TOTAL PERFORMANCE
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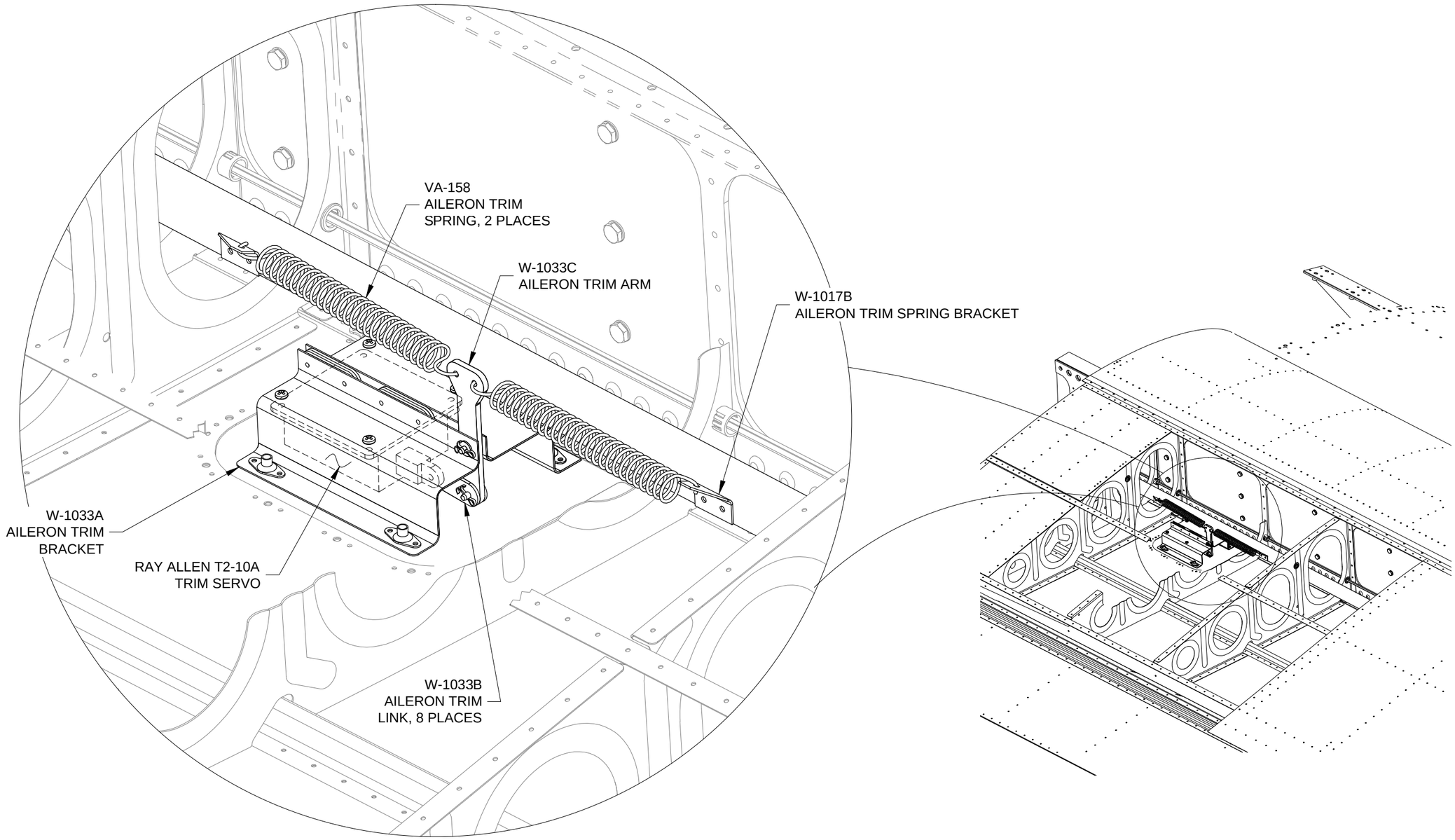
REVISION DESCRIPTION:

Page: OP-38-04 REV 2: In Figure 1 the dimension “1 [25.4mm]” S.B. “1 1/2 [38.1mm]"

In Figure 1 the dimension "7/8 [22.2mm]" S.B. "3/4 [19.1mm]"

OP-38: ELECTRIC AILERON TRIM



NOTE: Special Tools required to complete this section include a #28 Drill Bit and a Molex Hand Crimp Tool.

