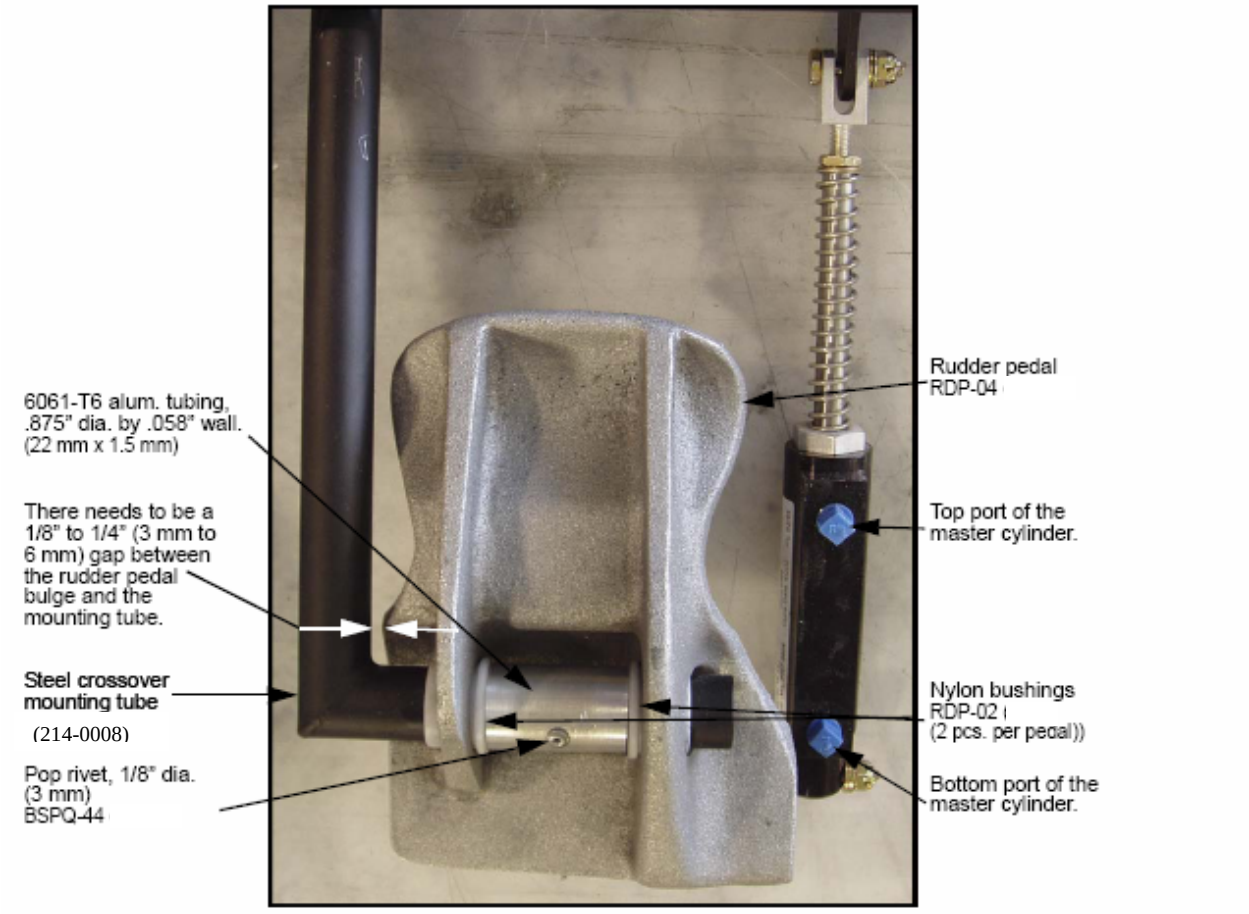
Installing the Rudder Pedals

The two rudder pedals provided in your kit are identical. There are not specific left or right pedals. You will install one pedal to the right crossover tube (214-0008) and the other pedal to the left crossover tube (214-0007).

Figure 12.3.C.1 Rear view of the rudder pedals with nylon bushings



Steps...

