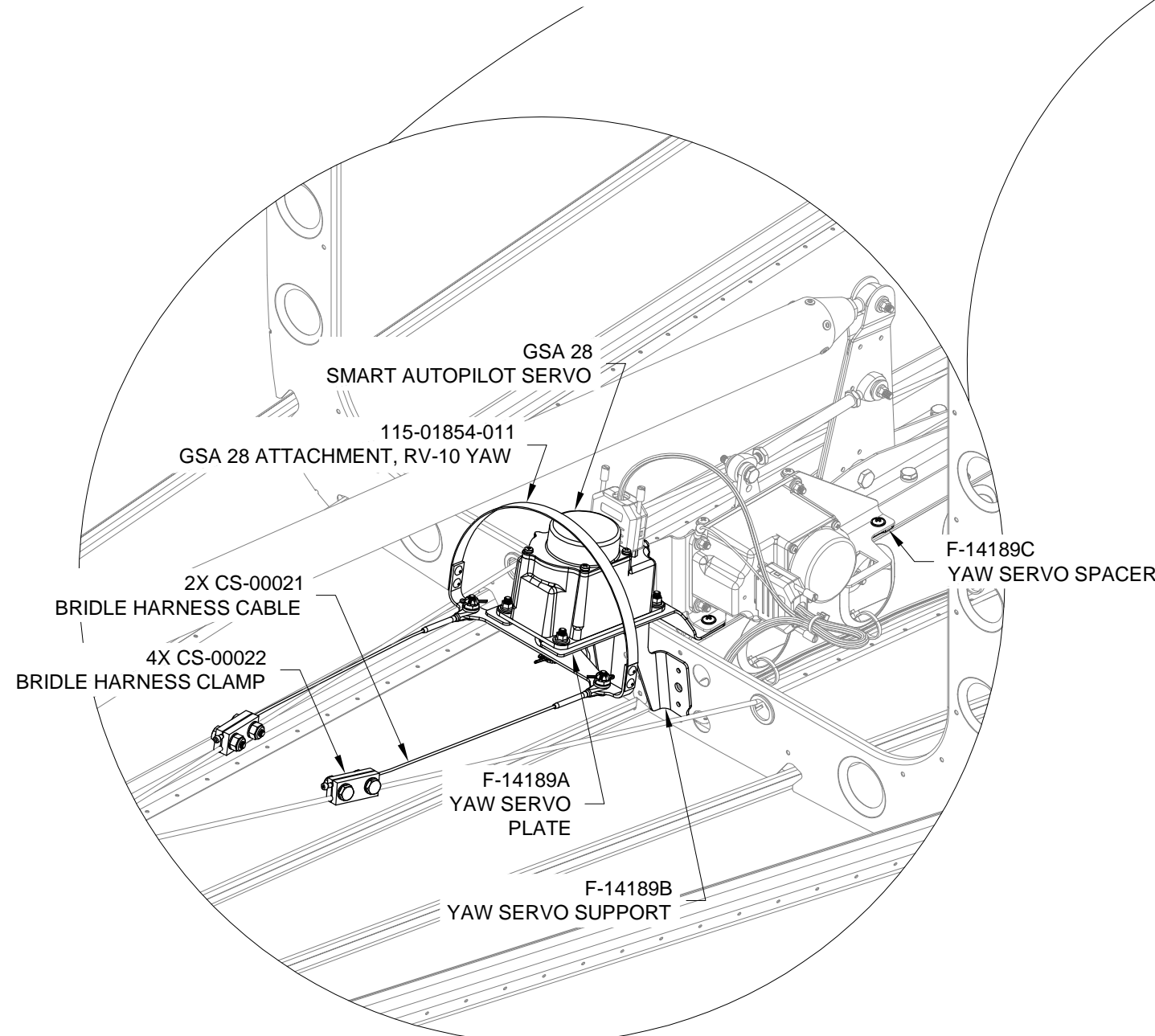
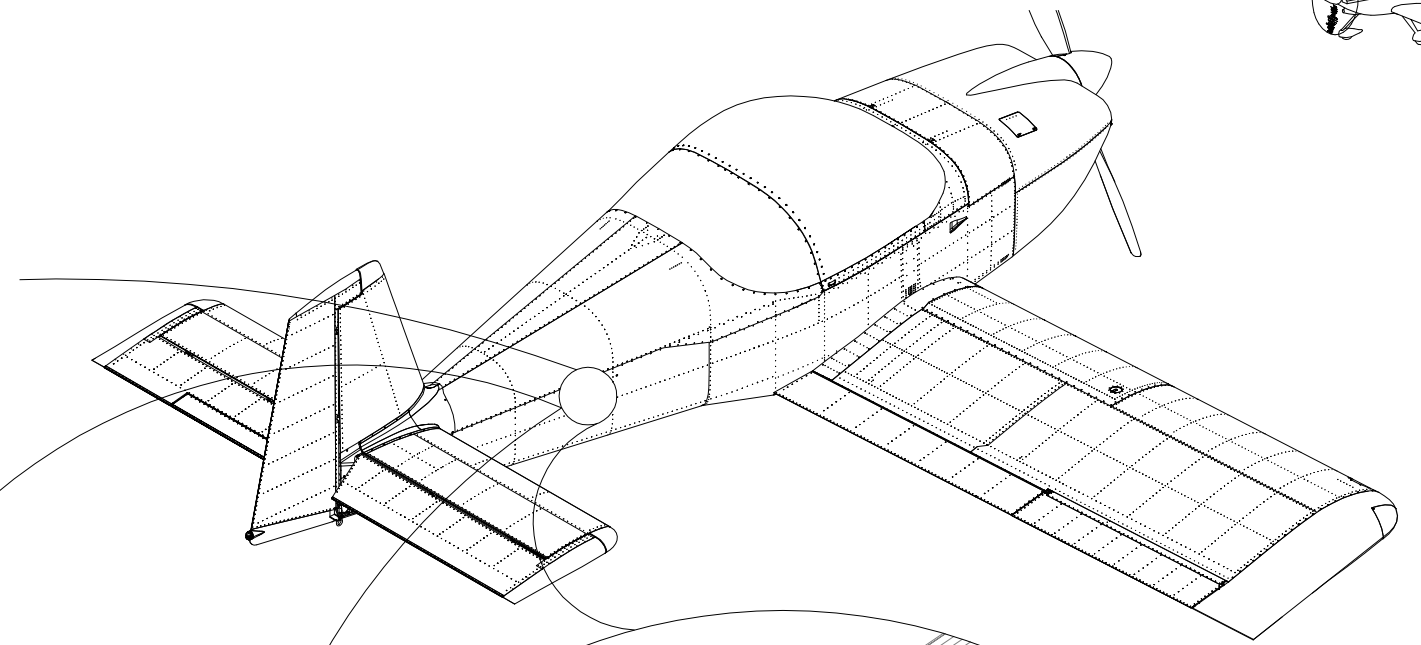