NOTE: Installation of the Electric Aileron Trim system may be accomplished regardless of whether the wings are installed on the aircraft.

Step 1: Separate and label the W-1033A Aileron Trim Mounting Brackets as shown in Figure 1.

Step 2: Final-Drill #30 the holes shown.

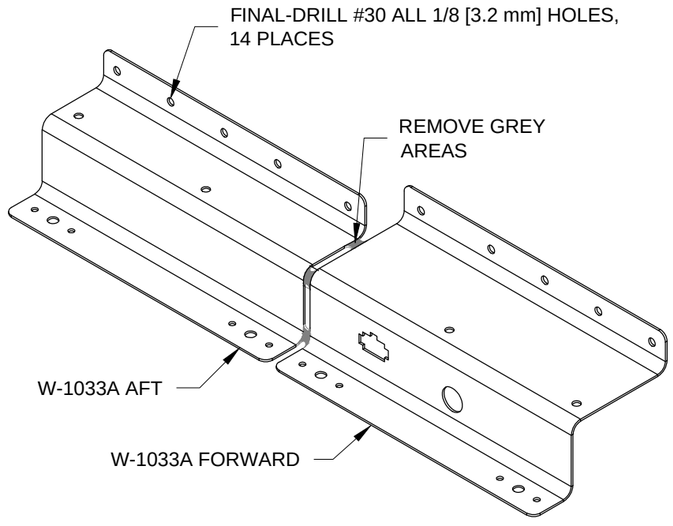


FIGURE 1: AILERON TRIM BRACKETS

Step 3: Final-Drill #30 all holes in the W-1033B Aileron Trim Links.

Step 4: Separate the W-1033B Aileron Trim Links as shown in Figure 2.

Step 5: Prime the forward & aft aileron trim brackets, aileron trim links, and W-1033C Aileron Trim Arm as desired.

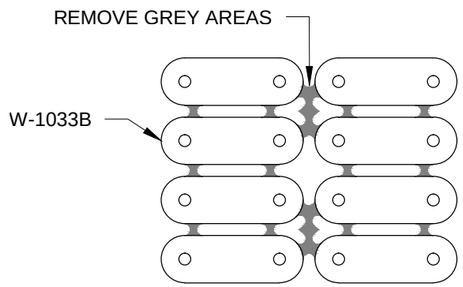


FIGURE 2: AILERON TRIM LINKS

Step 6: Assemble the Trim Actuation Assembly as shown in Figure 3.

Ensure that the aileron trim arm can move freely without binding.

