



PROFESSOR MOTOR CONTROLLERS

Variable Brake System Installation Instructions (PMTR2038)

**** Recommended for above average skill level ****

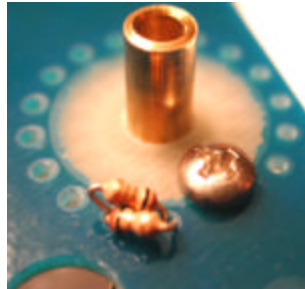
Step 1. For all soldering use only 60-40 rosin core solder and a pencil point soldering iron (NEVER use acid core solder or acid flux). Insert the brass bushing into the center hole of the brake resistor circuit board area from the back side of the circuit board. If you have a blue circuit board the bushing will be a very snug fit and may require slight opening of the hole with a hobby knife. If you need to open the hole slightly, be very careful to still maintain a light press fit of the bushing. Press the bushing flush to the board.

Step 2. Solder in the bushing to the trace around the immediate area of the bushing (best way is to heat the bushing itself [high wattage soldering iron] & flow the solder around the outside of the flange). Clean off any excess solder from the face of the bushing flange. Protect the surrounding trace areas with fresh masking tape to prevent stray solder (similar to picture below). If you have the red circuit board, tape the bushing in firmly from the back side & then solder around the bushing on the top of the circuit board (as in the picture).



Step 3. Insert the screw in place as illustrated above. Press or twist the plastic spacer on till flush with the surface.

Step 4. Decide what values you want each of the 15 "bands" for your application. 7.5 ohms total is recommended for wing racing, 10 ohm for eurosport, or 30 ohms for HO and 1/32 home set type cars. Each band can be 1 ohm (single resistor), 1/2 ohm (2 resistors in parallel per 2nd picture below) or 2 ohms (twist ends of 2 resistors together to make a subassembly, solder twisted ends & snip off excess). Insert the resistors from the top & bend leads over to hold in place.



Step 5. Use fresh masking tape to shield the center traces, solder in the resistor leads and snip off excess lead length. The last band can be made to shut off brakes completely by not inserting any resistors to the immediate right of the plastic spacer as shown in the right hand picture above.

Step 6. Test the actuator to make sure that the silver contact button contacts the traces and leaves a light witness mark for it's full rotation. If you use a heat sink it is recommended that a 3/8" hole be drilled for clearance and access to the brake system actuator and also to prevent electrical short circuit between the actuator and the heat sink.

Step 7. Cut the circuit board trace per the picture below with a Dremel or a sharp hobby knife to allow proper electrical flow to the brake system. If you have a red circuit board cut the trace (elliptical) in this area on BOTH sides of the circuit board. The self-resetting circuit breaker PMTR2035 should then be installed bridging the cut trace area (use without the circuit breaker is not recommended).

Step 8. Install the assembly into the back of the controller handle with the actuator in place and add one of the washers supplied (on the top side around the shaft) before closing the handle. Drop in the spring around the actuator shaft, add the second washer and then install the knob (1/16" allen wrench). Make sure the knob is fully seated on the top of the actuator shaft (support the back of the actuator during assembly).

Test the system for function with a multimeter, if you have one, to see the resistance varying as expected between the black and the red color coded alligator clips, when the knob is rotated, before heading to the track.



Note : It is recommended that you run the system dry (do not lube)

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