

# Converting an LGB Mogul to Battery Power

by Del Tapparo

## LGB Mogul (LGB p/n 2119)

In this particular loco, a previous owner had already installed a Phoenix 97 Sound system with reed switches for the chuff, whistle, and bell. And, the customer wanted to use a trailing car for the battery pack. However, using a 2.5" speaker and a smaller battery pack, everything will fit in the tender after opening up the cavity into the coal load.

### Isolate the track power pickups in the locomotive

Remove the bottom plate of the motor block. Remove the skates, plastic skate holder, and the two long metal strips.

### Isolate the track power pickups in the tender

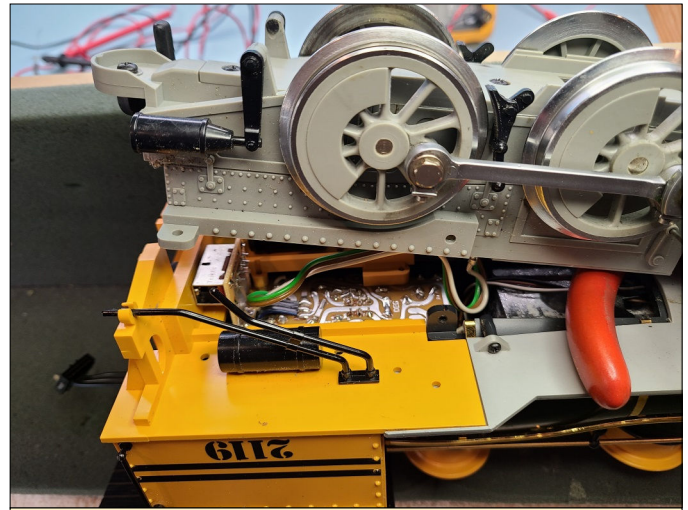
There are a set of red/black wires from each truck going to the connection block in the tender. Remove these by just pulling them off. Cut off about 8" of the wire so we can use it later to make motor connects to the tender connection block. Tape the ends and tie back out of the way, or you can just remove them completely.

### Motor connections

All LGB motor blocks have three wires. The white and green go to the motor, and the brown goes to the track pickups. The white and green go to a circuit board under the cab and then come out in the black ribbon cable that connects to the tender.

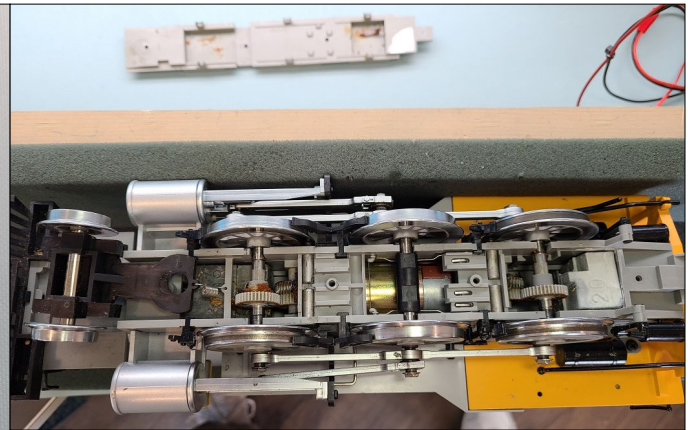
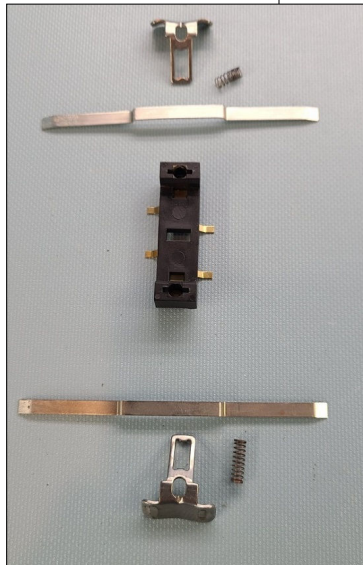
Note: Locos without LGB sound can be connected per this document. They require about 5V (due to factory electronics) to start movement. However, LGB locos with sound require over 10V, which wastes the first 10V of your battery. In this case you should connect directly to the white/green motor wires.

Looking at the tender connector (from the loco looking back at the tender), there are 3 black wires. The two outer wires connect directly to the motor. In order to access these wires at the connection posts, we need to modify the connector PCB so we can use the "ge" terminal. Pull off the brown and