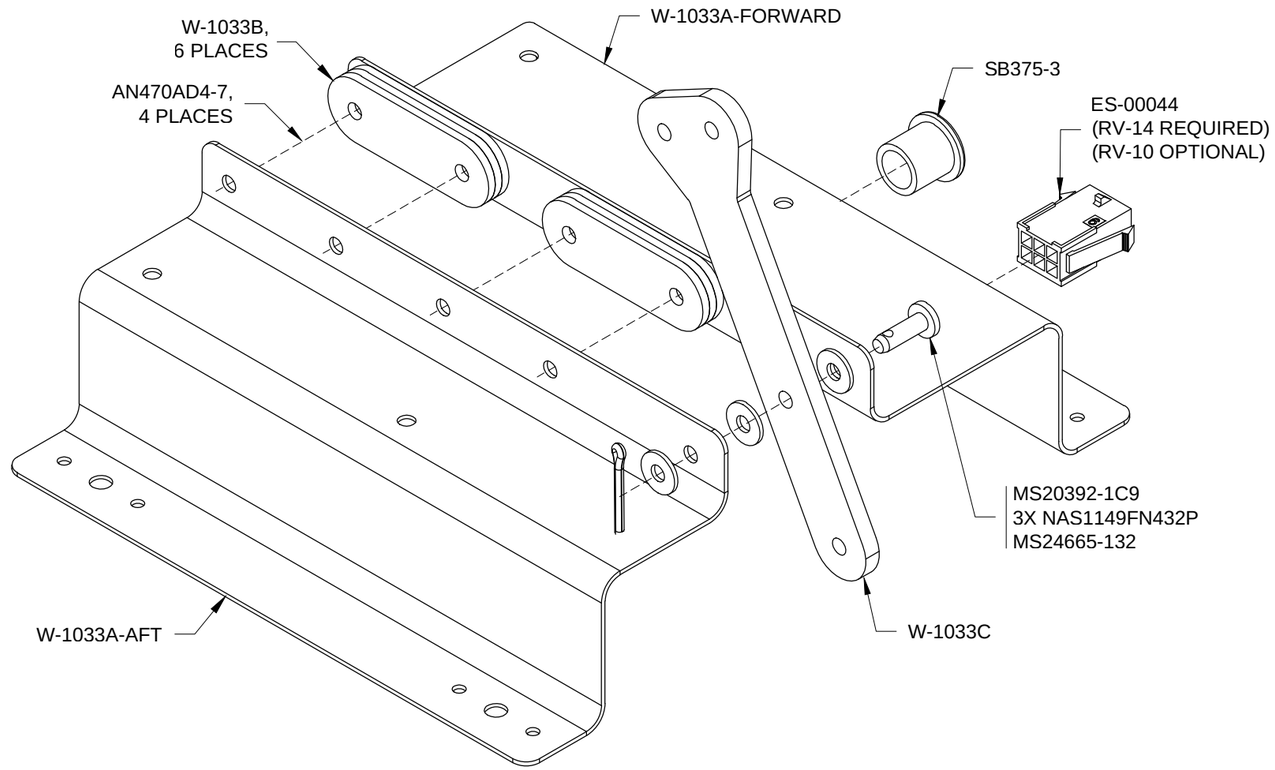


FIGURE 3: TRIM ACTUATION ASSEMBLY

Step 1: Final-Drill #28 the 1/8 in. [3.2 mm] holes in the trim servo into the matching holes in the Trim Actuation Assembly.

Step 2: Assemble the Aileron Trim Actuation Assembly as shown in Figure 1.

Step 3: Strip approximately 1/2 in. [12.7 mm] of insulation from the ends of the wires in the wire bundle.

