Biped BRAT Assembly Guide

Step 1.

Attach a multi-purpose bracket to the foot as shown, using three 2-56 x .125" screws and 2-56 nuts each.

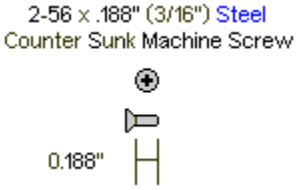


Figure 1. (Left Leg)

Figure 1. (Right Leg)

Step 2.

Attach the "L" bracket to a short "C" bracket as shown, using two 2-56 x .250" screws and 2-56 nuts each.

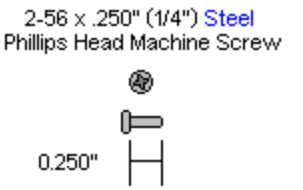


Figure 2. (Left Leg)

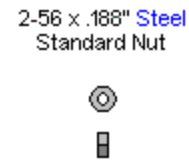


Figure 2. (Right Leg)

Step 3.

Attach a multi-purpose bracket to the "L" bracket as shown, using two 2-56 x .250" screws and 2-56 nuts each.

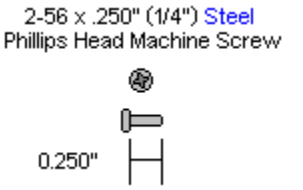


Figure 3. (Left Leg)

Figure 3. (Right Leg)

Step 4.

Attach the assembly from Step 3 to the multi-purpose bracket on the foot. See figure 4-1 for detailed information.

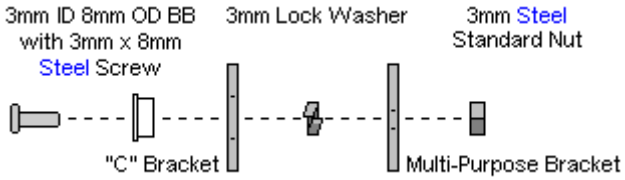


Figure 4. (Left Leg)

Figure 4. (Right Leg)

Step 5.

Connect two short "C" brackets as shown, using two 2-56 x .250" screws and 2-56 nuts each.

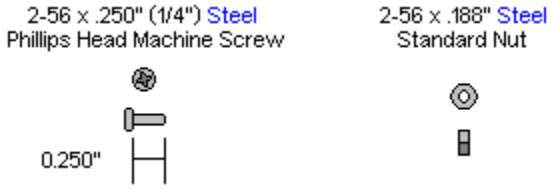


Figure 5. (Left Leg)

Figure 5. (Right Leg)

Step 6.

Attach the "C" brackets to the leg assemblies as shown. See figure 6-1 for detailed information.

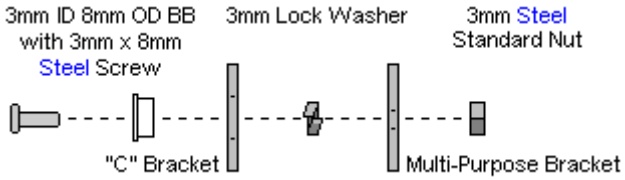


Figure 6. (Left Leg)

Figure 6. (Right Leg)

Step 7.

Attach a multi-purpose bracket to the "C" bracket as shown. See figure 7-1 for detailed information.

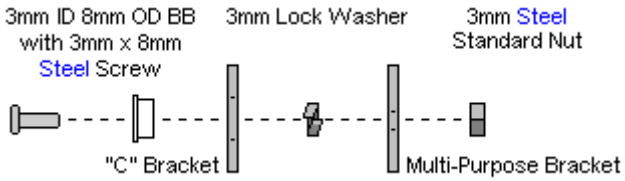
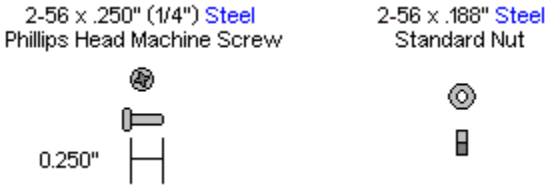


Figure 7. (Left Leg)

Figure 7. (Right Leg)

Step 8.

