

# APRIL TECH TIP

## How to Remotely Operate Switcher Coil Couplers

By Jim Weatherford

### Wouldn't It Be Cool

Many of you who, as kids and young adults, used to watch the real switchers in the rail yards move the cars from one track to another, making up the consist for the next run, have nostalgically fashioned your own layout running Post War locomotives with the same principle in mind. As a consequence, you are required to have remote control track sections installed on every leg of the switching yard to open the knuckle coupler (picking up a car), and to uncouple (delivering a car). Wouldn't it be nice to be able to open the coupler anywhere on the layout without having to be on the remote track section, or trying to figure out which button to push since there are a quadrillion controllers on the control panel?

Well, there is a solution to your problem if you have a switcher with coil actuated couplers; install a dc relay in the switcher and use the whistle control on your transformer to energize the coupler. Just think, you can eliminate all those remote control track sections, end confusion about which button operates which track section, and free up valuable space on the control panel.

### Adaptable Engines

The Post War switchers that can be adapted (coil actuated knuckle couplers at both ends) are:

Diesels	622 Santa Fe
	623 Santa Fe
	624 Chesapeake & Ohio
	6220 Santa Fe
	6250 Seaboard
Steam	1656 Lionel Lines
	1665 Lionel Lines

**Note:** The easiest units to modify are the 623, 624, and 6250. The 622, 6220 have bells and that presents a space problem for the relay. The steam switchers must use a low profile relay in the tender instead of the common standard whistle or horn relay.

### Parts Needed For The Modification

- Transformer with whistle control
- DC relay (whistle or horn)
- Bracket to mount the relay
- Terminal lug (small)
- Insulating washers to isolate the relay from the bracket
- Short pieces of flexible wire

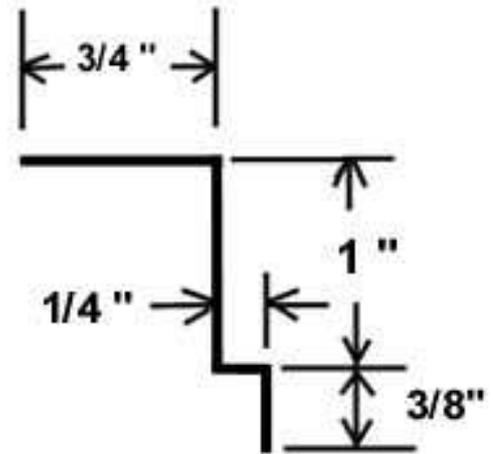
### How It Works

Since the coil coupler is already grounded to the locomotive chassis, we have to switch the 'hot' side of the coil circuit through the DC relay. The power from the track center rail is acquired from the roller pickups and routed to the relay frame. The 'hot' wire is soldered to a terminal lug and attached to the relay with the mounting screw. The relay is isolated from the chassis with insulating washers so ground is brought to the relay coil terminal via a short jumper wire. The other end of the relay coil (the type from a whistling tender) is connected (soldered) to the relay frame (same as the roller pickup). The coil coupler wire is connected to the relay contact terminal. Remote coupler operation occurs when the whistle controller imposes a DC pulse on the track. The DC relay is energized and the electromagnet pulls the armature up so the hot side of the circuit is completed and the coil coupler opens.

### Installation

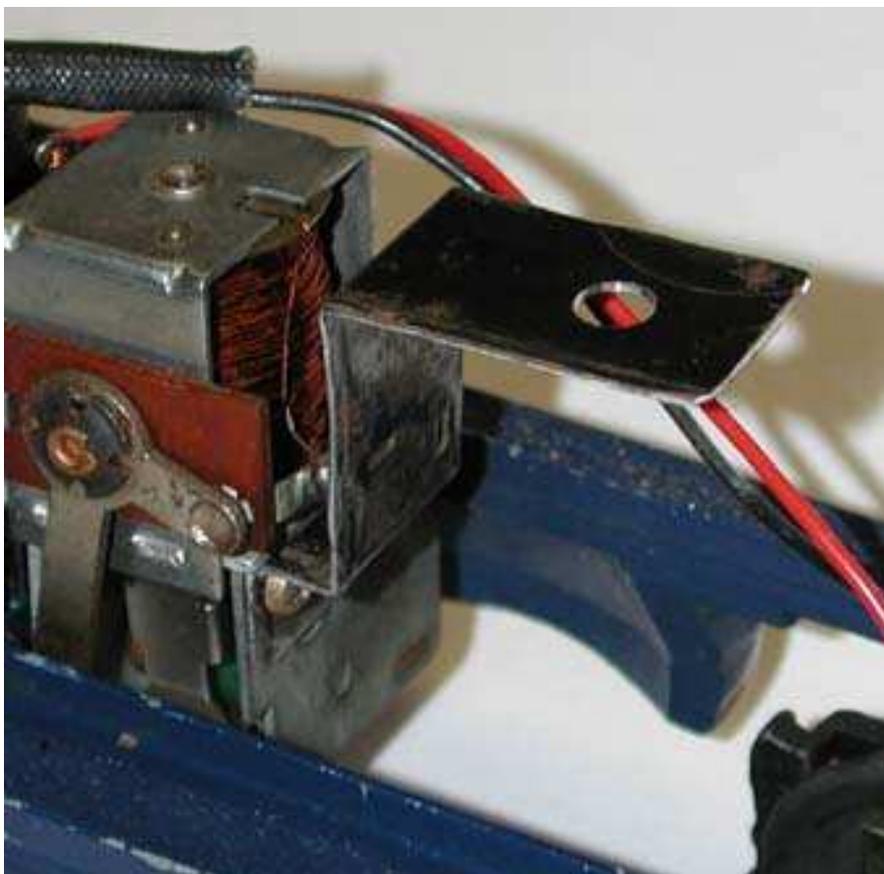
Fabricate a bracket and attach it to the side of the E-unit. It's important the metal you use is strong enough not to flex once the bracket is mounted and the relay is installed. I use an old caboose frame and cut it with metal shears into a 3/4 inch wide strip. Bend it into the shape shown above and drill two holes to match the holes in the e-unit. You will also drill a hole in the top of the bracket so the relay can be mounted.

