

## Arm Base Assembly Guide v2.0.

**Safety first!** Wear eye protection and never touch a powered robot!



**Arm Base mounted**

### Step 1.

Insert the stainless steel pins into the plastic bearings as shown.

**5 x**

1/16 x 3/8" Pin  
6mm Plastic Bearing

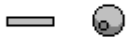


Figure 1.

### Step 2.

Install the bearings into the base as shown. They will fit snugly.

Note, the notch in the bottom edge of the base indicates the back.



Figure 2.

**Step 3.**

Lay a piece of 400 grit sandpaper on a flat surface and move the base (upside down) in small circles on it. This will remove any imperfections on the bearings.



Figure 3.

**Step 4.**

Figure 4 shows the circle pattern on the sandpaper and the inset shows the bearings after any imperfections have been removed.

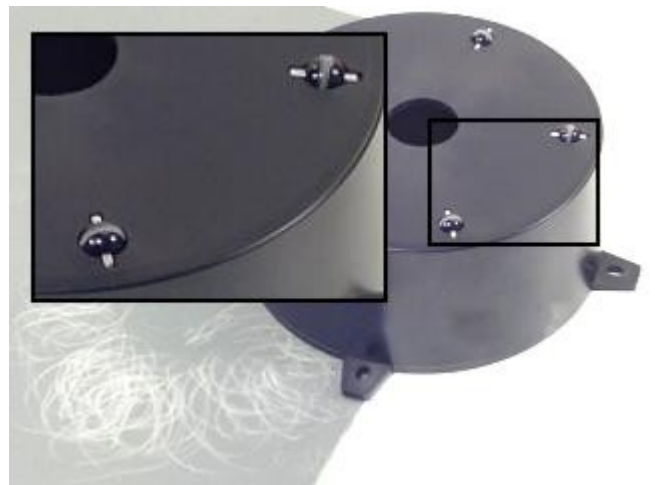


Figure 4.

**Step 5.**

Figure 5 illustrates a typical standard-size servo with its output horn (the round white part) at center position. Make sure your servo looks like the image, and then carefully remove the servo horn screw and pull the horn straight off of the servo.



Figure 5.

Kit	Servo
AL5A	HS-422 or HS-425
AL5B, D	HS-475 or HS-485

Table 5.

### Step 6.

Place the servo in the base as shown and screw it in tightly using four #4 tapping screws.

**4 x**

#4 x .375" (3/8") **Steel**  
Phillips Head Tapping Screw

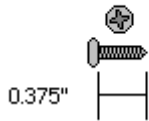


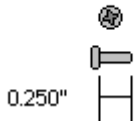
Figure 6.

### Step 7a.

If you are not building an AL5D arm, attach the ASB-201 bracket onto the base top, using four 2-56 x .250" phillips head machine screws and four 2-56 nuts as shown. Note, the bracket and hardware are included in the **arm kit**, not the base kit.

**4 x**

2-56 x .250" (1/4") **Steel**  
Phillips Head Machine Screw



**4 x**

2-56 x .188" **Steel**  
Standard Nut



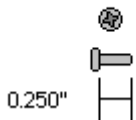
Figure 7a.

### Step 7b.

If you are building an AL5D robotic arm, attach a ASB-204 bracket onto the base top, using four 2-56 x .250" phillips head machine screws and four 2-56 nuts as shown. Note, the bracket and hardware are included in the **arm kit**, not the base kit.

**4 x**

2-56 x .250" (1/4") **Steel**  
Phillips Head Machine Screw



**4 x**

2-56 x .188" **Steel**  
Standard Nut



Figure 7b.

**Step 8.**

Add a drop of silicone-based oil to each bearing.



Figure 8.

**Step 9.**

Install the base top. The hole pattern should line up as shown in Figure 9, with one line pointing to the servo wire hole, and all of the lines pointing between the mounting tabs.

Note, this top piece is manufactured to be a tight fit. You might have to press very hard.

Attach the top with the servo horn screw.



Figure 9.

**Step 10.**

Route the base servo's cable through the hole in the back of the base. This will keep the base level to the mounting surface.



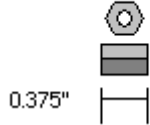
Figure 10.

**Step 11.**

Attach the 3/8" hex spacers as shown, using four 1/4" hex socket screws.

**4 x**

4-40 x .375" (3/8") **Nylon**  
.250" F/F Hex Spacer

**4 x**

4-40 x .250" (1/4") **Steel**  
Hex Socket Head Cap Screw

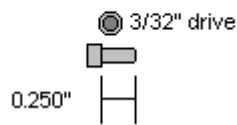


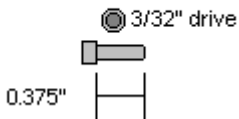
Figure 11.

**Step 12.**

Install the power switch bracket using two 3/8" hex socket screws and two nylon insert lock nuts.

**2 x**

4-40 x .375" (3/8") **Steel**  
Hex Socket Head Cap Screw

**2 x**

4-40 x .250" **Steel**  
Nylon Insert Locking Nut



Figure 12.

