2.0 Installing the Switch Machine

The switch machine package contains the following items:

1) Assembled switch machine with centering jumper
2) Centering yoke for turnout points
3) Peel and stick mounting template
4) Mounting screws
5) Connecting cable, socket to socket for input power

As packaged, the switch machine is in the centered position which is used when installing to insure proper location under the turnout throwbar. A program jumper is installed as shown in Fig 2.2 to hold the switch machine in the center position when power is applied. This jumper must be removed for normal operation. You may remove the jumper now if you wish and save for future use.

— Do not rotate the servo output arm by hand —

If you need to move the servo arm to center after installation for adjustment of the turnout points or for setting, modifying, or deleting a DCC address, see Section 2.1 for instructions on using the program jumper or the standard fascia button to enter centering mode..

Follow these steps to install the switch machine:

1) Temporarily mount turnout using the centering yoke to lock points at center.
2) Use #57 bit (from 942-140 Drill Set) and drill hole in center of throwbar through roadbed and benchwork.
3) Drill two alignment holes on throwbar centerline. For Walthers Code 83, Shinohara, Atlas Code 83, and Peco Code 83 use the two outer holes in the throwbar as a guide. These holes are used to transfer the throwbar alignment to the bottom of the benchwork and later will be covered with ballast or scenery.
4) Remove the turnout, then from under the benchwork, draw a center line between and beyond the alignment holes drilled earlier.
5) Using the #57 bit, a small nail or a map pin, poke a hole thru the center point of the supplied mounting template. Peel the backing from the template and use the pin to locate the center point with the center hole drilled in step two. Orient the template so the alignment line matches the center line drawn in step 4 and press into place.

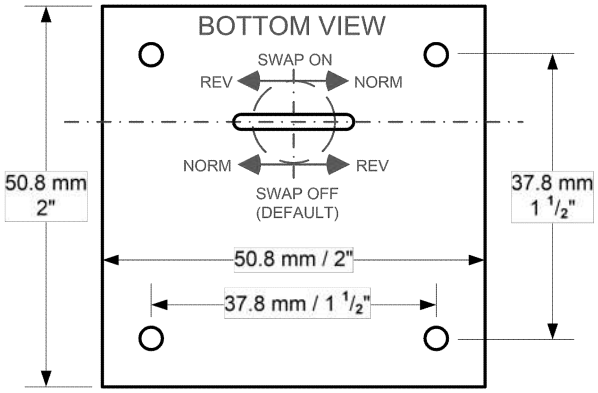


Fig 2.1: Vertical mount template

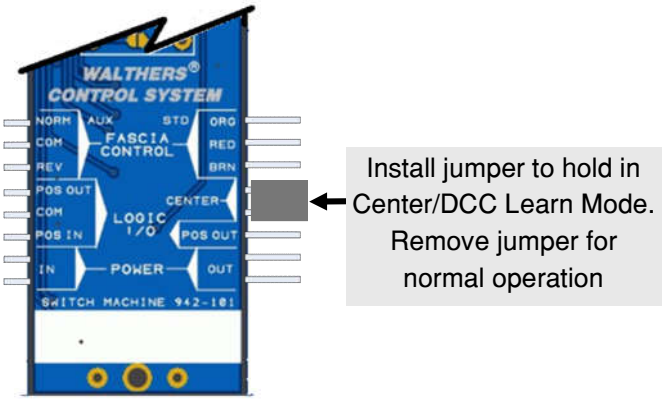


Fig 2.2: Center Program Jumper

2.0 Installing the Switch Machine (continued)

6) Use #43 bit (from the 942-140 Drill Set) and drill pilot holes for the four mounting screws. You may also drill out the center hole with the 3/16" drill from the drill set to facilitate the next step.

7) Drill up from the bottom with the stepped bit from the 942-140 Drill Set to enlarge the center hole to sufficient clearance (3/8 " / 9 mm for HO) at the top surface. The hole may be larger on the bottom due to the steps in the bit.

8) Clean up the center hole on the top of the benchwork, then reinstall the turnout leaving the centering yoke in place.

9) With switch machine in center position, insert actuator wire though subroadbed and up thru the center hole in the turnout throwbar. Use the molded alignment mark and align the machine with template centerline and secure with screws supplied.

