Quick Install with Showcase Miniatures Train Order Board

1. I Started with a handy piece of 1x3.
2. Cut it into 6”, 6” and 1’ pieces.
3. Drilled a 3/8” hole with a Forstner bit in the middle of the 1’ piece for the base for the Showcase Miniatures #2365 magnetic semaphore base (note: once the actuator wires for the semaphore are installed it will be tricky to remove the semaphore from the base.) The Forstner bit provides a hole with flat bottom for the base, easing alignment. The 2365 is a handy magnetic base that will release if the mast is bumped and, although the semaphore linkage may limit this movement, in any case it is more resilient than just gluing the semaphore in.
4. I screwed the 6” pieces into the bottom of the 1’ piece with the Forstner hole, then drilled a (~1/4”) hole thru the Forstner hole for the actuator wires to clear. You could cut a slot for this but it’s a lot more trouble and isn’t needed to support the mast.

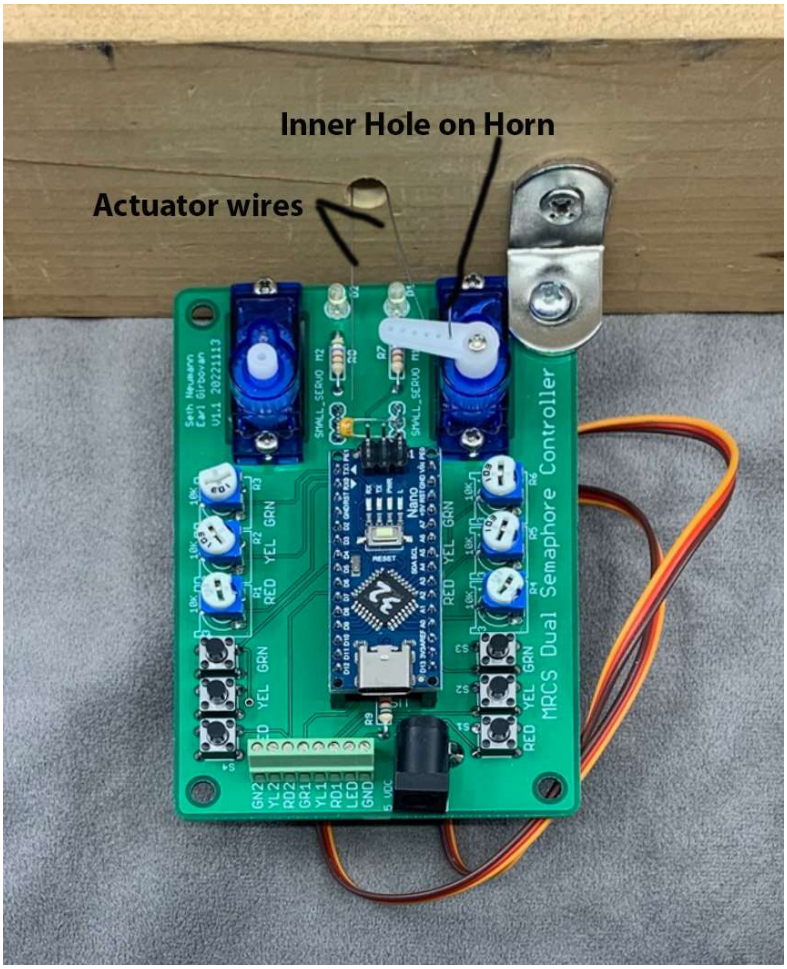

Figure 1- close up of board with actuator wires

5. I Installed a corner bracket to hold the Dual Servo Semaphore Controller to the bottom of the 1' cross piece. Note the ones I found on Amazon are just a little too big, so either get smaller corner brackets that fit or make your own from 1/2" angle or strip stock.
6. I installed the PC board about ½" below the 1' cross piece with the servo horns centered below the hole. Note in figures 1 and 3 that only the right horn is installed, the procedure is the same for the other horn and actuator.