1. Push two nylon bushings (RDP-02) into the rear opening of each rudder pedal (RDP-04) as shown in Figure 12.3.C.1. Notice that the shoulders of these bushings are not flush against the castings because of the angled surface of the rudder pedal.
2. Cut two pieces of aluminum tubing 1-5/16" (33 mm) long. (6061T6 .875" diameter x .058" wall (22 mm x 1.5 mm)) These pieces need to fit between the RDP-02 bushings with a little side-to-side slop. You should have plenty of leftover aluminum tubing scraps for making these pieces.
3. Slide the following onto each rudder pedal crossover tube:

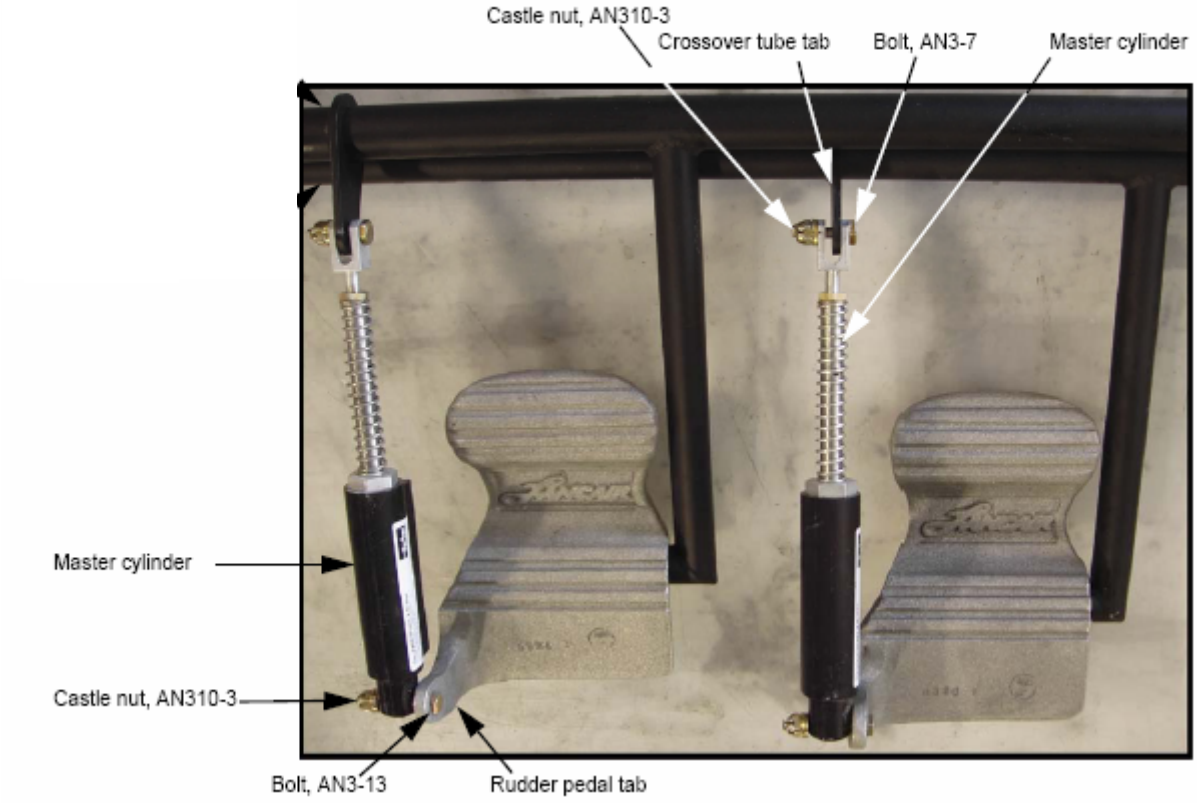
• One rudder pedal • one piece of the aluminum tubing for each rudder pedal. The aluminum tubing piece needs to install between the nylon bushings (RDP-02).

4. Properly position the rudder pedal on the crossover tube. Align the pedal so the top bulge is 1/8-1/4” (3-6 mm) away from the vertical section of the crossover tube as shown in Figure 12.3.C.1.
5. Secure the piece of aluminum tube to the rudder pedal mounts using a single 1/8" (3 mm) dia. pop rivet (BSPQ-44). This secures the rudder pedals to the horizontal portion of the crossover tube. Unless you drill out this rivet, which is easy to do, the rudder pedals are permanently secured to the crossover tubes.