**Step 13.**

Install the power plug wiring harness as shown. Use a tie wrap to hold the wires in place as shown.

The pre-wired harness and wall pack must be checked before they are connected to the SSC-32. Put the black lead from a voltmeter on the black wire, and the red lead on the red wire. Plug the wall pack into the wall and insert the other end into the matching connector. Turn the voltmeter on and set it to measure DC volts. Turn on the power switch on the wiring harness. The voltmeter should read around +6vdc. If it reads -6vdc then DO NOT connect it to the SSC-32 and contact us. Yes, we found one of the wiring harnesses assembled backwards.



Figure 13.

#### Step 14.

Install the 9vdc battery wiring harness as shown.



Figure 14.

#### Step 15.

Install the SSC-32 as shown. Use four 1/4" hex socket screws.

4 x

4-40 x .250" (1/4") Steel  
Hex Socket Head Cap Screw

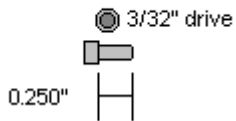


Figure 15.

#### Step 16.

Attach the 9vdc wires to the VL input. Attach the power plug wires to the VS1 input. Make sure the black wires goes to (-) and the red wires goes to (+). **Make sure you remove the VL=VS1 jumper.** This will isolate the servos' power from the microcontroller's power and will prevent the SSC-32 from "browning out".

A brownout can occur when a single power supply is used for servos and logic. If they are sharing a single supply it is possible for the servos to draw too much current, causing the microcontroller to reset.

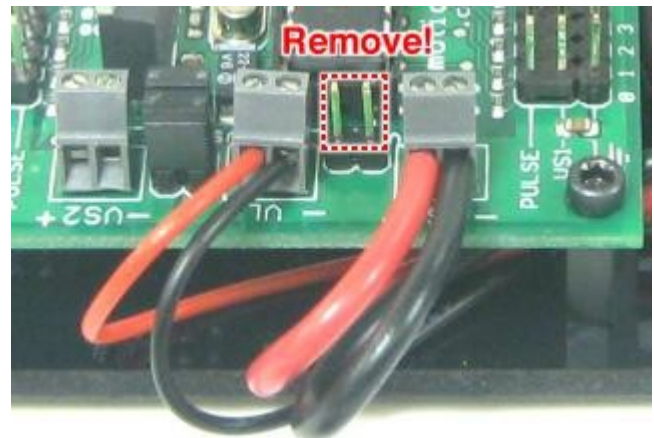


Figure 16.



### Step 17.

Mount everything to a piece of plywood or the like. Attach the electronics carrier as shown. Make sure to route the base rotate servo wire through the holes, and verify that it isn't being pinched. Use the #4 x .500" tapping screws to secure the assembly to the plywood.

4 x

#4 x .500" (1/2") Steel  
Phillips Head Tapping Screw

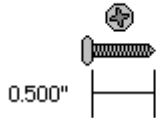


Figure 17.

### Step 18.

Plug the base rotate servo into the SSC-32 channel 0 as shown. Note that the black wire goes closest to the outside of the board.

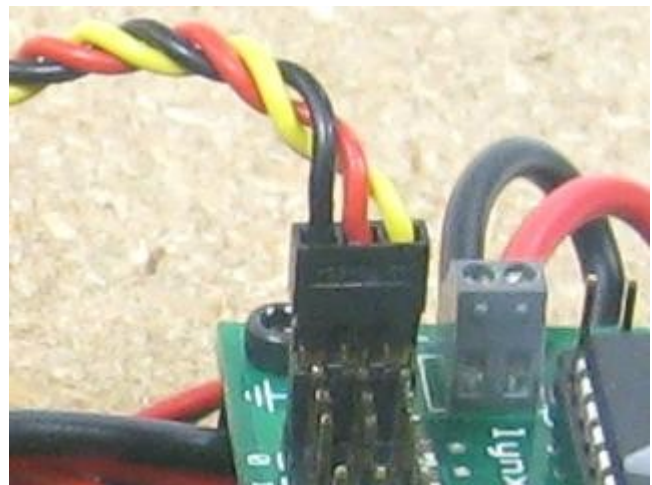


Figure 18.

### Step 19.

Plug in the 6vdc 2amp wall pack and DB9 data cable as shown in Figure 21.

To test communication, we'll use LynxTerm. Download and install LynxTerm v1.08 or higher. Connect the SSC-32 to the serial port and apply power. The green LED should light and stay on until it receives a valid serial command. Run the LynxTerm program.

### Step 20.

Type "ver" and press "enter". You should see "SSC32-V2.01XE" or higher returned.

If this process does not work, please consult the serial and USB-to-serial troubleshooting guide.



Figure 20.

**Step 21.**

Now it's time to test the servo. With Lynxterm installed, you can select channel 0 and move the slider to rotate the base, fun, huh? Before moving on, press the "All=1500" button to re-center the base servo.



Figure 21.