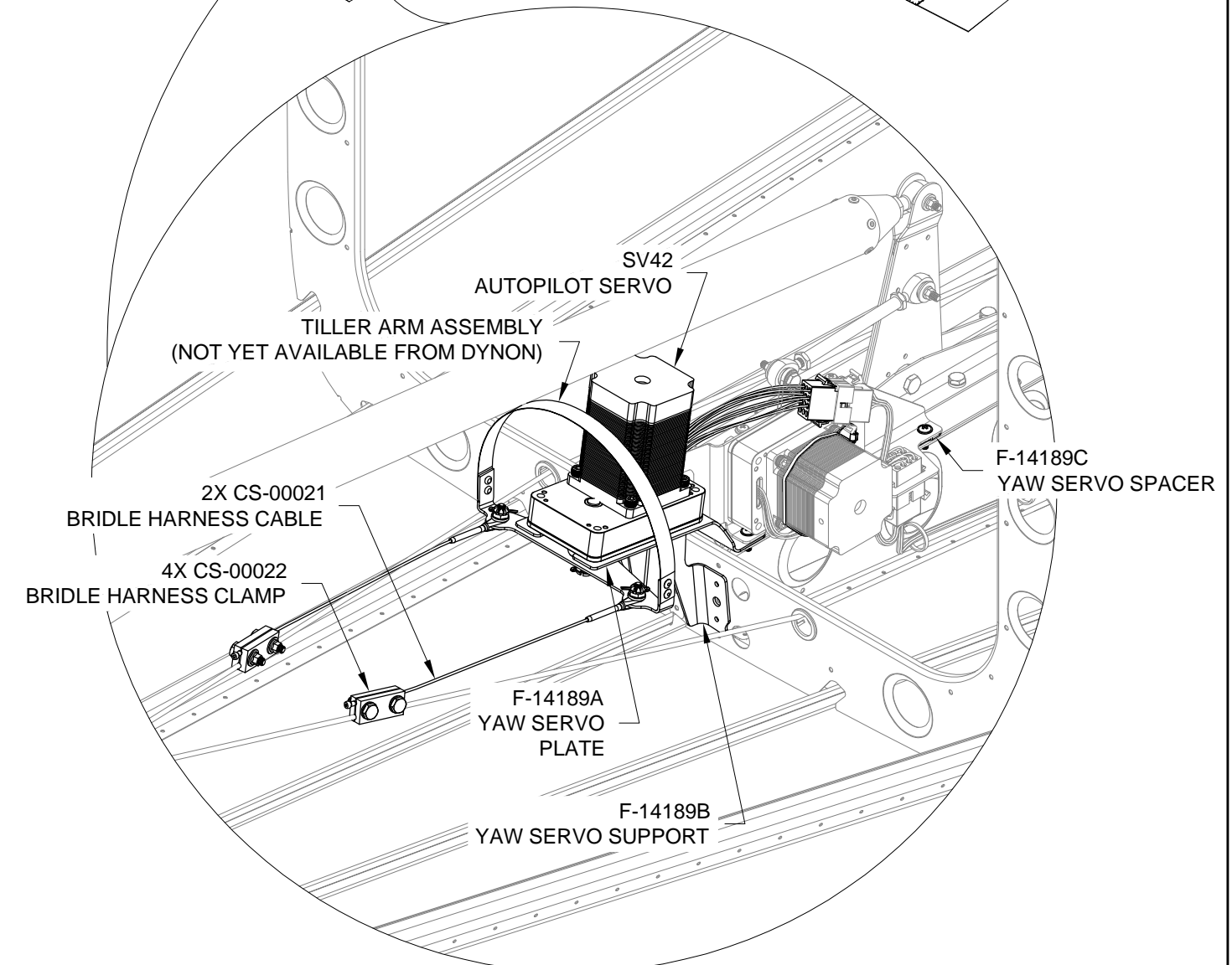


