



# #708 Thru - The - Ties Delayed - Action

## MAGNE-ELECTRIC UNCOUPLER

### ASSEMBLY INSTRUCTIONS

**BEFORE YOU BEGIN CAREFULLY READ THE INSTRUCTIONS AND STUDY THE ILLUSTRATIONS.** Check the package contents and familiarize yourself with each part. If any parts are missing, damaged, or defective please contact Kadee® Quality Products at the address on the package.

**PACKAGE CONTENTS:** 1 each of the following: coil, steel core, 10-32 bolt and hex nut, field plate divider, upper track mounting plate, lower track mounting plate, 2 each field plates, 4 each 2x3/8 flat head screws.

#### OTHER ITEMS NEEDED:

These are to be provided by the modeler. 8-12 volt DC power pack at least 3 AMPs (per uncoupler), 1/4" and #20 drill bits, fiber washers will be needed if working with code 40 track, 20 gauge wire, Kadee® #165 are recommended - Normally Open Momentary Contact push button switch, light bulbs or LEDs of appropriate voltage, AMP/Voltage meter, general hobby tools, wood working tools for cutting a hole into the layout base (see text) and tools to cut the metal rail if needed and rail joiners if you've cut the rails.

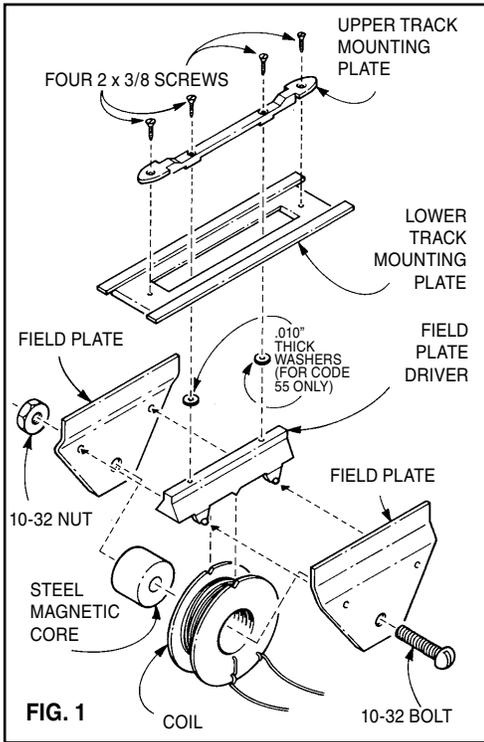


FIG. 1

#### GENERAL INFORMATION:

The Kadee® Magne-Electric Uncoupler is designed primarily for use with the most common sizes of flex or sectional track and works best on 8-12 volt DC current. The Magne-Electric uncoupler can be used anywhere our permanent magnet Delayed-Action uncouplers are installed but its advantage on the layout is in areas where tracks are used mainly for running "thru" trains (such as a mainline) and only occasionally for uncoupling. Because the electromagnetic uncoupler is active only during uncoupling, trains that are just passing thru won't uncouple over it by accident. For more ideas on locating uncouplers, see "Where to Place Uncoupling Ramps".

