

## **ZW transformer with 2 180 watt power house supplies**



Your transformer now has a new feature. On the front of the transformer you will find 2 switches. The reason for these switches is to accommodate 2 types of whistle control. The original Lionel design, required a negative dc pulse to operate the whistle, the newer devices like the bells require a positive pulse. This new feature will allow you to use both types of accessories. Each switch works independently with the closest speed control lever with the long handle. Up gives you whistle, down bells etc. pretty cool eh? The center 2 slide up controls do not have whistle or bells control capability.

Why the 3 wire cable? These transformers were originally designed early last century. There were no rules or regulations regarding grounding or safety concerns. The wires that plug into the wall go directly to the primary windings of the internal transformer, which is mounted on a metal plate which is screwed into the bottom plate. While very rare it is possible that a short could develop between a winding on the transformer and the metal mounting plates, which then could charge the bottom metal plate of the ZW (or KW) transformer. This then could potentially cause a shock hazard.

For a few years we have been using 3 prong plugs solely for the purpose of phasing all our transformers the same. (More on this later) The light bulb came on when we were taking one of the transformers apart, and the idea struck us why not change the whole cord ( which we were doing anyway for most all the transformers we recondition) with a 3 wire cord, with a top quality molded 3 prong computer style cord. By doing this we then take the 3<sup>rd</sup> ground cable, and screw it into the internal plates and the bottom

plate, which will still take care of the phasing issue and provide the safety of grounding the bottom plate, and the internal transformer mounting plates.

If you are using this transformer with another, it is very important that they be phased together. If you are using it with another ZW or KW from us, we have already wired them so they will be in phase. If you are using with another transformer, here is a method to make sure your transformers are all in phase.

Plug in both transformers Take a wire and attach it to one of the "u" terminals on your new ZW. Plug in whatever transformer you want to use with the ZW on the same layout. Turn off all adjustable controls on both transformers. Touch the other end of the wire to the common terminal (wherever you would connect to the outside rails). No spark, you are good to go. If you get a spark, reverse the plug that goes into the wall plug on your old transformer. If you have more than one transformer, follow the same procedure for each transformer. That should take care of it.

Any questions or concerns, let us know. You can always reach us via email: @tinman3railcom. Or we always enjoy chatting with you guys....262-914-0057, your transformer has a one year warranty, so don't hesitate.