SECTION 58: AUTOPILOT YAW SERVOS



**GARMIN
INSTALLATION**



**DYNON
INSTALLATION**



NOTE: Refer to the WH-00125 RV-14 Common Fuselage Harness drawing available on the Van's Aircraft website Downloads page for autopilot wiring diagrams.

For Garmin installations, purchase the following items from your avionics supplier:

QTY	ITEM
1	Garmin GSA 28 Smart Autopilot Servo
1	Garmin 115-01854-11 GSA 28 Attachment, RV-10 Yaw (hereafter referred to as the yaw servo arm)

For Dynon installations, purchase the following items from your avionics supplier:

QTY	ITEM
1	Dynon SV42 Autopilot Servo
1	Dynon Tiller Arm Assembly (not yet available from Dynon, hereafter referred to as the yaw servo arm)

Step 1: Align the rudder with the vertical stabilizer. Tape both sides of the rudder to the vertical stabilizer. See Figure 1.

Step 2: Machine countersink the F-14189A Yaw Servo Plate as shown in Figure 2.

Step 3: Cleco the yaw servo plate to the F-14189B Yaw Servo Support. See Figure 2.

Step 4: Rivet the yaw servo plate to the yaw servo support as shown in Figure 2.

Step 5: (Garmin) If present, disconnect the GSA 28 pitch servo from the Pitch Servo Pushrod Assembly. Refer to Figure 2 on Page 58-03 or Section 56 as required.

Step 6: (Garmin) If present, remove the GSA 28 pitch servo from the F-14184 Pitch Servo Bracket.

Step 5: (Dynon) If present, disconnect the SV32 pitch servo from the Pitch Servo Pushrod Assembly. Refer to Figure 1 on Page 58-05 or Section 57 as required.

Step 6: (Dynon) If present, remove the SV32 pitch servo from the F-14184 Pitch Servo Bracket.

Step 7: Remove the F-14184 Pitch Servo Bracket from the F-14139 Bellcrank Mount as shown in Figure 2. Discard the screws.

Step 8: Position the yaw servo plate as shown in Figure 1 and temporarily attach it to the bellcrank mount with the longer screws called out in Figure 2.

Step 9: Clamp the lower flanges of the yaw servo support to the F-01407-L & -R Side Frames.

Step 10: Use an angle drill to match-drill #30 the holes in the yaw servo support into the side frames (and the F-01429-L & -R Bellcrank Ribs) as shown in Figure 2.

Step 11: Remove the yaw servo plate and support.

Step 12: Deburr the holes in the side frames (and bellcrank ribs).

Step 13: Rivet the yaw servo support to the side frames (and bellcrank ribs) as shown in Figure 2.

Step 14: Place the yaw servo plate and the F-14189C Yaw Servo Spacer underneath the pitch servo bracket and reinstall the pitch servo bracket as shown in Figure 2.

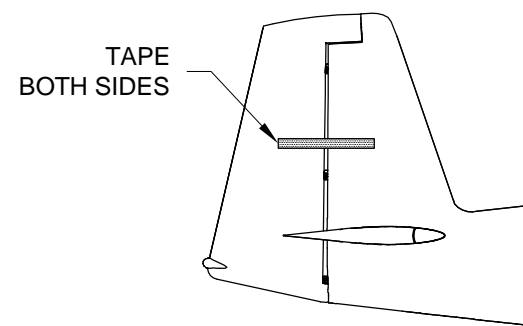


FIGURE 1: TAPE RUDDER

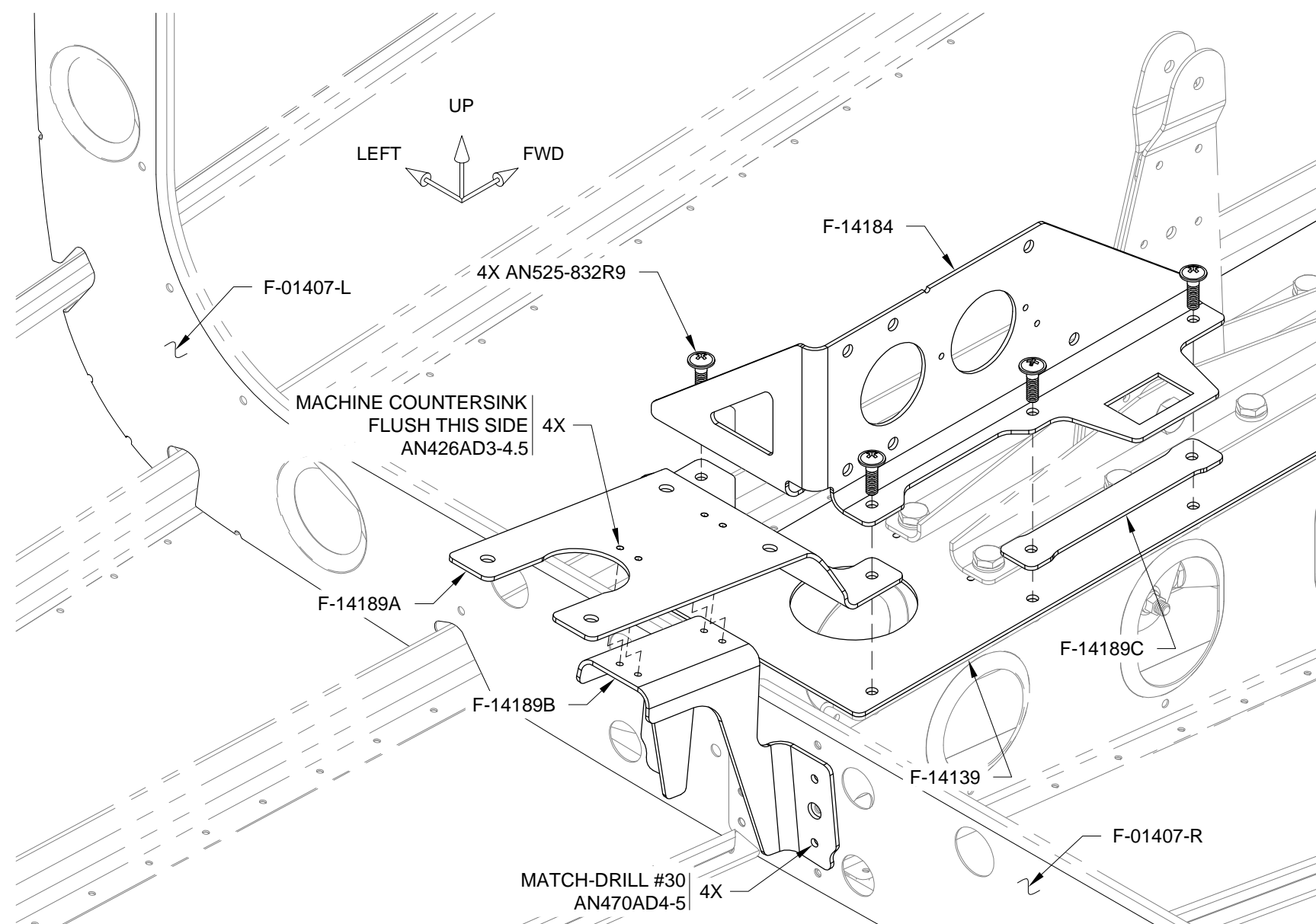
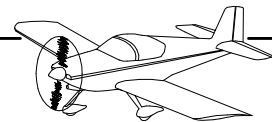


