PTC Model III™

Programmable Turntable Controller

Application Note #4:

Walthers® Cornerstone Turntable Shaft Adaptor Installation

Version 1.0 Preliminary

RAILWAY

New York Railway Supply

http://www.nyrs.com

Application Note #4

Walthers® Cornerstone Turntable Adaptor Installation

Extending the shaft of the Walthers® Cornerstone 90' and 130' HO Scale Turntable Shaft for Use With the PTC Model III Indexing System

OVERVIEW

This application note describes the conversion of the Walthers® Cornerstone HO scale styrene plastic turntables for use with the PTC Model III Turntable Indexing System.

The standard Walthers kit does not provide an extended turntable shaft required for connection to the PTC. The objective of the modification is to install an extension to the Walthers turntable shaft so that the PTC motor can be connected to it.

Please review these instructions thoroughly before you begin.

OVERVIEW

Completely read the instructions supplied with your Walthers turntable kit, understanding the general theory of assembly and operation. The modifications to be accomplished will include:

1) Removal of the entire gearing mechanism and electronics.
2) Modification of the center shaft to facilitate the addition of the NYRS shaft adapter.
3) Modification of the wipers and wiper printed circuit board for track power delivery.

TOOLS REQUIRED

The following tools will be required:

- 1/8" drill bit
- (Unibit or step drill with steps up to 3/8"
- .135 Drill Bit
- Various phillips screwdrivers

CONVERSION.

REMOVAL OF ELECTRONICS

The Walthers turntable uses a small printed circuit board with wipers to deliver power to the bridge and bridge motor circuit. This board must be removed and modified. Figure 1 shows the stock configuration. This board is pressed in and easily removed. We used a flat piece of brass from the top side as shown in figure 2 and just tapped it out.

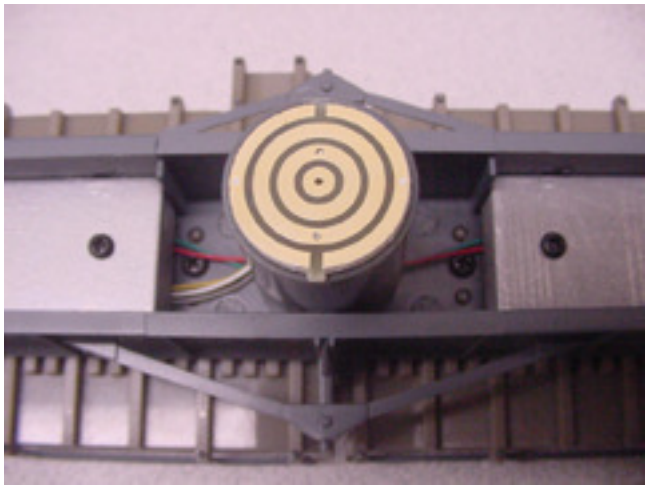

Figure 1: Walthers Bridge Contact PCB

Figure 2: Removing PCB

Figure 3 shows the pcb after removal.

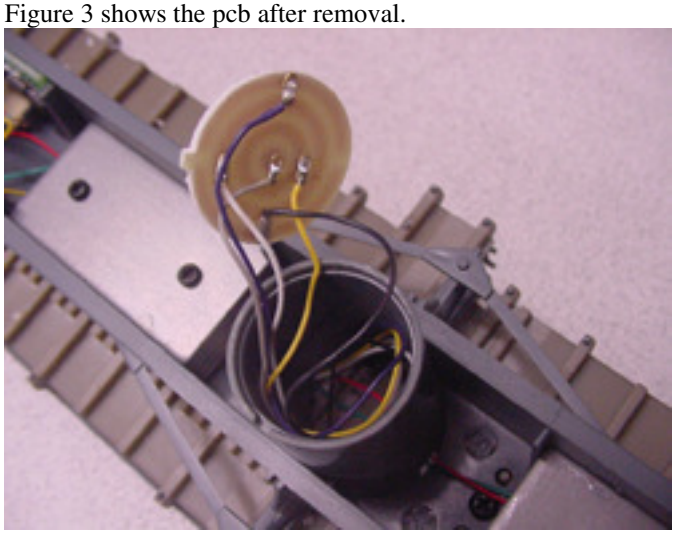

Figure 3: Removing PCB

After removing the PCB cut all the wires. Make note of which wires are attached to the outer rings. On ours it was Blue and Black.

At this point, we used a 12" long piece of 1x2 to place the bridge on, upside down to keep from breaking the handrails.