The steam switchers have to have the relay in the tender similar to the way the 201 electro-motive had theirs. You need a low profile

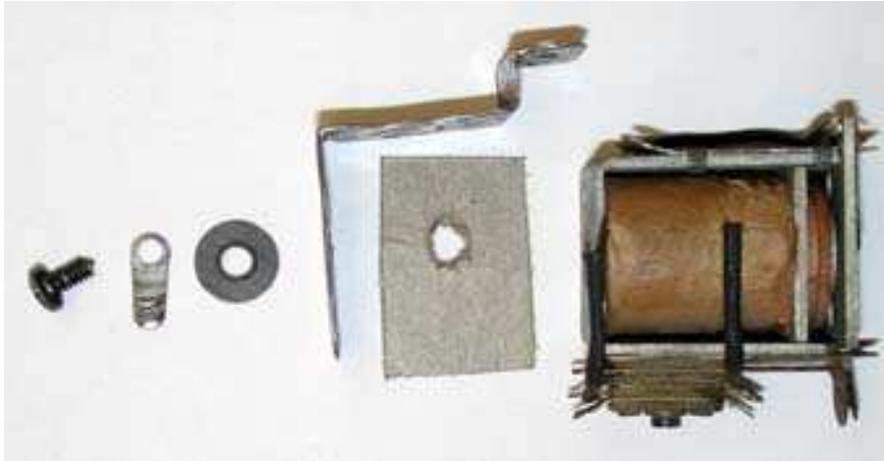


relay so it will fit in the sloped back tender. It's hard to find the Lionel type, so find an AF DC relay; they're much more available.

Mount the bracket to the side of the e-unit and then mount the relay to the bracket as shown in the picture below.

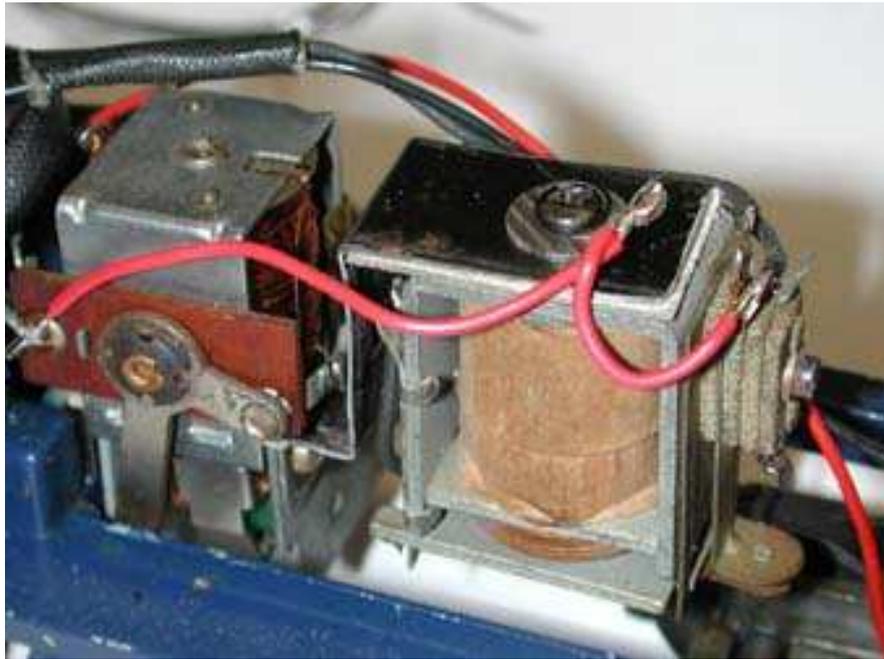


The relay has to be isolated from the ground (bracket) because the relay armature is part of the circuit and is the 'hot' side. Use the insulating washers, one (rectangular) between the relay and the bracket, and one (round with shoulder) between the bracket and the 'hot' terminal lug.

