach the FF-01414 to the bottom cowl using the hardware shown in Figure 1A.

If necessary, trim COWL-00013 and FF-01414 for additional clearance around the hardware attaching the nose gear strut fairing.

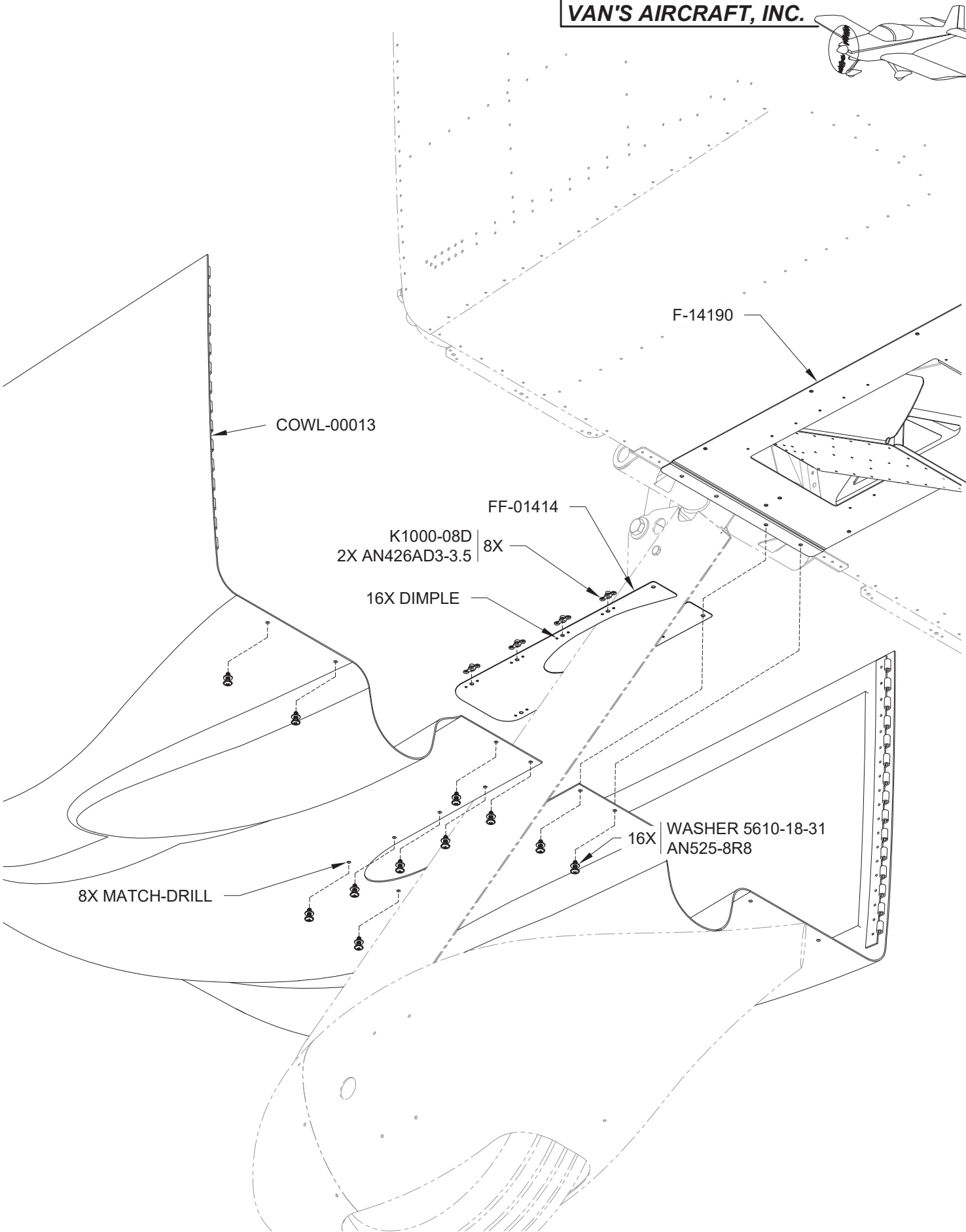


FIGURE 1A: X-OVER COWL CLOSE-OUT
(TRI-GEAR SHOWN)



KAI Section 47

NOTE: The IO-390-EXP119 uses a different induction snorkel, shown in Figure 1A. Refer to KAI Section 47, Pages 47-01 through 47-14 to install the engine baffles.

Perform the following steps in lieu of KAI Section 47, Pages 47-15 through 47-17 to fit and trim the VA-271 snorkel.

Step 1: Remove the CB-00020 Air Filter Frame from the CB-00009 Left Air Ramp.

Step 2: Insert the VA-271 into the CB-00020 and place the snorkel fuel control flange on the fuel control. Variations in the fiberglass parts may require some sanding of excessively thick areas to fit the VA-271 into the CB-00020.

NOTE: Remove small amounts at a time from the lower end of the snorkel. Small adjustments at the snorkel will have a large effect on the air filter frame location.

Step 3: Mark and trim the lower end of the VA-271 as shown in Figure 1A, checking the fit of the CB-00020 at the CB-00009. Continue trimming until the CB-00020 aligns with the CB-00009 with no preload.

Step 4: Drill #30 the drain hole and cut four slots equally spaced around the VA-271 fuel control flange as shown in Figure 1A.

Step 5: Insert the VA-271 into the CB-00020 and attach the CB-00020 to the CB-00009 with all of the screws.

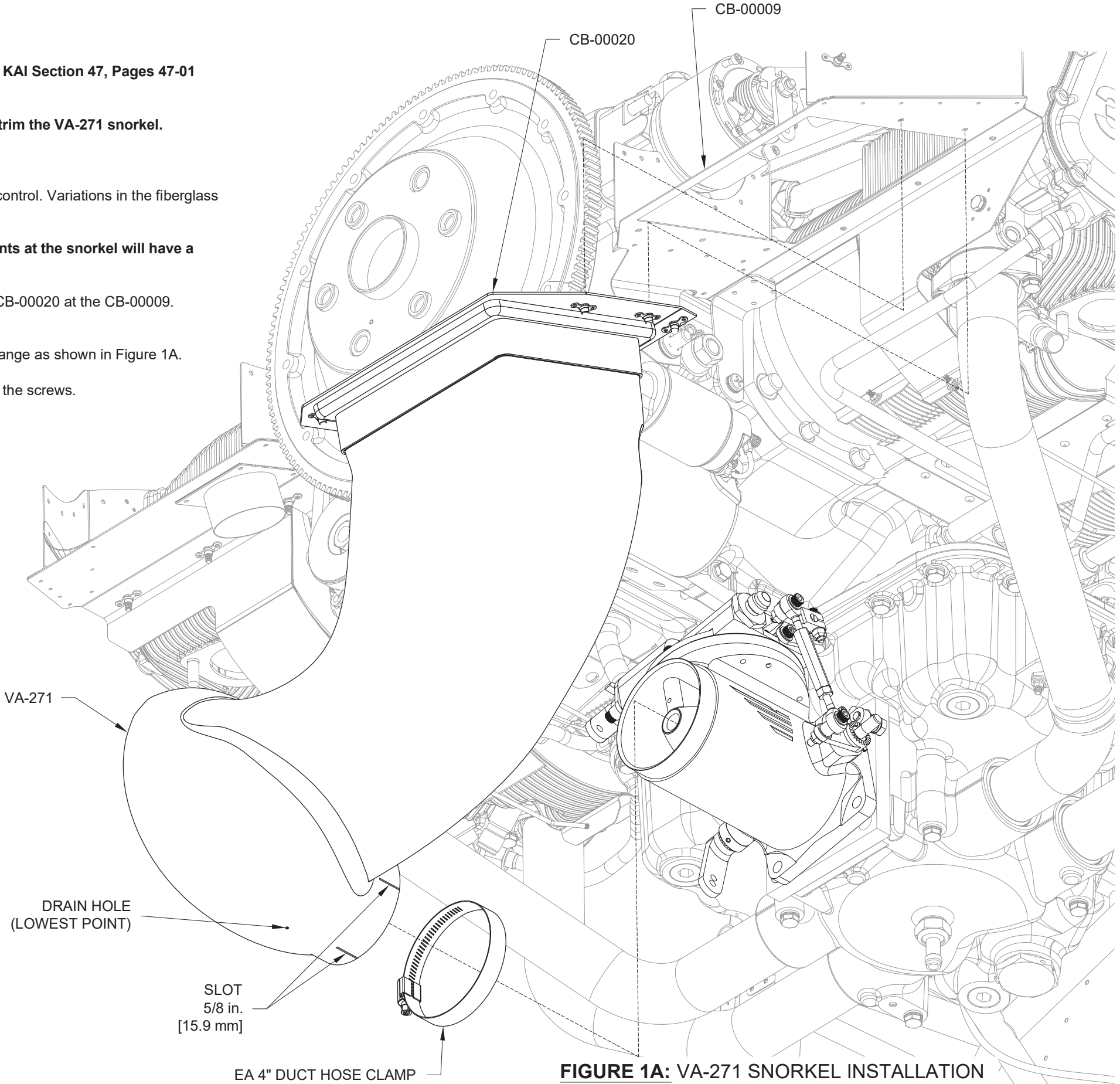
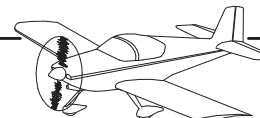


FIGURE 1A: VA-271 SNORKEL INSTALLATION



Step 1: Use an angle drill to drill two #40 alignment holes in each of the four sides of the CB-00020 and VA-271 snorkel. See Figure 1A.

Step 2: Remove the VA-271 and CB-00020 from the aircraft.

Step 3: Cleco the CB-00020 to the VA-271 at the alignment holes.

Step 4: Mark the upper edge of the VA-271 for trimming where it meets the CB-00020 as shown in Figure 2A.

Step 5: Remove the VA-271 from the CB-00020 and trim the VA-271 to the line marked in the previous step.

Step 6: Roughen, then clean the contact areas common to the VA-271 and CB-00020. Use 80-grit sandpaper. See Figure 3A.

Step 7: Attach the CB-00020 and VA-271 to the aircraft. Cleco the VA-271 to the CB-00020.

Return to KAI Section 47, Page 47-18.

