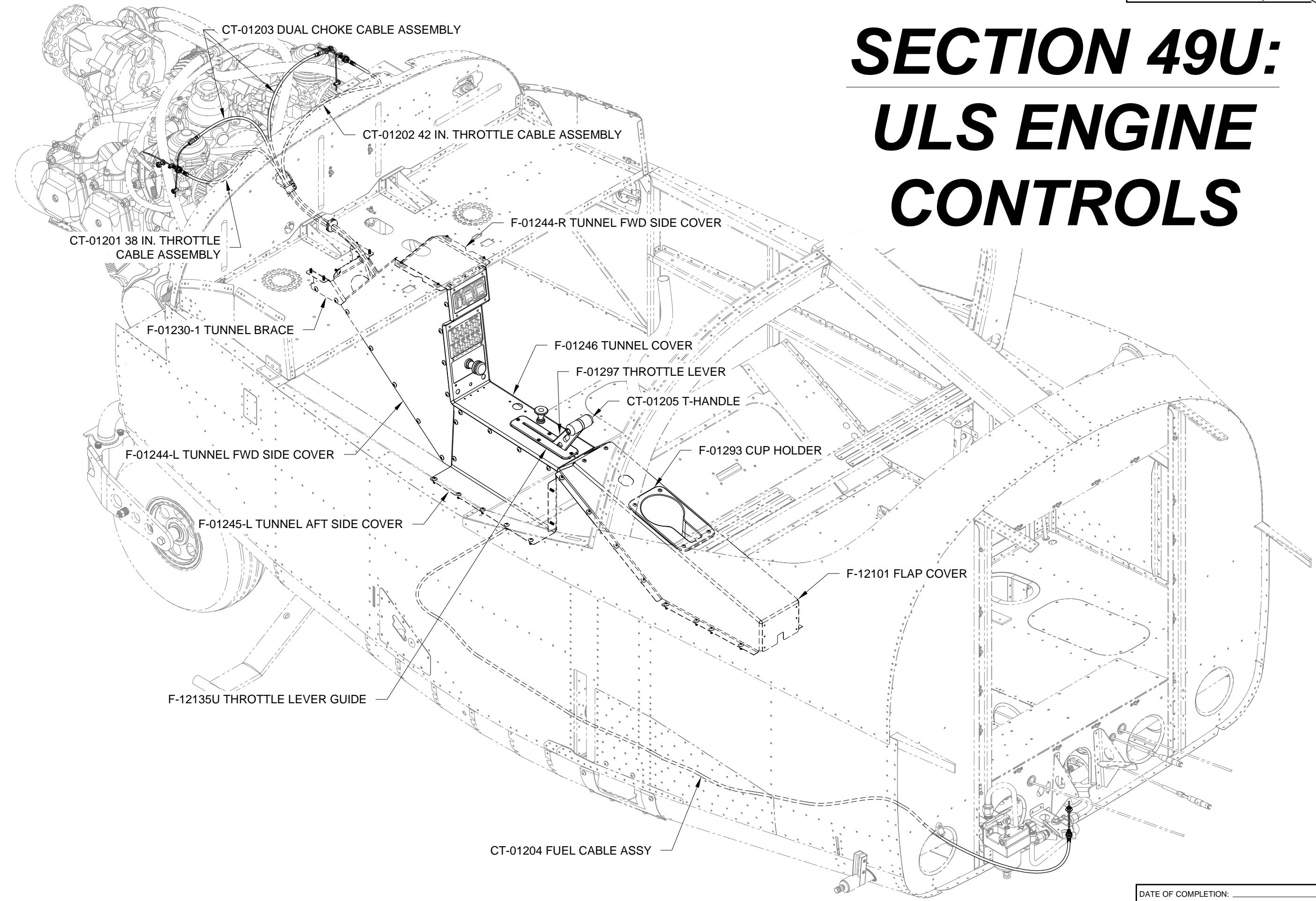


SECTION 49U: ULS ENGINE CONTROLS





Step 1: Dimple #40 the nutplate rivet holes in the side flanges of the F-01246 as shown in Figure 1, then rivet the nutplates along the side flanges of the F-01246 as shown.

Step 2: Machine countersink the remaining #40 holes in the F-01246 as shown in Figure 1.

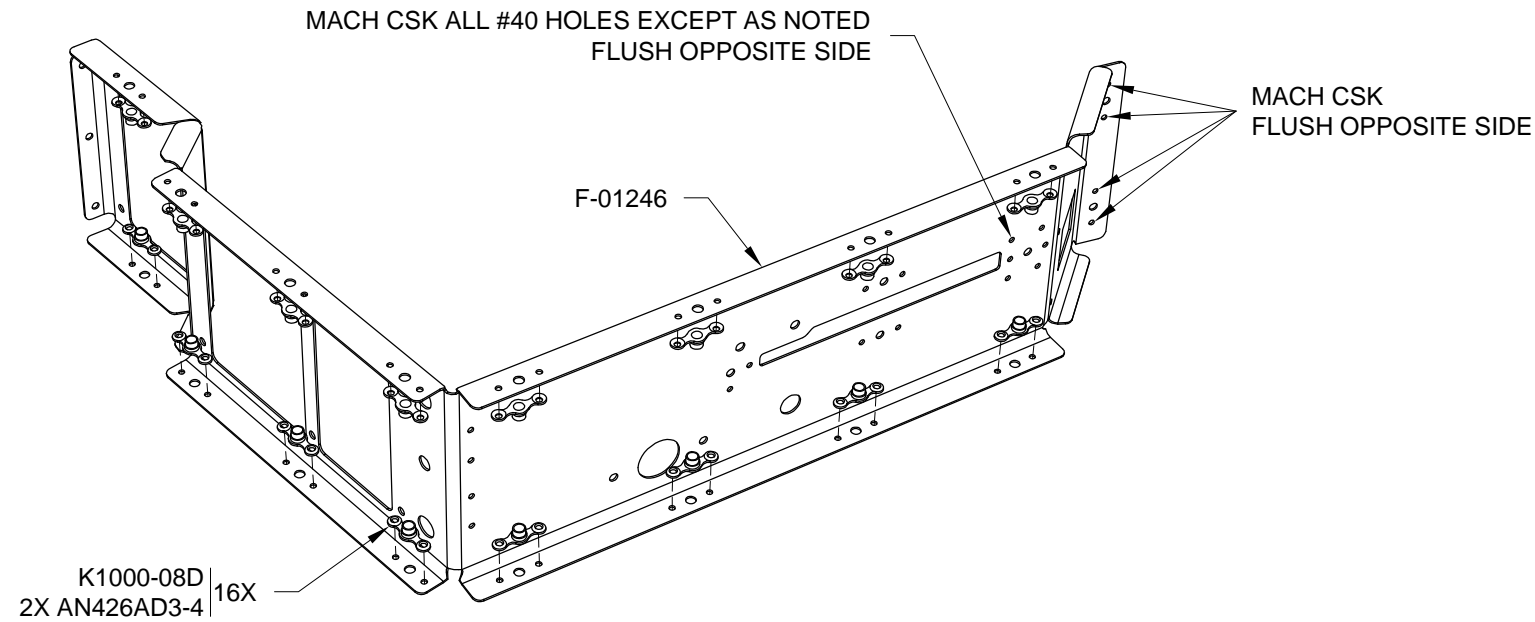


FIGURE 1: F-01246 NUTPLATE INSTALLATION

Step 3: Rivet the F-01246A Throttle Cable Bracket and nutplates to the F-01246 as shown in Figure 2.

For the remainder of this section, this assembly will be called the Tunnel Cover Assembly.

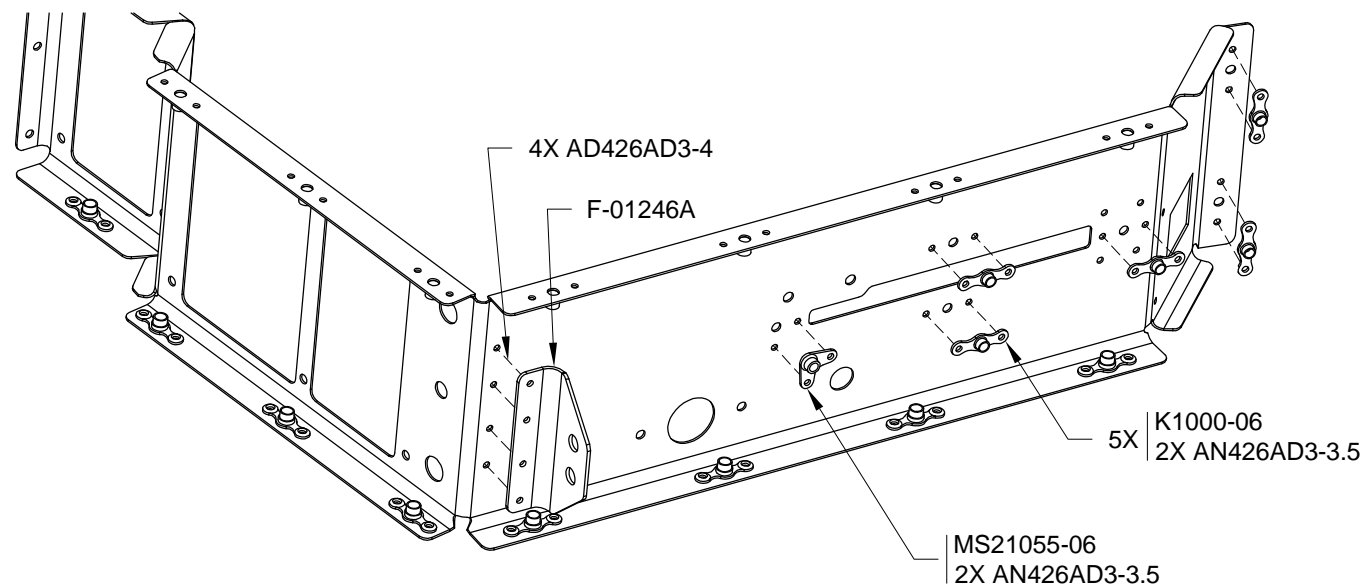


FIGURE 2: F-01246 PARTS AND HARDWARE

Step 4: Dimple #40 the nutplate rivet holes in the F-01244-L and F-01244-R as shown in Figure 3, then rivet the nutplates in place.