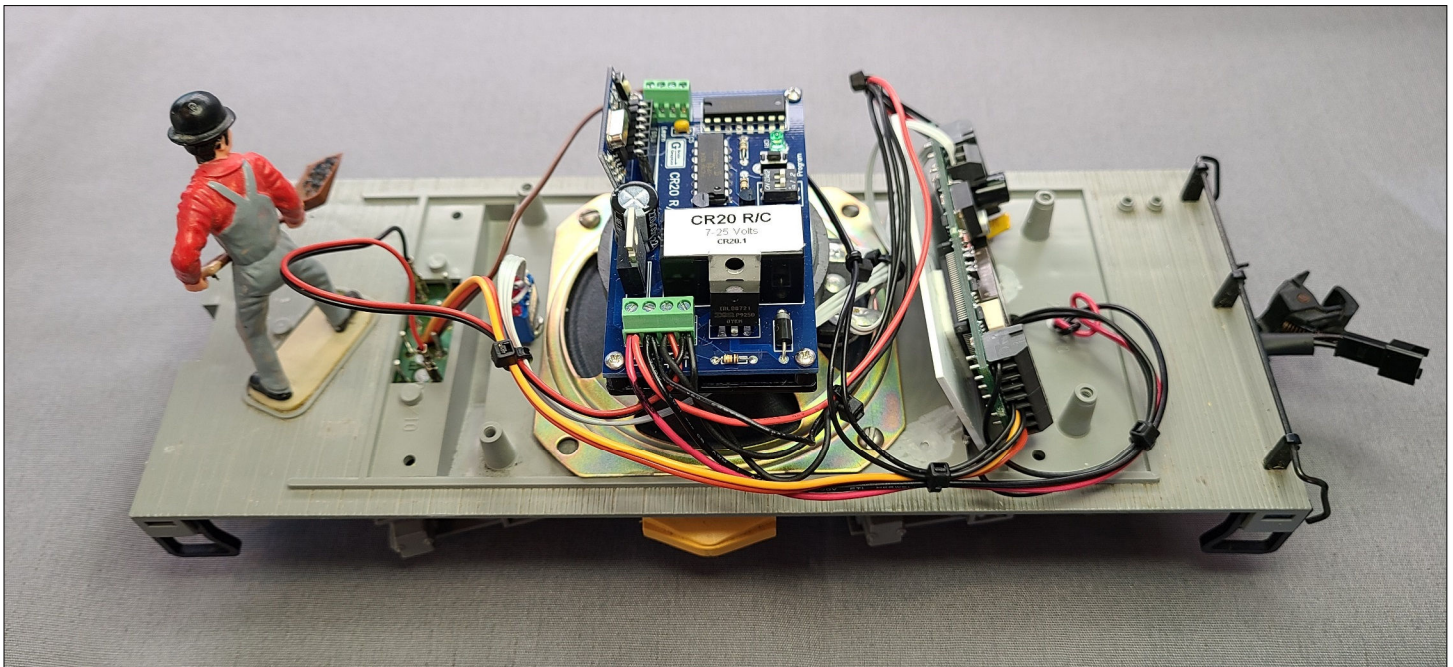
Direct access to motor wires and front light

Not needed for this project, but if you need to, remove 4 screws from the cab and one on each side of the drive train.

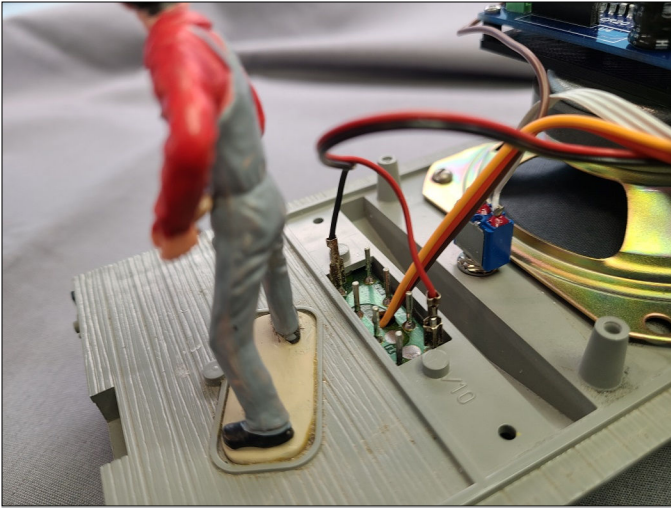


Isolate the track power pickups in the locomotive

Remove the bottom plate of the motor block. Remove the skates, plastic skate holder, and the two long metal strips.

