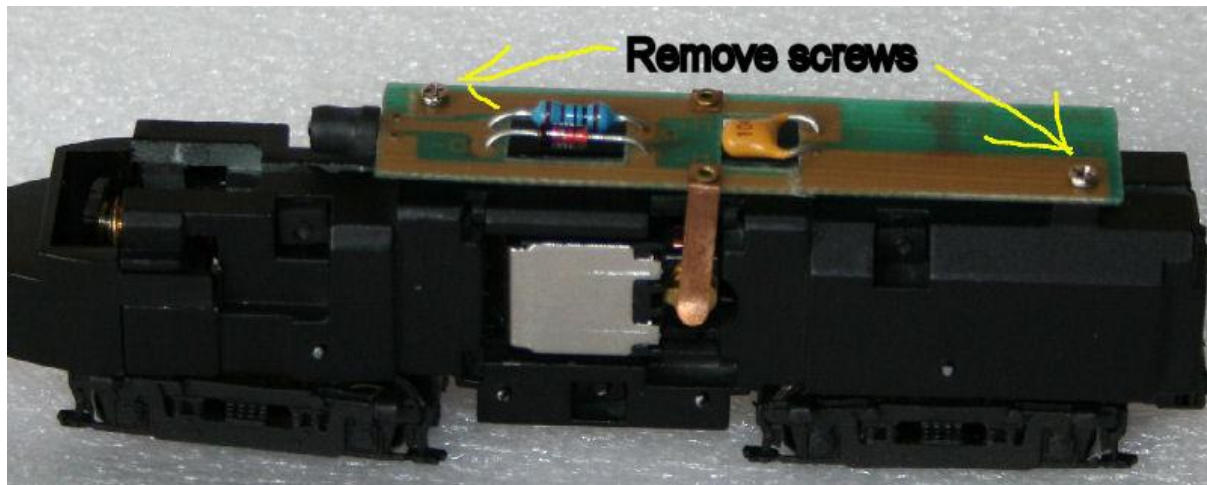


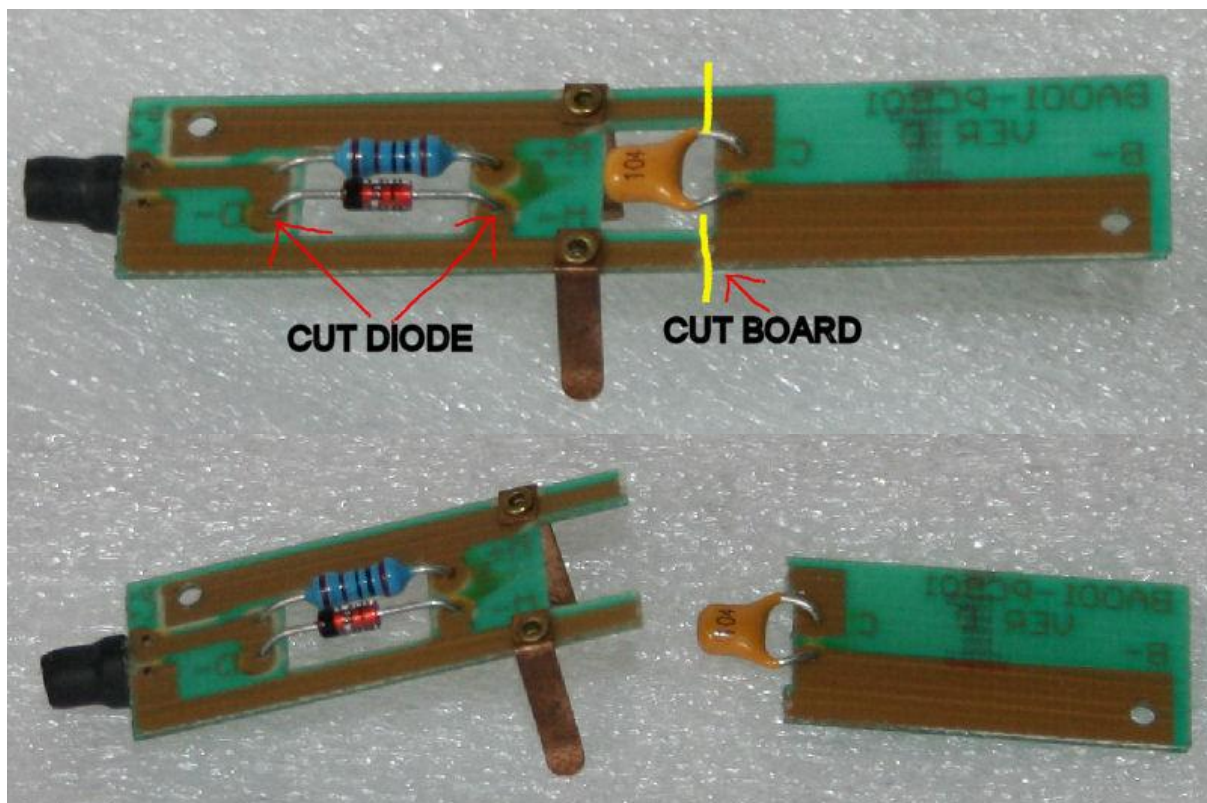
## E-R Sharknose decoder installation

This is one of the easiest hard-wired decoder installations that can be done. Normally the most difficult aspect of a wired decoder installation is isolating the motor brushes and that has already been done at the factory. I used a Digitrax DZ123, but any small decoder will do.

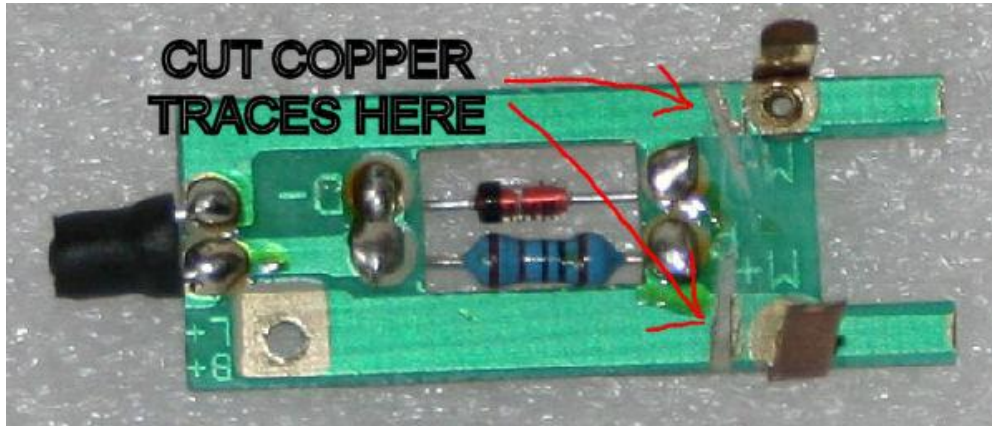