FIGURE 2: INSTALL YAW SERVO PLATE & SUPPORT



NOTE: The instructions on this page are for Garmin installations only.

NOTE: Use the Garmin "G3X Installation Manual" as a reference during servo installation.

Step 1: Remove the servo arm from a GSA 28 Smart Autopilot Servo (hereafter referred to as the yaw servo). See Figure 1.

Step 2: Attach the yaw servo arm to the GSA 28 yaw servo using the hardware shown in Figure 1. Note the additional flat washer.

Tighten the castle nut until the split washer is fully compressed, but **DO NOT** exceed 20 in.-lb.

Loosen the castle nut until the nearest castellation (i.e. slot) aligns with the hole in the shaft and then install the cotter pin. Use a new cotter pin.

Step 3: Attach the CS-00021 Bridle Harness Cables to the yaw servo arm as shown in Figure 1. **DO NOT** fully torque the castle nuts: the bridle harness cables must be free to rotate relative to their bolts.

Step 4: Remove any slack in the CS-00014-L & -R Rudder Cables between the yaw servo and the rudder. Pull the rudder cables taut and spring clamp the cables where they exit the forward side of the F-01407-L & -R Side Frames. See Figure 2. Keep the rudder centered.

Step 5: Attach the GSA 28 yaw servo to the F-14189A Yaw Servo Plate as shown in Figure 2.

Step 6: Secure the bridle harness cables to the rudder cables with the CS-00022 Bridle Harness Clamps as shown in Figure 2.

Before applying final torque to the bolts, ensure that the yaw servo arm is centered and the slack is taken out of the bridle harness cables.

Step 7: Connect the 15-pin female d-sub labeled "YAW" on the WH-00118 Garmin RV-14 Pitch & Yaw Servo Harness to the GSA 28 yaw servo as shown in Figure 2. Remove/replace tie-wraps as required.

Step 8: Reattach the GSA 28 pitch servo to the F-14184 Pitch Servo Bracket and Pitch Servo Pushrod Assembly. Use new lock nuts. Refer to Section 56 as required.

Step 9: Remove the spring clamps from the rudder cables and remove the tape from the rudder.

Step 10: Configure your avionics to control the yaw servo in accordance with your avionics manufacturer's documentation.

Step 11: If this yaw servo installation was done as a retrofit, update the aircraft weight and balance and make a logbook entry.