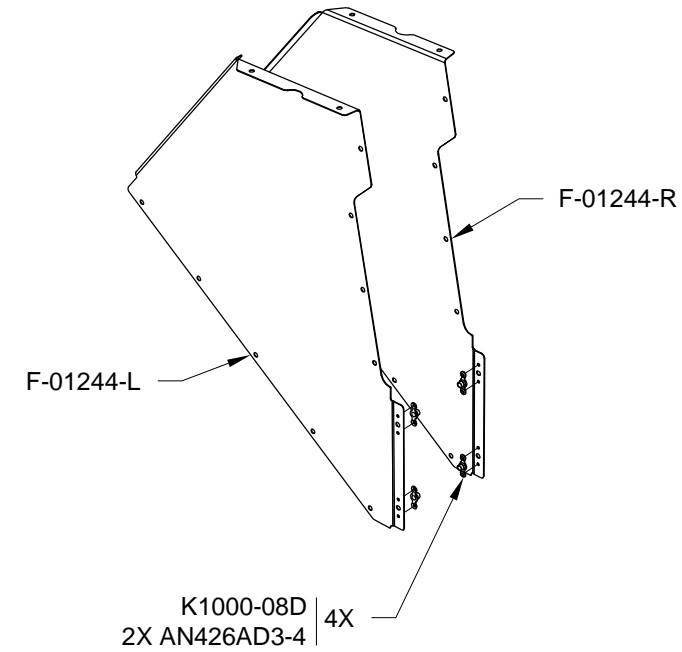


FIGURE 3: TUNNEL FWD SIDE COVER PERPARATION

Step 5: Dimple #40 the nutplate rivet holes in the F-12101 as shown in Figure 4. Dimple #40 the nutplates, then install the nutplates on the F-12101 with the rivets shown.

Step 6: Rivet together the sides of the F-12101 with the rivets shown in Figure 4.

Step 7: Sand and paint the F-01293. Painting the F-01293 before installation will provide the plastic protection from UV damage and scratches & scuffs.

Step 8: Install the F-01293 using the hardware shown in Figure 4.

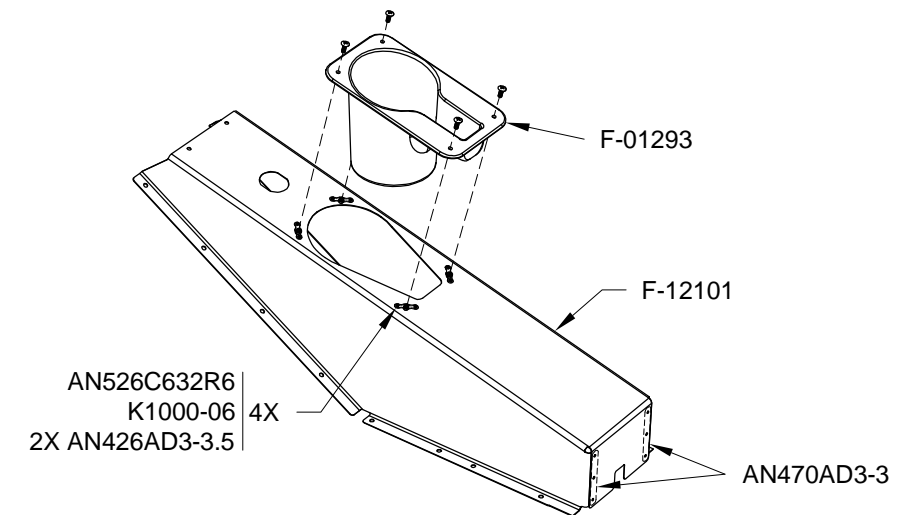


FIGURE 4: INSTALLING THE CUP HOLDER

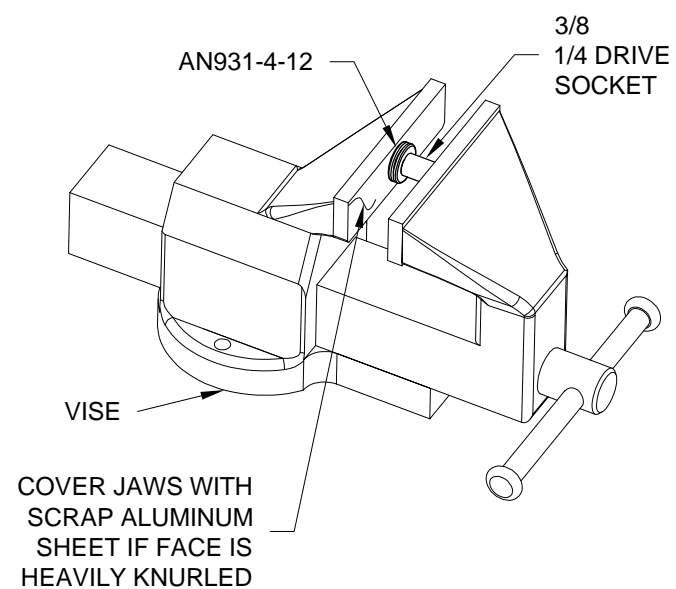


Step 1: Modify the grommet called out in Figure 1 to be used for firewall penetration. Using a socket and a vise, squeeze the grommet until the socket shears through the grommet (this will be accompanied by a distinct crunching sound).

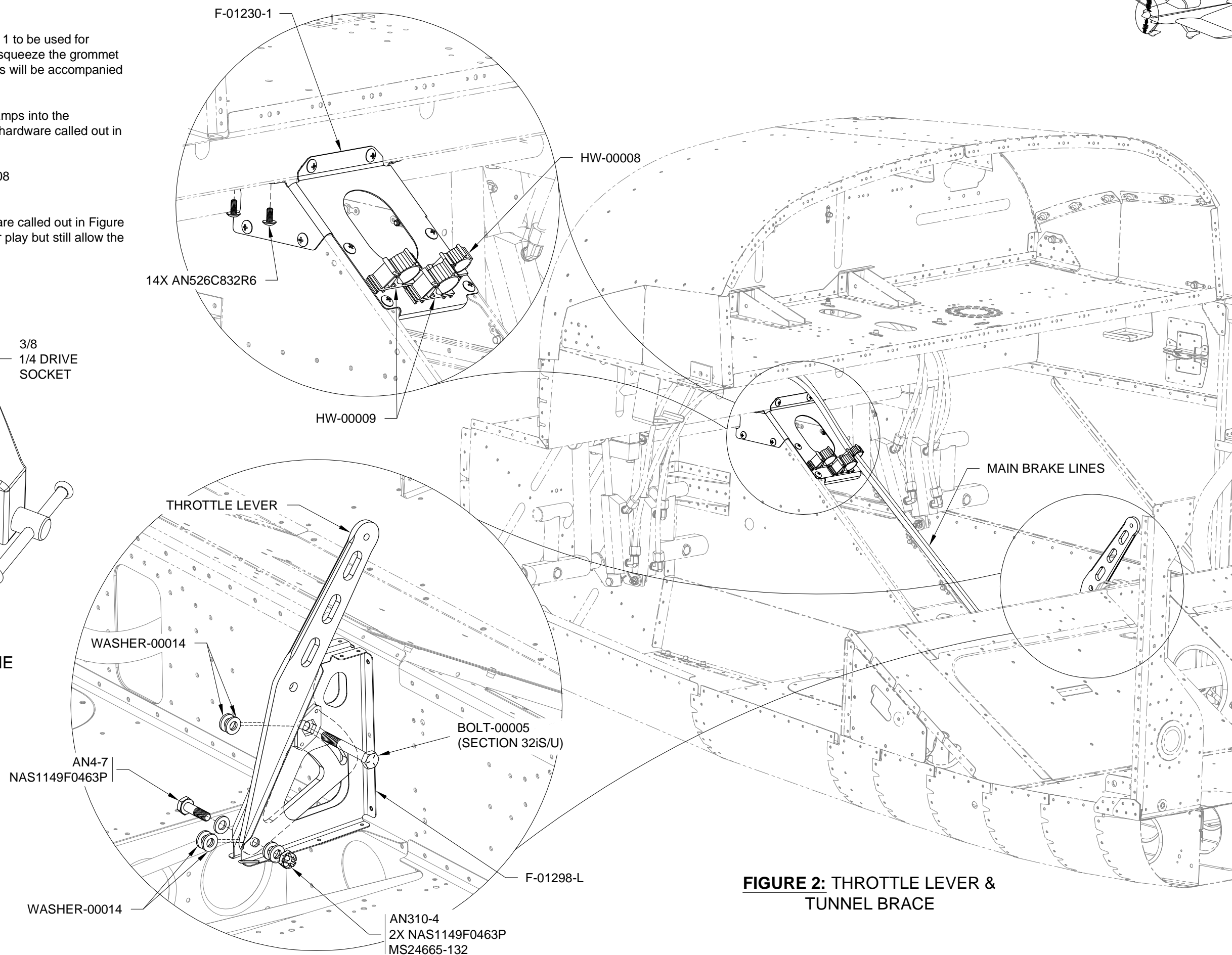
Step 2: Insert the HW-00008 and HW-00009 clamps into the F-01230-1, then install the F-01230-1 using the hardware called out in the detail view in Figure 2.

Place the the main brake lines into the HW-00008 as shown in Figure 2.

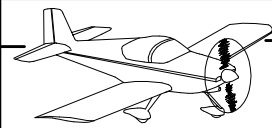
Step 3: Install the throttle lever using the hardware called out in Figure 2. Tighten the nut enough to remove any slop or play but still allow the throttle lever to pivot with light friction.



**FIGURE 1: MODIFYING THE
FIREWALL GROMMET**



**FIGURE 2: THROTTLE LEVER &
TUNNEL BRACE**



NOTE: This page refers to components provided in the avionics kit, denoted by (*)

NOTE: Use a short flush head rivet set on the upper side and a tall flush head rivet set on the lower side to squeeze the rivets installing the Tunnel Cover Assembly.

Step 1: Rivet the Tunnel Cover Assembly to the fuselage using fasteners called out in Figure 1.

NOTE: Guide the throttle cables above the choke cables when passing through the firewall. Guide the longer throttle and choke cables to the right hand side of the aircraft.

CAUTION: Do not use lubricant on the firewall penetration grommet.

Step 2: Install the modified grommet in the firewall passthrough hole, then thread one end of the CT-01201 and the CT-01202 through the grommet as shown in Figure 2.

Step 3: Attach the CT-01201 and CT-01202 conduits to the F-01246A using the hardware provided with the cables as shown in Figure 2. Ensure the CT-01201 conduit is located in the left side hole of the F-01246A, and the CT-01202 is located in the right-side hole. Adjust the nuts so the F-01246A will be approximately centered on the threaded portion of the conduits, then tighten.

Step 4: Loosely connect the CT-01201 and CT-01202 leads to the throttle lever using the hardware shown in the detail view in Figure 2. Ensure the flange of the bushing is against the CT-01202 lead and that the CT-01201 lead passes through the slot in the VA-219-1.

Adjust the throttle cable leads so that the end of the leads extends beyond the shank of the VA-219-1 Double Control Cable Bolt as shown in the detail view in Figure 2. Tighten hardware to 8-10 in-pounds.

Step 5: Route the CT-01203 through the hole in the AV-60000-U Power Module* through the washer and nut called out in Figure 2, through the center HW-00009, and through the modified grommet.

Orient the handle of the CT-01203 so that the longer of the two cables is on the right side, then secure the CT-01203 to the AV-60000-U* by tightening the nut and washer.

Step 6: Route the CT-01201, CT-01202, and CT-01203 cables from the firewall to the WD-1221 as shown in Figure 3 and secure them with the hardware called out.

Do not connect the cable leads to the engine at this time. This will be done as part of the throttle and choke rigging later in this section.