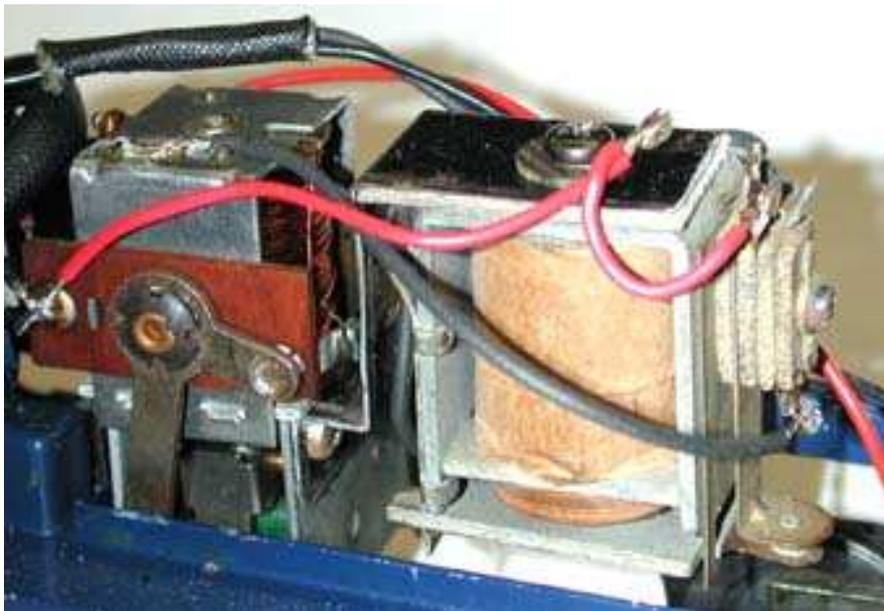


Find the common 'hot' wire that goes to each coil coupler from the slider shoe. Run a wire from the output of the relay contact and solder it to the common wire. Use shrink tubing or electrical tape to prevent shorting to the chassis. You don't have to detach the slider shoe connection. In fact you can still use the remote control track section if the situation demands it.

Run a wire from the 'hot' side of the E unit or the roller pickup to the relay terminal lug. Run a wire from the relay ground to the locomotive chassis. Jumper the 'hot' wire to the other relay wire. (This last step is necessary if you are using a relay from a diesel horn.) The relays from a whistling tender already have one side of the relay coil soldered to the relay frame.



The return side of the DC relay must also be connected to the locomotive frame. Solder a short wire from the relay stack and then solder the other end to the e-unit frame.



Make sure the coupler knuckle spring is good since that's what opens the knuckle if there is no other car to pull it open.

### **Not To Worry**

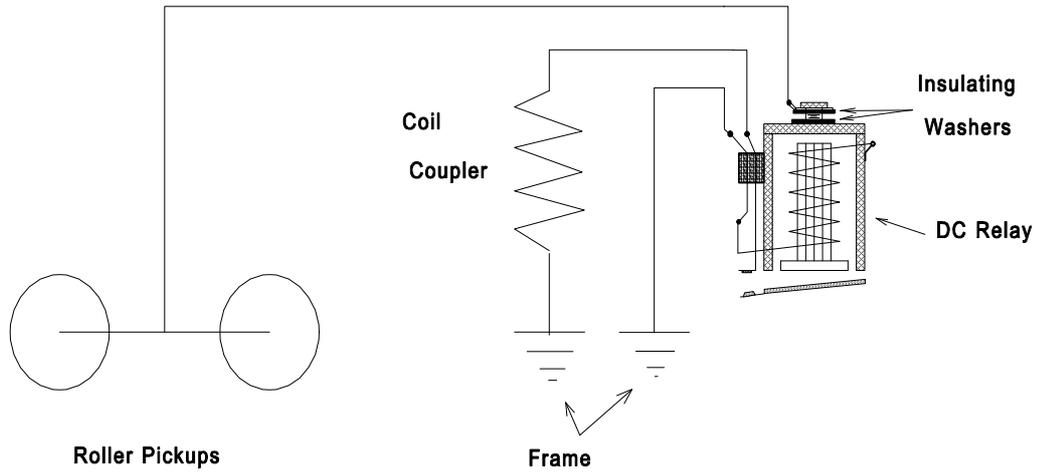
I want to emphasize that this modification will not permanently change your switcher. You can always remove the relay and restore the wiring back to the original condition.

### ***OPERATING TIPS***

**by Jim Weatherford**

**Tip #18 - Whistle Resonant Chambers** -- Use silicon sealer in place of the paper gaskets to repair metal die-cast whistle chambers. The body may be warped and the silicon fills in the gaps nicely.

**Diagram for the Remote Operating Coupler  
(Whistle Relay)**



**Diagram for the Remote Operating Coupler  
(Horn Relay)**