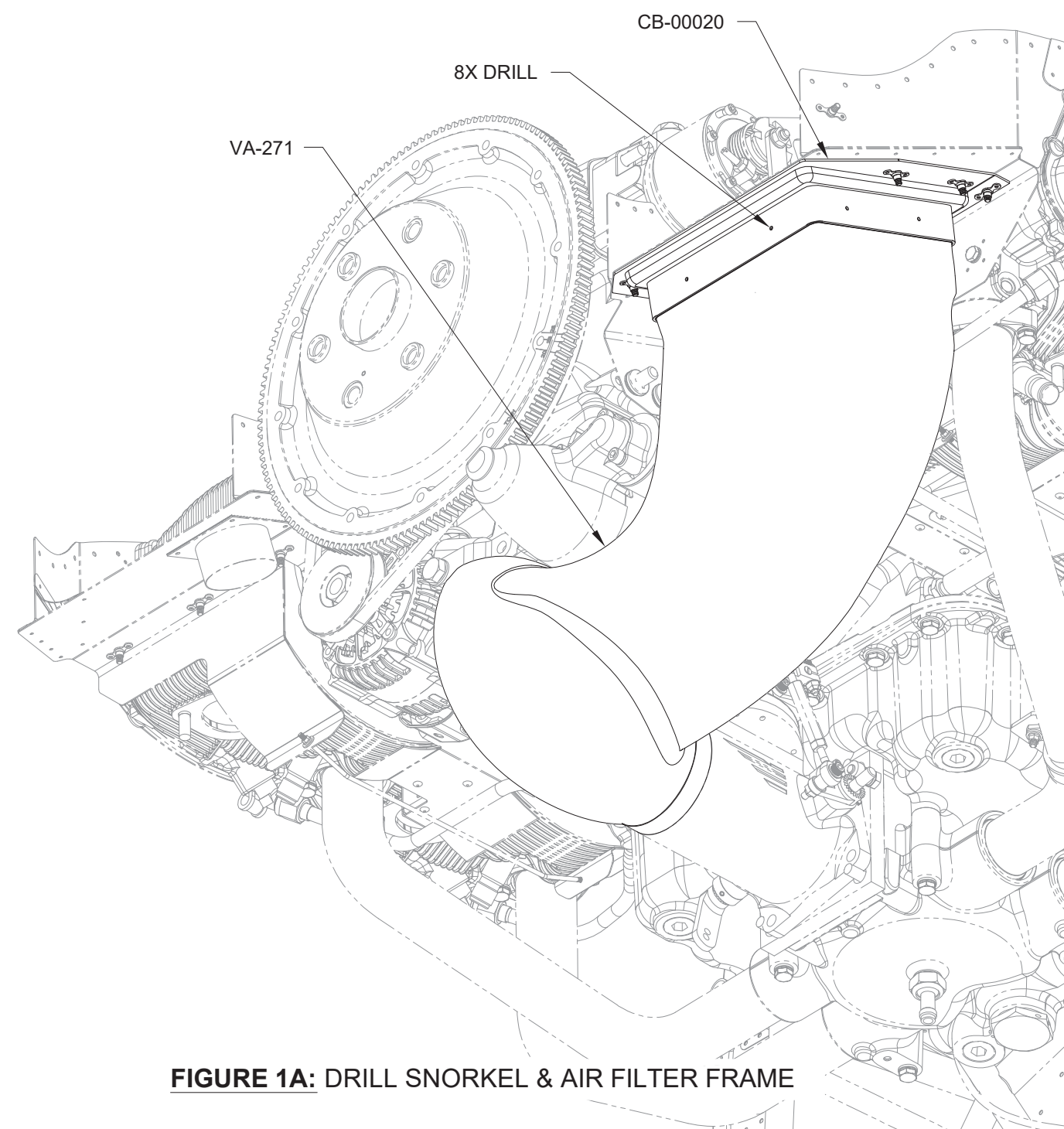


FIGURE 1A: DRILL SNORKEL & AIR FILTER FRAME

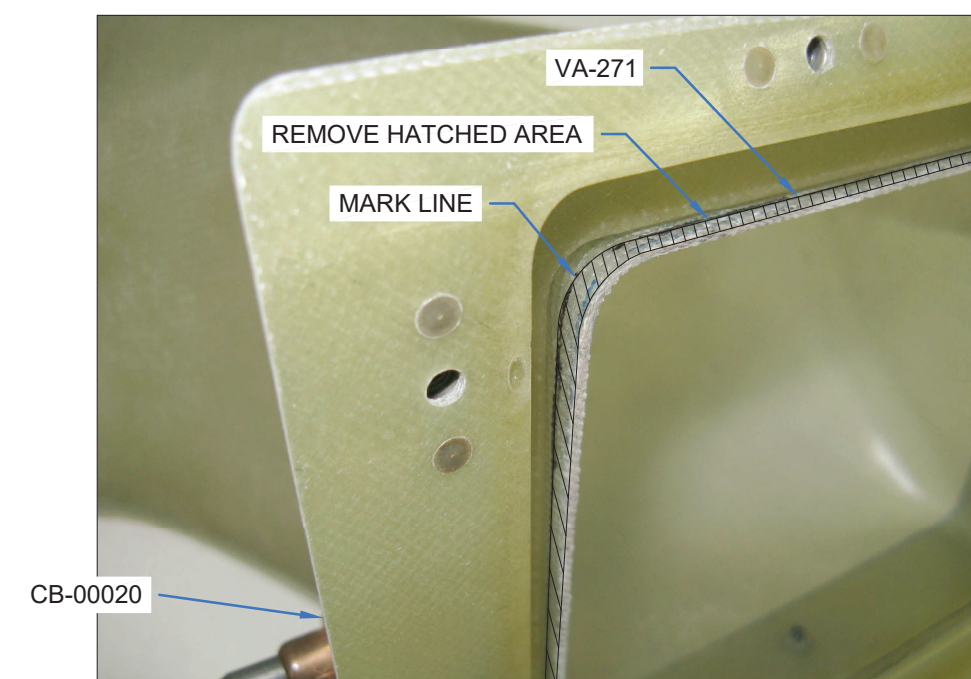


FIGURE 2A: TRIM UPPER EDGE

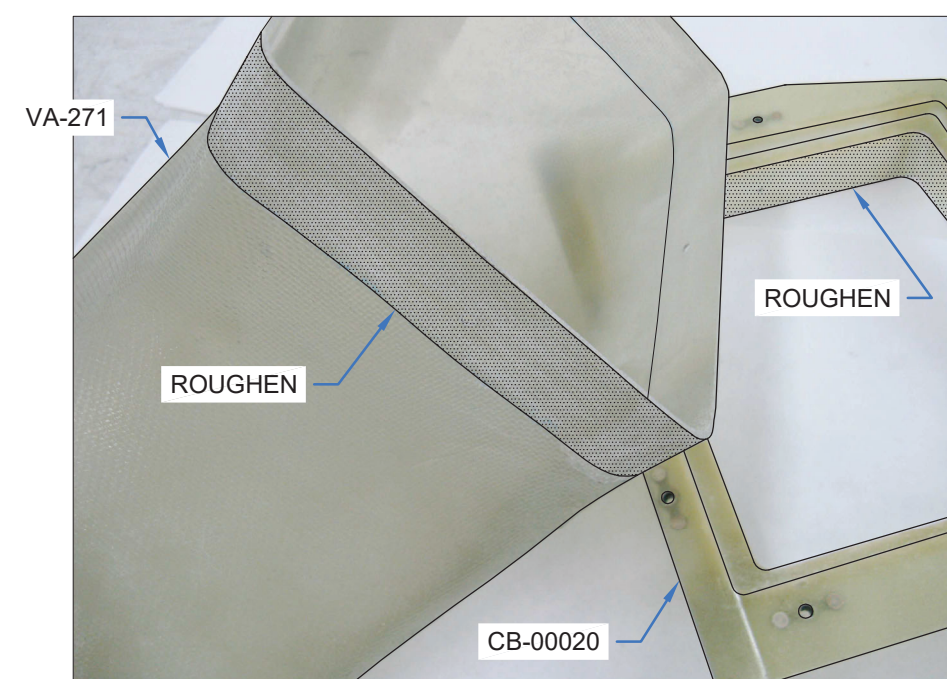
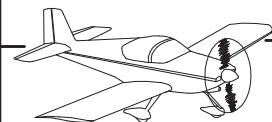
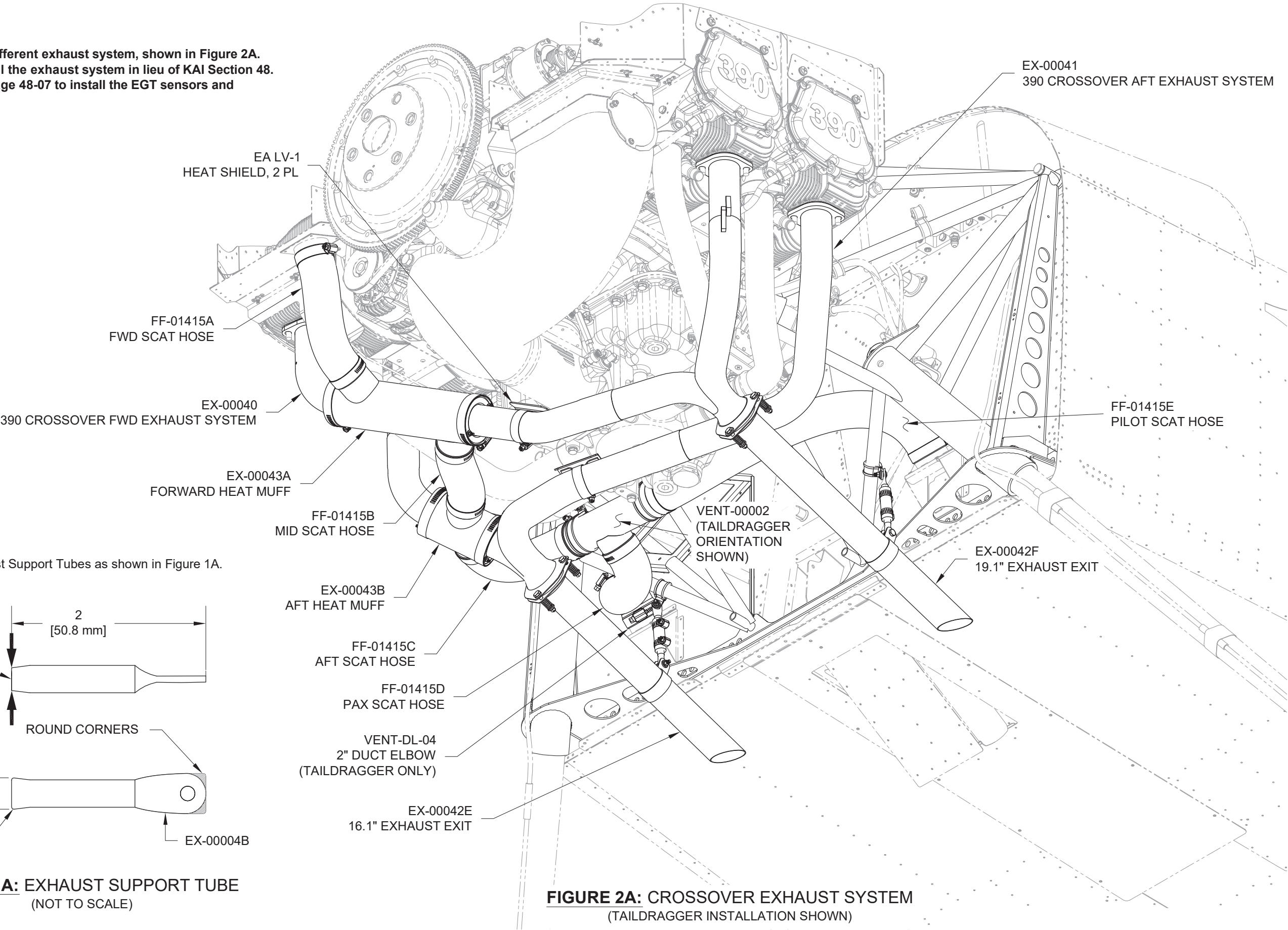


FIGURE 3A: ROUGHEN CONTACT AREAS



KAI Section 48

NOTE: The IO-390-EXP119 uses a different exhaust system, shown in Figure 2A. Perform the following steps to install the exhaust system in lieu of KAI Section 48. However, refer to KAI Section 48, Page 48-07 to install the EGT sensors and route the wires.



Step 1: Modify four EX-00004B Exhaust Support Tubes as shown in Figure 1A.

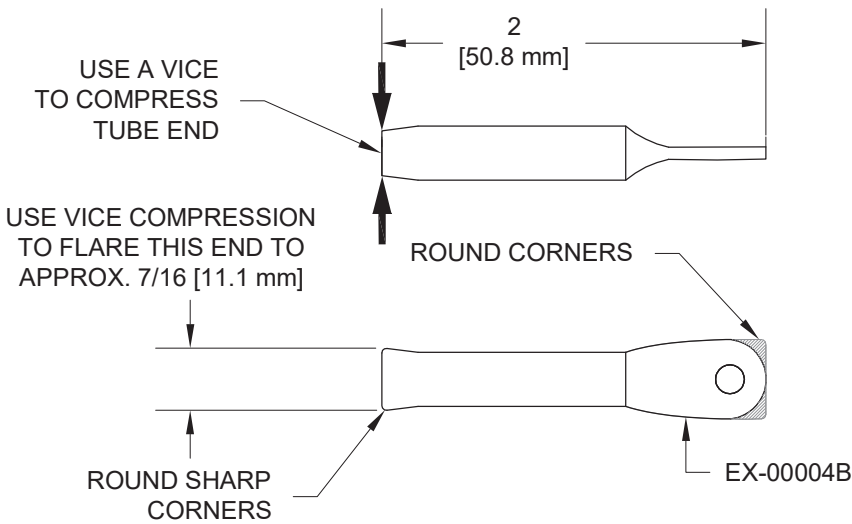


FIGURE 1A: EXHAUST SUPPORT TUBE
(NOT TO SCALE)

FIGURE 2A: CROSSOVER EXHAUST SYSTEM
(TAILDRAGGER INSTALLATION SHOWN)

NOTE: The scat hose lengths provided are a "best case" length. Individual firewall forward installations may vary slightly.

Step 1: Fabricate the scat hoses by using a sharp knife and a wire cutter to cut the 2 in. scat hose into the following lengths:

Part #		Length
FF-01415A	Fwd Scat Hose	9 1/2 in. [241.3 mm]
FF-01415B	Mid Scat Hose	7 in. [177.8 mm]
FF-01415C	Aft Scat Hose	10 1/2 in. [266.7 mm]
FF-01415D	Pax Scat Hose	12 in. [304.8 mm] (Tri-Gear, Tail Dragger trim to fit)
FF-01415E	Pilot Scat Hose	22.5 in. [571.5 mm]

Step 2: Remove all wire from the inside of the FF-01415B Mid Scat Hose.

Step 3: Modify the ends of the wires inside the scat hoses as shown in Figure 1A. The goal is to reduce the diameter of the wire loop and allow the wire to rest inside the unbent loops without pushing against the inside of the orange material.

Step 4: Tuck the end of the wire inside the remaining wire loops. Verify that the bent end of the wire rests on an unbent wire loop, and not against the inside of the orange material.

Step 5: Install the VENT-00002 2" Duct Tee and clamps as shown in Figure 2A. Use safety wire to secure the smaller clamps to aid in installation.

Step 6: Modify the Right Vent Assembly as shown in Figure 3A.

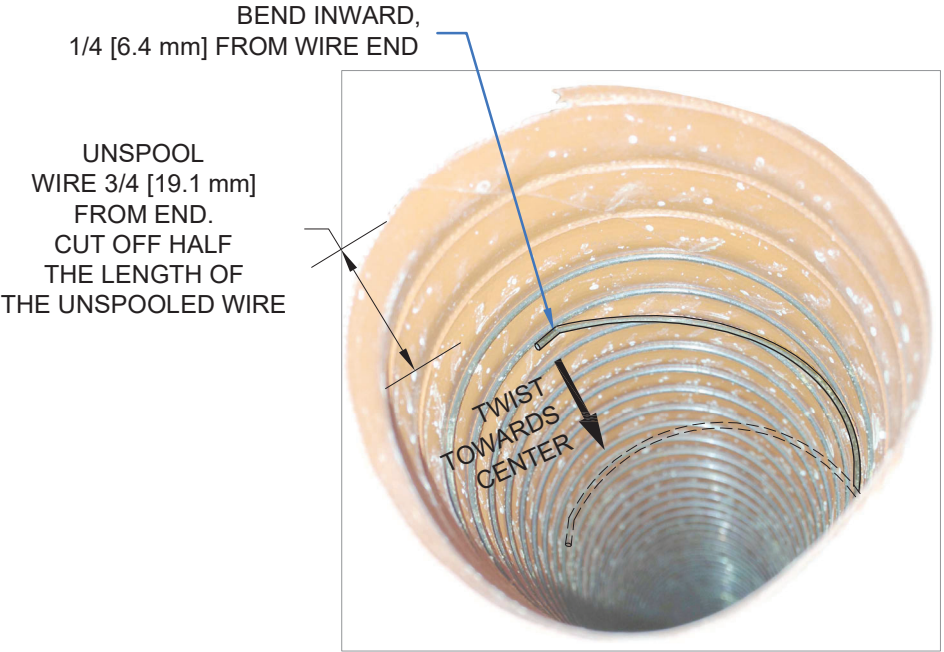


FIGURE 1A: SCAT HOSE PREPARATION

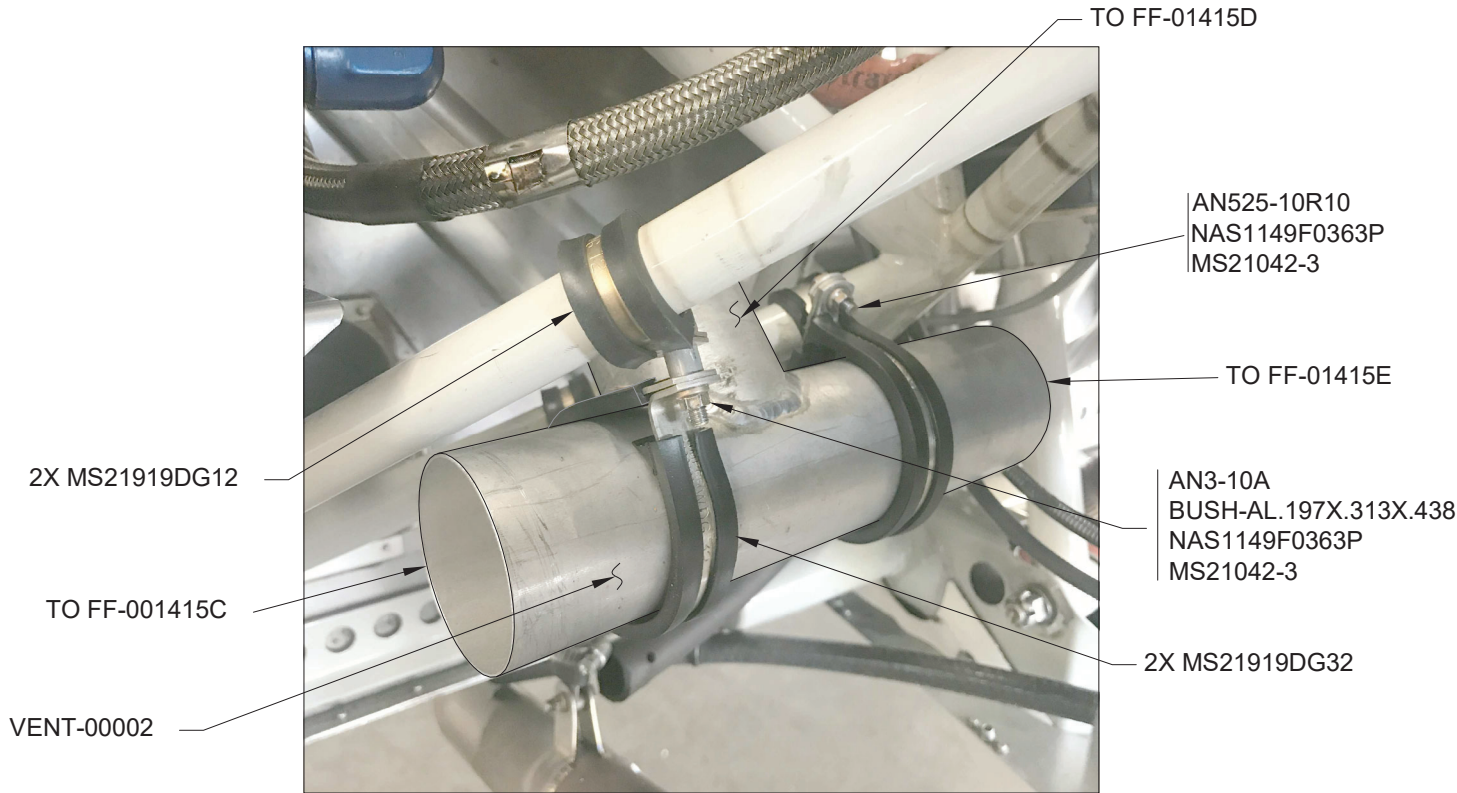


FIGURE 2A: TEE INSTALLATION
(TRI-GEAR SHOWN)