Using a small phillips screwdriver, remove the weights and set aside

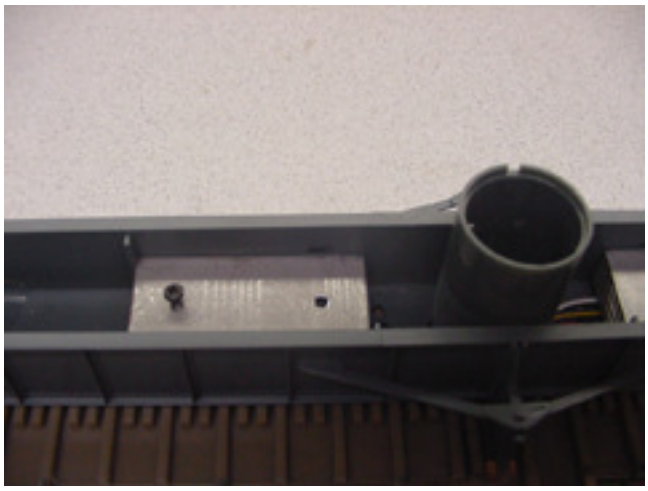

Figure 4: Removing Weights

Now we will remove the electronics. Carefully remove all screws that are holding the motor and sensor assemblies in. The cover plate that holds the gears in must be removed by removing one screw and un-snapping the cover plate from the bridge assembly. The truss rods snap into the side of the bridge. See figure 5. The motor is held in by several screws and the PCB slides into a couple of slots. Now remove all wires, except the track wires. Also pop out the gears from the cover plate. You may cut the wires from the sensor end and leave the sensor installed. At this time re-install the cover plate with the bogies wheels by snapping back onto the bridge and place the retainer screw back in place.

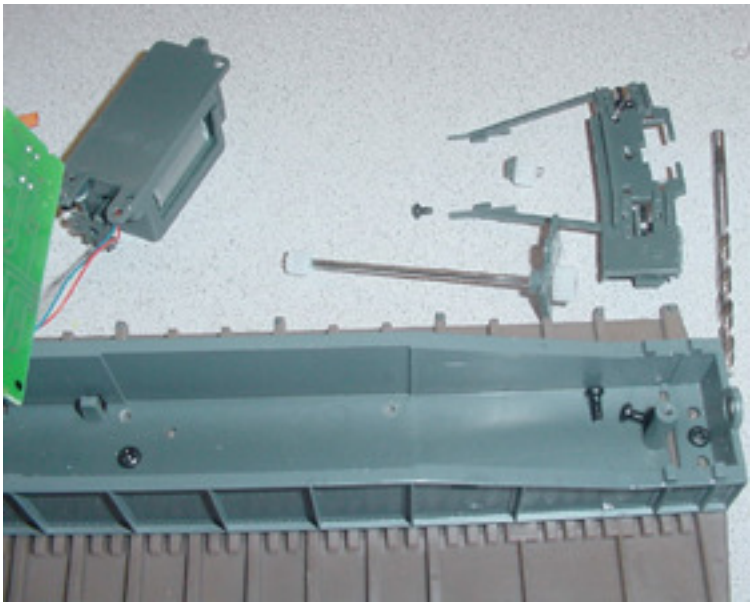

Figure 5: Removing Electronics

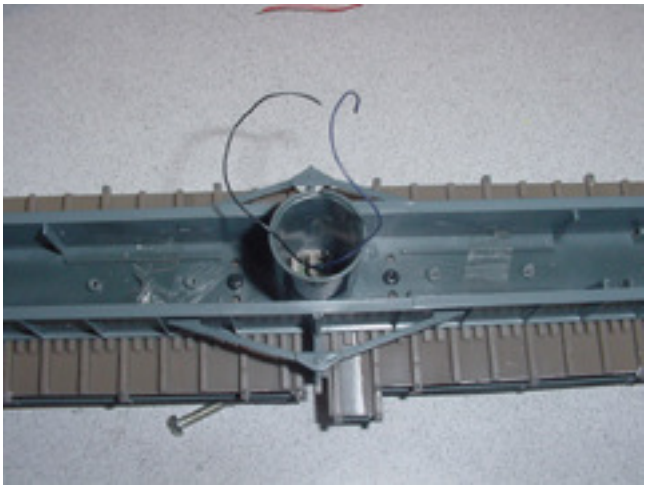

Figure 6: Completed electronics removal

You should now have the bridge stripped with two wires coming out of the center shaft.