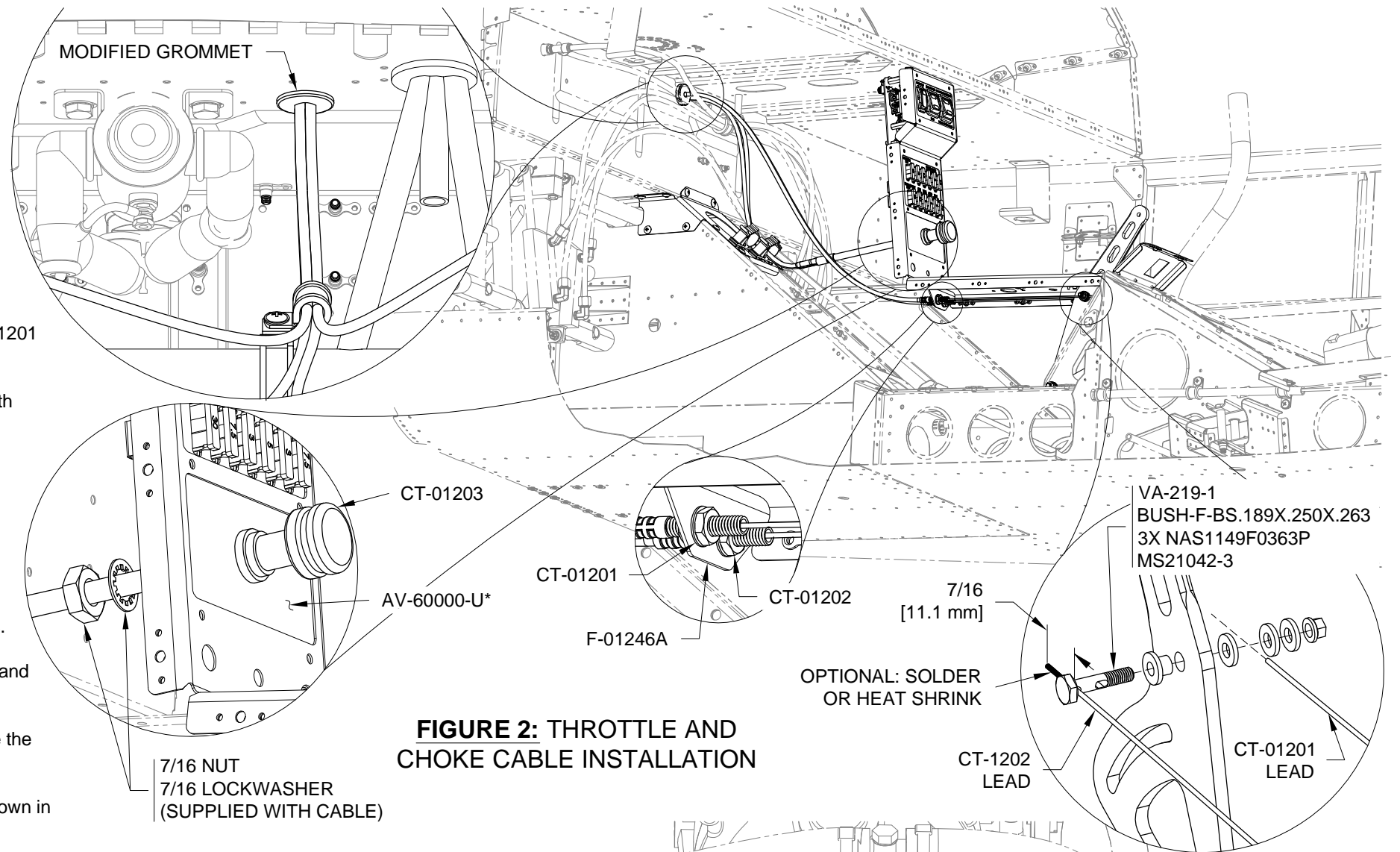


FIGURE 2: THROTTLE AND CHOKE CABLE INSTALLATION

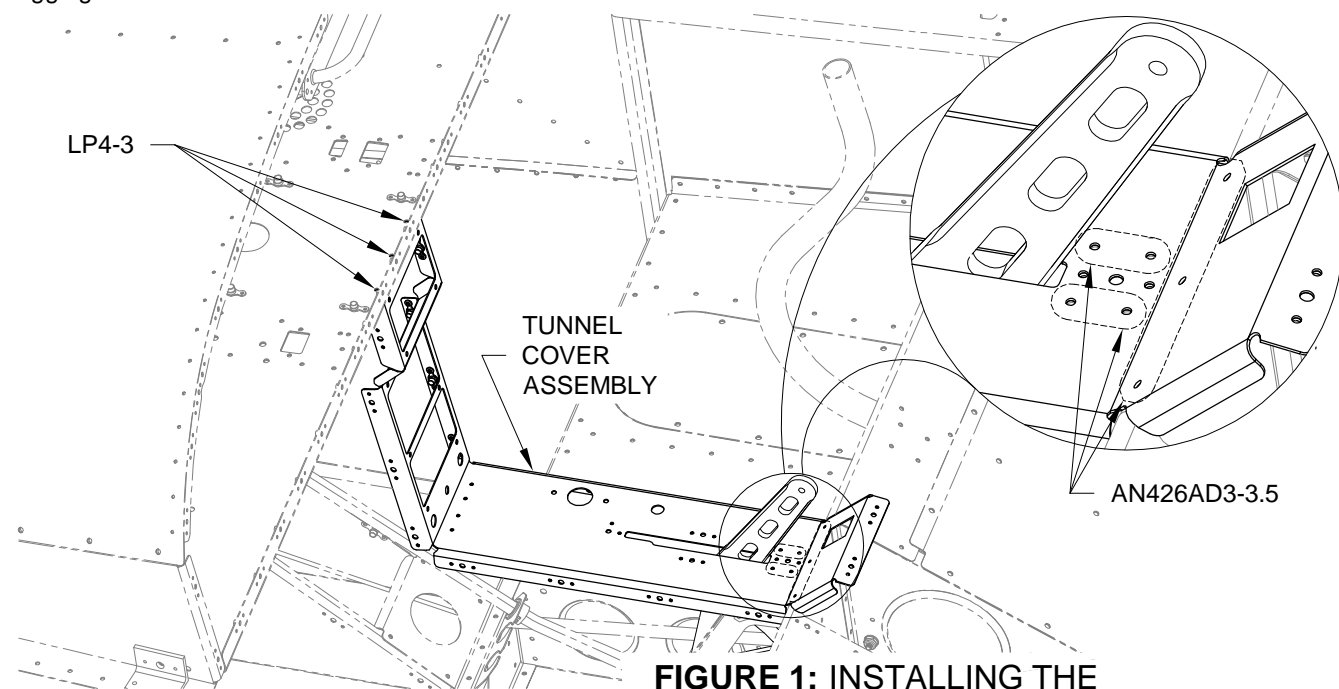


FIGURE 1: INSTALLING THE TUNNEL COVER ASSEMBLY

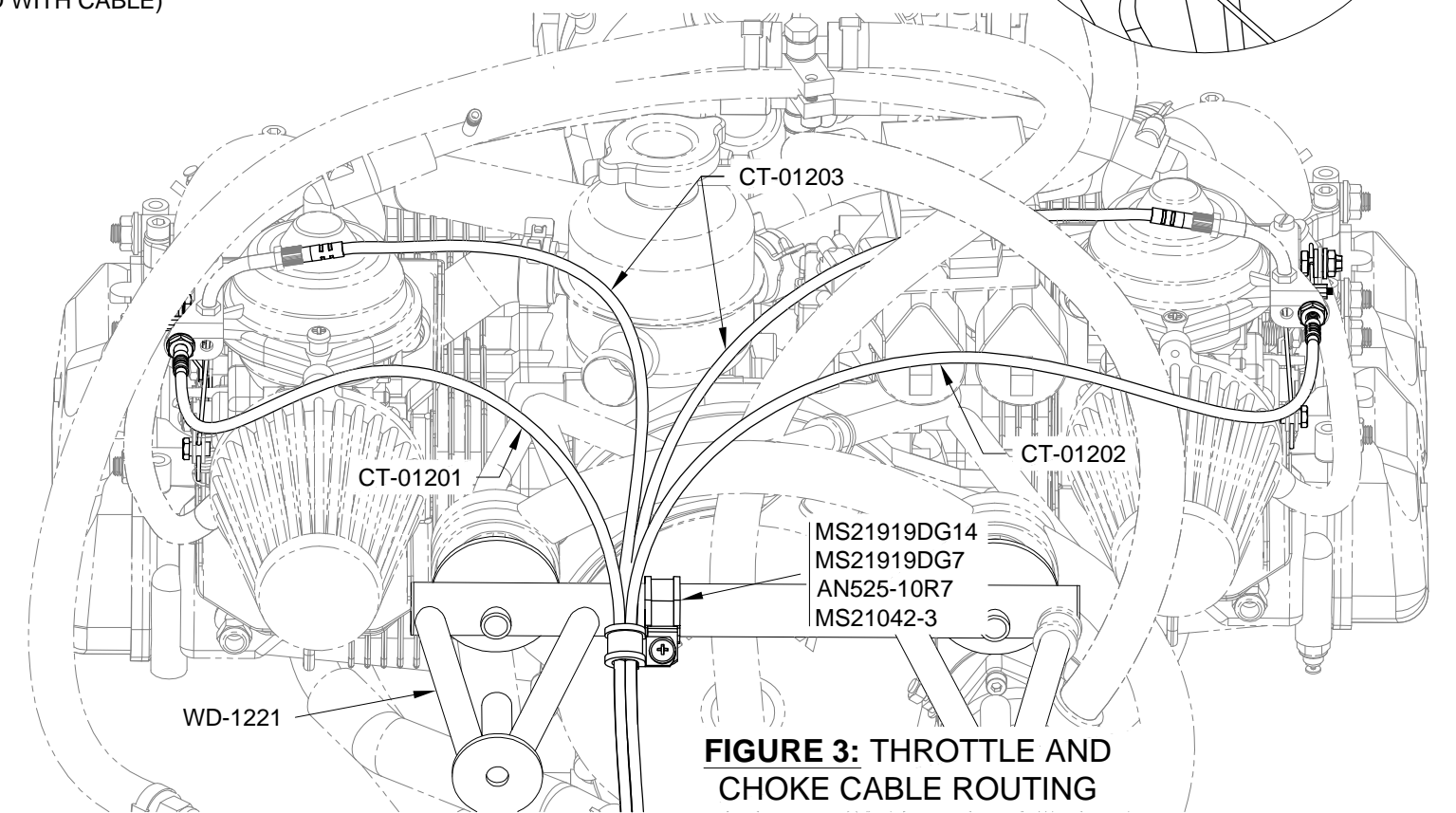
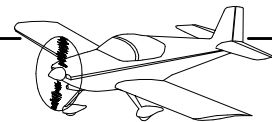


FIGURE 3: THROTTLE AND CHOKE CABLE ROUTING



Step 1: Route the CT-01204 through the hole in the Tunnel Cover Assembly, through the washer and nut called out in the detail view in Figure 2, through the center lightening hole in two of the F-01212 ribs, and through the rest of the fuselage into the tailcone as shown in Figure 2.