Attach the leg assembly from step 7 to the 3" U-Channel as shown, using three 2-56 x .250" screws and 2-56 nuts on each side.



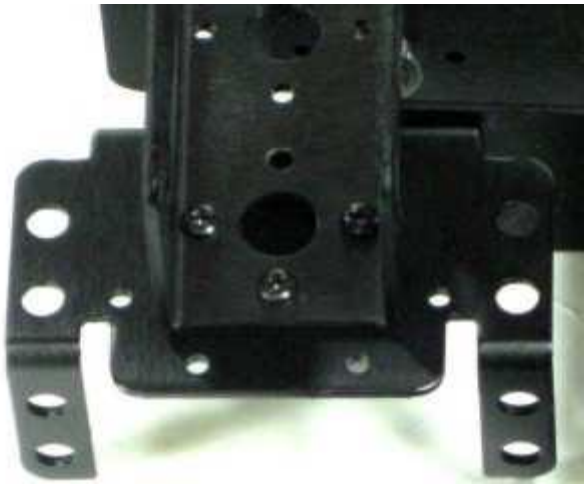


Figure 8. (Left Leg)

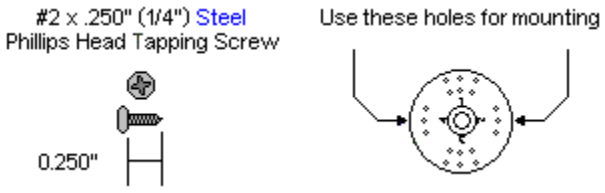
Figure 8. (Right Leg)

Step 9.

Your assembly should look like the image so far. Note, in the image the robot is face down. Note that since we now have a single object to work with, we will be proceeding with a single image from here on.

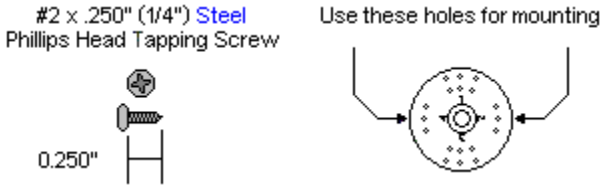
Step 10.

Install the two ankle servos as shown, using the included 3mm hardware, two #2 tapping screws, and the diagram below. Note, your servos may be a little off. We will fix this in software later.



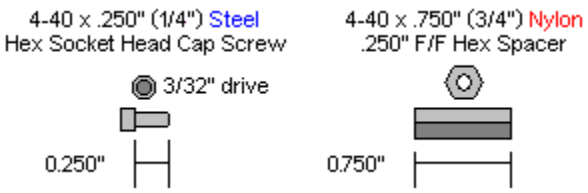
Step 11.

Install the knee and hip servos as shown. Use the #2 tapping screws and the diagram below.



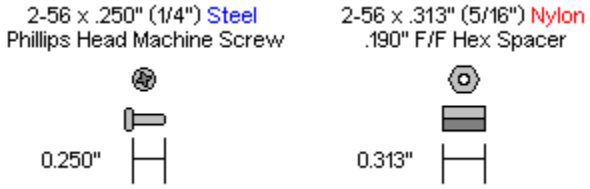
Step 12.

Attach the 3/4" standoffs to the electronics carrier using four 4-40 x 1/4" hex socket head cap screws.



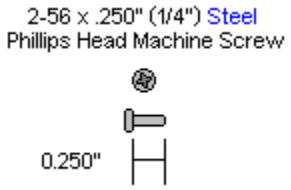
Step 13.

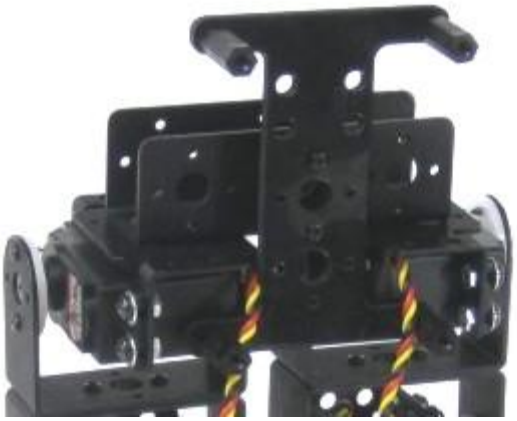
Attach the 5/16" standoffs to the U-Channel as shown, using two 2-56 x 1/4" screws.