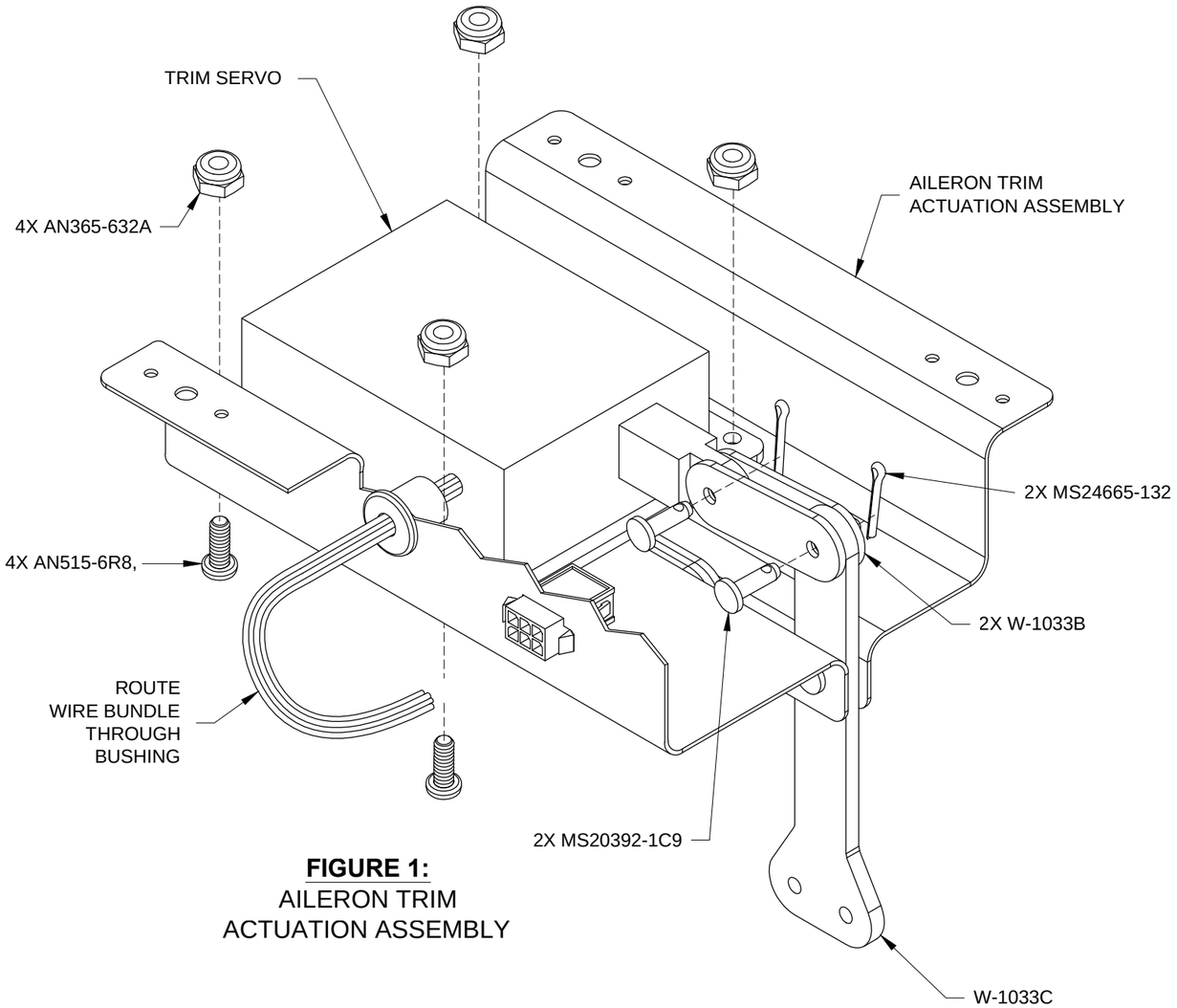


FIGURE 1:
AILERON TRIM
ACTUATION ASSEMBLY

NOTE: RV-14 Builders must use the inboard-most wing access plate in the RIGHT WING.

RV-10 Builders have the option to install the aileron trim in the inboard-most wing access plates in either the LEFT OR RIGHT WINGS. The installation is identical for either side.

NOTE: For all steps on this page, refer to Figure 1.

Step 1: Position the Aileron Trim Actuation Assembly on the interior surface of the W-822PP Wing Access Plate (hereafter referred to as "access plate") where shown.

Step 2: Match-Drill #30 and cleco the four holes in the Aileron Trim Actuation Assembly into the access plate.

Step 3: Verify that the aft edge of the Aileron Trim Actuation Assembly does not interfere with the W-00004-R Bottom Inboard Wing Skin when the access plate is installed.

If interference occurs, verify that the Aileron Trim Actuation Assembly is positioned according to the dimensions shown. If necessary, trim the aft flange of the assembly to clear the skin.

Step 4: Final-Drill #19 the four #30 holes in the Aileron Trim Actuation Assembly into the access plate.

Step 5: Dimple the holes in the bottom flanges of the Aileron Trim Actuation Assembly flush on the bottom side.

Step 6: Rivet the nutplates to the bottom flanges of the Aileron Trim Actuation Assembly as shown.

Step 7: Dimple the four holes drilled in the access plate in Step 4 flush on the bottom side to fit the head of a #8 screw.

Step 8: Attach the Aileron Trim Actuation Assembly to the access plate using the screws shown.

Step 9: To ensure that the trim servo actuator arm is neutrally positioned, touch the ends of the two white wires to a 12 volt battery and run the servo all the way to full displacement in one direction. Reverse the wires and run the servo to full displacement in the opposite direction. Using both endpoints of the servo's range of motion as references, run the servo so that the actuator arm is positioned halfway between the two endpoints.

