Servo Calibration

Before putting your servo back together, it has to be centered. In other words, the potentiometer has to be adjusted so that the servo stays still when it gets the center pulse width.

❑ Reconnect the disassembled servo to the BOE as shown in Figure 1.20.

❑ Reconnect the battery pack to the BOE.

❑ Re-open Program Listing 1.3 by clicking the Stamp Editor's File menu and selecting Open, or re-type it into the Stamp Editor.
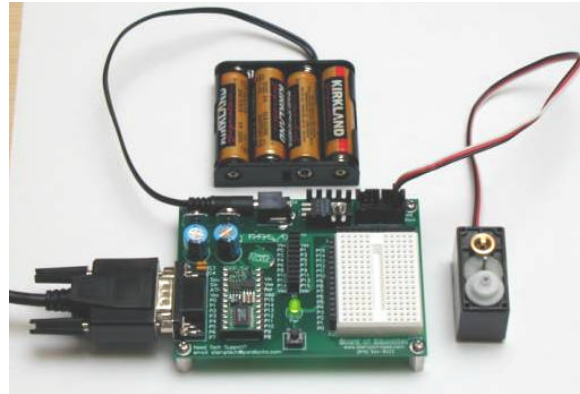

Figure 1.20: Servo prepared for centering.

Important:	Make sure program Listing 1.3 is entered exactly as shown below before Running it. Especially, make sure the pulse duration argument is 750.

❑ After making sure that Program Listing 1.3 is correct, run it.

```
' Robotics! v1.4, Program Listing 1.3: Servo centering program again.

low 12                          ' Set P12 to output-low.

loop:                           ' Label for "goto loop to return to".

  pulsout 12, 750               ' Send 1.5 ms pulses to P12
  pause 20                      ' every 20 ms.

goto loop                       ' Send program to "loop:" label.
```

The motor in the servo will start running and the first and second gears will start to turn.

❑ Twist the brass potentiometer input shaft slightly.

If you twist the input shaft one direction, the servo will speed up, and if you turn it another direction, the servo will slow down.

❑ Carefully turn the potentiometer input shaft until the servo slows and stops turning.

❑ Disconnect this servo from the BOE.

❑ Reassemble the servo, but do not include the potentiometer drive plate. Also, do not include the control horn.

❑ Both servos need to be modified and calibrated. Repeat all the steps in this activity for the other servo.

Servo Testing

❑ Plug the reassembled servo back into the BOE as shown in Figure 1.21.

❑ Now that both servos are reassembled, make sure the BASIC Stamp is running Program Listing 1.3, and try plugging each servo into the servo Port 12.

When each servo is plugged into Port 12, its output shaft should stay still or rotate slowly (less than 2 RPM).

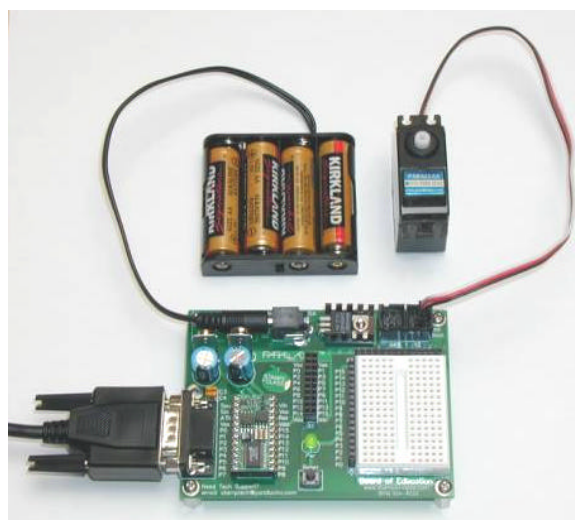❑ Try each servo while Program Listing 1.4 is running. Make sure the `pulsout` duration argument is set to `650`.

Figure 1.21: Servo reassembled and ready for testing.

The servo's output shaft should rotate clockwise fairly fast, in the neighborhood of 50 RPM.

❑ Try each servo while Program Listing 1.4 is running, this time with the `pulsout` duration argument set to `850`.

This time, the each servo's output shaft should rotate counterclockwise somewhere near 50 RPM.

If the servo passed these three tests, it's calibrated. If a servo failed any one of these tests, refer back to the Servo Diagnosis section in Activity #2.