MOUNTING THE SHAFT ADAPTER

This is the probably the hardest part of the conversion so proceed carefully. The adapter is held in place by a 6-32 screw through the side of the bridge shaft. Since the bridge shaft acts as the support bearing for the bridge this screw must be below the area that contacts the turntable pit. On our example this area was polished and visible with an obvious color difference. **We want to place the hole for the screw .2" below this line. It works out to .9" below the top of the center shaft.**

Figure 6a: Hole placement

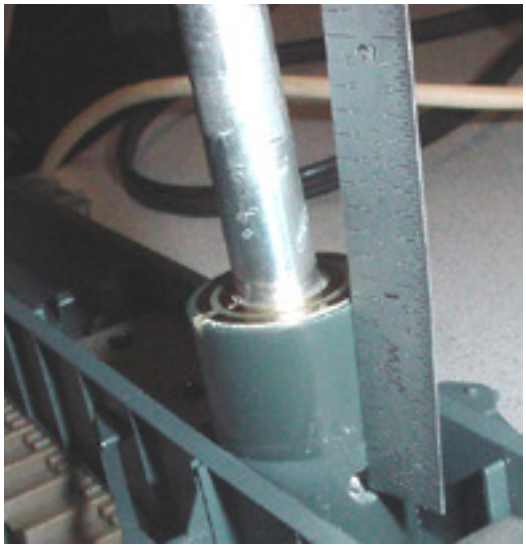

Figure 6b: Hole placement

We used a Dremel with an extension to drill a 1/8" hole and then using a .135 drill, enlarged the hole by hand to provide clearance for the 6-32 socket head cap screw provided, figure 7. It doesn't matter which side of the shaft the hole is drilled from.

Figure 7: Drilling Hole

Place the new shaft adapter into the bridge shaft carefully guiding the track wires into the groove cut into the side of the adapter. See figure 8. The tapped screw hole must be aligned with the hole that you drilled into the side of the center shaft. Work the adapter down into position and insert and tighten the screw.

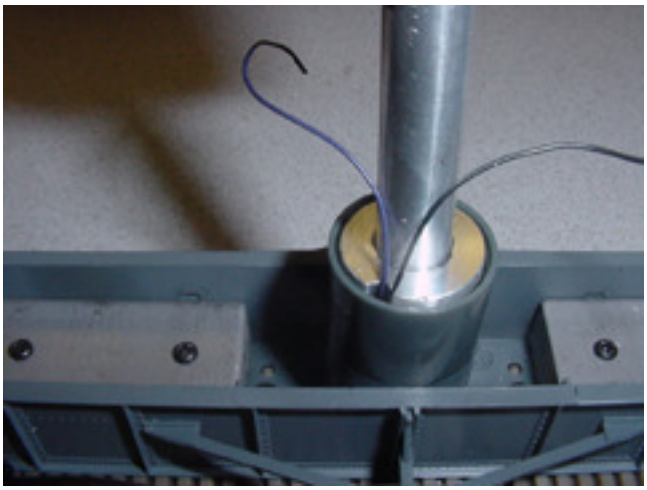

Figure 8 – Shaft adapter installation

You may now re-install the weights and the cover plate that holds the bogie wheels onto the bridge.

CUTTING WIPER PCB

This step is best performed with a Unibit for step drill and perhaps a small vice, see figure 9.

Figure 9: Step Drill

Take the wiper PCB and place in a vice. Drill a small pilot hole in the center of the PCB. Now using the Unibit, drill down through the center of the PCB, enlarging the hole to 3/8". Be very carefull here as I doubt if it would be possible to get a replacement from Walthers. Make sure the the wiper board will fit down over the shaft of the new shaft adapter.

Solder the two wires that come from the track through the center shaft to the back side of the PCB. You can use the holes provide but make sure the wires do not protrude through to the wiper tracks.

Snap the PCB down over the shaft adapter and pop into place into the bridge shaft. See figure 10.