Step 10: Temporarily re-install the wing access plate on the bottom of the wing to verify clearances between the Aileron Trim Actuation Assembly and previously installed components.

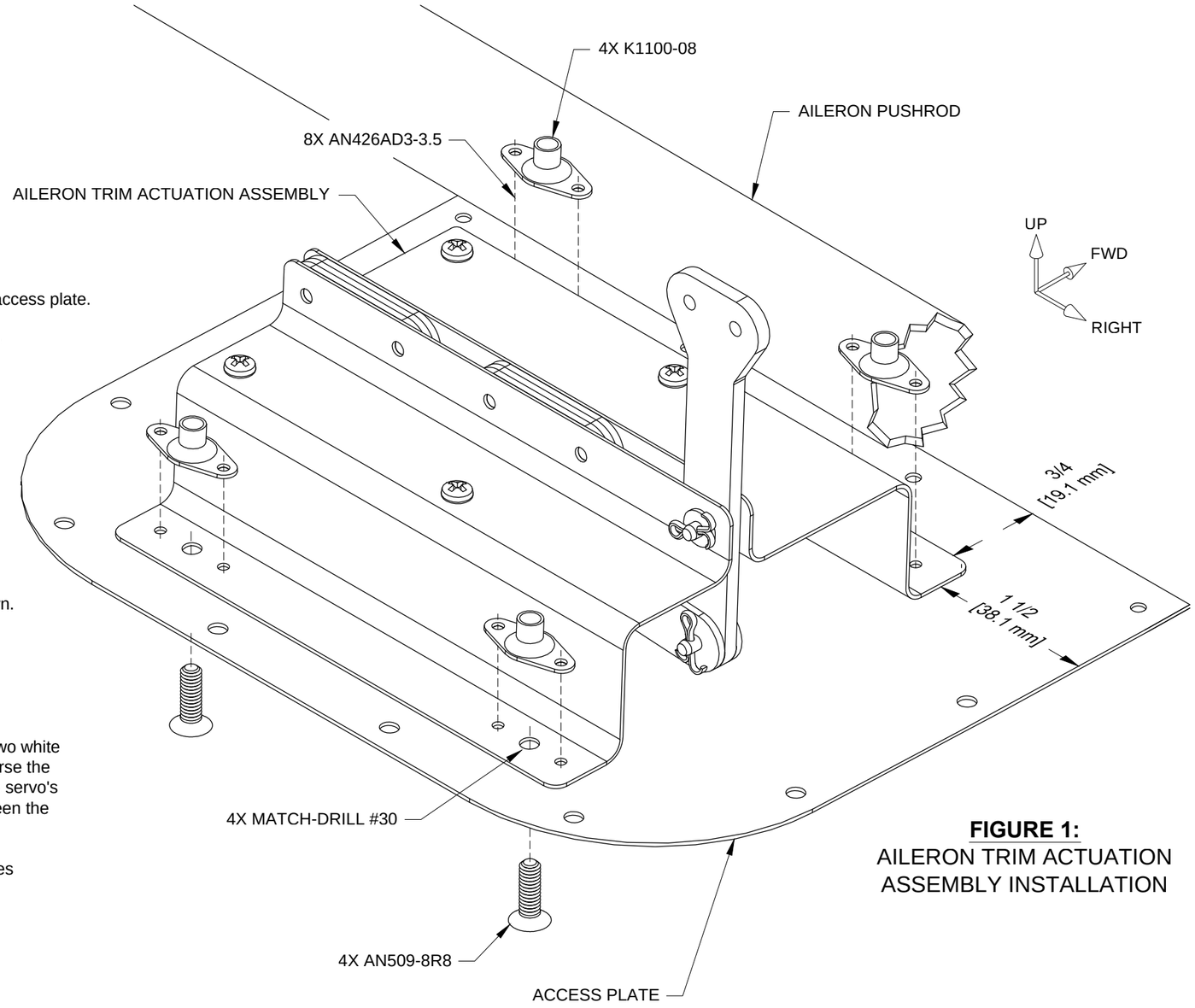


FIGURE 1:
AILERON TRIM ACTUATION ASSEMBLY INSTALLATION

Step 1: Separate the W-1017B-L and W-1017B-R Aileron Trim Spring Brackets as shown in Figure 1.