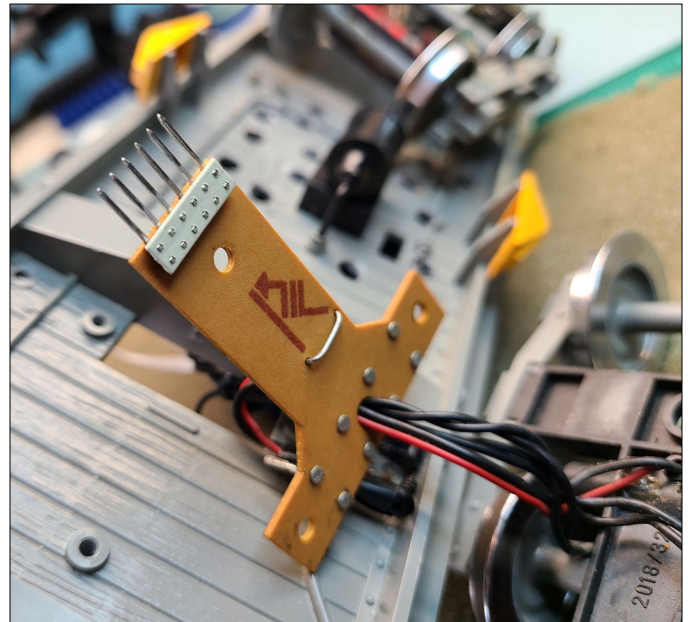
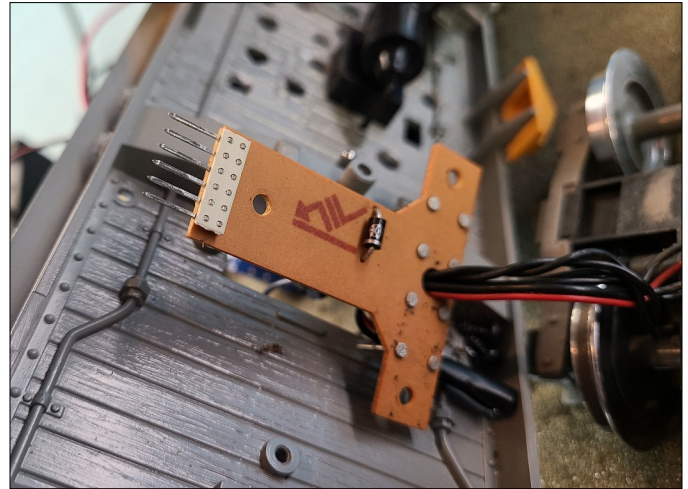
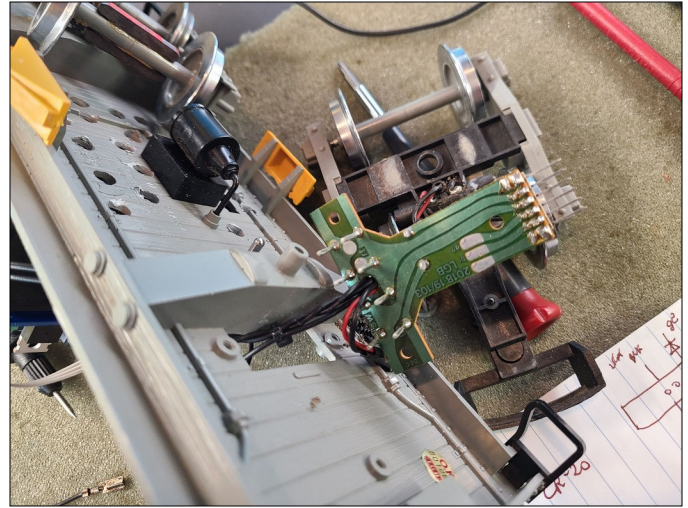






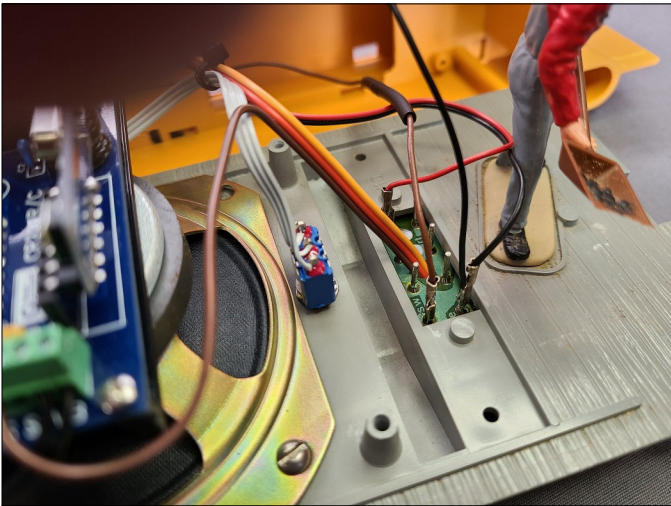
### Motor Connections

Red and Black wires with connectors on posts are the motor connections. The orn, red, brn wires are from the reed switches for track triggered sounds. The switch is the volume control for the sound card (poor location).



### Tender connector PCB

Diode is replaced with a jumper wire so we can use the "ge" terminal for a motor connection.



### Rear Light Connections

The brown wire has a diode in it (under black heat shrink). Black wire from light is soldered onto black motor connection.

black wires for the rear light.

In order to use the "ge" terminal, a diode on the under side of the circuit board needs to be replaced with a jumper. Save the diode for use with rear light. Then, using the wire salvaged from the track pickups, we can connect the motor output of the controller to the right rear terminal on the connection block and the left front terminal marked "ge". If running direction is wrong, swap the wires.

### Light connections

Front and rear lights are 19V incandescent bulbs. The front light will still operate as it did on track power.

Connection to the rear light are made using the brown and black wires. Cut the brown wire and install the diode in series; cathode (striped end) towards the connector and anode toward to light. Connect wires to motor connections. If light doesn't light in reverse, swap the wires.