Secure the CT-01204 to the Tunnel Cover Assembly by installing the nut and washer shown in the detail view of Figure 2.

Step 2: Thread the CT-01204 through the hole in the F-12108B and secure the conduit using the nuts and lockwashers as shown in the detail view of Figure 2. Adjust the nuts so the F-12108B will be approximately centered on the threaded portion of the conduit, then tighten.

Step 3: Secure the CT-01204 conduit to both ES-00301 using tie wraps as shown in the detail view in Figure 2. Ensure there are no abrupt bends or kinks along the full length of CT-01204.

Step 4: Slide the CT-00100 Wire Swivel into the fuel shut-off valve arm as shown in the detail view in Figure 2. Loosen the set screws.

Step 5: Install the washer, then insert the CT-01204 lead into the hole in the CT-00100 as shown in the detail view in Figure 2. Do not tighten the set screws in the CT-00100.

Step 6: With the fuel shut-off valve fully open (aligned with the valve body) and the CT-01204 handle extended as shown in Figure 1, tighten the lower set screw in the CT-00100.

Step 7: Tighten the upper set screw in the CT-00100. Actuate the fuel shut-off cable handle through the full range of motion. Ensure that the full range of motion of the fuel shut-off valve is achieved. Check for any interference throughout the full range of motion of the fuel shut-off valve lever, CT-00100, and fuel shut-off cable lead.

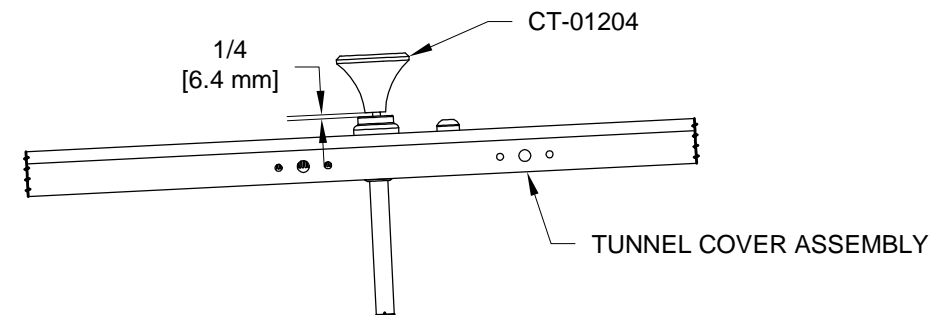


FIGURE 1: RIGGING THE FUEL SHUTOFF CABLE

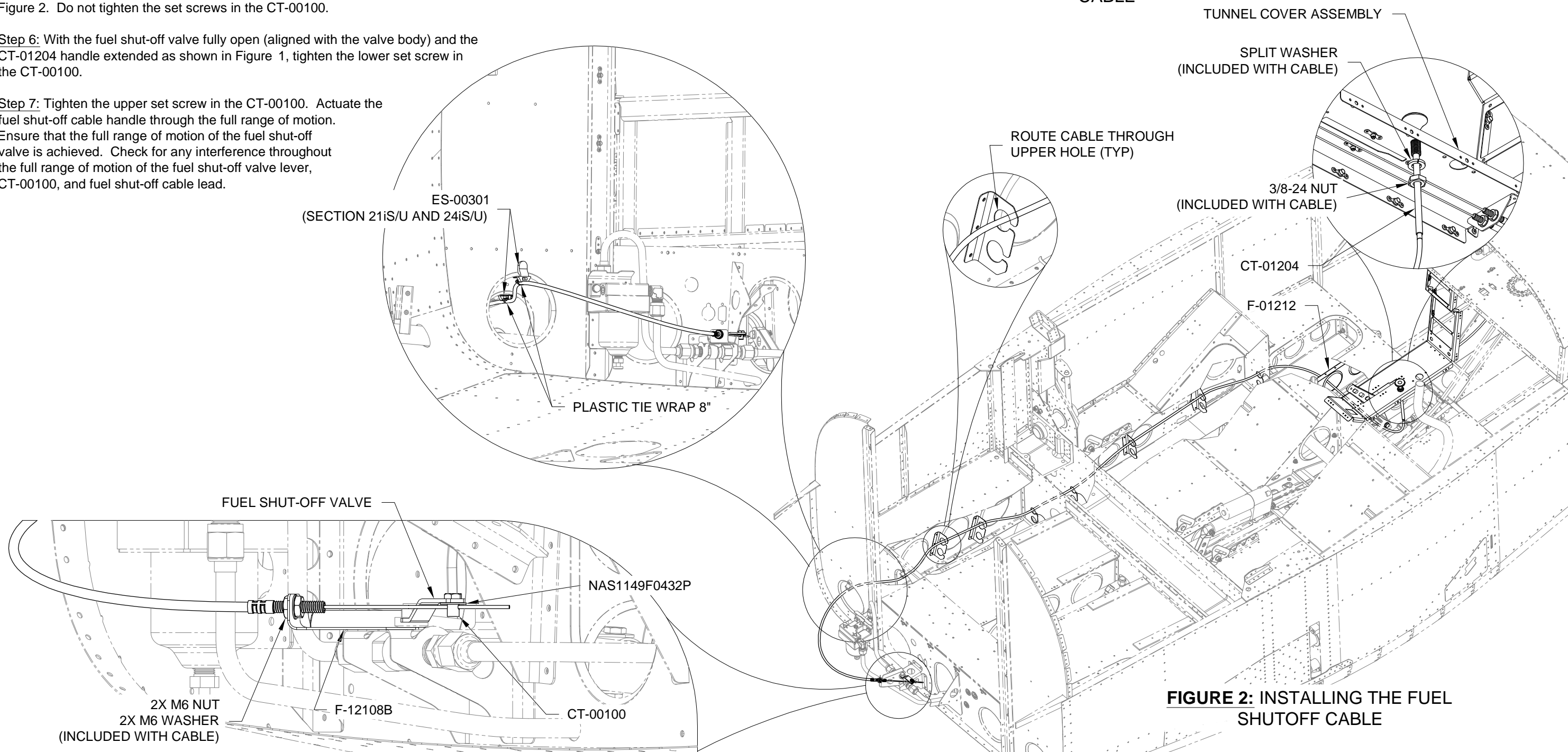
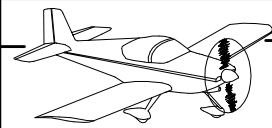


FIGURE 2: INSTALLING THE FUEL SHUTOFF CABLE



Step 1: Install the F-01244-L, F-01245-L, and F-01244-R using the hardware called out in Figure 1.

Step 2: Install the F-12101 using the hardware called out in Figure 2.

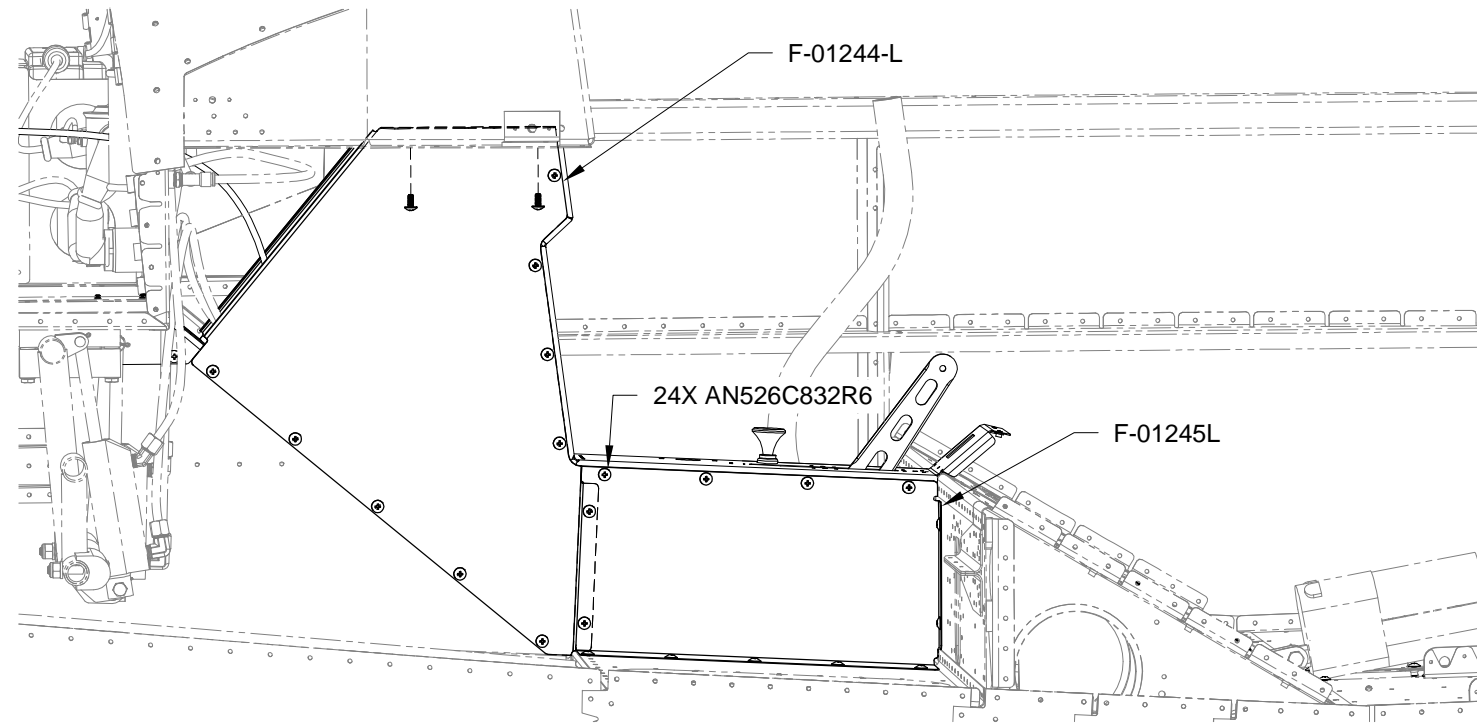


FIGURE 1: INSTALLING THE TUNNEL COVERS
(F-01244-L SHOWN, REPEAT FOR F-01244-R)