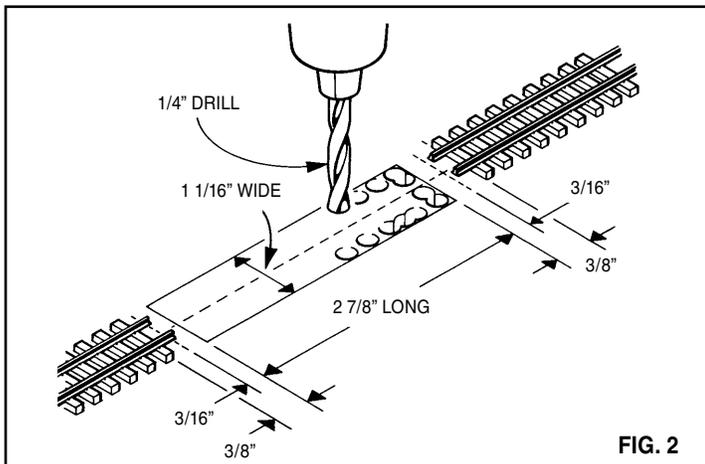


FIG. 2

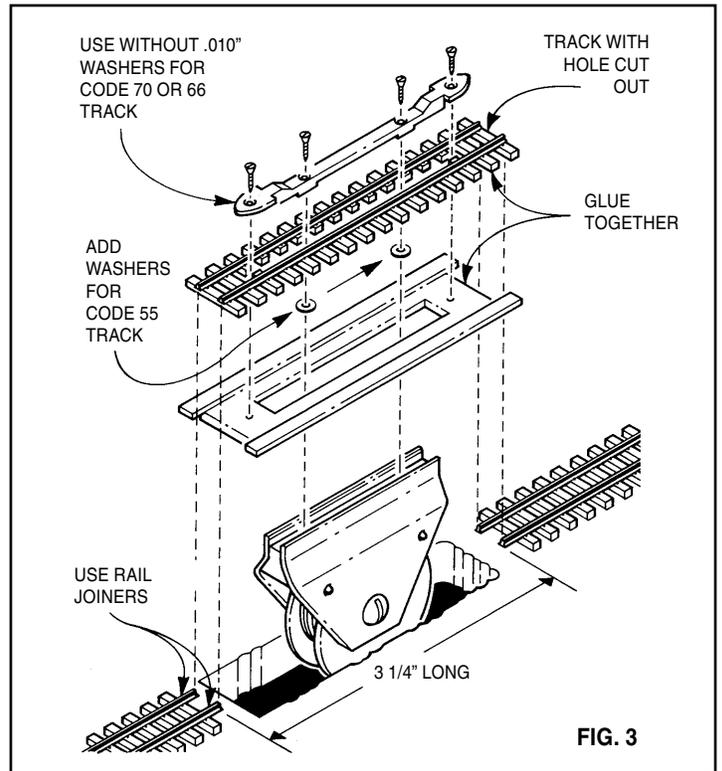


FIG. 3

**NOTE:** Some inexpensive power packs may not supply the 3 Amps necessary. To check the actual voltage measure across the transformers terminals when the uncoupler is energize.

To avoid overheating and to assure reliable operation the uncoupler must have an electrical source of at least 3 Amps and no more than 12 volts DC. **Do not energize continuously for more than two minutes, or overheating will occur.**

#### ASSEMBLY & INSTALLATION:

- After determining where you want to install the uncoupler you will have to cut a hole in the layout 1 1/16" wide and 2 7/8" long that is in line with the track. If you already have track (with or without roadbed) down, remove a section of it down to the layout base according to the dimensions shown in Fig. 2. If you have yet to put any track down, wait until the hole in layout is complete. After location of track, ties and hole are clearly marked with a pencil, take a hand or power drill with 1/4" drill installed and make a series of holes along the dimensional lines of the hole area. Overlap these drill holes often. After drilling, take a sharp chisel and carve down thru the non-overlapping holes until center drops out smooth rough edges with a medium file or flat chisel.
- Next, inspect the lower track mounting plate for use (Figs.1 & 3). This HO n3-HO plate can be used. However, it may need to be narrowed slightly if you use roadbed. Be sure and use side of plate as indicated in the illustrations.
- We recommend flex or sectional track-be used with the uncoupler for ease of application and strength, although hand laid rail can be used also. First, use a track cutter, razor saw (hack saw), or a mini power tool (Dremel® type) with a metal cutting disc attachment (always use proper eye protection), to cut the rail just over 3 1/4" long (Fig. 3) and test fit it into the gap between your layout rails. File off any excess until rail joints fit snugly. Second, assemble uncoupler parts (Fig. 1) and check assembly to make sure everything fits. It may be necessary to trim the runner off upper track mounting plate. With bolt and nut moderately secure but not real tight, turn uncoupler assembly upside down and tap on flat surface. This will set the field plates even with the upper track mounting plate. Now, tighten up nut and bolt firmly and unscrew the track mounting plates. Set aside. Third, you will need a hole in the ties wide enough and long enough to accommodate the field plate/coil assembly. Trim ties on a hard, non-giving surface to avoid broken spikes in the case of flex or sectional track or split ties in the case of hand laid wood ties. Fourth, glue ties to the lower track mounting plate (Fig. 3). Contact cement works well with wood, plastic or Delrin ties. Be sure ties are centered on plate, then let glue dry thoroughly. Fifth, in case of hand laid ties, glue, rather than spike, the rail to the ties. Cyano-Acrylate works well as an adhesive for this application.