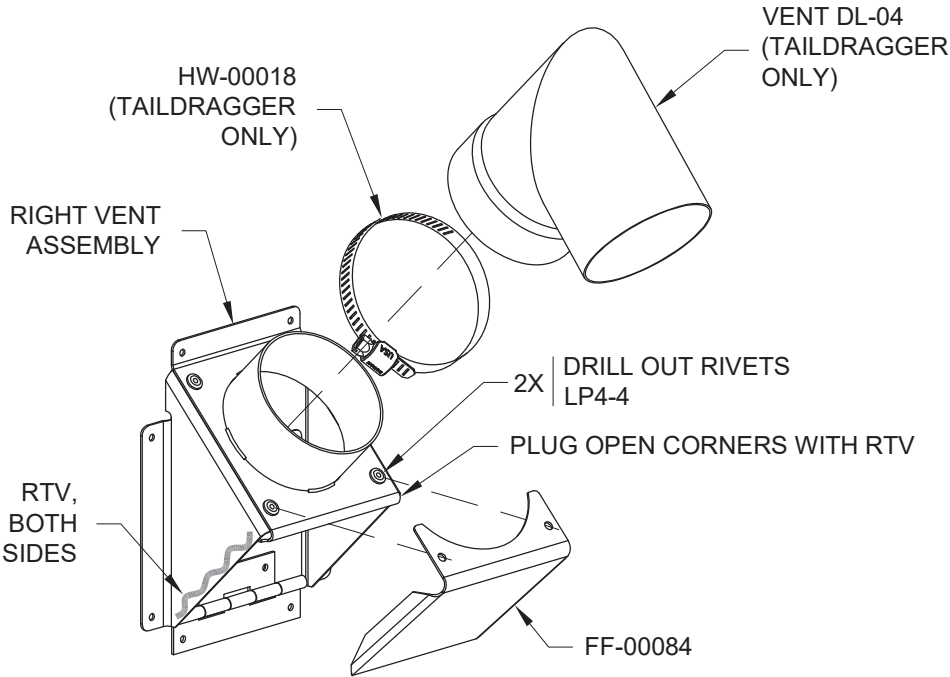


FIGURE 3A: MODIFY RIGHT VENT ASSEMBLY



NOTE: For the following steps, refer to Figure 1A.

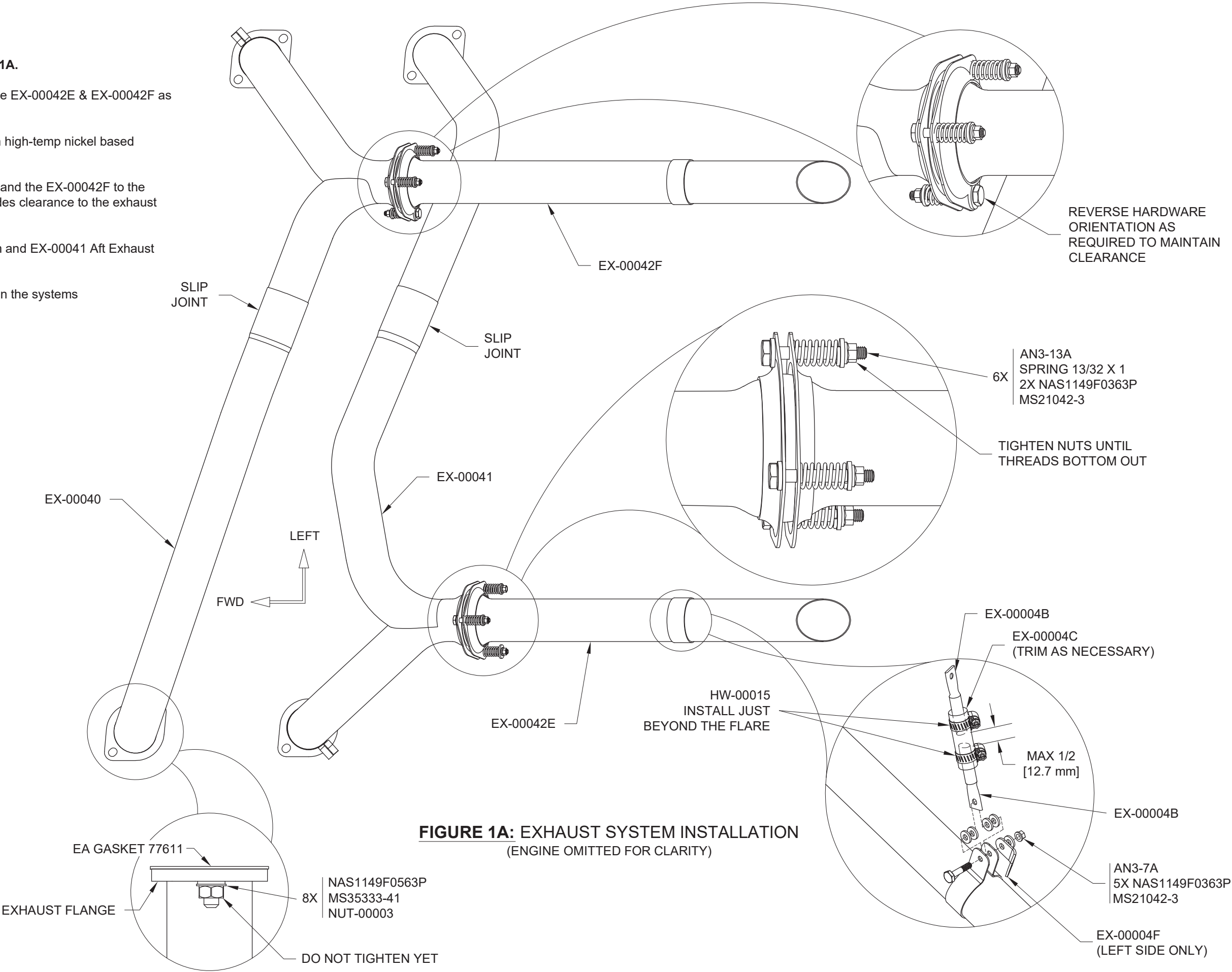
Step 1: Attach the exhaust support hardware to the EX-00042E & EX-00042F as shown in the detail view.

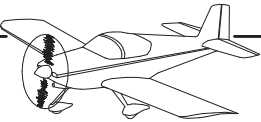
Step 2: Lubricate the slip joints and ball joints with high-temp nickel based anti-sieze paste.

Step 3: Connect the EX-00042E to the EX-00041 and the EX-00042F to the EX-00040. Ensure the hardware orientation provides clearance to the exhaust system.

Step 4: Install the EX-00040 Fwd Exhaust System and EX-00041 Aft Exhaust System. Leave the nuts loose for now.

Use temporary safety wire as necessary to position the systems for installation.





NOTE: For the following steps, refer to Figure 1A.

Step 1: Install the exhaust support hardware onto the engine mount as shown.

Step 2: Ensure exhaust supports are positioned to locate the exhaust exits in the center of the cowl outlets, then tighten the MS21919 clamps.

Step 3: Ensure the exhaust exits are positioned as shown in Section A-A, then tighten the exhaust support hose clamps.

Step 4: Tighten the exhaust flange nuts. Use a torque of 180-200 in.lbs.

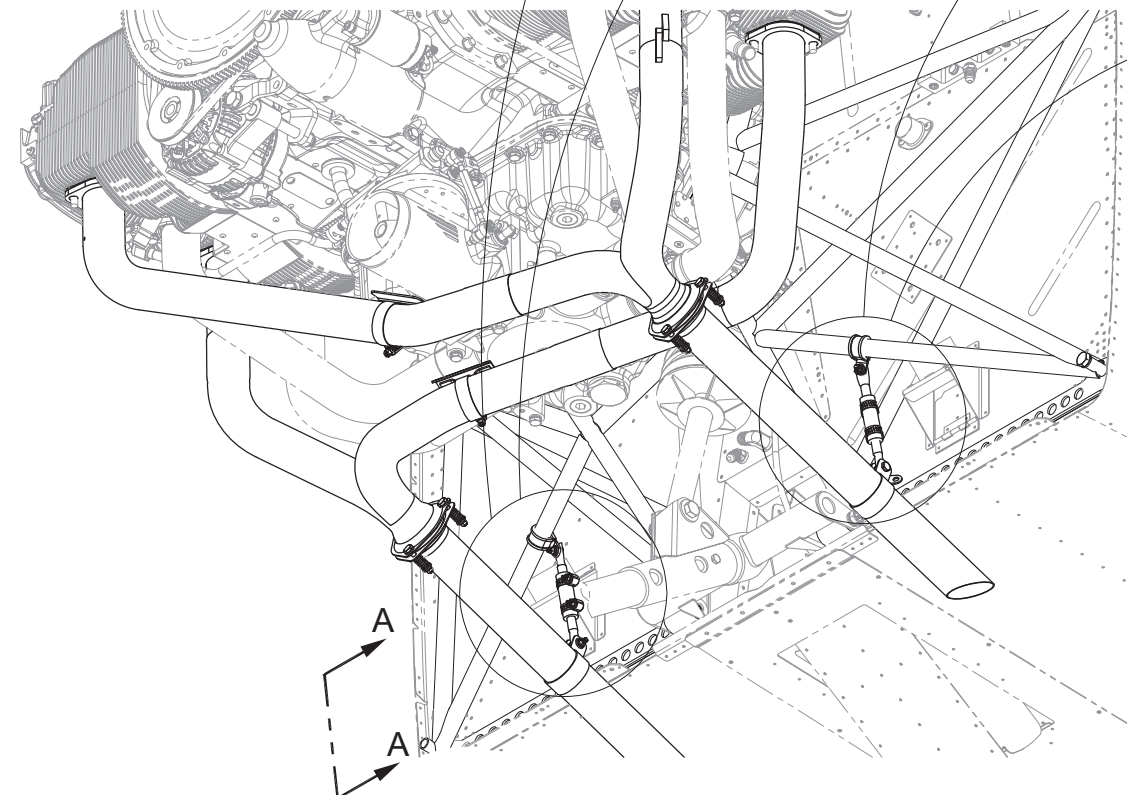
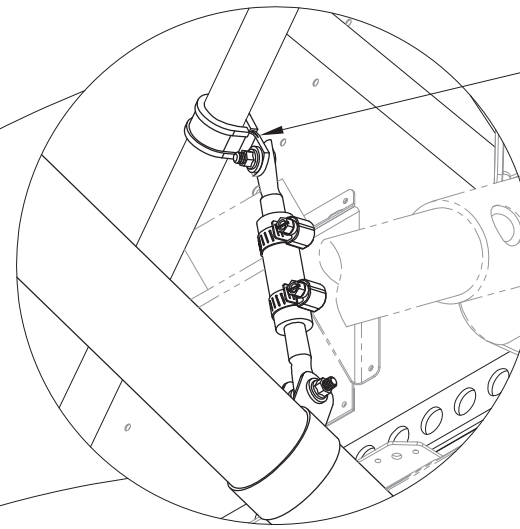
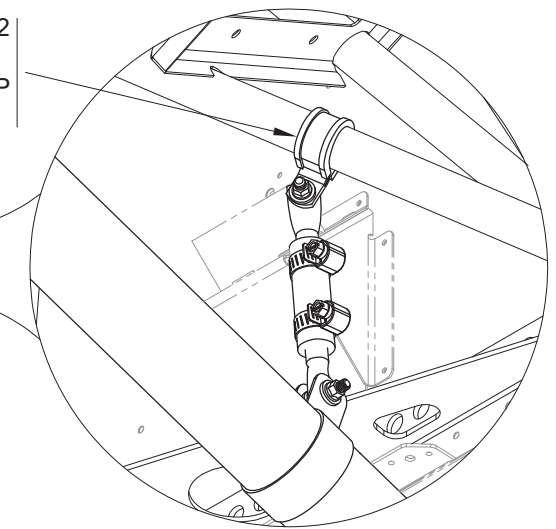


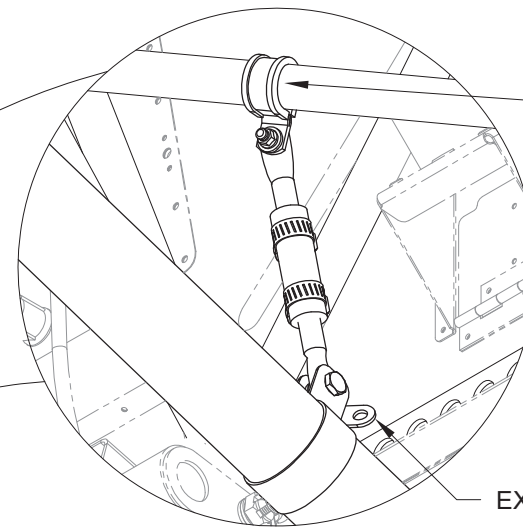
FIGURE 1A: EXHAUST SUPPORT INSTALLATION



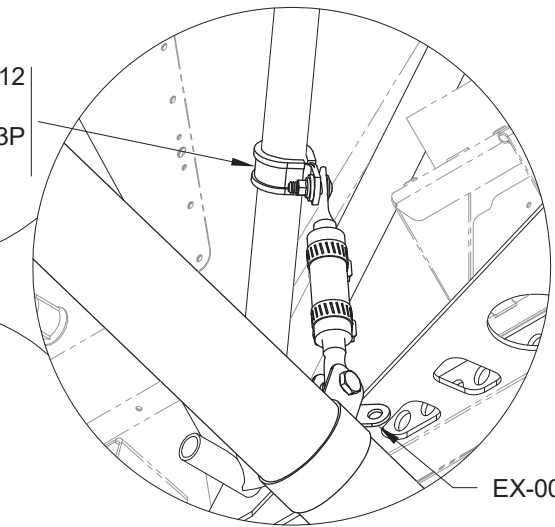
(TRI-GEAR INSTALLATION, RIGHT SIDE)



(TAILDRAGGER INSTALLATION, RIGHT SIDE)

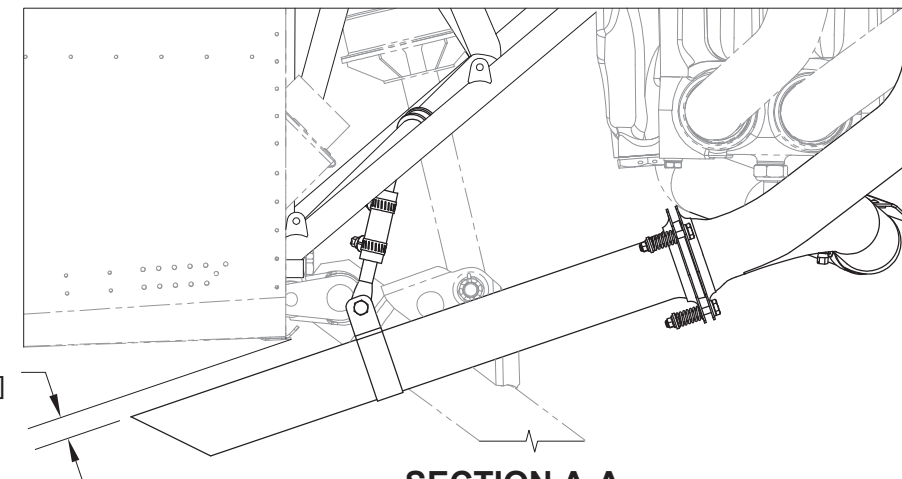


(TRI-GEAR INSTALLATION, LEFT SIDE)



(TAILDRAGGER INSTALLATION, LEFT SIDE)

3/4
[19.1 mm]



SECTION A-A



Step 1: Assemble two each of the EX-00043C and EX-00043F Heat Muff Rod Assemblies as shown in Figure 1A.