Installing the Brake Master Cylinders

The brake master cylinders are mounted to the rudder pedals and the crossover tubes. When the tops of the rudder pedals are pushed forward for braking, the master cylinders compress hydraulic fluid through the brake lines and into the wheel-mounted brake assemblies. The pistons in the brake assemblies squeeze the brake pads against the disks which creates your braking action.

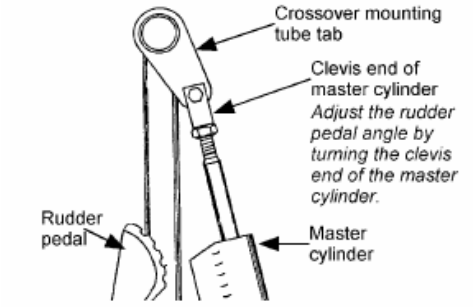
Figure 12.3.D.2 Brake master cylinder installation



Steps...

1. Secure the bottom of each master cylinder to the rudder pedal tab with a bolt (AN3-13) and castle nut (AN310-3). Do not tighten the castle nut so much that the master cylinder cannot rotate.
2. Adjust the upper end of the master cylinder until you can bolt the clevis to the tab on the crossover tube. Make sure the rudder pedal is positioned as shown in Figure 12.3.D.2.
3. Secure the master cylinder clevis to the tab with a bolt (AN3-7) bolt and a castle nut (AN310-3). There are not any washers between the clevis and the tab. This leaves some slop in the connection to avoid stressing the master cylinder. Too much stress on the master cylinder can cause a misalignment.

Figure 12.3.D.1 Adjusting the rudder pedal angle



Installing the Crossover Tubes

Now you have two crossover tubes, each with one pedal installed. In this section you will install the crossover tubes into the fuselage. The crossover tubes are installed in the following configuration:

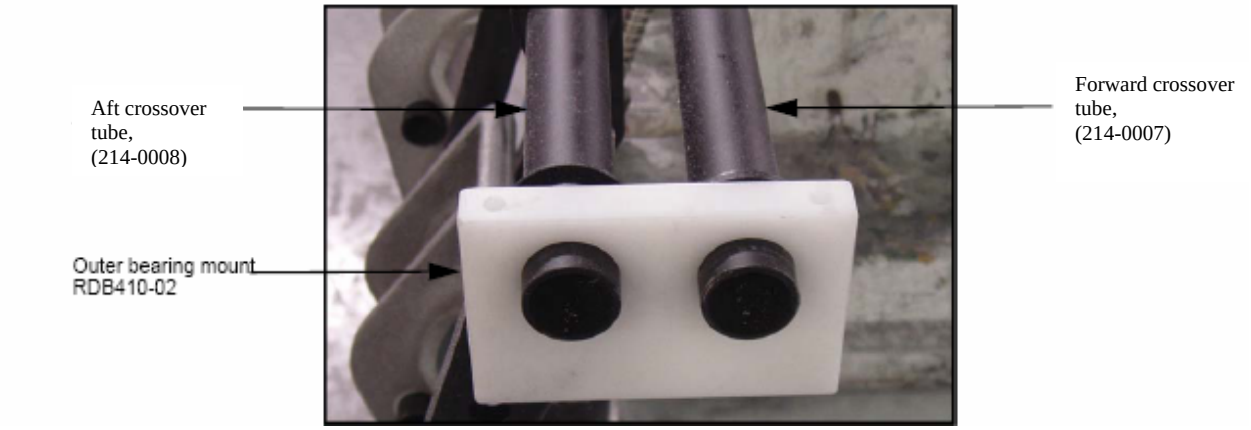
• Crossover tube with the left pedals mounted is installed in the forward position.
• Crossover tube with the right pedals mounted is installed in the aft position.

The crossovers are supported by three Delrin plastic mounts. The center bearing mount is in two pieces while the right and left mounts are single pieces

Steps...