Step 14.

Attach the electronics carrier as shown, using two 2-56 x 1/4" screws.



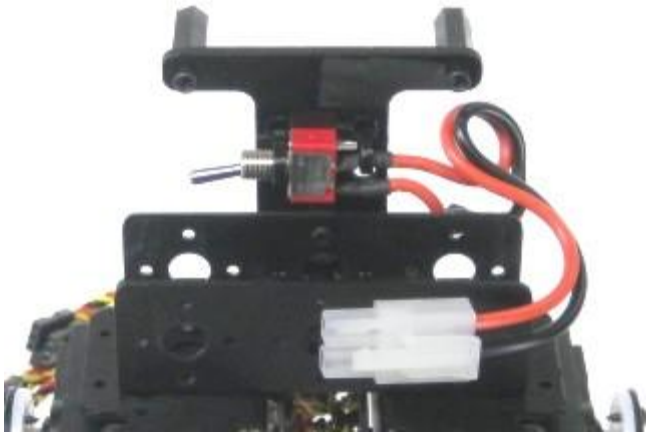


Step 15.

To prevent the wires from tangling, you will want to secure them as shown. This can be done with wire ties or similar, not included. Make sure that the ankle servo is positioned as shown when securing the wires to ensure the full range of motion is available.

Step 16.

Attach the power switch to the electronics carrier as shown.

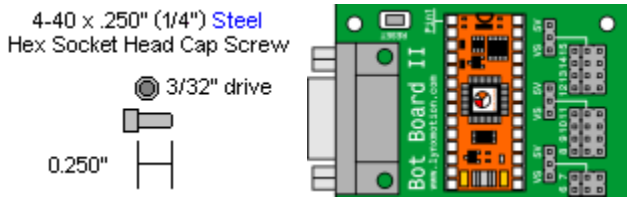


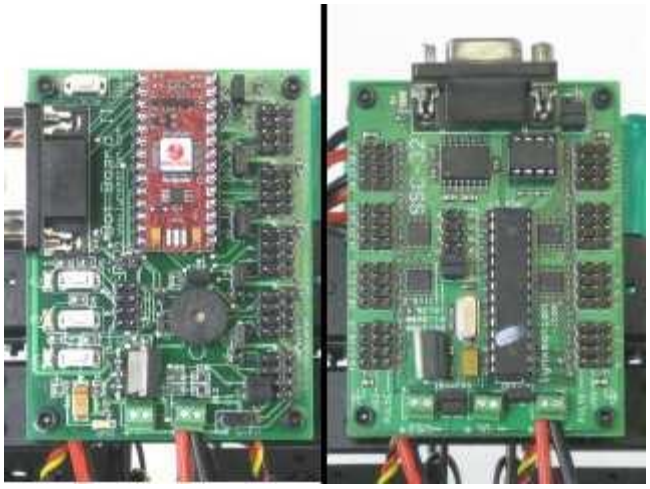
Step 17.

Install the SSC-32 or Bot Board II using four 4-40 x 1/4" screws. Make sure to orient the board as shown.

Connect the wiring harness to VS1 on the SSC-32 or VS on the Bot Board II as shown. Note, red is (+) and black is (-).

If using a Bot Board II, go ahead and install the BASIC Atom Pro 28 chip as well.





Step 18.

Connect the servos to their appropriate I/O channels on the board. Consult the appropriate table for your electronics, and make sure to check your work.

Please note that on table 18-2, pin 10 is NOT a typo. Pin 9 is used on the Bot Board II for the speaker.

SSC-32 I/O	Servo	Bot Board II I/O
00	Right Ankle	07
02	Right Hip	10
16	Left Ankle	04
17	Left Knee	05
01	Right Knee	08
18	Left Hip	06

Step 19.

Add the battery onto the U-Channel and secure it in place with zip-ties.

Step 20.

For controlling this robot with the just the SSC-32 and Sequencer.