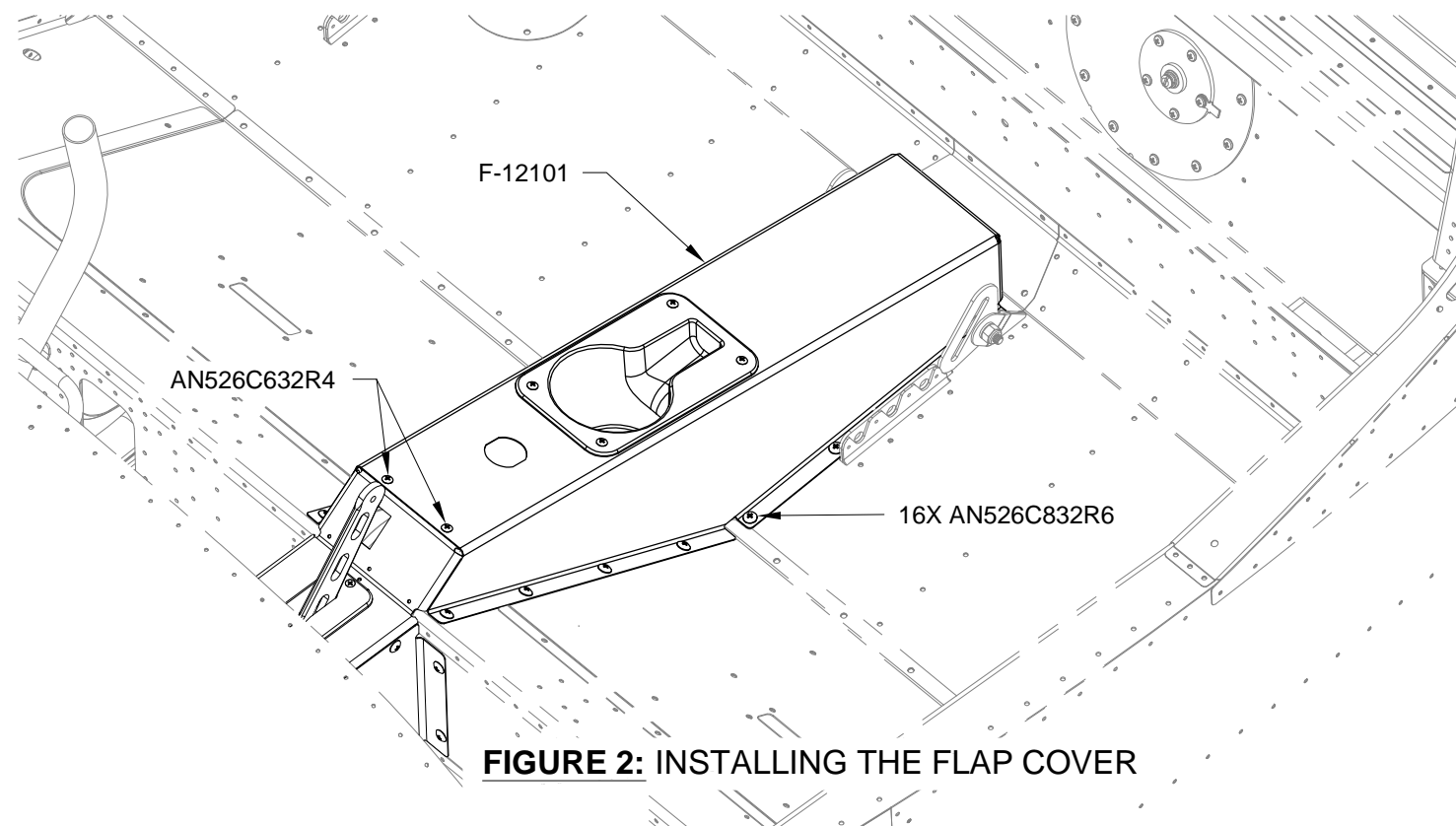


FIGURE 2: INSTALLING THE FLAP COVER

Step 3: Install the Throttle Friction Assembly hardware onto the BOLT-00005 as shown in the detail view in Figure 3.

Step 4: Install the F-01245-R using the hardware called out in Figure 3.

Step 5: Install the CT-01206 1/4-20 Knob as shown in Figure 3.

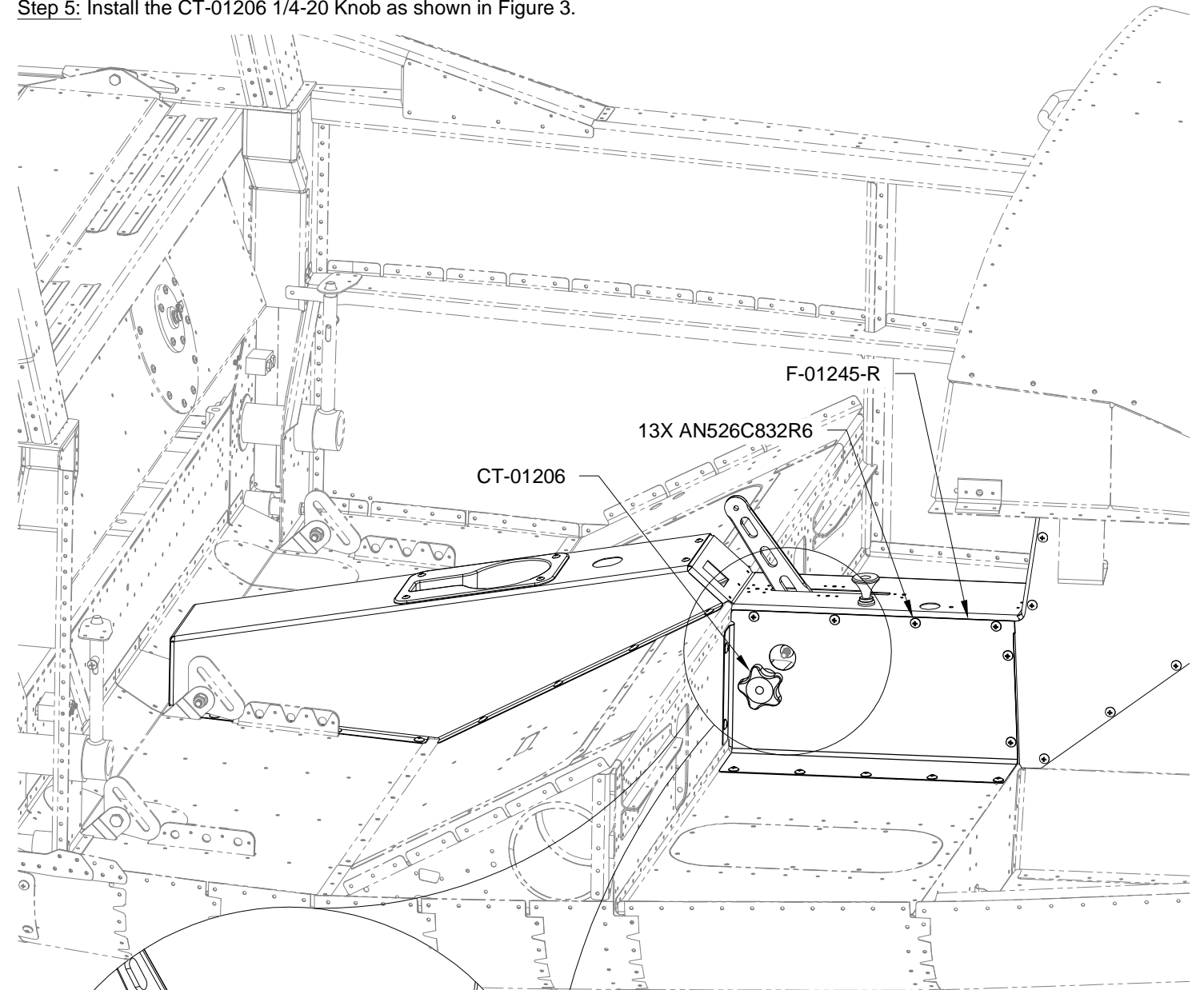
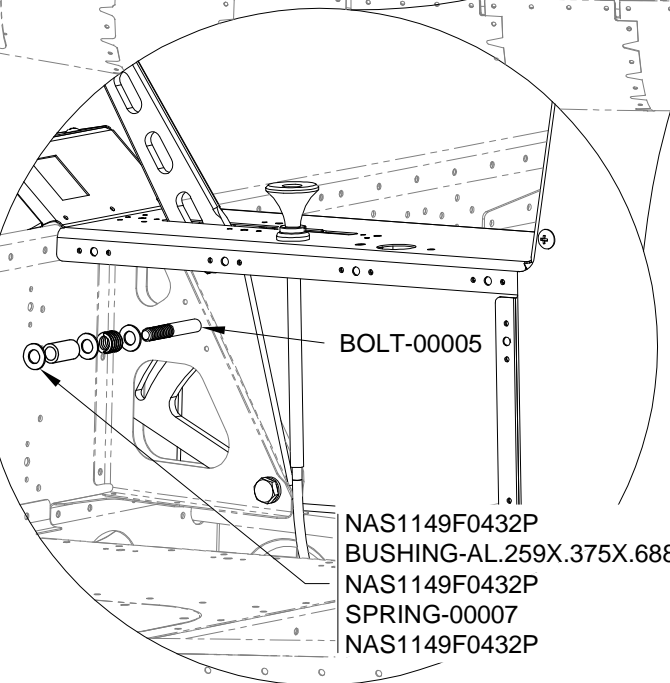
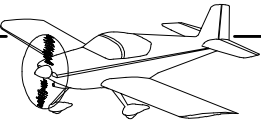


FIGURE 3: THROTTLE FRICTION ASSEMBLY & TUNNEL COVER



BOLT-00005
NAS1149F0432P
BUSHING-AL.259X.375X.688
NAS1149F0432P
SPRING-00007
NAS1149F0432P



NOTE: Instruction for synchronizing the carburetors is found in the RV-12iS Maintenance Manual. Complete all sections of the RV-12iS Assembly Instructions and the ground test portions of the RV-12iS Production Acceptance Procedures prior to synchronizing the carburetors.

The remaining steps on this page and 49U-08 provide throttle cable installation for the right carburetor. Cable installation on the left carburetor is a mirror of the right and should be done at the same time.

Step 1: Place marks on the Throttle Arm, Throttle Shaft, and Idle Stop to orient the parts relative to each other, remove and discard the Throttle Arm Spring supplied with the carburetor, then remove the Throttle Arm and Idle Stop from the Shaft. See Figure 1 below and Figure 2 on page 49U-08.