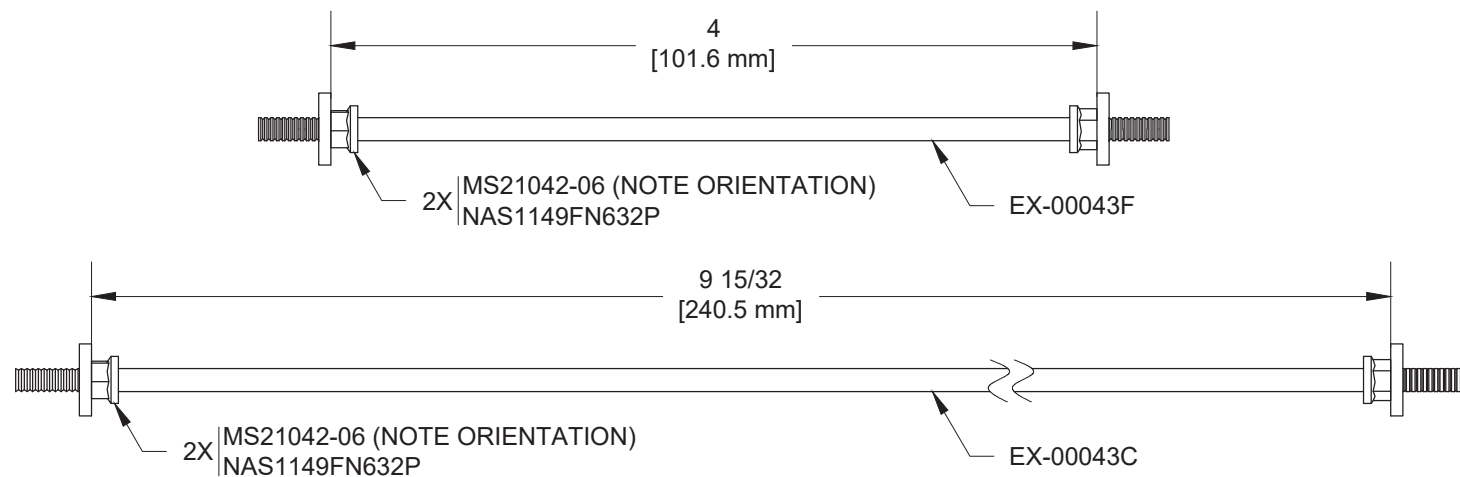


FIGURE 1A: HEAT MUFF ROD ASSEMBLIES

Step 2: Lightly flute the ends of the EX-00043A & B as shown in Figure 3A.

Step 3: Install the two Heat Muff Assemblies as shown in Figure 2A and Figure 3A. Ensure the clamps are oriented as shown on Page 62-21 to maintain cowl clearance. Position the wider EX-00013L Heat Muff Ends on the inboard sides.

Step 4: Verify that the Heat Muff Assemblies cannot be easily moved along the exhaust tubes.

As necessary for a tighter fit, final-drill the through rod holes in the EX-00013K & L Heat Muff Ends, loosely reassemble the Heat Muff Assembly, tighten the hose clamps, and then tighten the lock nuts. See Figure 2A.

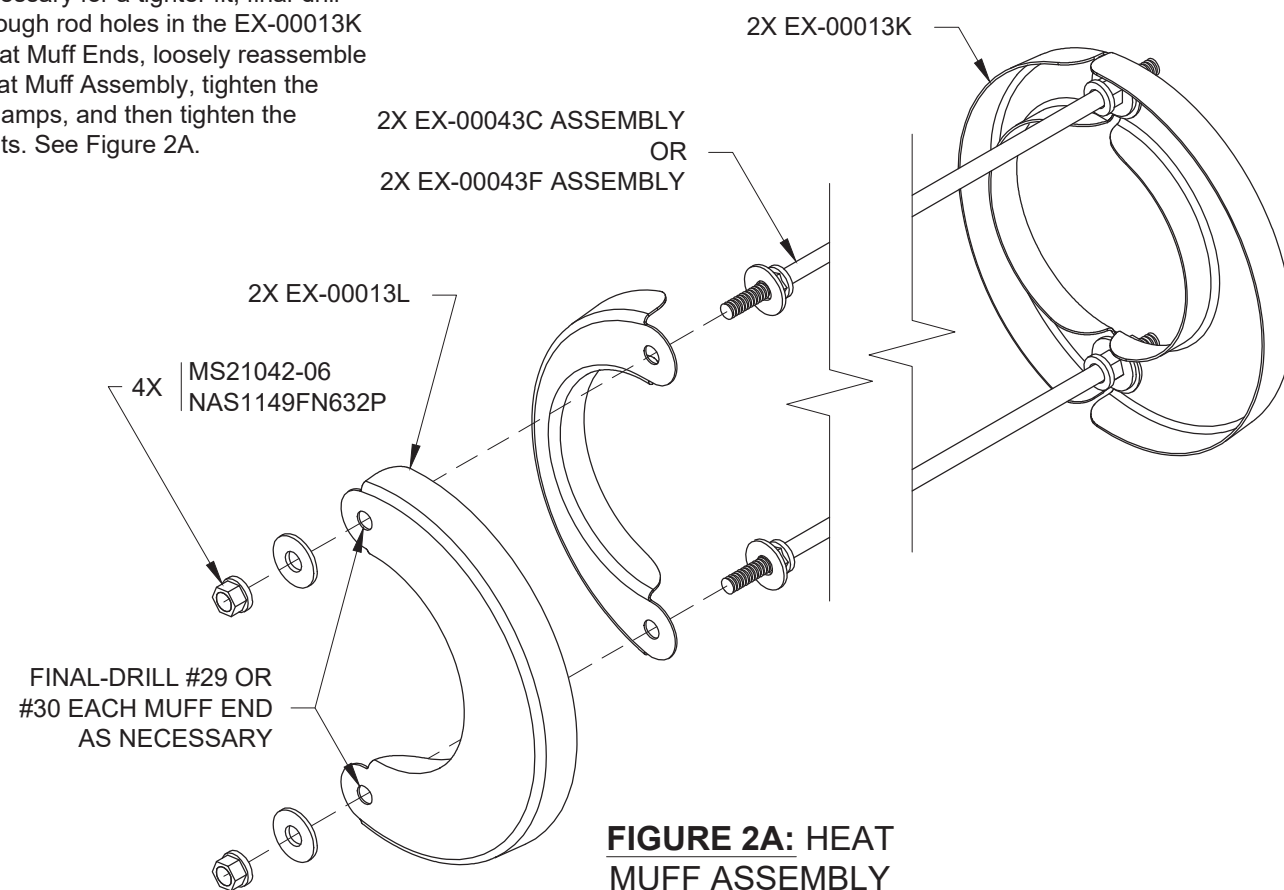


FIGURE 2A: HEAT MUFF ASSEMBLY

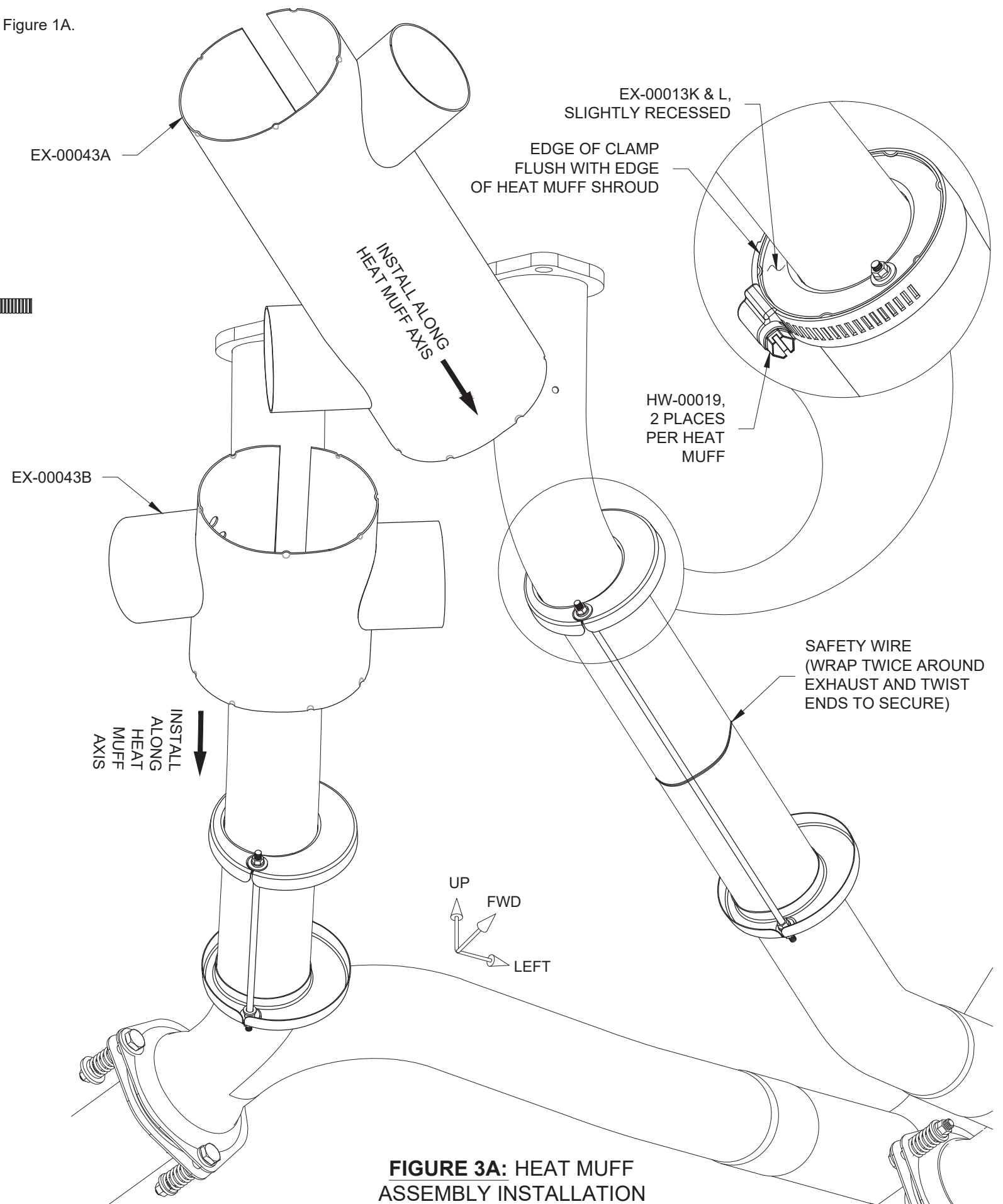


FIGURE 3A: HEAT MUFF ASSEMBLY INSTALLATION

Step 1: Apply a 1/4 in. [6.4 mm] continuous line of RTV along the scat hoses. This will prevent the string from unraveling if a break occurs. See Figure 1A.

Step 2: Temporarily route and install the scat hoses , ensuring that they route as shown in Figure 2A and Figure 3A. Strive for minimal contact between the scat hoses and other components. In some areas, light contact with other components may be unavoidable.

Where light contact is unavoidable, protect the contact areas by applying a generous (larger than 1/2 in. [12.7 mm] in diameter) bead of RTV on the scat hose.

Adjust the routing as necessary by experimenting with the position and rotation of the heat muff assemblies and clamps. If necessary, trim the length of the scat hoses.

Except for the FF-01415B Mid Scat Hose, the wire loops inside the scat hoses should terminate just before the end of the aluminum tube where it will be installed. To minimize wear and tear on the scat hoses, avoid excess (greater than 1/4 in. [6.4 mm]) lengths of unsupported scat hose. See Figure 1A.

Step 3: Verify that each scat hose is secured at both ends with a clamp and that FF-01415E is secured to the engine mount with the hardware shown in Figure 2A.

Step 4: Install the two EA LV-1 where shown in Figure 2A. Position the EA LV-1 to best protect the items called out.

Step 5: Install the EGT sensor for your avionics package using the instructions in KAI Section 48.