To start, simply remove the 2 screws that retain the factory light board and lift off the board.



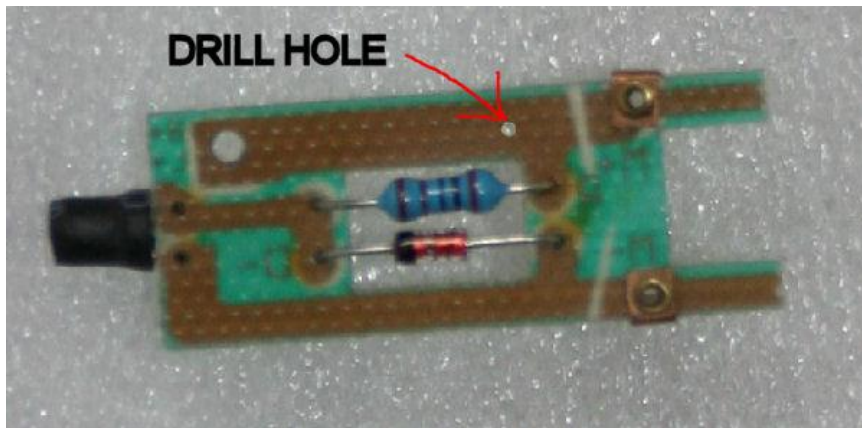
Next, cut the board just ahead of the capacitor. (Rail cutters work well for this)



Now cut the copper traces on the circuit board were shown. I prefer to cut them with the corner of a triangle shaped file because it leaves a wider cut than using an exacto knife.

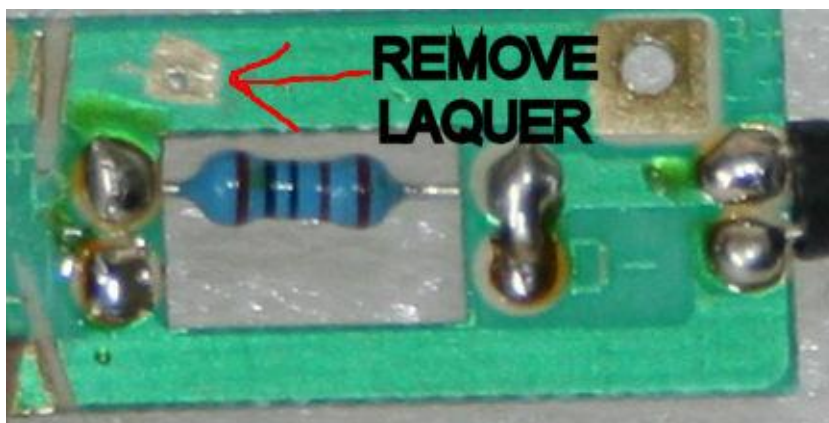


Next, drill a hole for the red decoder wire were shown.