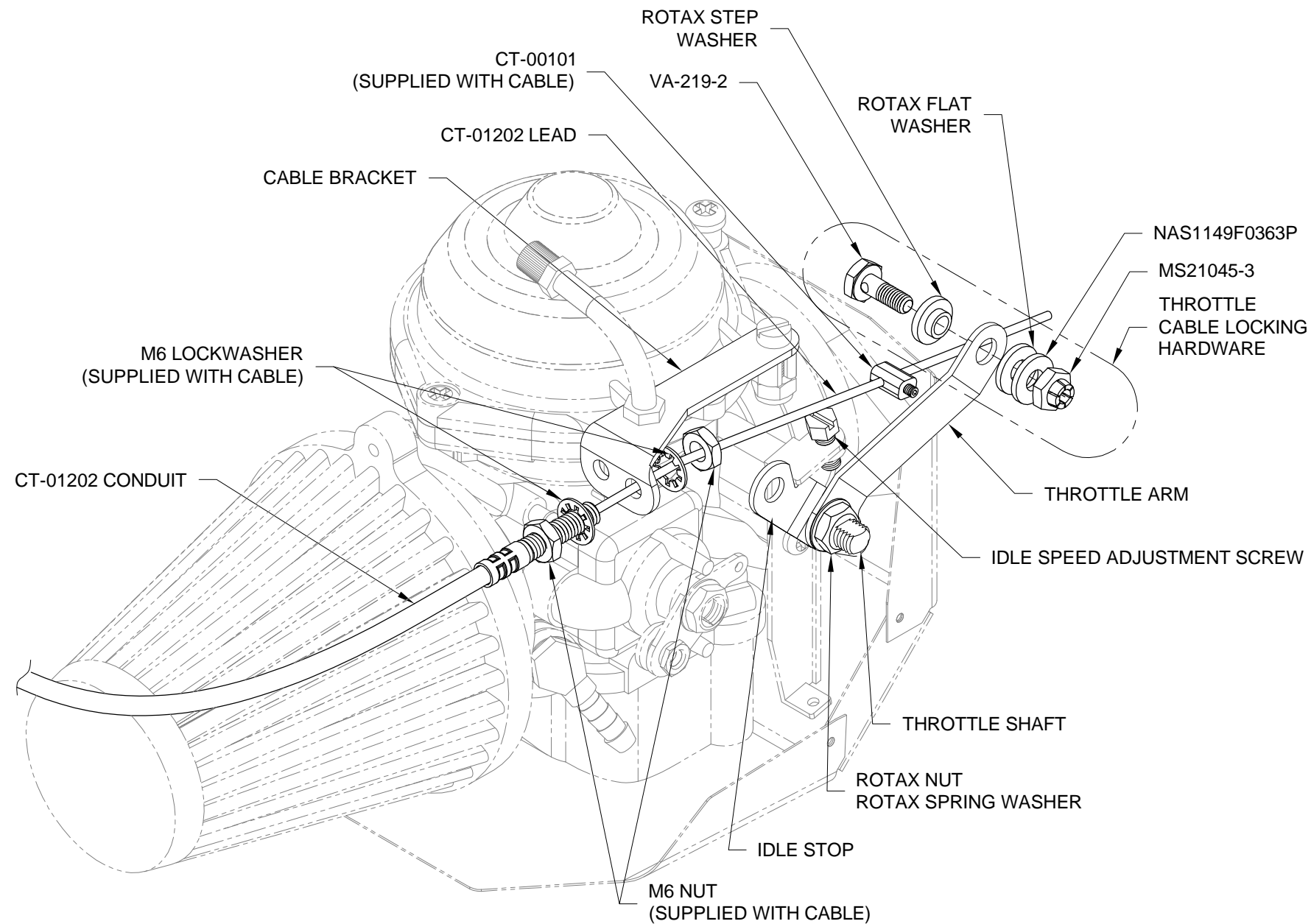
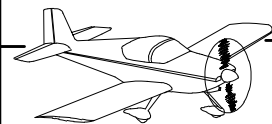


FIGURE 1:
THROTTLE CABLE TO CARBURETOR
CONNECTION



NOTE: Refer to Rotax Illustrated Parts Catalog Section 73-00-00 for hardware and the Rotax Maintenance Manual (Heavy Maintenance) for torque specs.

Step 1: Remove the two M4 screws in the Cable Support. Slide the VA-00276 Throttle Return Spring Retainer onto the Throttle Shaft as shown in Figure 1.

NOTE: The manufacturing process causes VA-00276 to have a slight bend and creates the potential for the M4 screws to be cross threaded during installation. Do not apply excess force while installing the screws. If the screws cannot be installed easily, flatten VA-00276 and loosely install the screws to ensure proper threading.

Step 2: Reinstall the two M4 screws removed in Step 1. See Figure 2.

NOTE: Instructions below apply to installing SPRING-00002-R-1 and SPRING-00002-L-1. SPRING-00002-L-1 is marked with blue ink on one edge.

Step 3: Slide the SPRING-00002-R-1 (SPRING-00002-L-1 on Left Carburetor) Throttle Spring onto the throttle shaft. Position the the inboard leg against the VA-00276 as shown Figure 2.

Step 4: Reinstall the Idle Stop as shown in Figure 2 with the outboard arm of the SPRING-00002-R-1 against the bent lower arm of the stop plate. The SPRING-00002-R-1 should be coiled approximately 1/4 turn past the relaxed position when properly installed.

Step 5: Reinstall the throttle arm with the nut and washer that was removed in Step 1 on page 49U-07 Figure 1.

Step 6: Install the conduit of the CT-01202 (the longer of the two throttle cables) to the cable bracket using the hardware shown in Figure 1 on page 49U-07. Adjust the nuts so that the cable bracket will be approximately centered on the threaded portion of the conduit, then tighten.

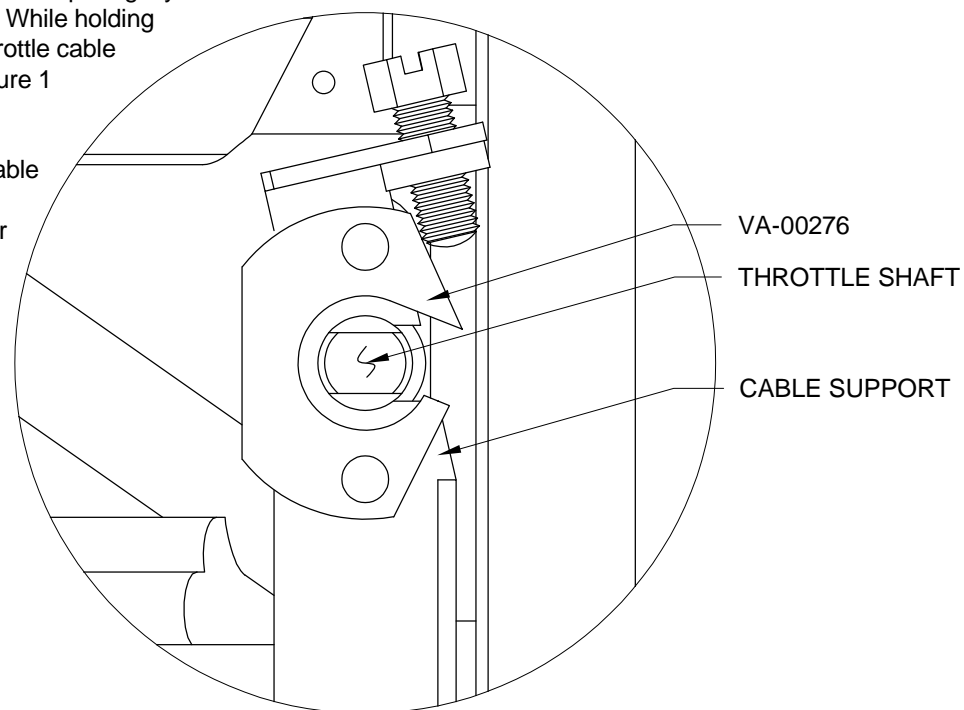
Step 7: Insert the CT-01202 lead through the CT-00101 Stop Nut and into the hole in the shank of the VA-219-2 Control Cable Bolt. Loosely attach the throttle cable locking hardware called out in Figure 1 on page 49U-07.

Move the throttle lever forward from the aft end of the slot as shown in Figure 3. Fully tighten the throttle friction adjustment.

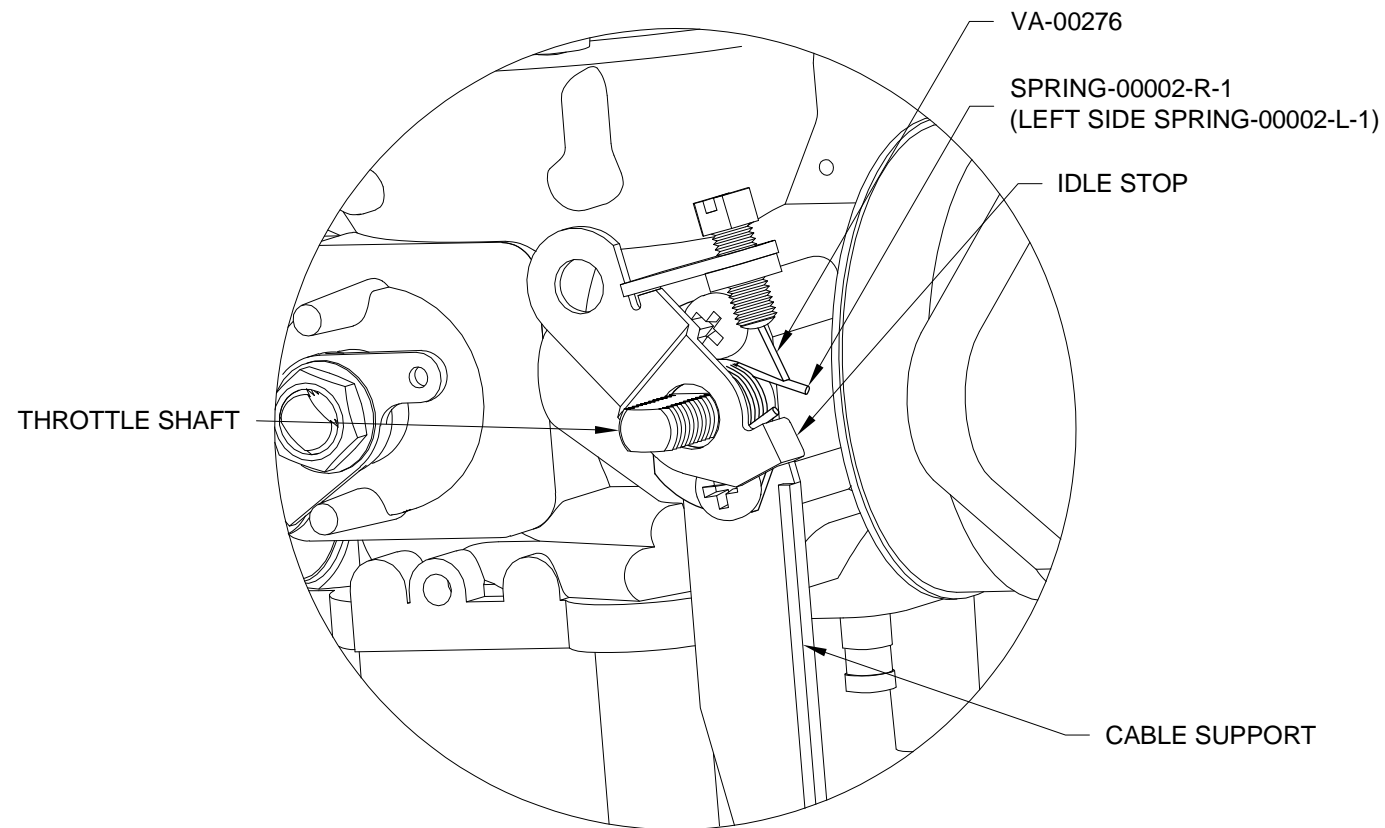
Step 8: Actuate the throttle arm so that the Idle Stop is lightly contacting the idle speed adjustment screw. While holding tension on the CT-01202 lead, tighten the throttle cable locking hardware to 8-10 in-pounds. See Figure 1 on page 49U-07.

Move the CT-00101 against the end of the cable housing and tighten the set screw. The final position will be adjusted during the carburetor balance procedure.

Step 9: Loosen the throttle friction adjustment.