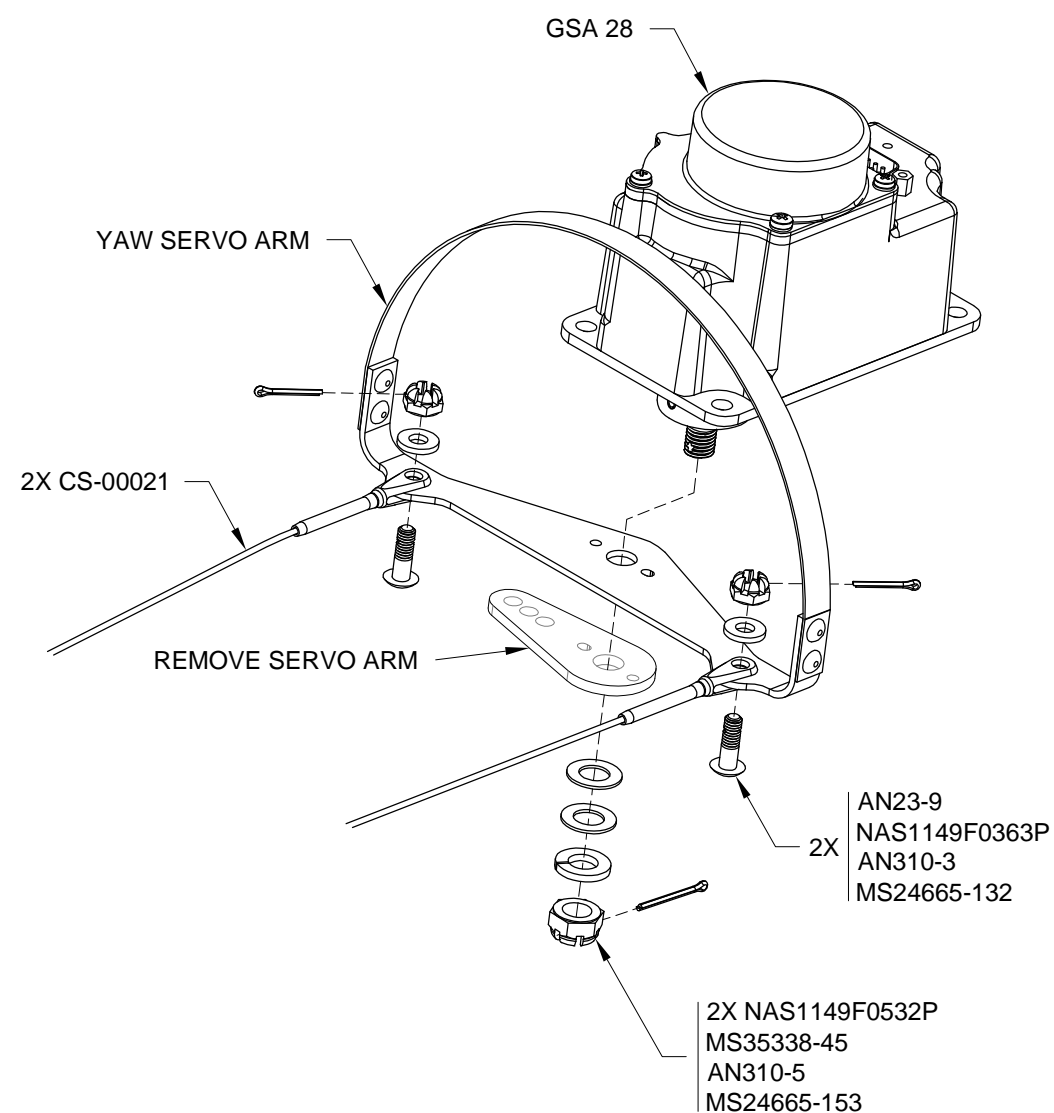


FIGURE 1: ATTACH YAW SERVO ARM (GARMIN)

