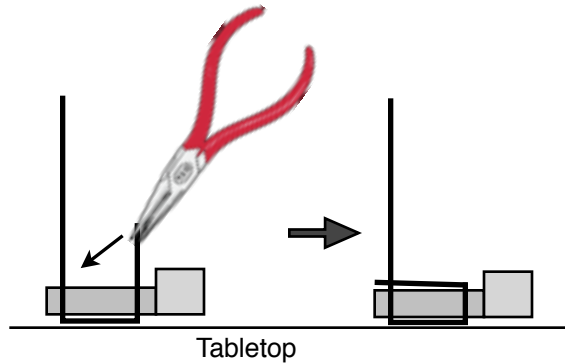
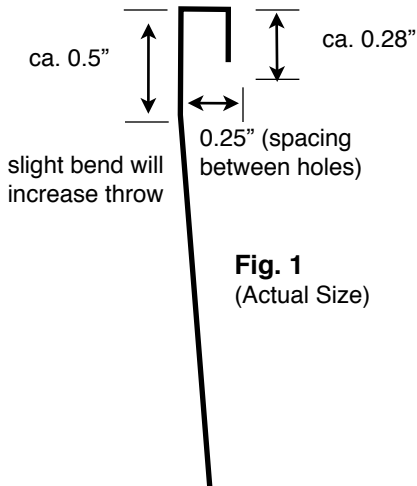


# Micro Switch Machine Instructions

Before you glue the turnout down, drill a 1/4-3/8" hole beneath the throw-bar for the actuating wire. Most turnouts have a small throw but the actuating wire bends so the hole should generally be about 3 times as big as the turnout throw. (Note: to keep ballast out of the hole you can put masking tape over the top leaving a slot for the wire and throw-bar.

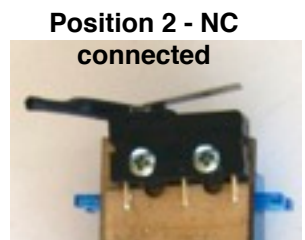
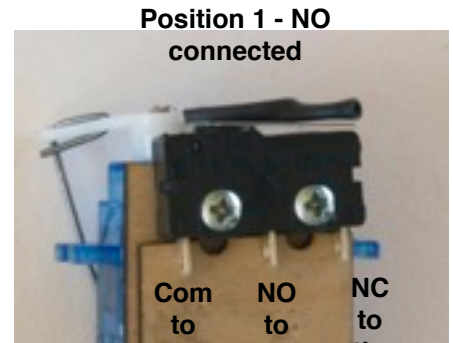
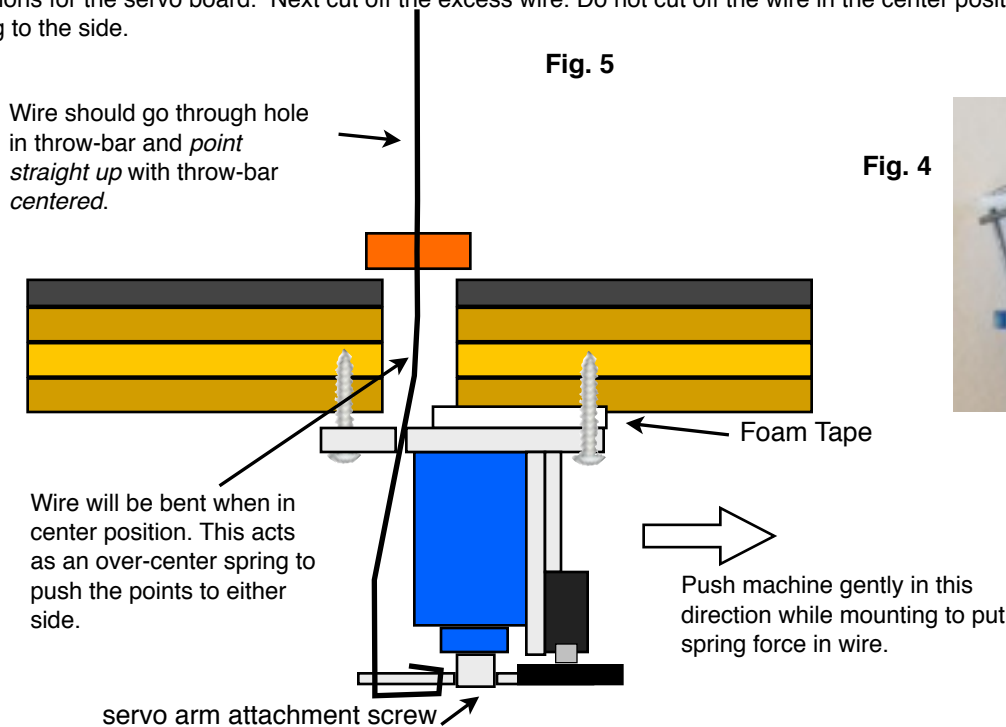
Your bracket may have come with a wire but in case you need to replace it here are instructions for making a new one. Bend the wire to match your servo arm as in Fig.1. Before you mount the servo arm on the servo, put the wire through the servo holes. Place the servo arm on a table so that the wire is held firmly against the tabletop and bend the wire over as in Fig. 2.

Mount the servo on the bracket with two screws (Fig. 4). Brace the bracket arm with your fingers so it does not break off. The screws should thread in easily - do not over-tighten and strip the soft wood. Be sure the servo arm will be on the end near the small hole in the bracket base. The easiest way to mount the servo arm on the servo is to power up the servo first. The Tam Valley Depot servo drivers all either default to near center positions or have a centering function (see the instructions that came with the driver) to make it easier to center the servo arm properly. Put the servo arm on so that it is close to the center position and through the small hole in the base of the bracket (Fig. 3). Attach it with the small screw that came with the servo.



**Using snap switch for frog power** - Before Mounting solder 3 wires to the solder lugs on the snap switch (Fig. 4). These will be connected to the frog and the 2 rails. Wait until the machine is mounted to determine which rail gets connected to NO and NC.

**Mounting the Machine** - With the servo arm centered, put the piece of double stick tape on the bottom of the bracket and mount it to the bottom of the sub-roadbed as in Fig. 5. This tells you the bracket is properly centered. Press the double sticky tape against the sub-roadbed to hold the bracket in place. Drill three 3/32" pilot holes up through the mounting holes on the base and screw in the three #4 mounting screws. This will hold the bracket over the long term as the tape won't hold forever. Align the switch according to the instructions for the servo board. Next cut off the excess wire. Do not cut off the wire in the center position as it gets shorter when pushing to the side.



## Troubleshooting:

**Servo is making loud grinding noise at rest** -- Check that wire is not hitting the case of the mount. Try changing the throw distance of the servo controller to a smaller setting so it isn't being pushed so far. The servo should make very little to no noise when properly installed, except in motion.

**Horn turns un-evenly side to side** -- Servo was not properly centered before installation. Without dismantling servo, loosen horn retaining screw, pull down and rotate horn to center, then press back on and drive screw back in. Repeat adjustment until throw distance to either side of center is about equal.

**Check for enough clearance** - disconnect the servo cable. *Gently* push the servo horn to either side and check there is enough clearance and throw to move the points sufficiently. Drilling the clearance hole larger may be needed. Because of the way the wire bends, more clearance is needed in the middle of the hole than at the two ends.

**Points don't throw all the way** – Bend actuating wire more at midpoint to increase force. Or, pinhole may not be centered under turnout correctly, re-install bracket to correct. Check that machine is at 90 degrees to track direction. You can also increase throw by putting a spacer between the machine and the sub-roadbed.