Cut the diode from the board (shown in previous photo)

Remove the green lacquer (scrapes off easily with a small screwdriver) from around the hole on the other side so that the solder will stick.



Now attach the decoder wires.

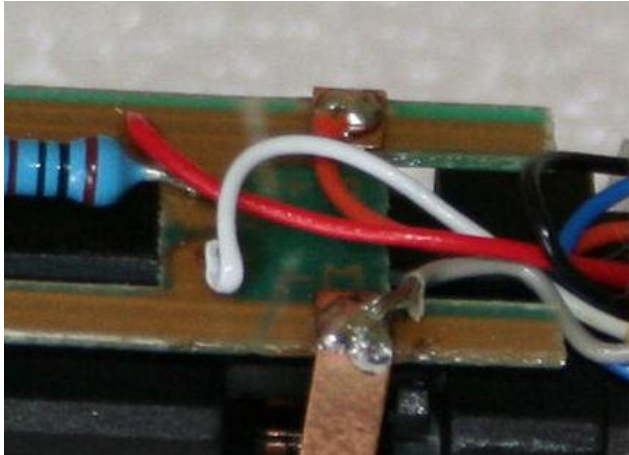
Red to the hole you drilled.

Orange to the rivet on the right hand contact strip.

Gray to the rivet on the left hand contact strip.

The white goes to the large trace on the left side of the board.

I un-soldered the cut off stub from the diode and used that hole, but you could just as easily drill a separate hole for it like was done for the red wire.

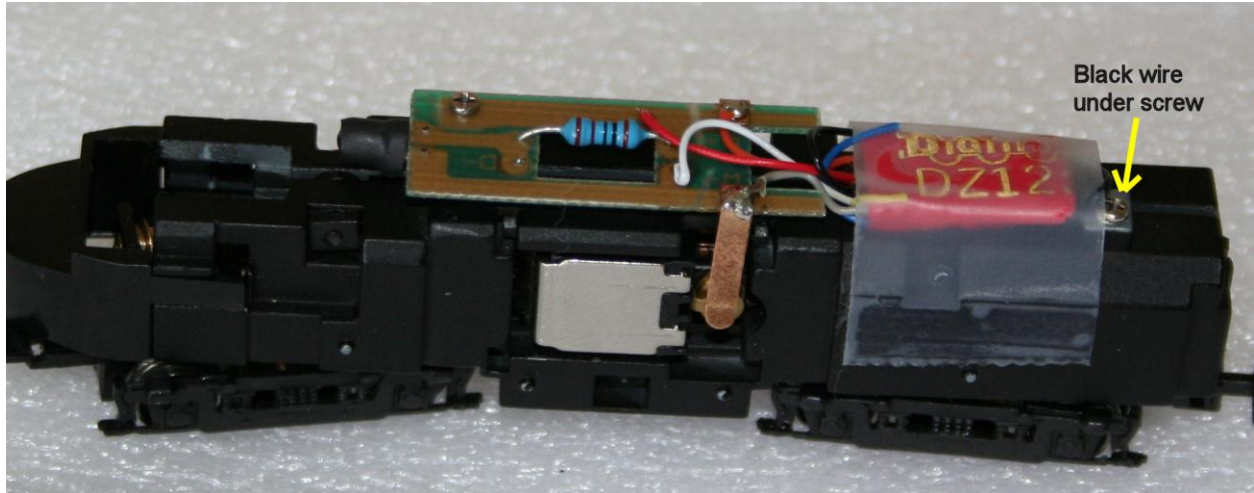


For the final assembly, be very careful when reinstalling the board. Because the contacts spring inward, you have to make certain that they go all the way on the outside of the brush holders and not get behind the brush retainer.



For the black wire, just strip about 1/4" of insulation from the wire and wrap it around the screw that was used to hold the rear of the circuit board to the frame and tighten down the screw.

Cut off the yellow and blue wires and tape the decoder in place.



Reinstall the shell.

The B unit is even easier. Cut the board at the same location. Only the right hand trace needs to be cut. Use the existing hole (were the resistor was on the A unit) for the red wire. White gets cut off and everything else is the same as for the A unit.