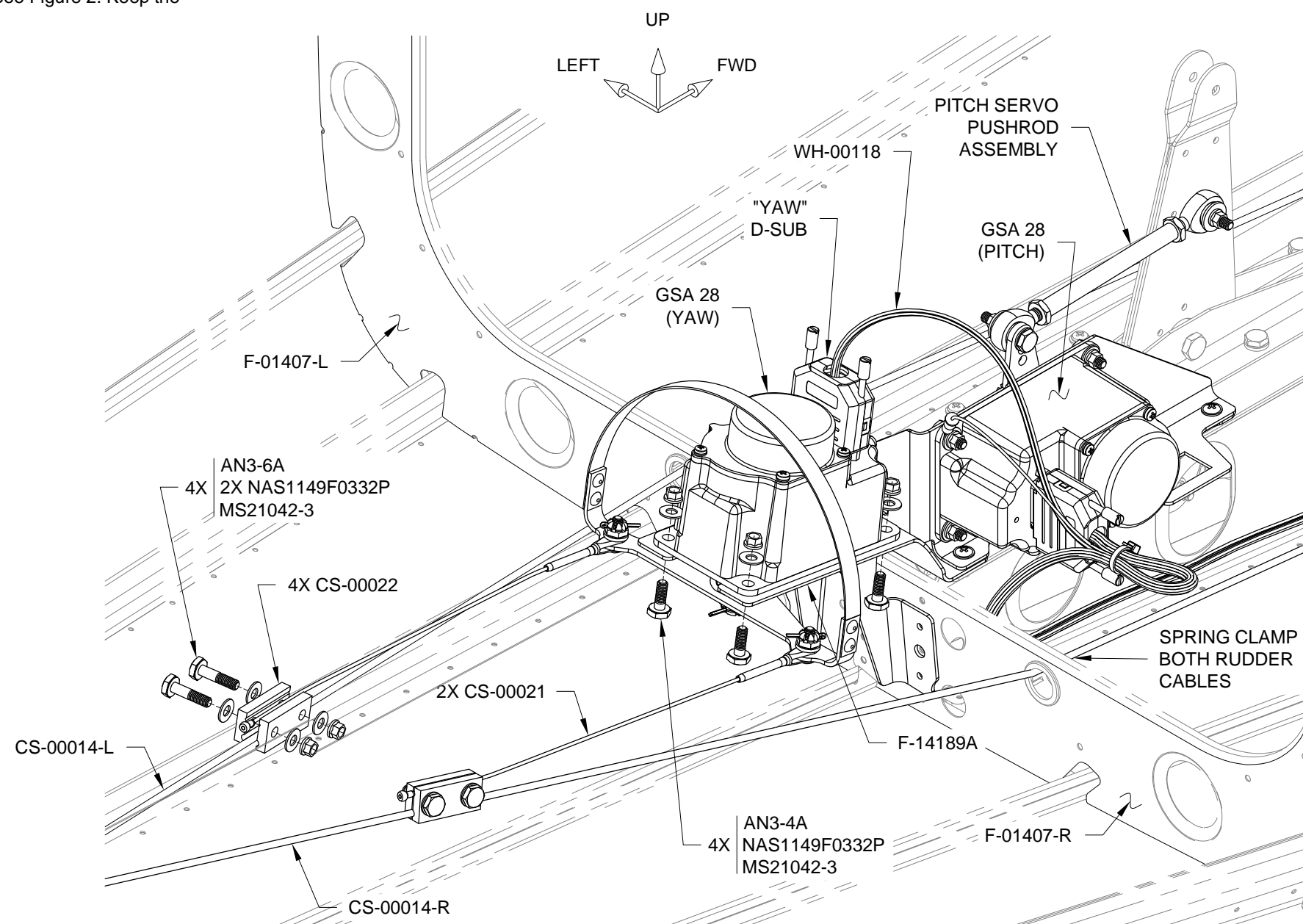


FIGURE 2: ATTACH YAW SERVO & CABLES (GARMIN)



NOTE: The instructions on this page are for Dynon installations only.

NOTE: If required, review Section 5.21 regarding Molex connectors, open barrel terminals, and the terminal installation table.

Step 1: Trim the seven wires coming out of a SV42 Autopilot Servo to the length shown in Figure 1.

Step 2: Strip the end of each wire and crimp on a Molex socket. See Figure 1.

NOTE: Numbers identifying the wire positions are molded into the back of each receptacle.

Step 3: Insert the sockets from the SV42 yaw servo into a 12-pin Molex receptacle as shown in Figure 1.

Label the Molex receptacle "C433J".

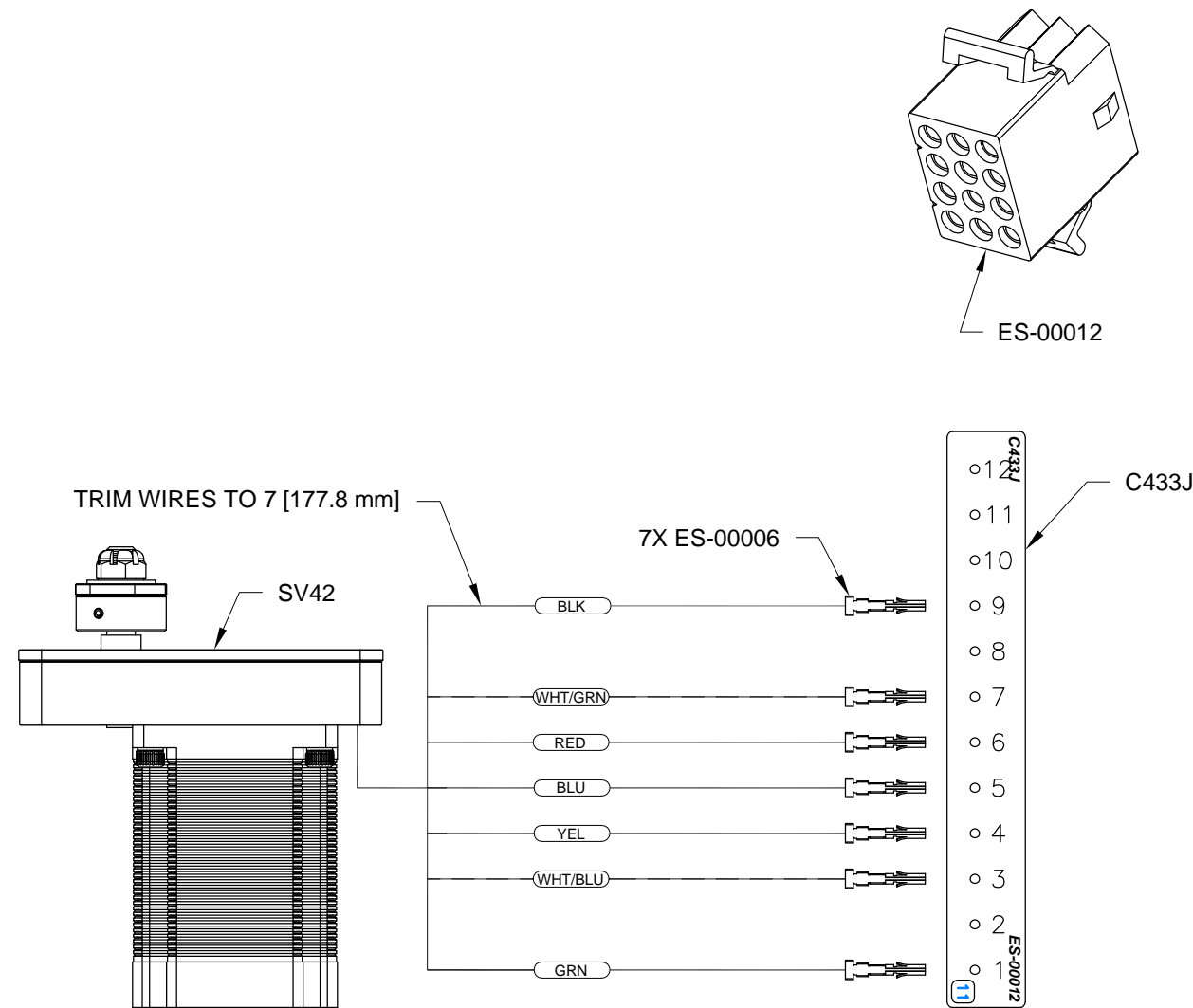


FIGURE 1: INSERT SV42 SERVO WIRES

NOTE: Refer to Dynon document 101156-001 "Dynon Servo Arm/Capstan Removal and Replacement Instructions".