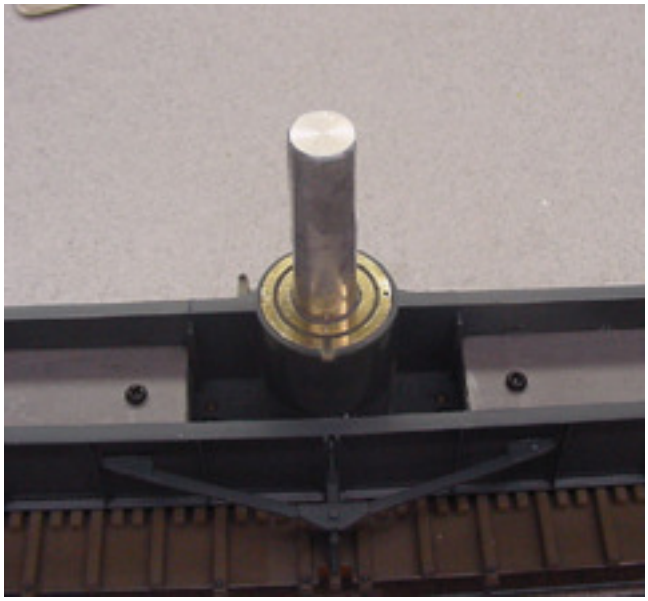

Figure 10 – Wiper PCB in Place

MODIFING BOTTOM COVER

The bottom cover of the turntable pit housed the wipers for delivering track power to the wiper board. Remove it from the bottom of the turntable pit by removing the four screws that hold it on. There is a long piece of plastic with two wires in it that runs out to the edge of the pit. It may be removed and discarded.

Carefully cut the middle four contacts off of the wiper assembly.

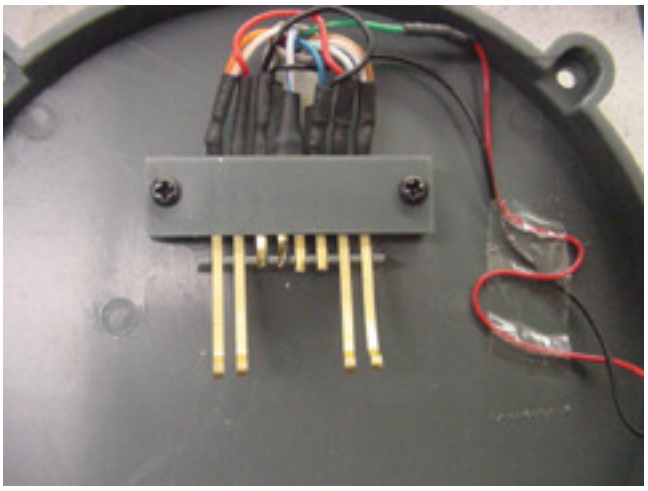

Figure 11 – remove contacts.

On the back side of the housing, draw an X using the screw holes as the corner points to identify the center of the housing . Using the Unibit, cut a hole slightly larger than 3/8" at this point. Be careful not to disturb the wipers as you do this step. See figure 12.

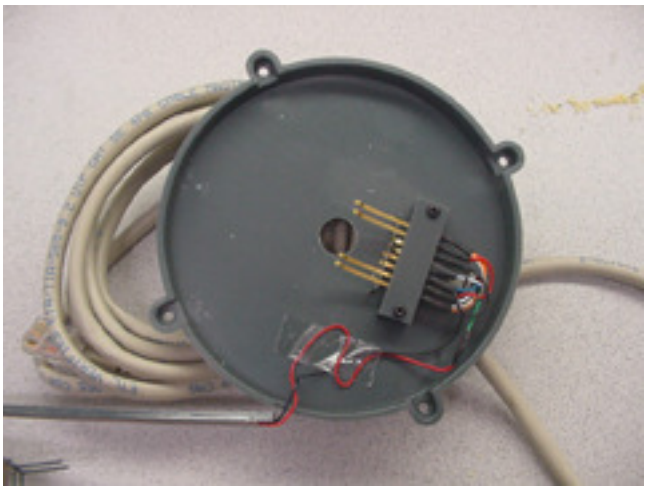

Figure 12 – Drill Hole

Re-attach housing to turntable pit.

Place bridge assembly down into pit.

Attach motor coupling as show in figure 13.

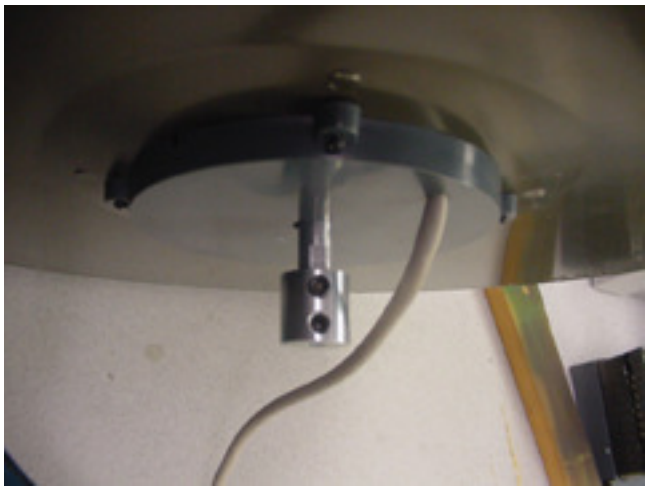

Figure 13.

Place completed turntable into benchwork.

Now refer to motor mouting instructions to mount the motor to the assembly.