1. Attach the adjuster links 229-0006 to the crossover tube ends.
2. Insert the crossover tubes into the outer bearing mounts (RDB410-02). Make sure your tubes are positioned as displayed in Figure 12.3.E.2. The holes in the bearing mounts are not centered. The wider part of the bearing mounts should be down.
3. Move each crossover tube around in its hole in the bearing mount. If it binds in the hole, remove the tube and sand the hole in the mount so it is slightly larger.
4. Insert the top portion of the middle bearing mount (RDB410-01-T) over the center of the two crossover tubes and attach the bottom portion of the bearing mount (RDB410-01-B) to it using bolts (AN3-30A) with washers (AN960-10) and locknuts (AN365-1032A).

Figure 12.3.E.2 Side bearing mounts for the rudder crossover tubes



5. Attach the adjuster railings (205-0002 and 205-0003) to the molded standoffs (283-0004) and install using a screw (MS24694-S50) and nut-plate (F5000-3) as shown in Figure 12.3.E.3.
6. Attach the assembled railings and standoffs to the outer bearing mounts as shown in Figure 12.3.E.3.
7. Position the assembled crossover tubes in the aircraft and find desired height of rudder pedals. A good starting place is to mount the top of the standoff 15 inches above the floor when measured along the side of the fuselage as shown in Figure 12.3.E.3. Mark the location for bonding the standoffs to the fuselage. Assure that the crossover tubes are level and have free motion at the desired height.
8. Mark the location for holes to be drilled in firewall for the forward mounting bolt of the adjuster railings as shown in Figure 12.3.E.4.
9. Remove the molded standoffs from the adjuster railings and bond the standoffs to the fuselage side in the marked location using E-glass or carbon layups as shown in Figure 12.3.E.5.
10. Drill holes in the firewall in the marked locations for adjuster railing mounting bolts.
11. After cured, reattach the adjuster railings and crossover tube assembly to the standoffs as well as attaching the adjuster railing to the firewall using a bolt (AN3-10A) two washers (AN970-3 and AN930-10L) and a locknut (AN365-1032A). Check for excessive binding in the system. There can be a small amount of friction in the system.

Figure 12.3.E.3 Railing attached to standoff, with outer bearing mount attached

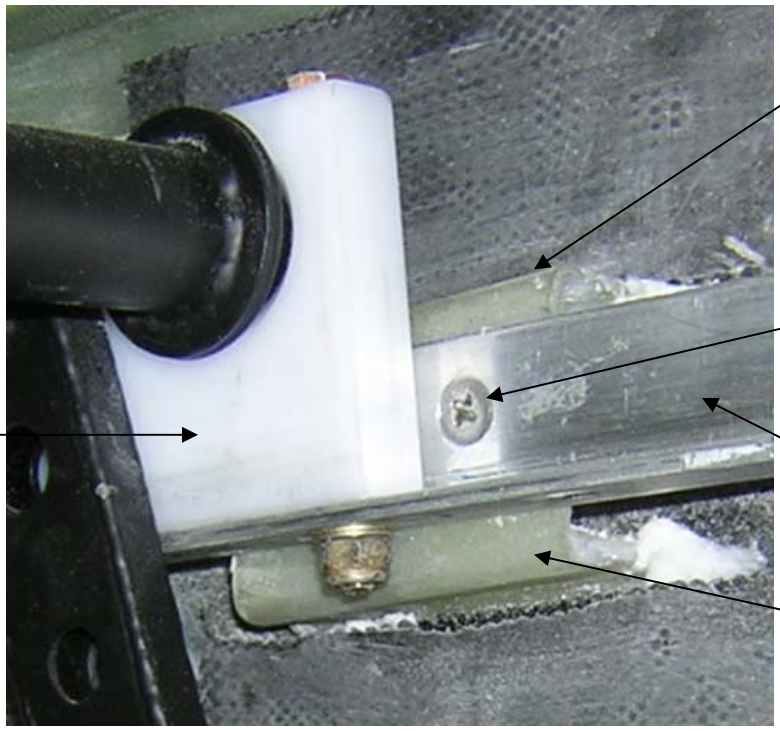


Figure 12.3.E.4 Railing attached to Firewall

Figure 12.3.E.5 Standoff attachment to fuselage using carbon layups