Step 4: Remove the servo arm from the SV42 yaw servo. **DO NOT** remove or adjust the shear screw.

Step 5: Attach the yaw servo arm to the SV42 yaw servo using the hardware shown in Figure 2.

Tighten the castle nut finger-tight, then tighten using a torque wrench until the nearest castellation (i.e. slot) aligns with the hole in the shaft. **DO NOT** exceed 4.5 in.-lb. Use a new cotter pin.

Step 6: Attach the CS-00021 Bridle Harness Cables to the yaw servo arm as shown in Figure 2. **DO NOT** fully torque the castle nuts: the bridle harness cables must be free to rotate relative to their bolts.

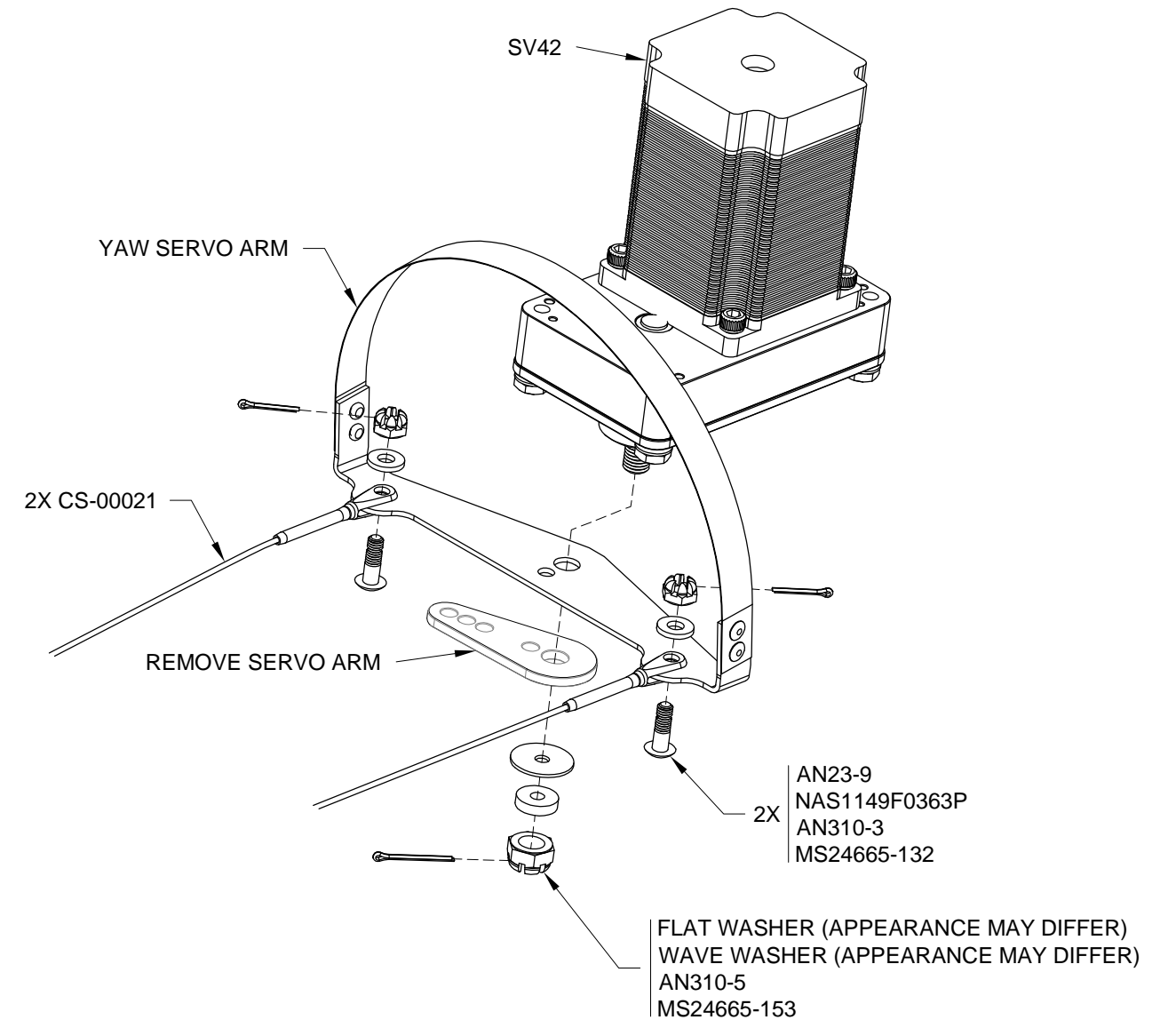
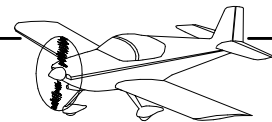


FIGURE 2: ATTACH YAW SERVO ARM (DYNON)



NOTE: The instructions on this page are for Dynon installations only.

Step 1: Remove any slack in the CS-00014-L & -R Rudder Cables between the yaw servo and the rudder. Pull the rudder cables taut and spring clamp the cables where they exit the forward side of the F-01407-L & -R Side Frames. See Figure 1. Keep the rudder centered.