**FIGURE 1:
VA-00276 INSTALLATION**



**FIGURE 2:
NEW THROTTLE SPRING
INSTALLATION**

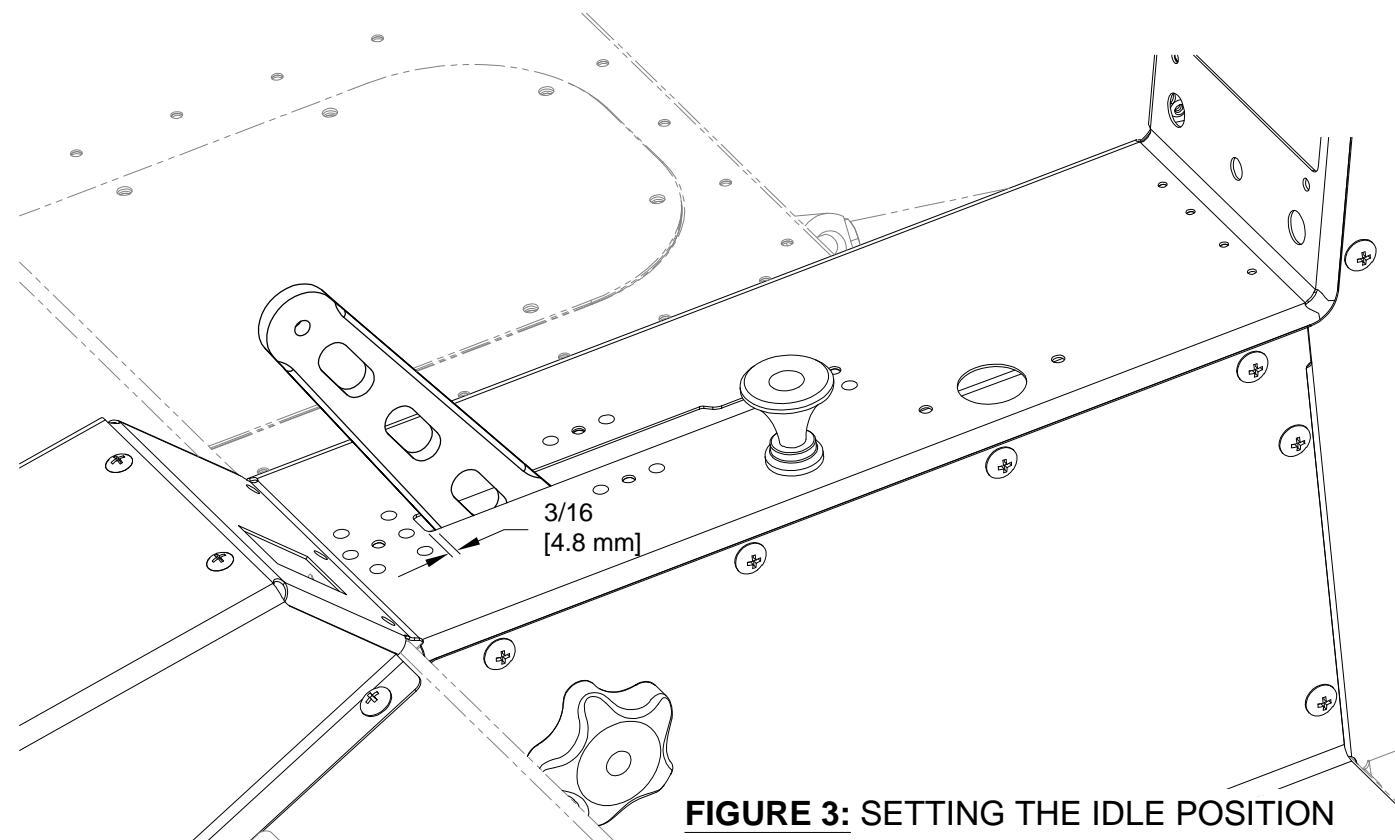
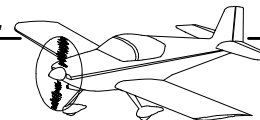


FIGURE 3: SETTING THE IDLE POSITION



NOTE: See Section 5.28 for detailed information on cable trimming.

Step 1: Trim the CT-01201 and CT-01202 leads to the dimension given in Figure 1.

Step 2: Install the F-12135U using the hardware as called out in Figure 2. Do not over tighten the screws.

Step 3: Actuate the Throttle Lever through its full range of travel. Ensure that the full range of motion of both throttle arms is achieved (idle stop screw-to-full open stop). Check for any interference throughout the full range of motion of the throttle arm, throttle arm hardware, and throttle cable leads. Ensure that the idle speed adjustment screw on both carburetors are resting on the idle stop and that there is no clearance between the two when the throttle lever is in the idle position.

NOTE: Optional alternate throttle grip is available to install. Order KIT 12iS THROTTLE GRIP from Van's Aircraft.

Step 4: Install the CT-01205 using the hardware shown in Figure 2.

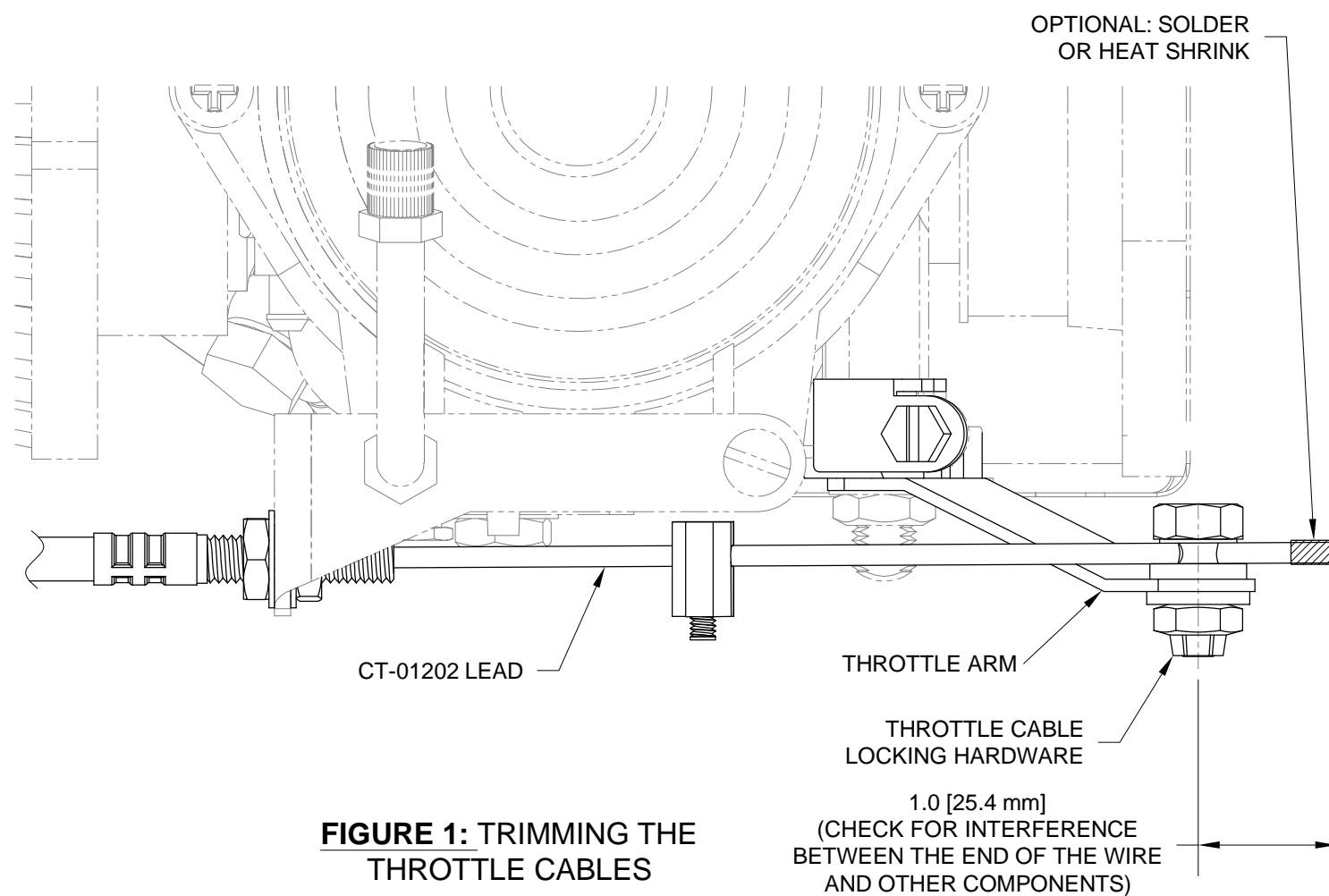


FIGURE 1: TRIMMING THE THROTTLE CABLES

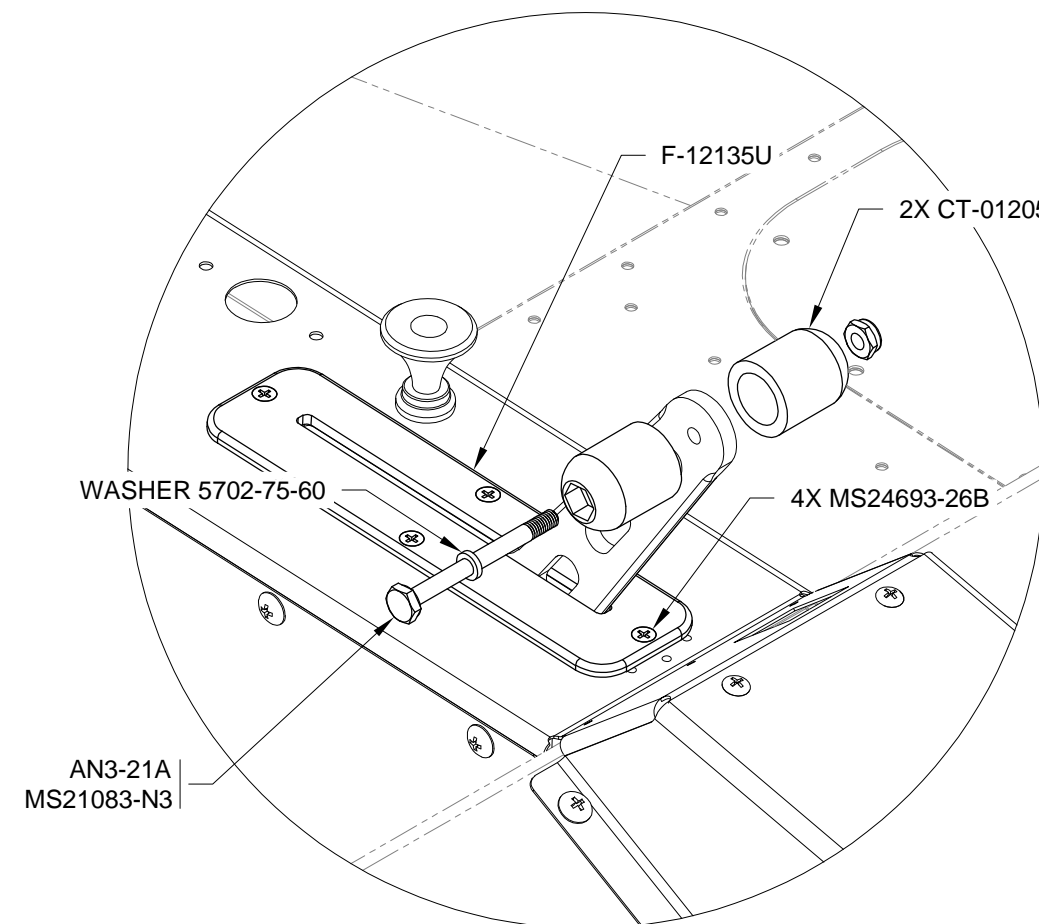


FIGURE 2: THROTTLE GUIDE & T-HANDLE



NOTE: See Section 5.28 for detailed information on cable trimming.