10) With power off, connect power input and fascia control cables to the switch machine as shown. Remove the center jumper. Consult Reference Guide sections on power connections and control inputs for more information on connections to external devices.

11) Remove the centering yoke from the turnout and apply power. Switch machine will stay at center on first power up after center jumper is removed.

12) Use the fascia control to cycle the switch machine from Normal to Reverse.

13) Check turnout points for proper travel and holding tension. Refer to Reference Section on adjustments should the actuator wire require more or less motion than supplied. The actuator travel is infinitely adjustable from 2 mm to 13 mm (1/16" to 1/2") to accommodate a wide variety of scales, turnouts, and roadbed dimensions.

14) When satisfied with switch machine operation, finish the turnout mounting, The excess actuator wire above the throwbar may be removed with a cut-off disk or hard wire cutter. Wear proper eye protection when working on the wire trimming.

15) Make electrical connections to the auxiliary switches as desired to complete installation. See the Reference Guide section on Auxiliary Wiring for details on the use of the auxiliary switches for frog power, signal systems, or layout feedback to other devices.

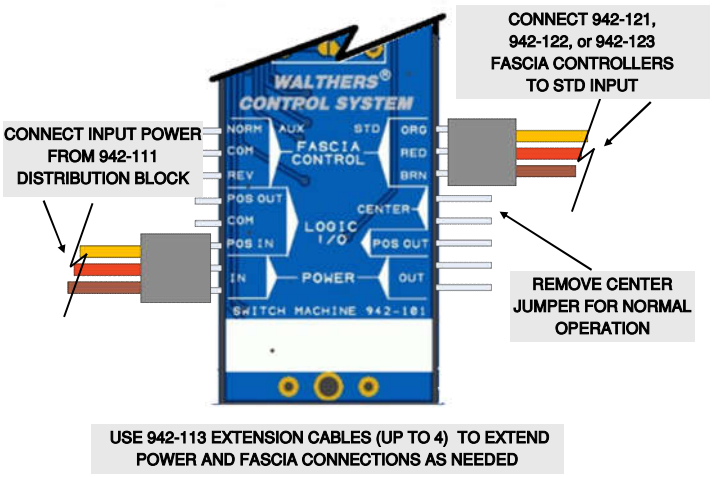


Fig 2.4: Electrical Connections

— Hint —

To make troubleshooting under the layout easier, use a permanent marker or apply a label to the white box area to identify the turnout with a name or number.

2.1 Center / Learn Mode

When installing a switch machine on the layout, it is helpful to have the turnout actuator wire in the center of throw, then fasten to the benchwork with the turnout throw bar in its center position. As delivered, the switch machine is in its center position, and a jumper plug is installed as shown. The center jumper must be removed for normal machine operation.

Center / Learn Mode can be entered in one of two ways:

1) Install the jumper plug on the Center pins as shown. You may do this with power applied. The servo will rotate to the center position and the fascia indicator LEDs will begin alternately flashing. When done, remove the jumper, and normal operation will be restored.
2) Remove power. With the Standard Fascia Controller connected, push and hold the button and apply power. Continue to hold the button until the servo moves to the center position. When the button is released, the LED indicators will flash alternately. The switch machine will remain in the Center / Learn mode until power is removed.

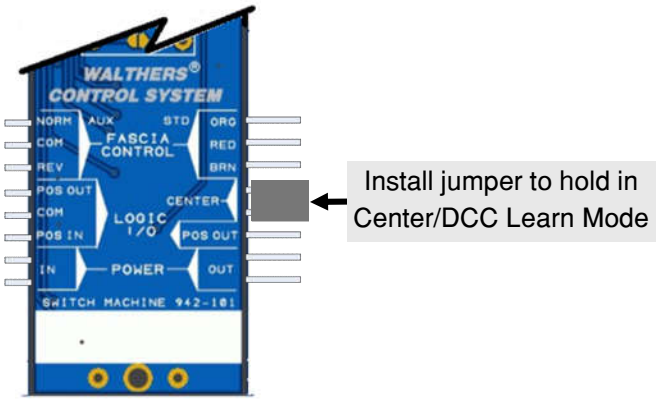


Fig 2.6 Center Program Jumper