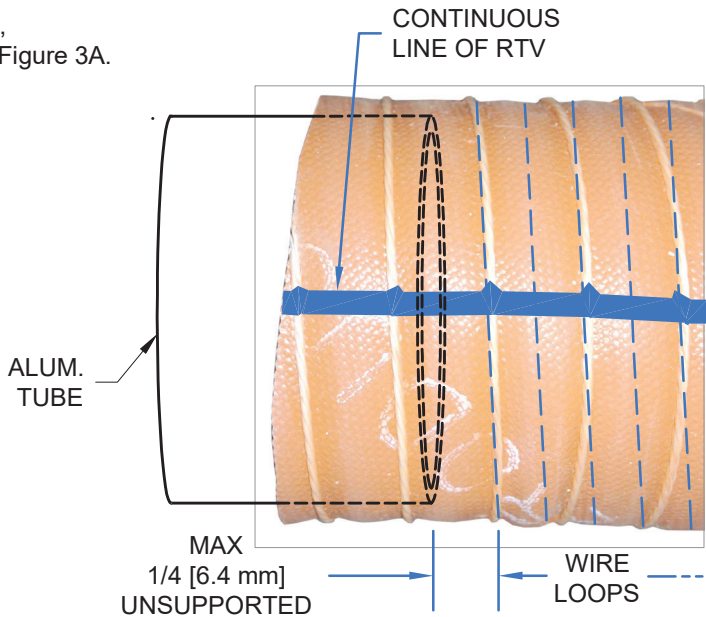


FIGURE 1A: SCAT HOSE PREPARATION

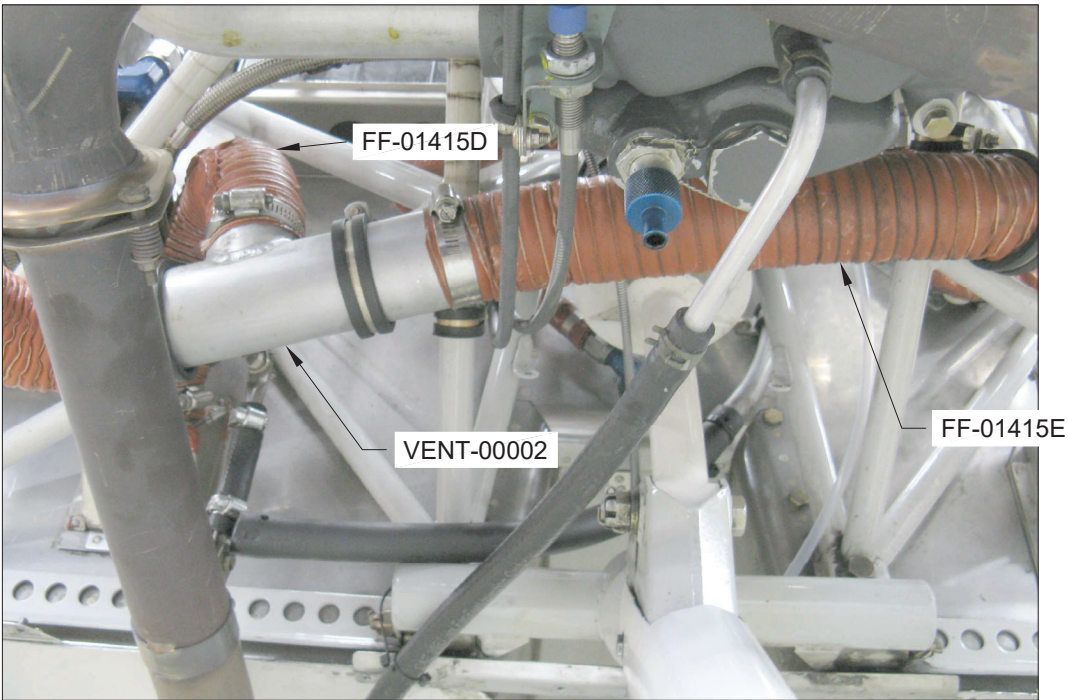


FIGURE 3A: SCAT HOSE ROUTING

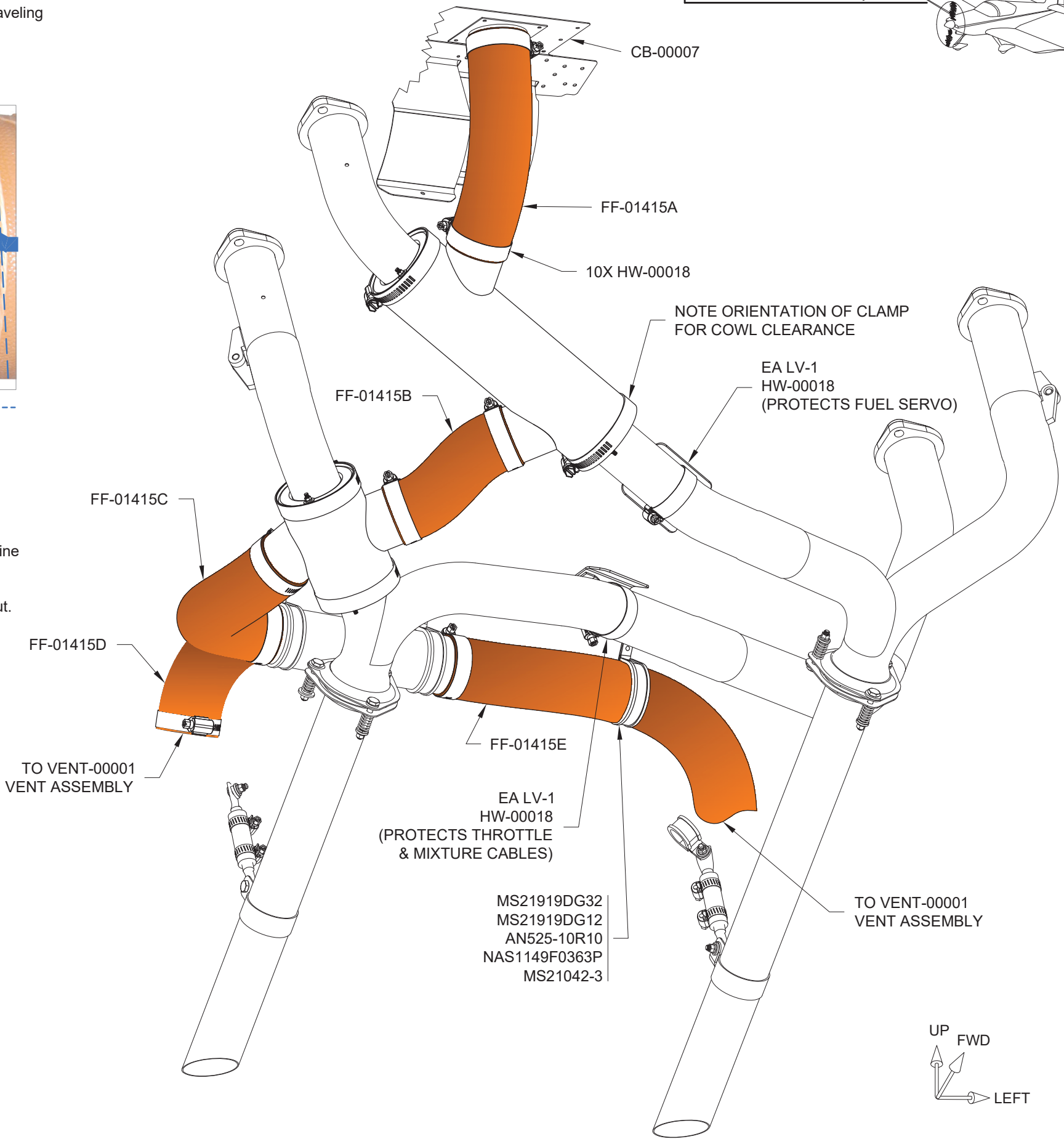


FIGURE 2A: HEATING SYSTEM & HEAT SHIELD INSTALLATION

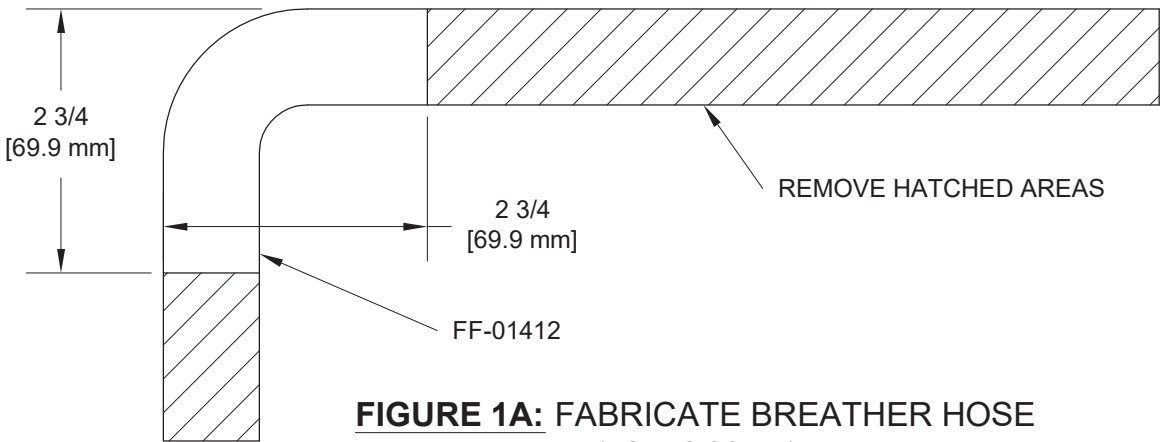


KAI Section 49

The IO-390-EXP119 uses a different Oil Breather Tube and exit locations for the Sniffle Valve and Oil Breather extension.

Perform the following steps in lieu of KAI Section 49, Page 49-02.

Step 1: Fabricate the FF-01412 Breather Hose from EA CV HOSE 9816 by trimming to the dimensions shown in Figure 1A.



NOTE: Refer to Figure 2A for the remaining steps.

Step 2: Slide one hose clamp onto the FF-01412.

Step 3: Push the FF-01412 onto the crankcase breather nipple on the accessory case.

Step 4: Slide a hose clamp onto the other leg of the FF-01412.

Step 5: Push the FF-00128 Breather Tube into the FF-01412.

Step 6: Attach the FF-01412 to the firewall using the hardware called out.

Step 7: Tighten the hose clamps on the FF-01412.

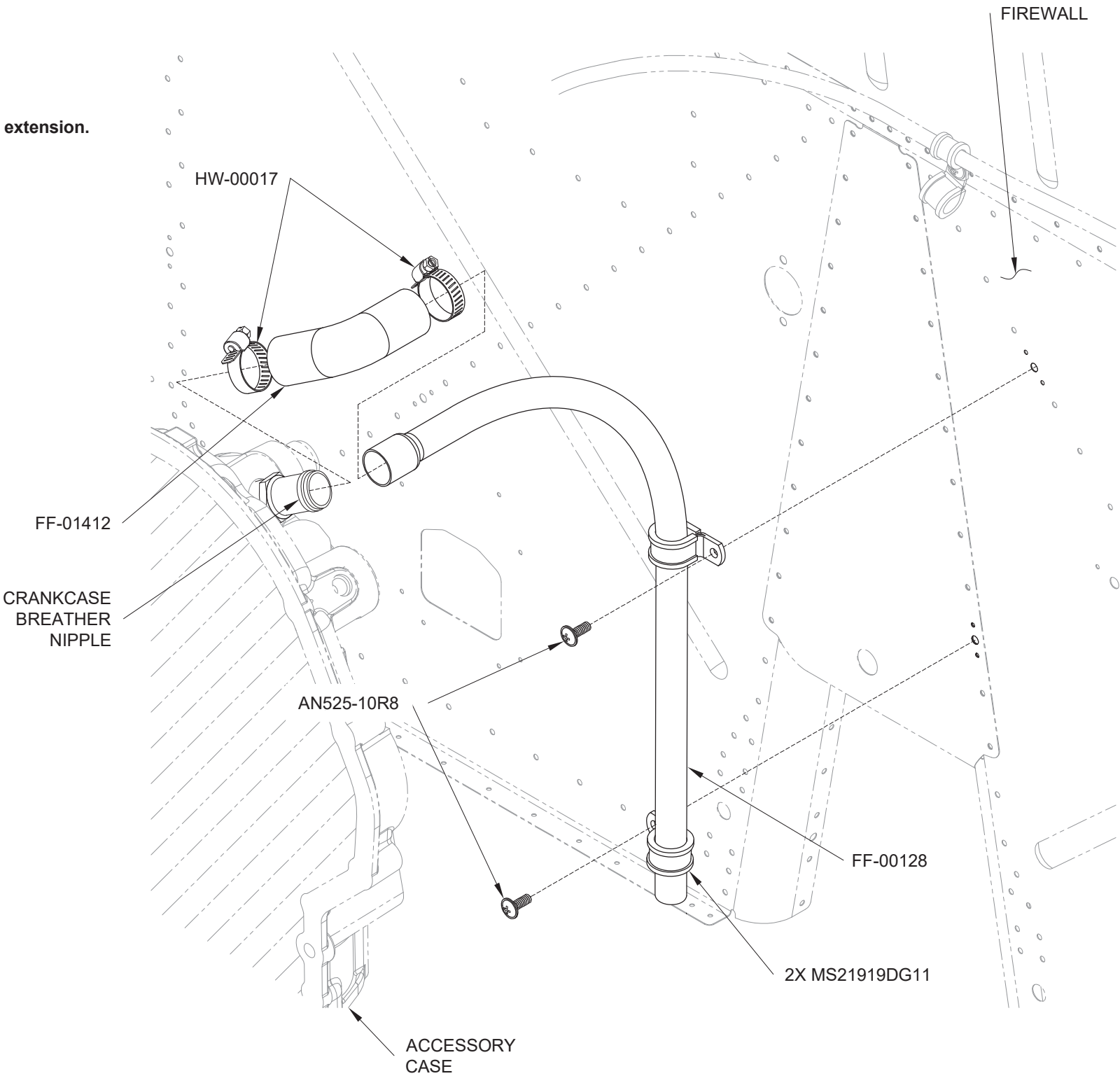
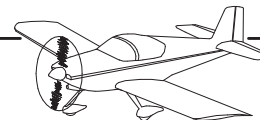


FIGURE 2A: BREATHER INSTALLATION
(SOME PARTS NOT SHOWN FOR CLARITY)



The IO-390-EXP119 uses different exit locations for the sniffle valve and oil breather hose.

Perform the following steps before proceeding to KAI Section 49, Page 49-03.

Step 1: Place one end of the EA HOSE SI 5/8 ID X 12 IN breather extension over the lower end of the FF-00128 and route the other end as shown in Figure 1A.

Step 2: Adjust the engagement of the breather extension onto the FF-00128 until the end of the breather extension is above the EX-00042F.

Step 3: Secure the breather extension to the FF-00128 and EX-00004F as shown in Figure 1A.



FIGURE 1A: BREATHER EXTENSION ROUTING



The IO-390-EXP119 uses different exit locations for the sniffle valve and oil breather hose.

Perform the following steps in lieu of KAI Section 49, Pages 49-17 and 49-18.

Step 1: Cut lengths of EA HOSE H177 in the lengths shown below.

Part Number	Dimension	Qty.
FF-00080	1 1/2 [38.1 mm]	1
FF-00082C	14 1/2 [368.3 mm]	1

Step 2: Cut a 6 in. [152.4 mm] length of AT0-035X3/8 aluminum tube.

Step 3: As shown in Figure 1A, fabricate the FF-00081A Sniffle Line from the aluminum tube cut in Step 2.

Step 4: Install and route the Sniffle Line Assembly as shown in Figure 2A.

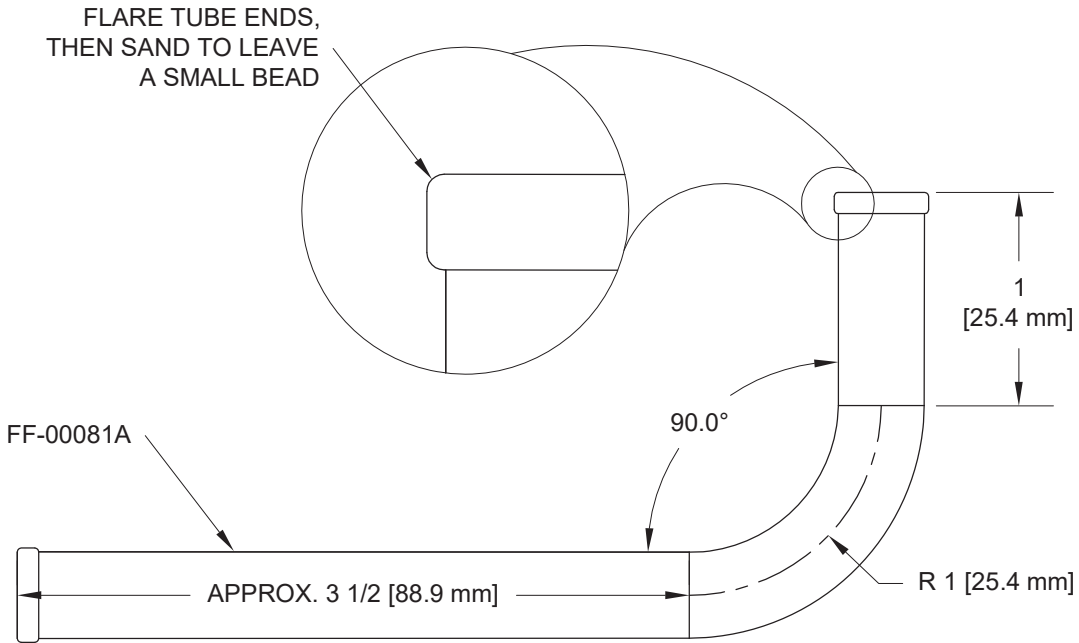


FIGURE 1A: SNIFFLE LINE TEMPLATE
(NOTE: CHECK PRINTED SCALE 1:1 PER SECTION 3 BEFORE USING THE TEMPLATE!)

