

PROFESSOR MOTOR SLOT RACING CONTROLLERS

Instructions for transistor replacement in any "Platinum Series" Electronic Slot Racing Controller

Make sure that you have the right model transistor for your controller - PMTR2022 is **NEGATIVE POLARITY** and is for Home Set Controllers or PMTR2112 - PMTR2021 is **POSITIVE POLARITY** for other controllers

This Power Transistor can be damaged for a number of reasons and the damage usually results in one of 3 symptoms - the car will run by itself without the trigger being depressed, the transistor itself will show evidence of mechanical damage such as distortion or cracks in the plastic case. The controller can also go "dead" if the transistor is overheated since it has an internal "junction" that will temporarily fail open if the maximum temperature is exceeded. In this latter case the controller will again operate normally when the transistor cools down.

Reasons for transistor damage – The most common issue is that the transistor output is short circuited causing the maximum rating of 50 amps to be exceeded. This can happen with even a small 10 amp power supply if the output capacitance of the power supply is very large. In that case a large current is generated for a short time until the short circuit sensing controls in the power supply can kick in. A shorted transistor will cause the car to be driven without the throttle depressed and may also damage the wire wound brake pot (if equipped). The short circuit of the transistor is commonly caused by a chassis rubbing on a high spot in the track braid or rails, or possibly with an under-chassis magnet also rubbing or possibly the lead wires or braid touching causing a temporary short circuit.

To replace the transistor please follow this process :

1. Unscrew the mounting screw and cut the leads of the transistor near the plastic case (save the damaged part).
2. Using the heavy duty soldering iron remove the three transistor leads and using "solder wick" or similar material remove any excess solder from the holes where the leads are soldered.
3. Using a Qtip remove the white heat sink grease from the damaged transistor and coat the back of the replacement part with that grease.
4. Insert the new transistor and bolt it in place.
5. Solder the lead with the solder provided.
6. Remove any residual solder flux on the circuit board using lighter fluid and a Qtip.
7. Reassemble the controller and you are good to go.

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