7. I used one of the double ended horns which had a hole very close to the hub on the first servo, I cut off the other end of the horn as it was just in the way. (Walter from Showcase Miniatures recommends "Hobbypark Adjustable D2.1mm Pushrod Connector Linkage Stoppers RC Model Airplane Replacement" for easy adjustment of the actuator wire. This is an Amazon link from December 2023, so you may need to hunt around for something similar, but RC linkages are your friend, just beware of backlash in all the bell cranks and similar connections.)
8. Apply power (5V DC regulated, >= 1A) and adjust the horn and RED travel so the horn is about horizontal, this will be the RED position and the blade will be horizontal, then make green about 15 degrees higher (pushing the rod up makes the blade dip). The green will want to be about 75 degrees down. Put yellow in between, you will adjust it later, this is especially important if you're using a LED or GOW bulb to illuminate the roundels.
9. Turn power off while you are connecting the semaphore's actuator.
10. Now bend the actuator wire (you are controlling the opposite side of the semaphore from the servo) so it goes in the closest hole to the hub. (see item 7 above)
11. Power the Dual Servo Semaphore Controller back up and make final adjustments to the positions to your preference.
12. Note if the Dual Servo Semaphore Controller is constantly going back into program mode (rapid flashing of the LEDs) after the servo moves, you probably have either a noisy power supply or your supply is not putting out enough current. Use at least a 1A regulated supply (we offer a 5V 1A supply but we stock 2A, in any case if you need one from us, please send me a note and we'll make sure you get a 2A supply!).
13. The latest version of the board, V1.3, has additional filter capacitors on board, but this is not a substitute for a stiff power supply!

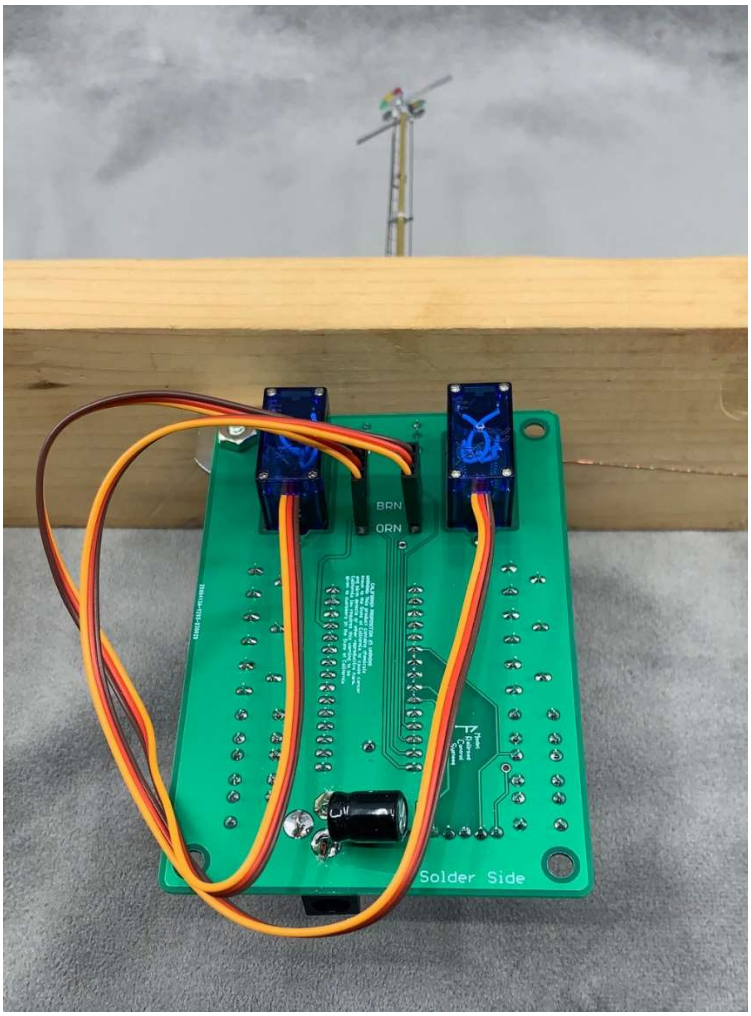

Figure 2- back side of PC Board - the capacitor at bottom is the prototype for V1.3