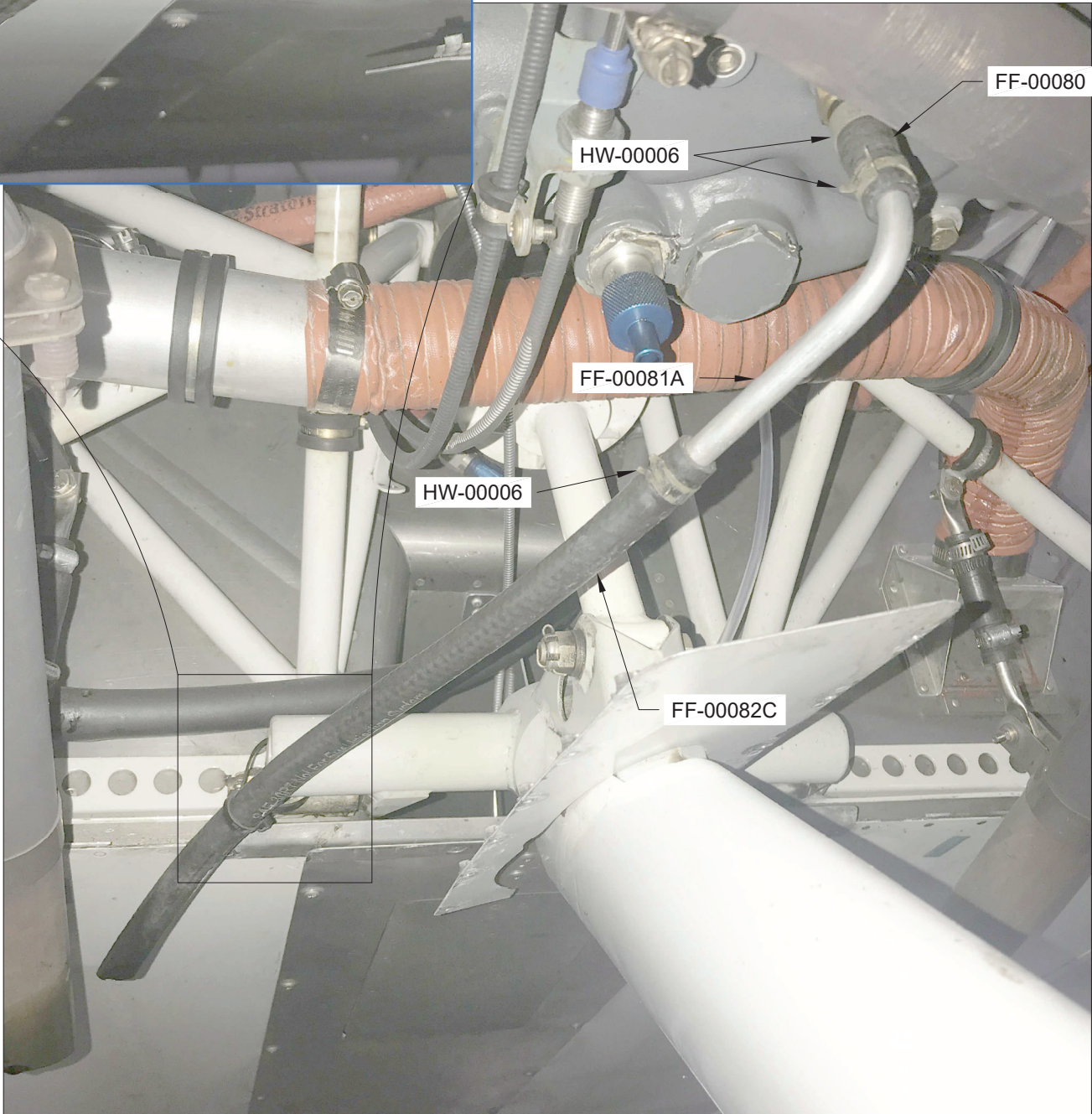
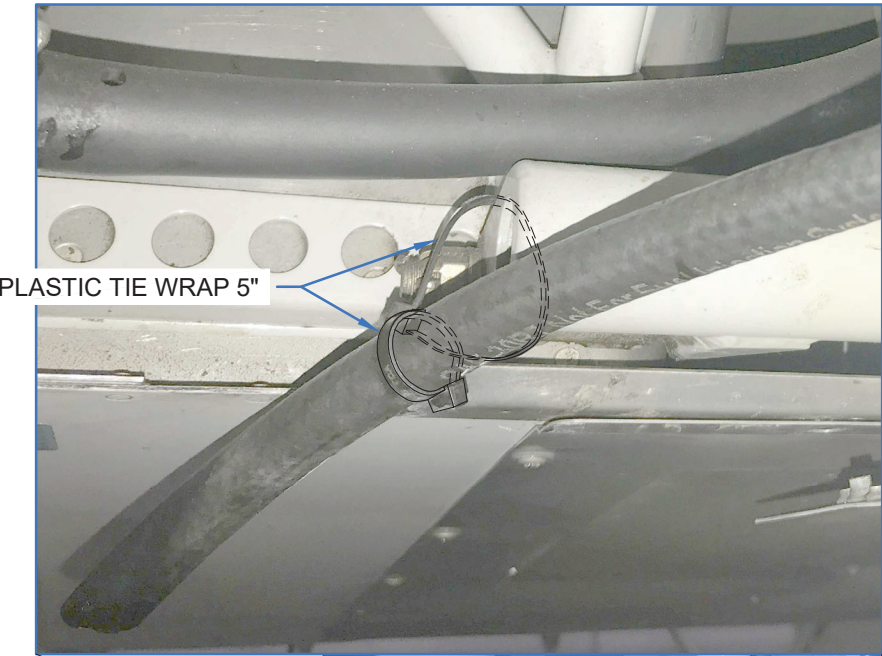
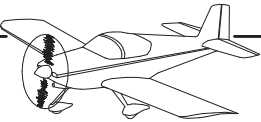


FIGURE 2A: SNIFFLE LINE ASSEMBLY ROUTING

10 9/16
[268.3 mm]

16 [406.4 mm]



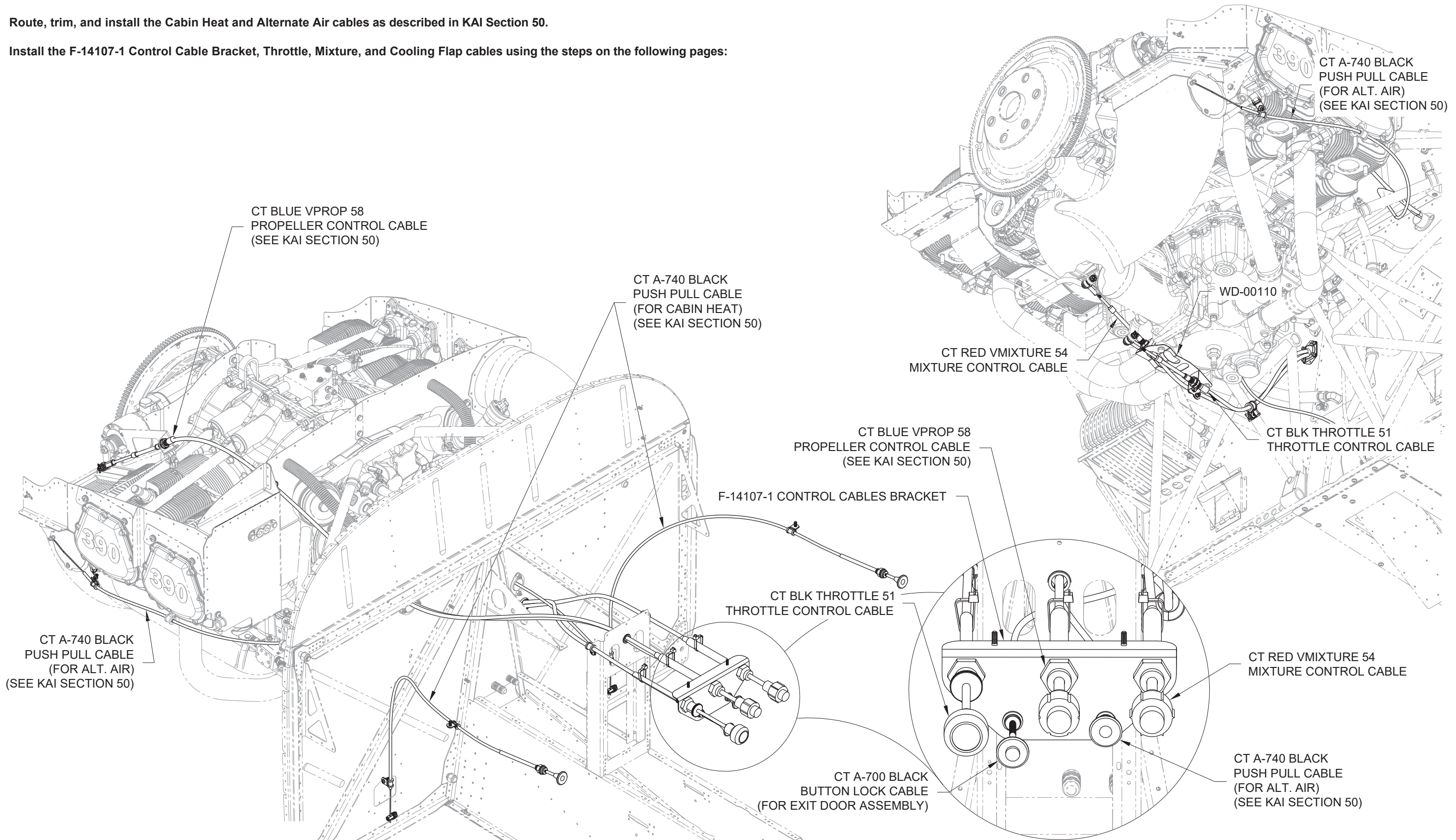
KAI Section 50

The IO-390-EXP119 uses different throttle and mixture cable routing, a different control cable bracket, and adds an exit door control cable.

Route and install the Prop Governor cable as described in KAI Section 50.

Route, trim, and install the Cabin Heat and Alternate Air cables as described in KAI Section 50.

Install the F-14107-1 Control Cable Bracket, Throttle, Mixture, and Cooling Flap cables using the steps on the following pages:





NOTE: For all control cable installations, there are two VITAL CRITERIA:

1. When the control knob is pulled out half way, the arm must also be at the halfway point between the "open" and "closed" control stops. This will ensure smooth and consistent inputs along the entire range of control motion.

2. When the control knob is in the full forward position, and the arm travel has been stopped by the control stop, a 1/16 in. [1.6 mm] "cushion gap" remains. This will ensure that the full travel of the arm is available and not limited by the control cable.

Step 1: Pull the knob of the CT A-700 Exit Door Assembly Cable out the distance shown between the knob and shank in Figure 1A.

Step 2: Use a die grinder to trim the amount shown in Figure 1A from the CT A-700 housing and wire, then push the knob in against the housing.

Step 3: Slide the PT-SI-062X3/8X3 over the CT A-700 to the position shown in Figure 2A.

Step 4: Attach the F-14107-1 to the F-01467 as shown in the detail view in Figure 3A.

Step 5: Remove all nuts, lock washers and rubber seals from the CT BLK THROTTLE 51 Throttle Control Cable, CT RED VMIXTURE 54 Mixture Control Cable, CT BLUE VPROP 58 Propeller Control Cable, CT A-700 Exit Door Assembly Cable, and the CT A-740 Alternate Air Cable.

Step 6: Install, route, and loosely secure the throttle, mixture, propeller, alt. air, and exit door assembly control cables as shown in Figure 3A. Leave the tie wraps, clamps, and the ends of the cables loose for now.

NOTE: See KAI Section 50 for cabin heat cable installation.

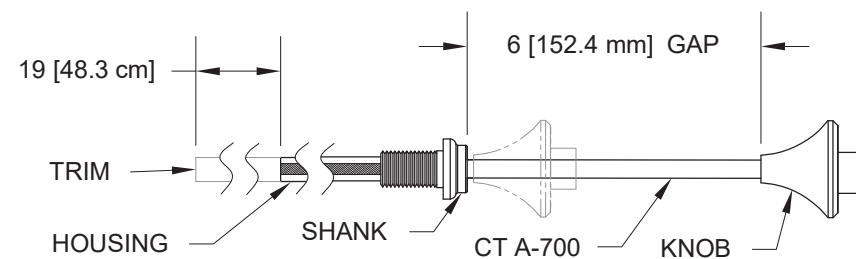


FIGURE 1A: TRIMMING THE EXIT DOOR ASSEMBLY CABLE

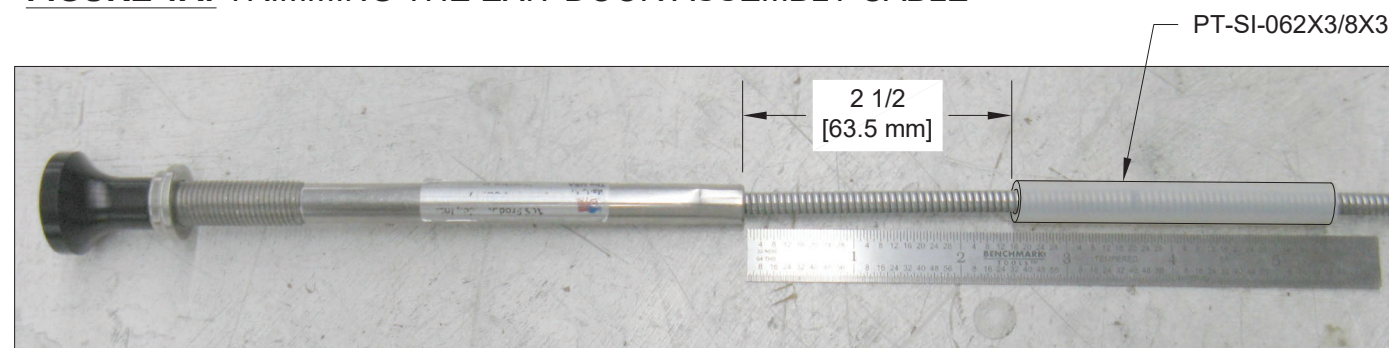


FIGURE 2A: CT A-700 SLEEVE

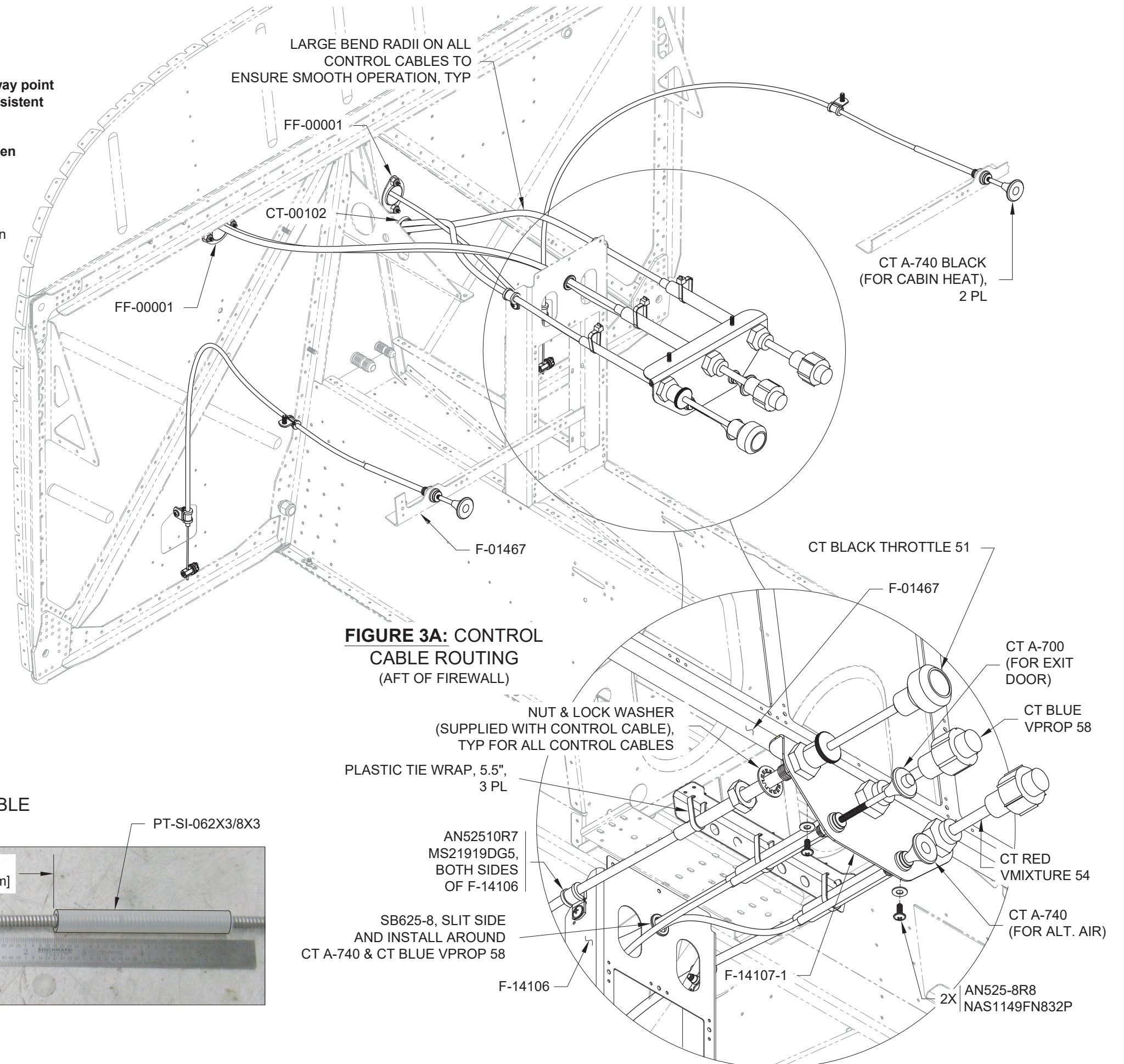
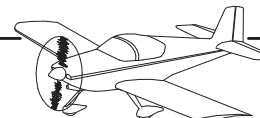


FIGURE 3A: CONTROL CABLE ROUTING (AFT OF FIREWALL)



CAUTION: Take care not to kink the throttle and mixture cables during installation.

