

Con-Cor PCC Modifications: *the technical stuff*

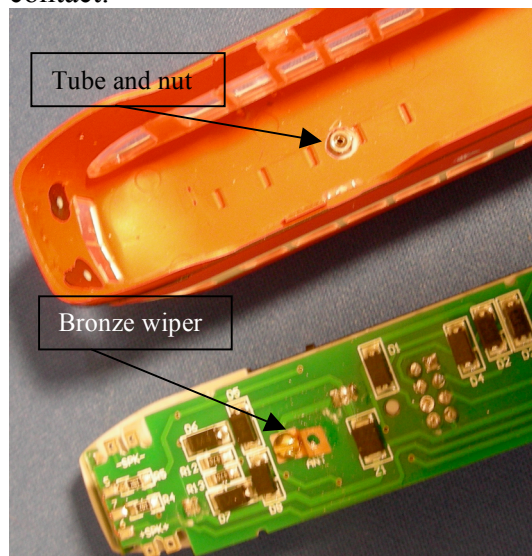
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In this article, I will describe some technical improvements I have made to the new Con-Cor PCC. Many comments have already been made about the car; I will not retrace that ground but rather describe what modifications I have made to improve the operation on my layout/modules. Most of my operation is on East Penn modules with wider than standard radii, 9 inches in most cases. These have some hilly areas, up to 7% grade. I also have some areas with six inch radii and Orr switches.

The Trolley Pole.

The first modification was the pole; it was reluctant to turn in its base and therefore would not stay on the wire. To investigate I removed the body by pushing toothpicks between the floor and window tabs near the jacking pads, then lifted the floor out. The pole base is held in place with a piece of wire inserted through the pole stem under the roof. A thin piece of bronze pressed up against this arrangement for electrical contact. The pressure of the bronze was causing enough friction to impede the free swing of the pole. Even if the bronze could be adjusted to make good contact while allowing the pole to swivel it would eventually wear itself right through the roof. I decided to replace the pole.

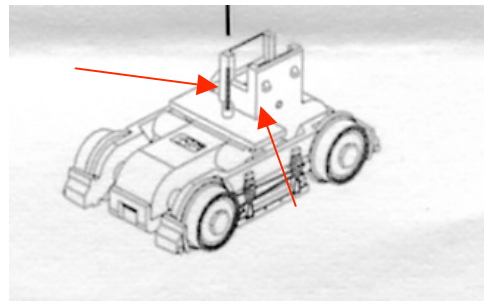
Fortunately I have a PCC pole that was available through MTS a few years back. It has a tube that the pole base slips into, making it removable. The tube is threaded on the outside and is fastened to the roof with a nut. I found that the tube was too short so I countersunk the hole on the underside of the roof just enough for the nut to get a grip. Next a little trial and error testing was done to assure the bronze piece pressed against the newly inserted tube. At this point the more pressure the better. I next drilled through the bronze so the pole stem would slip through – the pole stem is longer than the tube. I started the hole with the body in place then removed the body and enlarged the hole – making it large enough to not interfere with the pole stem but not so large that it doesn't hit the nut. Now I have a properly swiveling pole with good electrical contact.



If you don't have a MTS PCC pole the same result can be accomplished by filing flat the head of a 2-56 screw and drilling the appropriate size hole for your poles lengthwise through the screw. This will produce a very workable pole bushing. If a non-PCC pole is used, be certain that the base sits high enough that the swing does not foul the pole shroud and cause dewirement.

Turning Radius.

With the new pole the car ran all over the East Penn modules – up and down hills, but not through the Orr switches; for this I needed to increase the swing of the trucks. I removed the body then removed the two screws from the underside of the floor – the front screw is hidden under the front axel. It may also be necessary to remove the PC board to the framework. After Unplug the truck leads from the PC board I popped off the worm gear housing from the top of the gear tower and the truck dropped out. If you're doing this take note of the worm gear bearings and don't lose them. The next step may jeopardize the warranty so proceed at your own risk. Using a #11 knife I carved away the corner of the tower housing as indicated by the red arrows. I only took off enough to get adequate swivel for my curves. I was also very careful to not cut, or even nick, the center post of the truck.



With these changes the car goes everywhere on my layout without the need for more weight. If I ever decide weight is required I'll hide some under the front of the floor.

Electrical Pickup.

Before replacing the trucks decide if you want to ground all wheels and how it should be done. When running from the overhead only the left side picks up power from the rail, the right wheels are along for the ride. East Penn modules with block control require that all wheels are grounded so I had to make a change. There appear to be several places on the PC board that could be jumpered to ground the wheels but with my lack of electronics knowledge I don't understand if there are ramifications to doing so. My solution is to pull the right wheel lead from its socket and soldering it to the left lead. It took a magnification glass and some cussing but in the end I have all wheels grounded and no fear of causing electrical problems and if I ever want to go back to two rail it will be easy. It is easiest to do this modification while the trucks are removed for the radius modifications.

Lights.

The blue LEDs in this car just don't make it, PCCs never had florescent lighting. I colored all LEDs with a heavy coat of Tamiya X24 Clear Yellow paint and it looks better.

The only other modification I made at this point was to remove the mirror. Yes, the interior workings are surrounded by a reflective material. While innovative I did not like the effect because I want to add passengers throughout the car.

I may make some cosmetic changes in the future but for now I just want to run it for awhile.

Note: The statements and opinions made in this document are solely those of the individual involved and not necessarily those of the East Penn Traction Club.