The steps on this page provide choke cable installation for the right carburetor. Cable installation on the left carburetor is a mirror of the right and should be done at the same time.

Step 1: Move the CT-01203 handle all the way forward to the off position as shown in Figure 1.

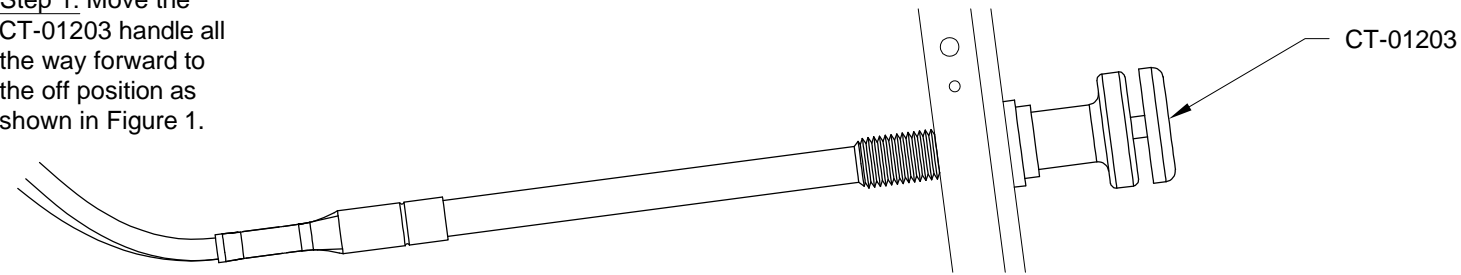


FIGURE 1:
CHOKE HANDLE POSITION

Step 2: Slide the CT-00100 Wire Swivel into the choke lever as shown in Figure 2. Loosen the outer set screw.

Step 3: Insert the CT-01203 lead into the cable mount tube, then through the hole in the CT-00100 as shown in Figure 2, Detail A-A. Guide the conduit of the choke cable into the cable mount tube as shown in Figure 2.

Step 4: With the choke lever resting against the lower stop, secure the CT-01203 lead by tightening the CT-00100 set screws.

Step 5: Trim the CT-01203 lead to the dimension given in Figure 2, Detail A-A.

Step 6: Curl the end of the CT-01203 lead outboard as shown in Figure 2 and relock the carburetor fuel supply fitting as necessary to avoid interference. Actuate the CT-01203 handle through the full range of motion. Ensure that the full range of motion (lower stop-to-upper stop) of the choke lever is achieved. Check for any interference throughout the full range of motion of the choke lever, CT-00100, and CT-01203 lead.

END OF SECTION

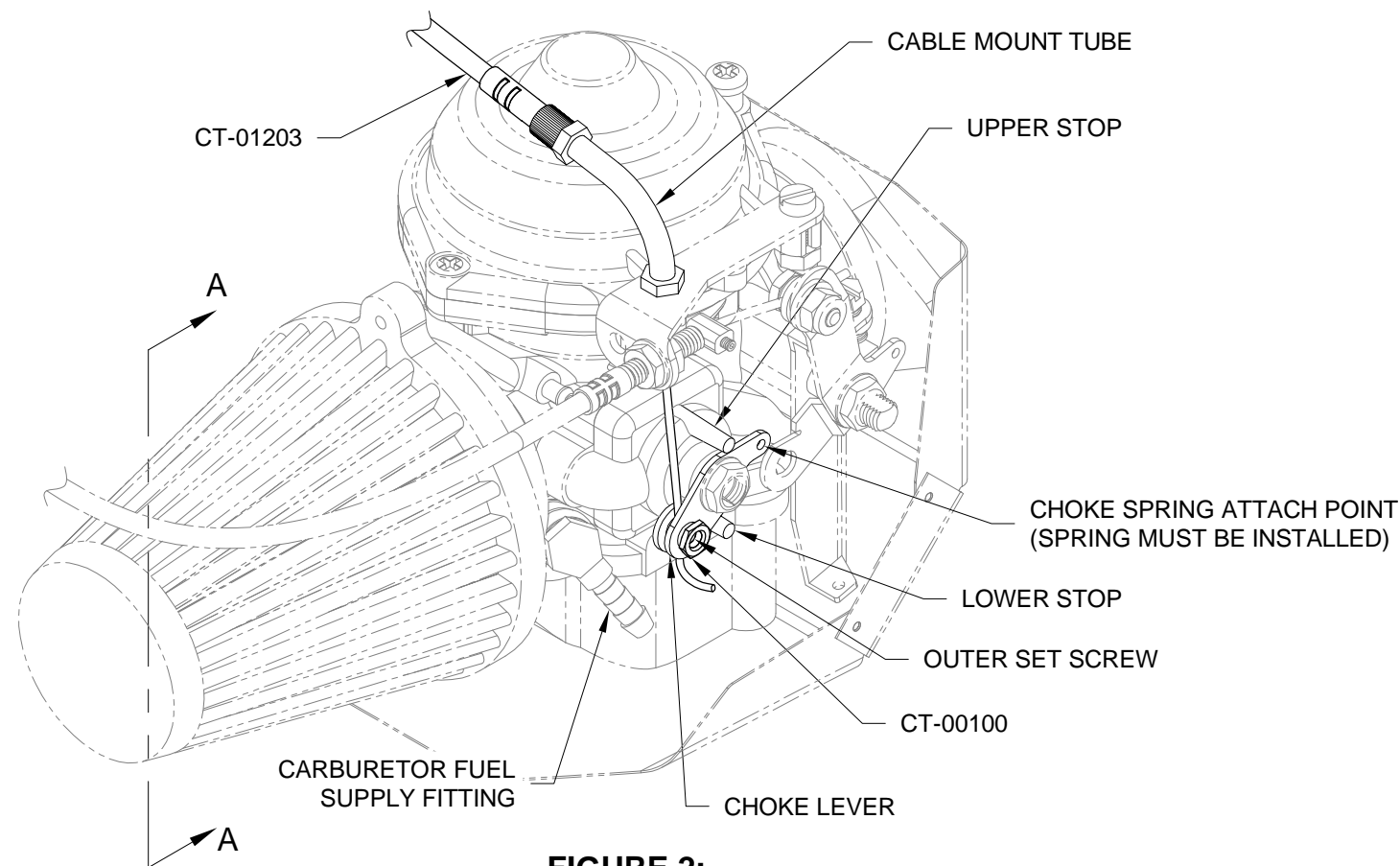
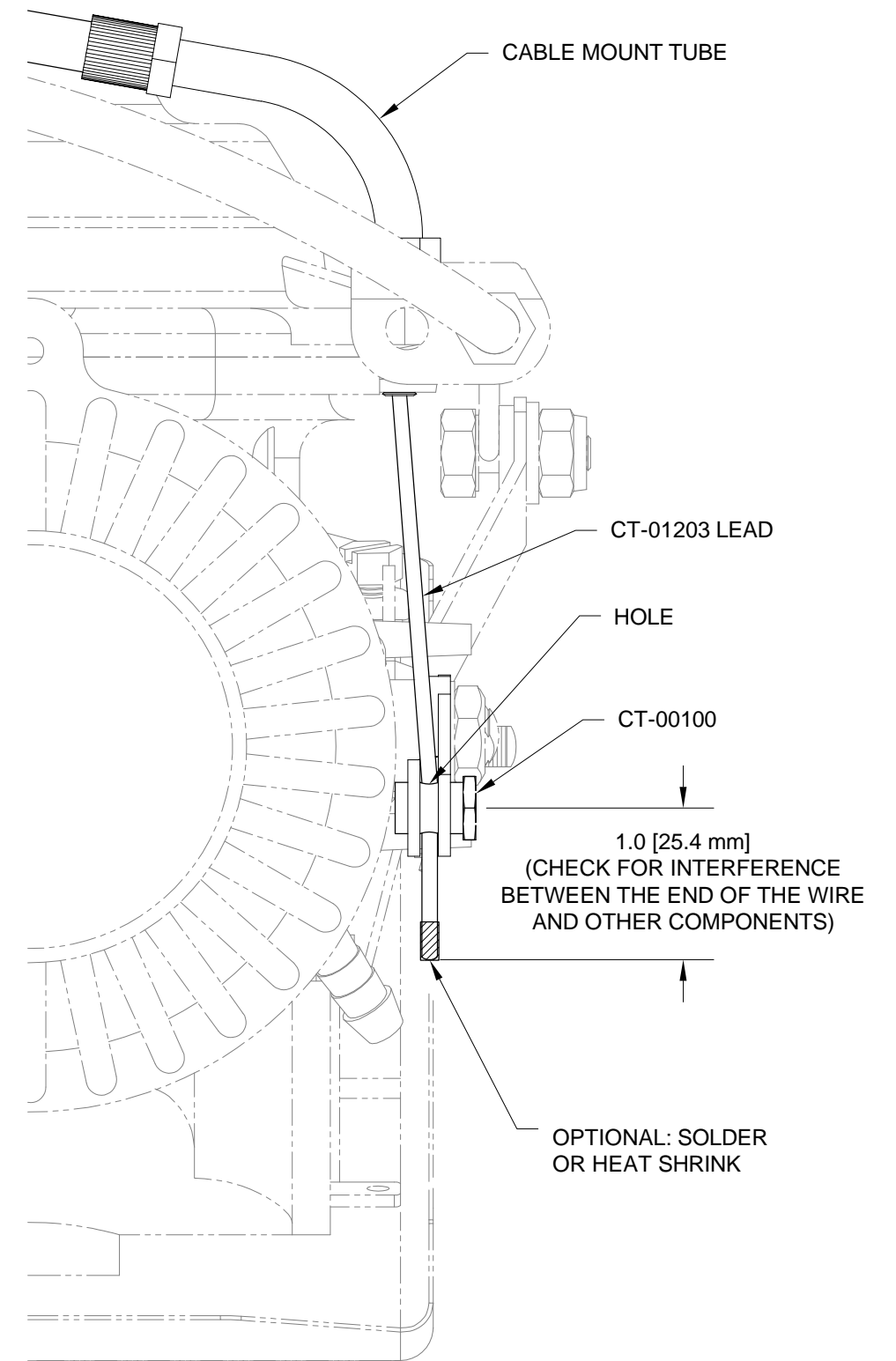


FIGURE 2:
CHOKE CABLE LEAD-TO-CARB CONNECTION



DETAIL A-A



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