

Mounting Reed Switches, Revisited

By Del Tapparo

For as long as I have been in this hobby, I have been using two reed switches under my loco or trailing car to trigger the Whistle and Bell of my sound board, or automated station stops for my RailBoss 4 controls. There are two basic requirements: they must be spaced 1" apart, and they must be just slightly above the rail head, such that there is less than 1/4" between the reed switch and the track magnet, which should be located just under the rail head.

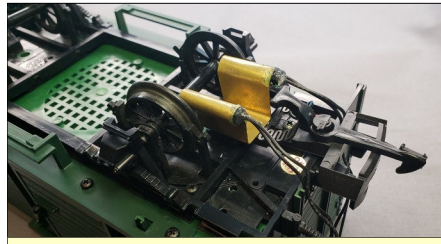
I have used two types of reed switches, cylindrical, and flat. Both are rather large, but industrial strength. Much better, in my opinion, than the fragile little glass reed switches.

In most cases, the best place to mount reed switches is under a truck, between the axels, right over the bolster screw. There is usually a space between 1/2" to 3/4" between the frame of the truck and the rail. The bolster screw can be accessed via a hole in the assembly, but my biggest problem was always, "what to use for a spacer or shim to get the reed switches down close to the track?"

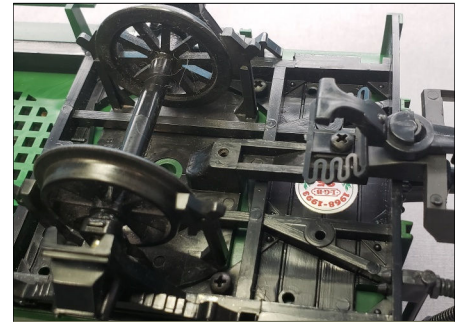
Over the years, I have used several methods for the shims, all pretty crude, using what I had on hand, but they worked. Wood carefully cut to size, many layers of 0.080" styrene glued together, fewer layers of thicker ABS plastic obtained from a sign shop, and I even tried brass sheet metal.

The shim was usually glued to the truck, and the reed switches glued to the shim.

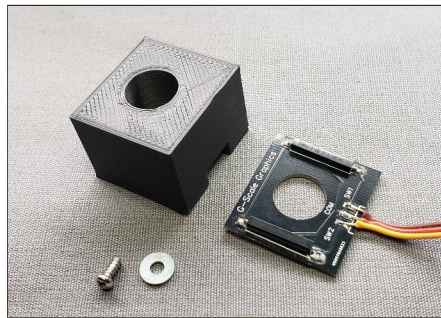
While browsing my electronics distributor for reed switches, I found some nice little surface mount reed switches. "The light bulb turned on!" Put these on a little printed circuit board (PCB) and use my new 3D printing capabilities to make the shim! The PCB sets the proper spacing of 1" and it also reduces the wiring slightly from



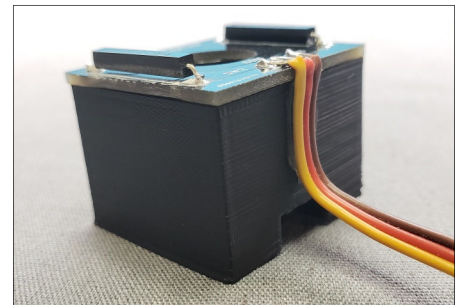
Original brass sheet metal bent to hold cylindrical reed switches. 4 wires to electronics.



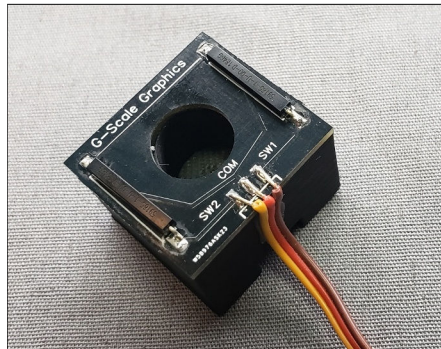
Reed switches assembly will be mounted on the tongue of the truck using screw hole.



3D printed shim block with hole in center to access a screw in the truck frame. Notch in the bottom straddles the narrow "tongue" to the coupler. PCB with reed switches mounted and a 3-wire cable to electronics.



Reed switches and cable are soldered to the PCB.

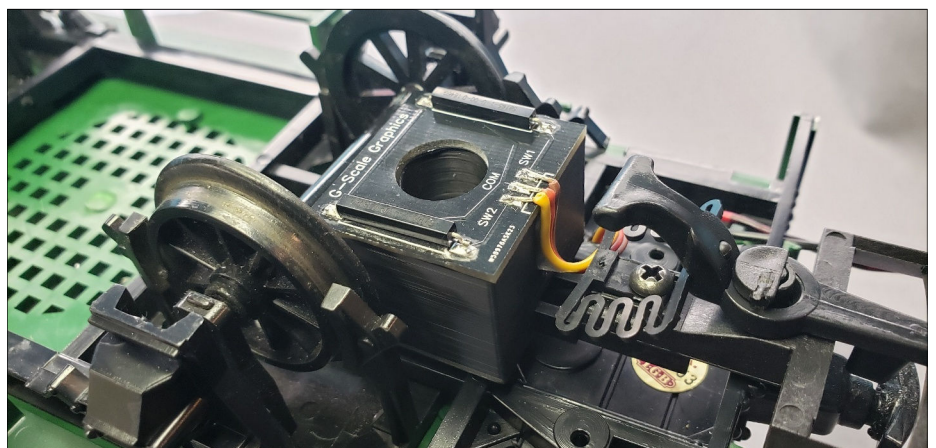


PCB is glued to the shim block. Next PCB revision will also have a screw mount option.

4 wires to 3, with the common connection done on the PCB.

My first attempt at this method was to replace the brass mount on my trailing car for Percy, a small LGB boxcar with nearly an inch gap to the track. (Photos)

The best thing about 3D printing? No big deal if you didn't get it right the first time? (and I didn't). Just print another.



New assembly screwed to the truck and ready to run.