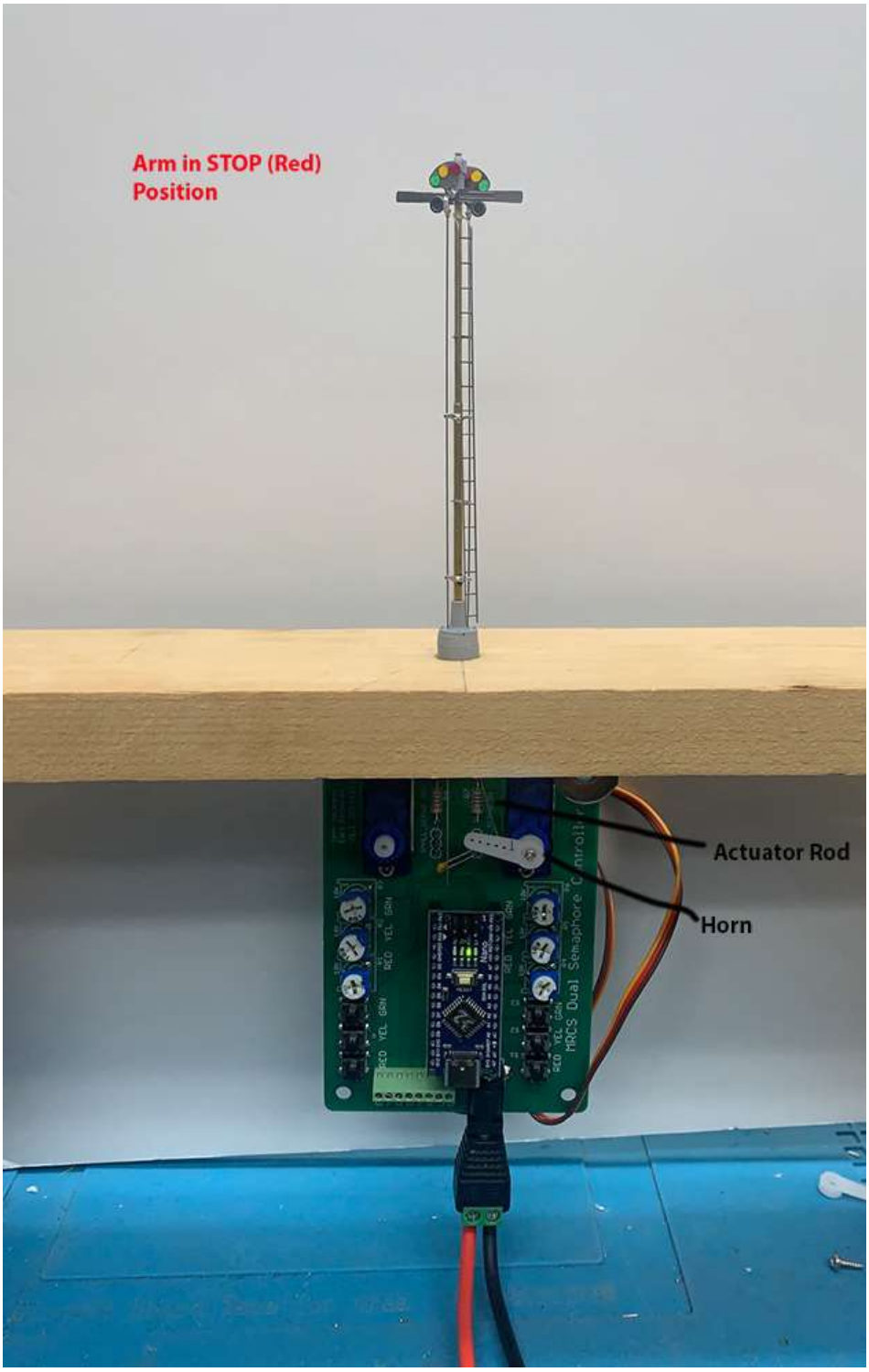

Figure 3- Showcase Miniatures Train Order Board with Dual Semaphore Controller