Step 2: Temporarily install the Aileron Trim Actuation Assembly in the wing. Position the aileron pushrod in a neutral position so that there is no aileron deflection on either wing.

Step 3: With a neutral aileron position and a neutral aileron trim arm position, mark the centerline of the aileron trim arm onto the aileron pushrod.

Step 4: Disconnect the aileron pushrod from the Aileron Actuation System at both the root and the tip of the wing.

NOTE: The following steps may also be accomplished through the wing access holes without removing the pushrod from the wing.

Step 5: If desired, remove the aileron pushrod for better access by pulling it out through the outboard end of the wing.

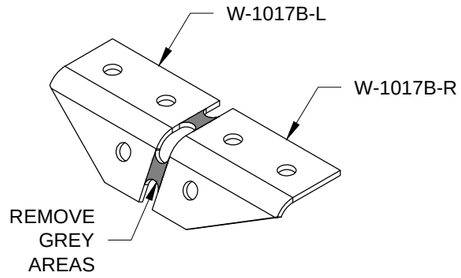


FIGURE 1: SEPARATE AILERON TRIM SPRING BRACKETS

NOTE: Perform the following steps once the wing has been installed and the elevator and aileron control systems have been connected.

Step 11: Remove the wing root fairing, then use a mirror to look through the wing at the Aileron Trim Actuation Assembly.

Step 12: Move the controls through their full range of motion (maximum aileron deflection with stick neutral, stick back, and stick forward). Verify that there is no interference between the aileron pushrod and the W-1033C Aileron Trim Arm. If necessary, bend the aileron trim arm to provide clearance for the aileron pushrod.

Step 13: Remove the access panel and Aileron Trim Actuation Assembly from the wing, then complete the electrical portion of the Electric Aileron Trim System installation as described on Page OP 38-6.

Step 6: Mark lines on the aileron pushrod 6 in. [152.4 mm] to either side of the mark made in Step 3.

Step 7: Align the each aileron trim spring bracket with the marks made in Step 6, then match-drill #30 the holes in the aileron trim spring brackets into the aileron pushrod. See Figure 2.

Step 8: Rivet the aileron trim spring brackets to the aileron pushrod.

Step 9: Reinstall the aileron pushrod back into the wing as described in Section 23 (RV-10 and RV-14).

Step 10: Install the two VA-158 Aileron Trim Springs as shown in Figure 2. Begin by hooking the springs to the aileron trim spring brackets.

Next, position the Aileron Trim Actuation Assembly partially in the wing, then connect the springs to the aileron trim arm. Finally, re-install the access panel.

