

## Hard Wiring the older model HO Kato SD40-2

Electrical pick up issues with the older model Kato SD40-2 locomotives are well documented on the internet. The HO design for electrical pick up from track used in the N scale Kato models was incorporated into the HO scale versions resulting in a failed design regarding reliable electric pick up. This has been since corrected in newer versions of these Kato engines. The unstable electric pick up would cause intermittent operation of DCC decoders. The following link is a good source for tutoring how to correct this issue.

<http://www.dufordmodelworks.com/katohardware.html>

I performed this correction on my model without much difficulty. The project only took about one evening.

After removing the shell first by removing the couplers at front and rear and gently pressing on the sides of the shell to release the four tabs holding the shell to the body, the shell can be gently lifted up revealing the chassis. I unplugged the eight pin DCC connector from the Kato circuit board so I could completely remove the shell to facilitate working on the chassis and frame.

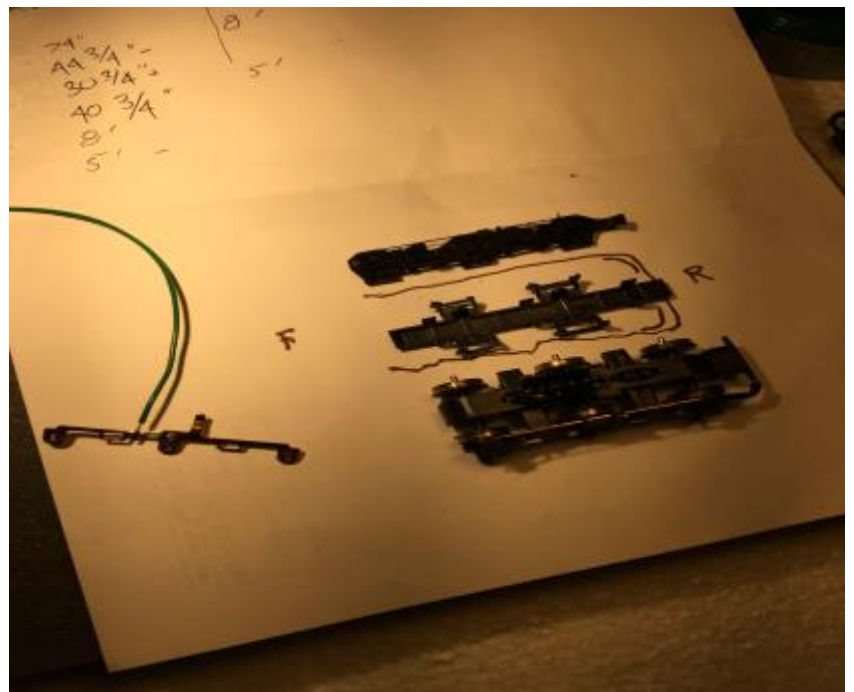
Removing the trucks require some patience and care. The worm gear cover has to be pried off the top of the truck assembly. This is accomplished by using a jeweller's flat head screwdriver approaching from the bottom of the truck and releasing the tabs of the gear cover. Be careful. as the cover might suddenly spring off. The trucks will then fall out of the chassis assembly. It is now necessary to remove the side frames in order to access the electrical pick ups. This is accomplished by releasing six tabs on the gear cover on the bottom of the trucks again using a flathead jeweller's screwdriver to release the tabs. You are now ready to make electrical connections to the brass electrical pickups incorporated into the truck side frames.

In order to not get parts mixed up I use containers labelled front and rear to hold parts and mark front and rear, right and left on my styrofoam work sheet so parts can be placed appropriately on the styrofoam board as you remove them, lessening the chance of mixing them up. I recommend working on one truck at a time, and doing one electrical connection and replacing that part prior to working on the other side. See parts of truck in photo below. When you have the trucks apart it is a good time to lubricate the worm gear and gears under the gear cover on the bottom of the trucks.

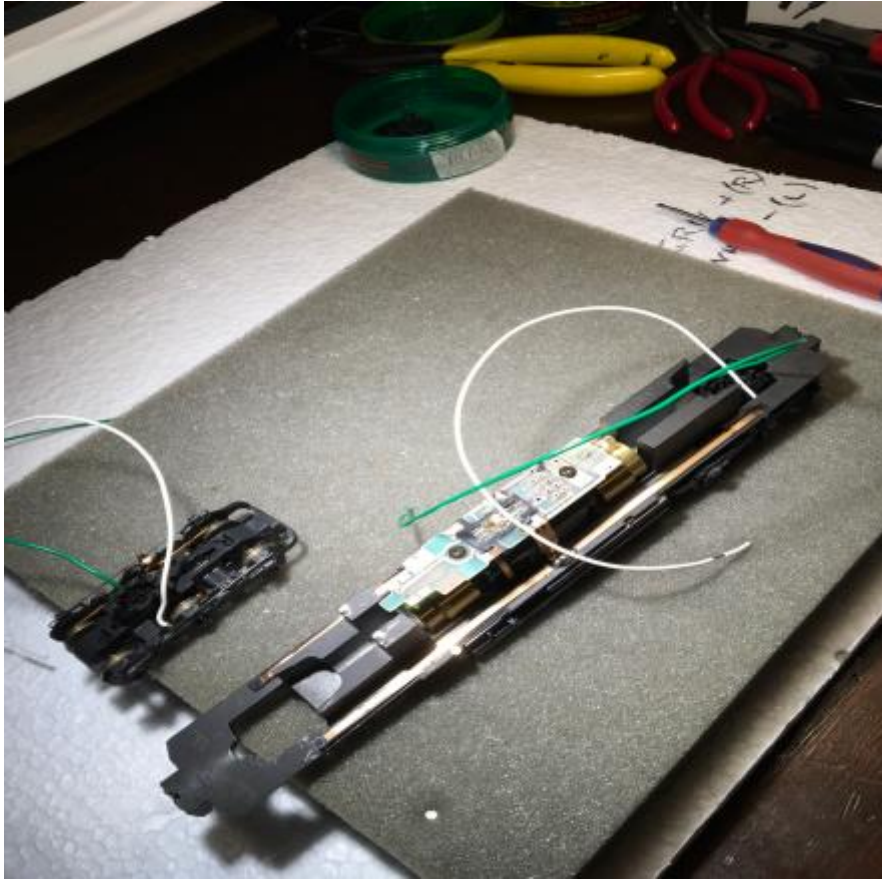


The shell has been removed and the trucks released from the chassis.

It is crucial where you solder the lead to the electrical pick up plate. I suggest you mark the location on the electric pick up prior to taking the truck apart. The idea is to not have the wire leads interfering with the rotation of the truck when turning on a tight curve.



Bring the four wire pickup leads up through the cut out for the worm gear assembly in the frame and solder the appropriate leads to the track pickup points on the printed circuit board. It is best to tin the ends of the wire leads and use as little solder as possible when making the connection to the PC board. It is also a good idea to solder the connections of the motor leads to the PC board to insure good electrical conductivity.



**Green wire leads from Right rail pickups and white wire leads from left rail pickups**

**The trucks are now refitted onto the chassis and the pickup leads thread through the cut out for the worm gear assembly. Use Kapton tape to secure the wires to the frame to avoid them interfering with the worm gear and drive shafts.**

The hard wiring is now completed. The 8 pin plug from the decoder in the shell can now be plugged back into the 8 pin receptacle on the PC board and the shell placed back on the chassis.



**The hard wiring is completed and now ready to plug the 8 pin DCC connector back into the PC board and replace shell.**