

This track cleaning car needs a decoder for use on DCC. The reasons include:

- 1. The stock voltage can be too high on some DCC systems- even running under address 00. I personally avoid address 00 because of some bad experiences (your experience may be different)
- 2. I like being able to totally control the cleaning car in DCC. I often set the locomotive to a slow speed and the cleaning car (vacuum) to a high speed.

This installation was easy.

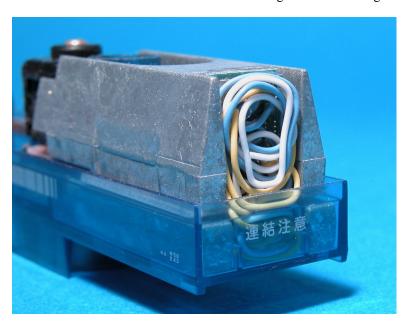
NOTE: I installed a TCS M-1 decoder here. But it is rather large by today's standards. MANY more decoders are smaller and do not require trimming the circuit board.

First, remove the screen cover section to avoid damage.

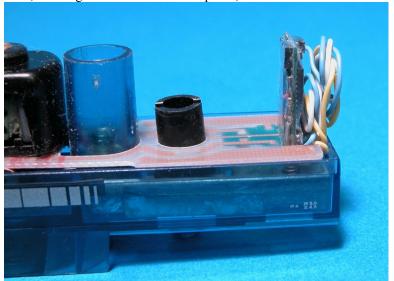
There is now a long end (with the switch and the back of the motor peeking through) and a short end. Leave the short end alone and work on the long end.

Remove the screw to the truck. DON'T lose the springs. The cover now just lifts off.

You will see a nice slot for the decoder in the weight in the outer edge.

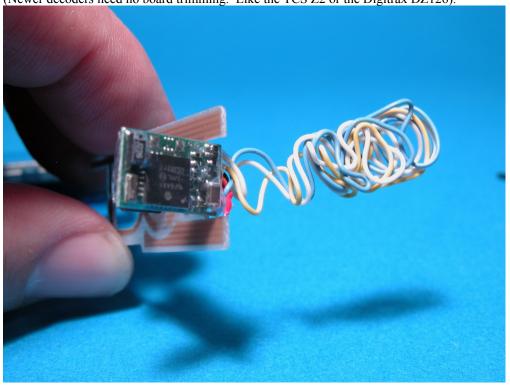


Here, the weight is removed. IN this photo, notice the traces are on the bottom.



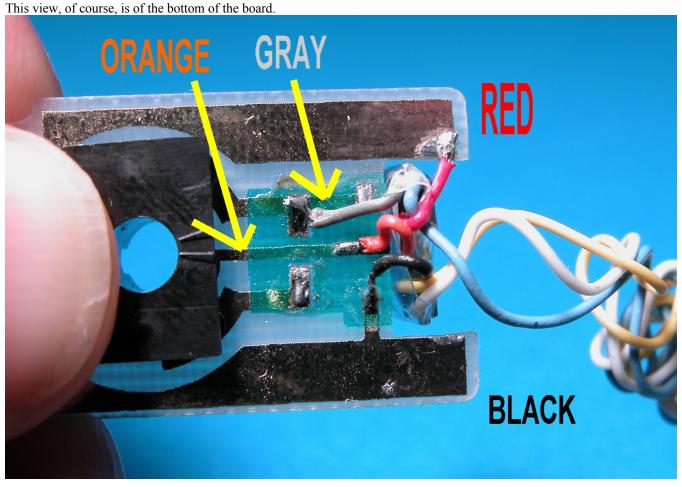
To get to the board, firmly grasp the motor and lift it up. It is held by the plastic spinning part of the vacuum on the bottom-which is intended to be removable. Pull the motor and the board out together. Notice the tips of the board sit on TOP of the motor poles and fit into a sort of slot in the motor.

The only real trick (in this case) is that the old M-1 decoder is too tall. I had to cut a slot in the circuit board so the decoder would sit down slightly. (Newer decoders need no board trimming. Like the TCS Z2 or the Digitrax DZ126).



Remove <u>all</u> stock circuit board components. You'll need a soldering iron for this. Now solder the decoder wires as shown.

Nothing mysterious about the wire locations, and no traces to cut. Just follow the photo! Keep the red wire near the inner back edge.



Now reassemble!

Some people like to keep the white wire and mount a flashing beacon on the top of the unit for an extra effect.