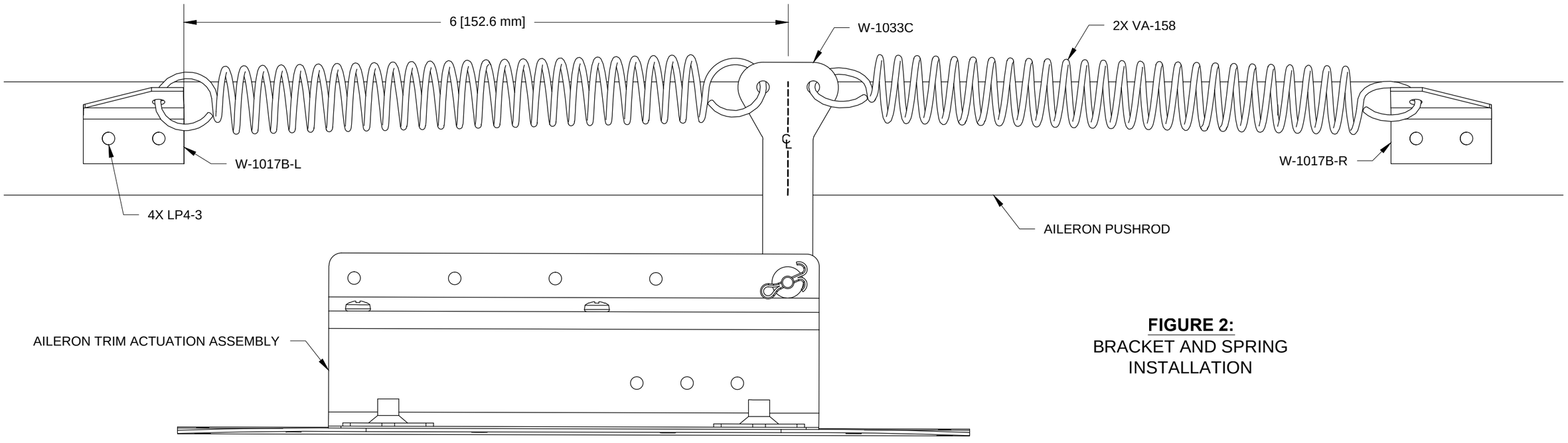


FIGURE 2: BRACKET AND SPRING INSTALLATION

NOTE: See Section 5.21 for more information on open barrel terminals.

NOTE: Steps 1-6 pertain to the RV-14 ONLY.

Step 1: Crimp the ES-00047 Molex Micro-Fit Pins onto the stripped ends of the wire bundle using a molex hand crimp tool. See Figure 1.

Step 2: Connect the trim servo to the Molex connector as shown in Figure 1. The two white wires may be inserted into either of the locations indicted.

Step 3: Label the Molex connector as shown in Figure 5.

Step 4: Install the Electric Aileron Trim System into the wing as described on Page OP 38-5.

Step 5: Connect C406P to C406J (in the WH-00013 Autopilot Servo Harness).

Step 6: Verify the correct operation of the Electric Aileron Trim System through the control mechanism (EFIS, switch, or control box).

If the operation of the Electric Aileron Trim System is reversed, unpin and swap the positions of the C1031 (WHT) and C1032 (WHT) wires found at the C405J Molex receptacle (located on the inboard side of the right wing). See the WH-00125 Common Fuselage Harness drawing for more information.

NOTE: The following steps pertain to the RV-10 ONLY.

Step 7: Route wires to the cabin, mount switch(es), and position indicator.

Step 8: Make appropriate electrical connections in accordance with instructions supplied with the trim servo.

Step 9: Install the Electric Aileron Trim System as described on Page OP 38-5.

Step 10: Verify the correct operation of the Electric Aileron Trim System through the control mechanism (EFIS, switch, or control box).

If the operation of the Electric Aileron Trim System is reversed, swap the connections for the two white wires in the trim servo wiring bundle.

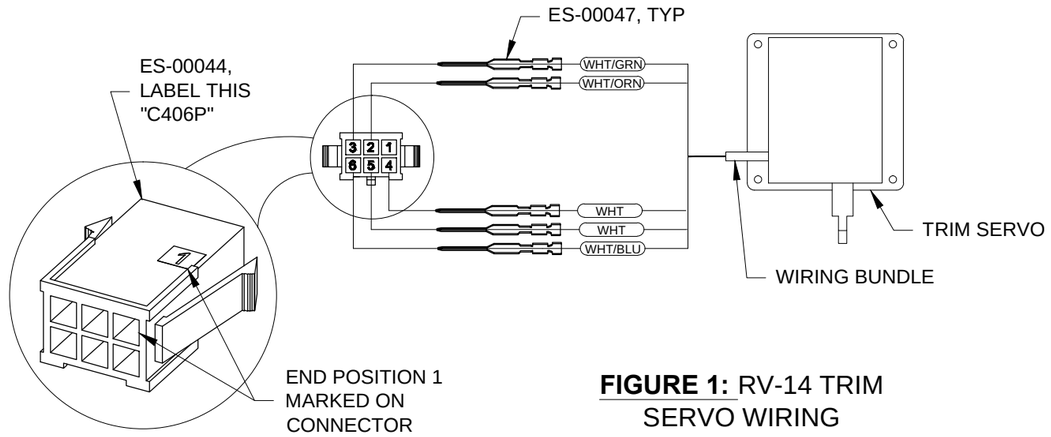


FIGURE 1: RV-14 TRIM SERVO WIRING