NOTE: Adjustments to the clamp position and hardware may be necessary to maintain clearance between your engine control cables and fuel, oil, cabin heat, electrical systems routing.

Step 1: Route and secure the CT RED VMIXTURE 54 and CT BLACK THROTTLE 51 as shown in Figure 1A and Figure 2A.

Step 2: Position the CT RED MIXTURE 54 and CT BLACK THROTTLE 51 knobs as shown in Figure 3A.

NOTE: Install cotter pins after checking the cables meet the vital criteria listed on Page OP62-26.

Step 3: Position the throttle and mixture arms to the full throttle & full rich positions, then connect the CT BLACK THROTTLE 51 and CT RED VMIXTURE 54 as shown Figure 2A and Figure 4A.

Ensure the throttle and mixture control cable installations meet the vital criteria listed on Page OP 62-26. If necessary adjust the clocking of the throttle and mixture arms, then install cotter pins.

Step 4: Tighten the nuts on the CT-00102.

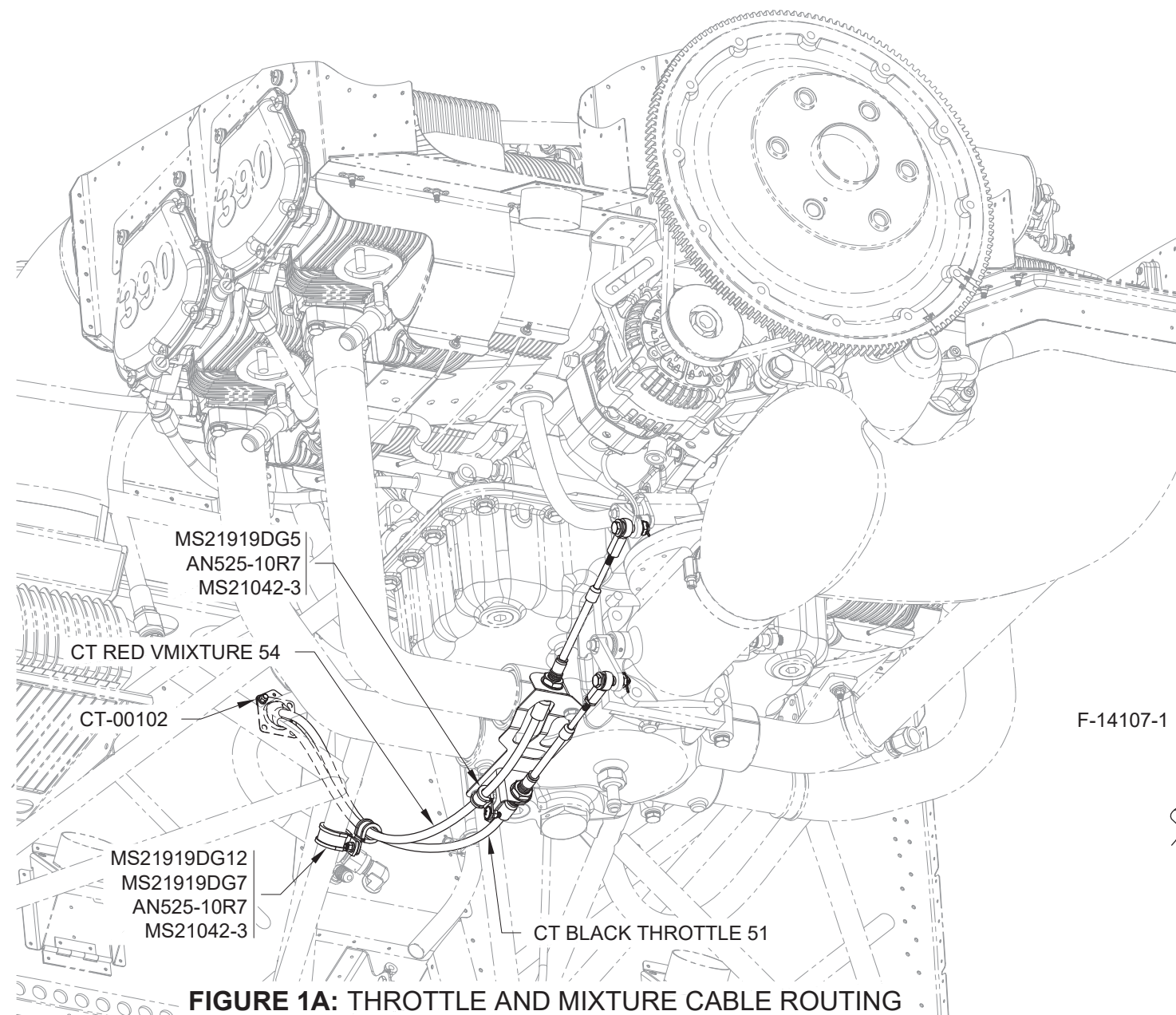


FIGURE 1A: THROTTLE AND MIXTURE CABLE ROUTING

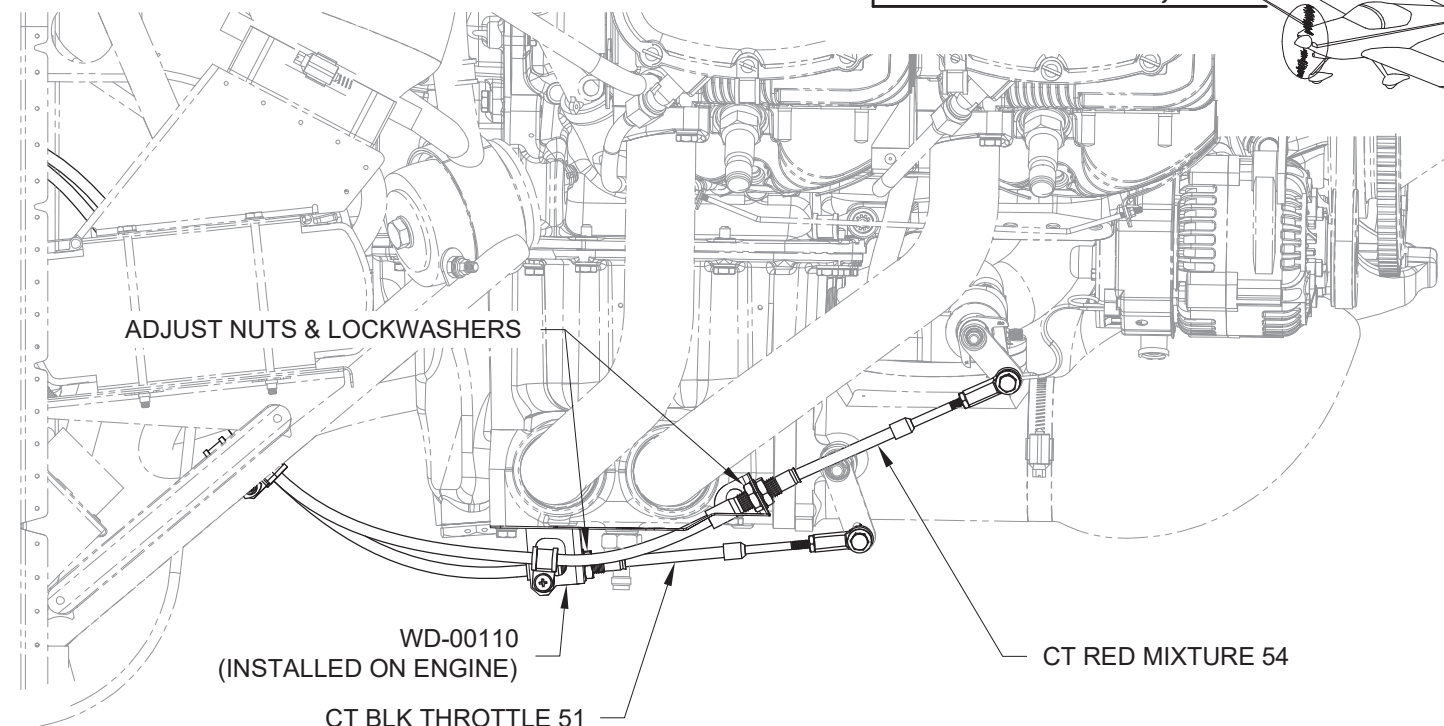


FIGURE 2A: THROTTLE AND MIXTURE CABLE ATTACHMENT

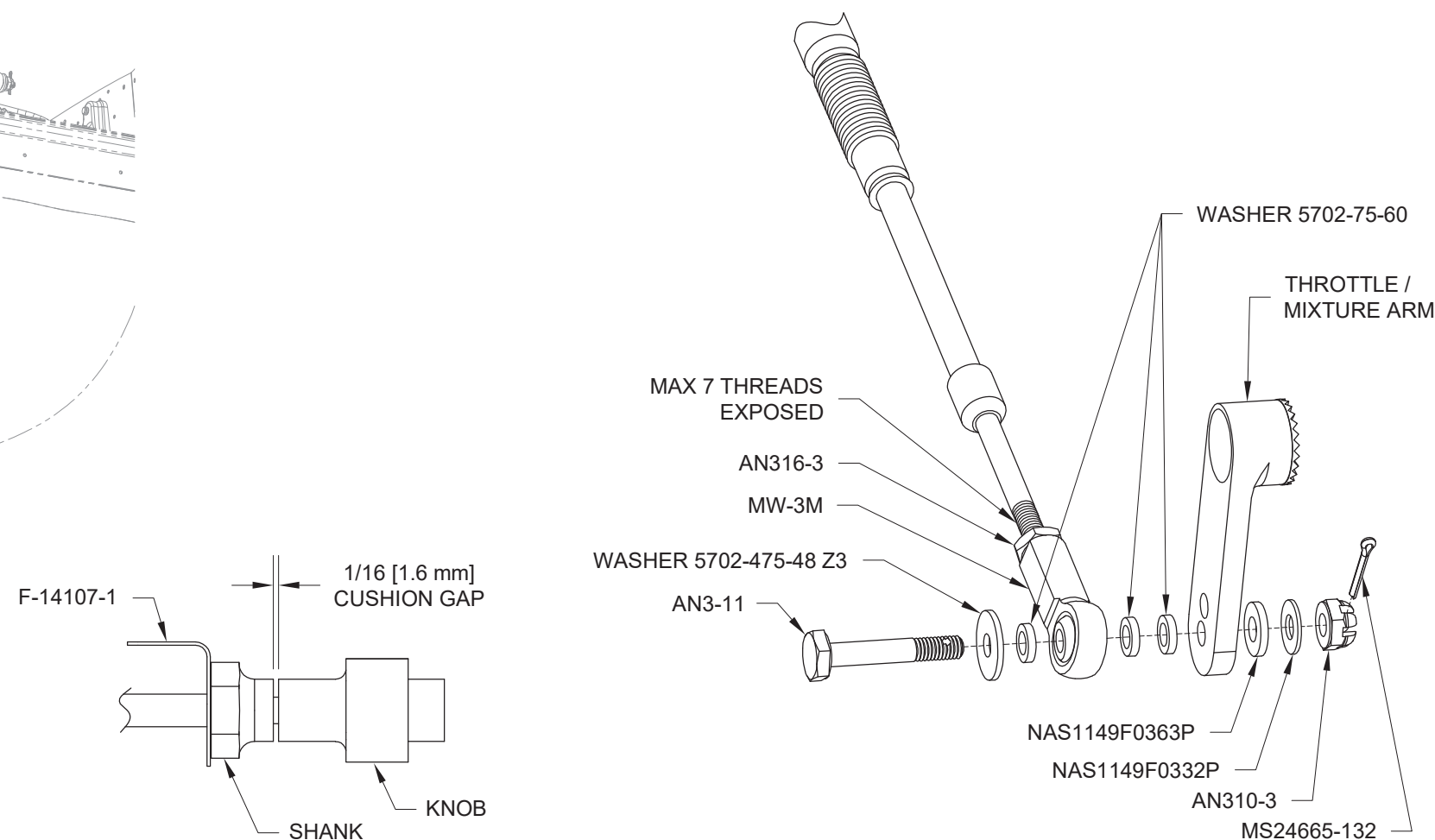


FIGURE 3A: CONTROL CABLE, TYPICAL

FIGURE 4A: THROTTLE & MIXTURE CABLE ATTACHMENT



NOTE: Exit Door Assembly cable can be located on either side of the F-14190G. Ensure MS21919 clamps and hole in VA-219-2 are on the same side.

Step 1: Route and loosely secure the CT A-700 as shown in Figure 1A. Leave the tie wraps, clamps, and the end of the cable loose for now. Protect fluid hoses with "friction tape" (found at most hardware stores) as shown.