Step 2: Attach the SV42 yaw servo to the F-14189A Yaw Servo Plate as shown in Figure 1. Apply Loctite 242 or an equivalent medium strength threadlocker to the bolt threads before insertion.

Step 3: Secure the CS-00021 Bridle Harness Cables to the rudder cables with the CS-00022 Bridle Harness Clamps as shown in Figure 1.

Before applying final torque to the bolts, ensure that the yaw servo arm is centered and the slack is taken out of the bridle harness cables.

Step 4: Connect C433J to C433P as shown in Figure 1. Remove/replace tie-wraps as required. Tie-wrap the connectors to the SV32 pitch servo as shown in Figure 1.

Secure any excess C433P wiring with tie-wraps.

Step 5: Reattach the SV32 pitch servo to the F-14184 Pitch Servo Bracket. Apply Loctite 242 or an equivalent medium strength threadlocker to the bolt threads before insertion.

Step 6: Reattach the SV32 pitch servo to the Pitch Servo Pushrod Assembly. Use new lock nuts. Refer to Section 57 as required.

Step 7: Remove the spring clamps from the rudder cables and remove the tape from the rudder.

Step 8: Configure your avionics to control the yaw servo in accordance with your avionics manufacturer's documentation.

Step 9: If this yaw servo installation was done as a retrofit, update the aircraft weight and balance and make a logbook entry.

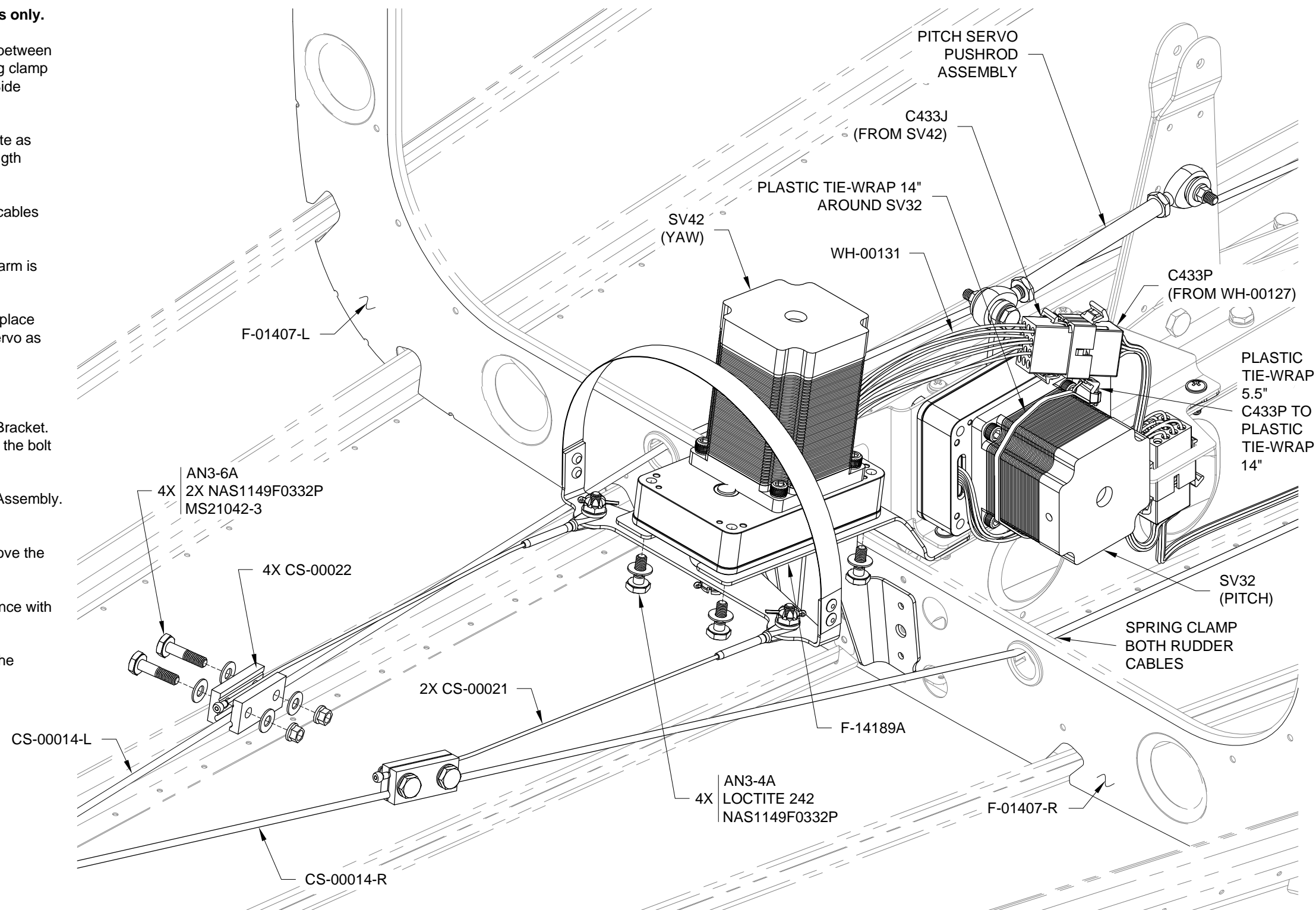


FIGURE 1: ATTACH YAW SERVO & CABLES (DYNON)



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