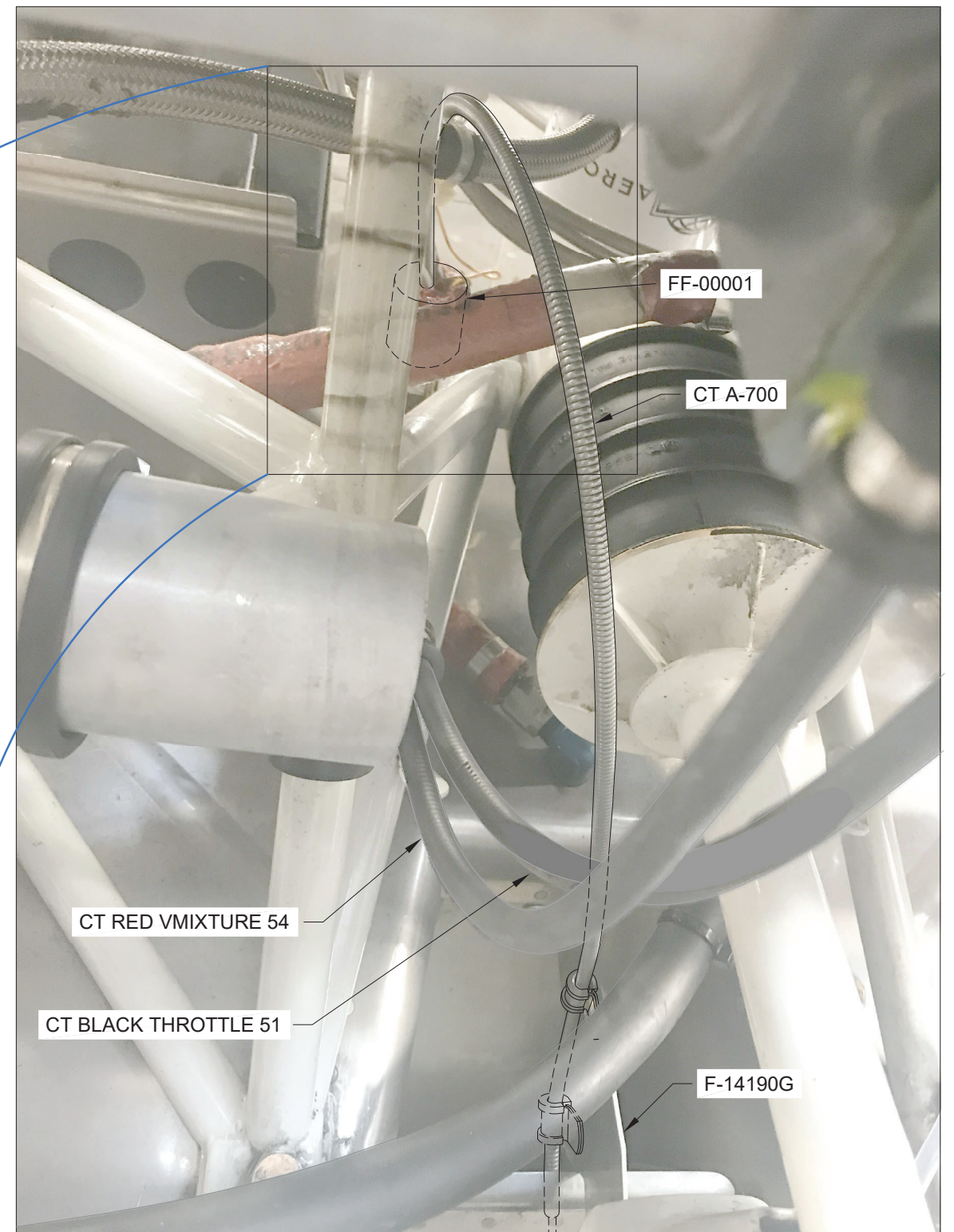
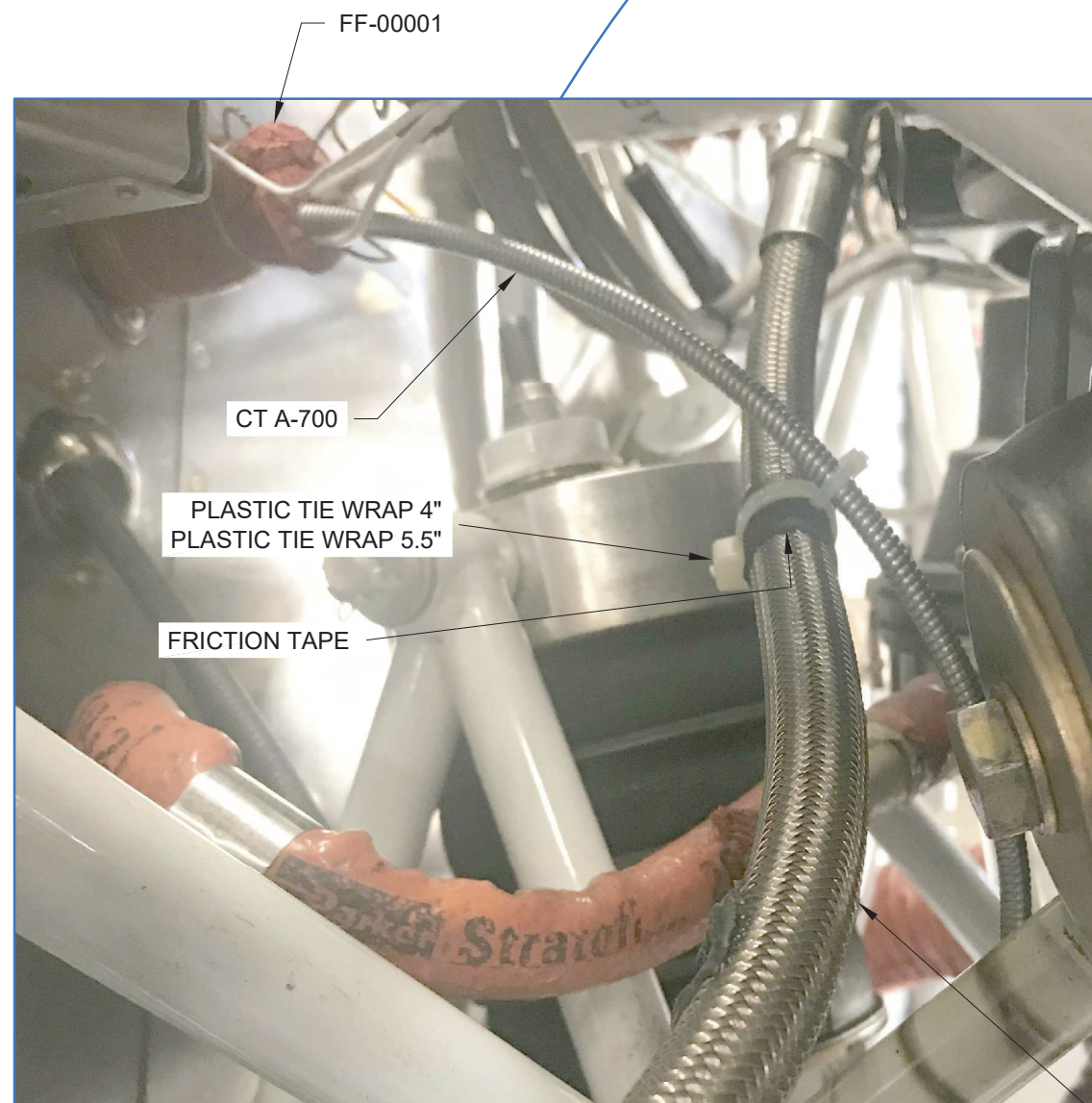
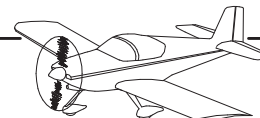


FIGURE 1A: COOLING FLAP CONTROL CABLE

FF-00020



NOTE: Exit Door Assembly cable can be located on either side of the F-14190G.
Ensure MS21919 clamps and hole in VA-219-2 are on the same side.

Step 1: Route the end of the CT A-700 through the clamps on the F-14190G as shown in Figure 1A.

Step 2: Secure the CT A-700 cable sheath with safety wire as shown in the detail view.

Step 3: Tighten the nuts to secure the MS21919 clamps to the F-14190G.

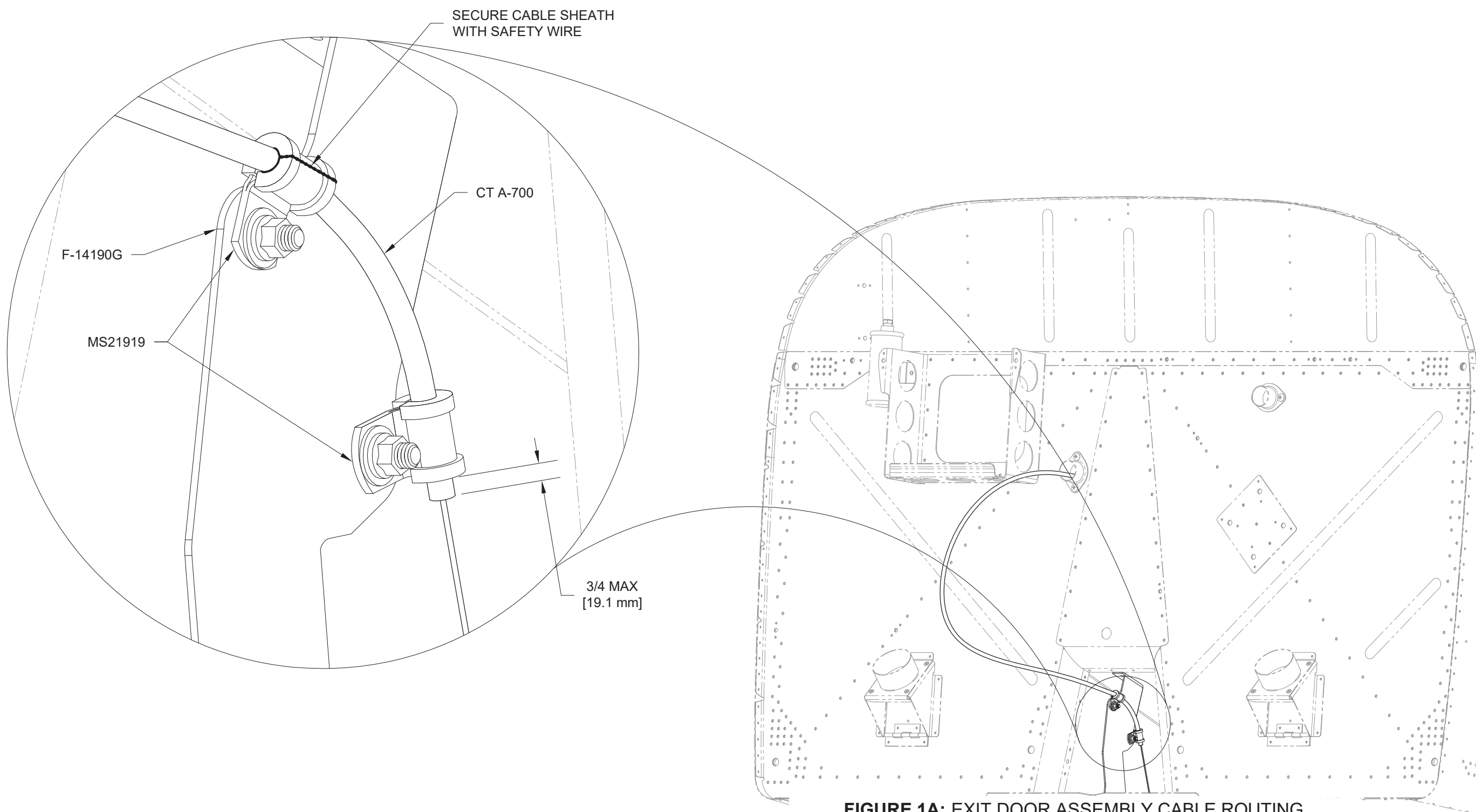


FIGURE 1A: EXIT DOOR ASSEMBLY CABLE ROUTING
(SOME ITEMS NOT SHOWN FOR CLARITY)



NOTE: Cooling flap cable can be located on either side of the F-14190G. Ensure MS21919 clamps and hole in VA-219-2 are on the same side.

Step 1: Install the Closeout Assembly and Exit Door Assembly as shown in Figure 1A. Insert the CT A-700 wire through the hole in the VA-219-2 in the Exit Door Assembly.

Step 2: Position the CT A-700 knob as shown in Figure 2A.

Step 3: Position the Exit Door Assembly in the closed position. Temporarily secure it with tape if necessary.

Step 4: Tighten the nut on the Exit Door Assembly to 10-12 in. lb., securing the wire.

Step 5: Remove the tape, then ensure the CT A-700 cable installation meets the vital criteria listed on Page OP 62-26. If necessary, adjust the cable position in the VA-219-2.

NOTE: Hold the VA-219-2 with a wrench while bending the CT A-700 wire to ensure the wire is not bent between the cable sheath and the VA-219-2.

Step 6: Bend the CT A-700 wire away from the Exit Door Assembly, then trim the excess wire.

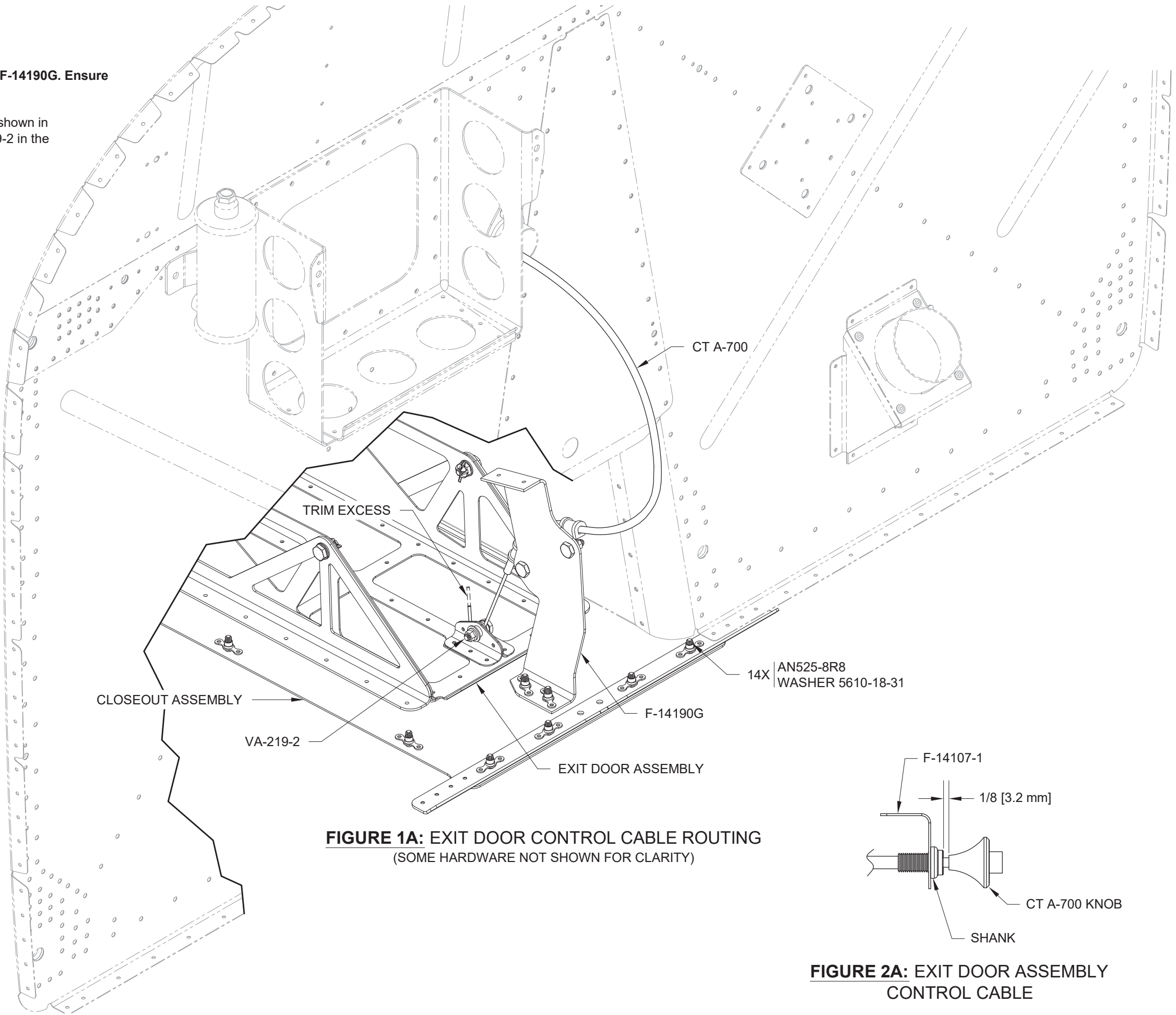


FIGURE 1A: EXIT DOOR CONTROL CABLE ROUTING
(SOME HARDWARE NOT SHOWN FOR CLARITY)

FIGURE 2A: EXIT DOOR ASSEMBLY CONTROL CABLE