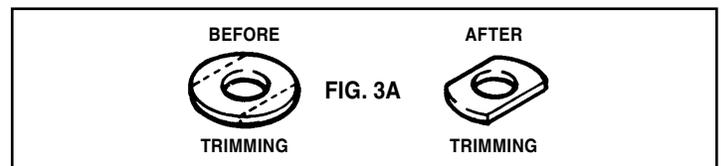


FIG. 3A

- Before final assembly, note that the upper track mounting plate, by itself, is applicable to track with code 70 or 66 rail. For code 55 rail, use included washers between upper track plate and field plate divider. Narrow these washers as shown in Fig. 3A so they will fit between field plates and rest flatly on field plate divider. For rail sizes smaller than code 55, see "Assembly Modifications".

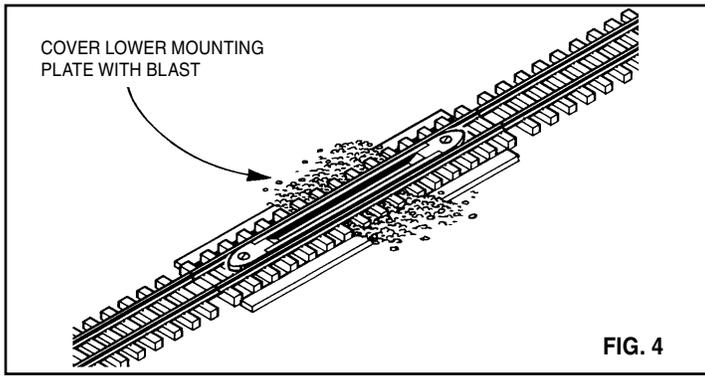


FIG. 4

5. After all parts have been prepared, assemble in sequence as illustrated in Fig. 3. Install metal rail joiners at the ends of the rails on the layout, push them as far back as they'll go. Lower uncoupler assembly into place (Fig. 3) and pull rail joiners over rail joints.

6. If you have installed uncoupler on roadbed, fill the gaps between lower track mounting plate and layout base with sections of roadbed trimmed to fit. You may wish to add some glue to these sections for rigidity. If you have installed uncoupler directly to layout base, you may wish to spike or glue lower track plate down for strength. Now, cover plate with ballast glued in place with white glue. See Fig.4.

**ASSEMBLY MODIFICATIONS:**

Although this uncoupler is designed, as is, for use with the larger rail sizes, it can be modified to be compatible with smaller rail-even down to code 40 size. This is accomplished, in simple terms, by lowering the field plate/core assembly and thinning down the upper track plate so that they are even with the height of the rail.

1. Assemble uncoupler completely minus lower track mounting plate and track. Be sure and use the included .010" thick washers as shown in Figs. 1 and 3.

2. Add extra fiber washers (not included) between the upper track mounting plate and the field plate divider. The thickness of these washers can be determined by subtracting the height of the rail you are using from the thickness of the upper track mounting plate ends.

For example, the end of the upper track plate is .055" thick and let's say the rail you want to use is code 40 (.040") high .055" minus .040" equals .015". Use washer(s) equal to .015" thick.

3. After assembly, note that the top of the field plates is now lower than the ends of the upper track plate. Take a sanding block, first with coarse sand paper, and slowly sand down these ends until almost even with the top of the field plates. Finish sanding down even using a fine grit sand paper (Fig. A.)

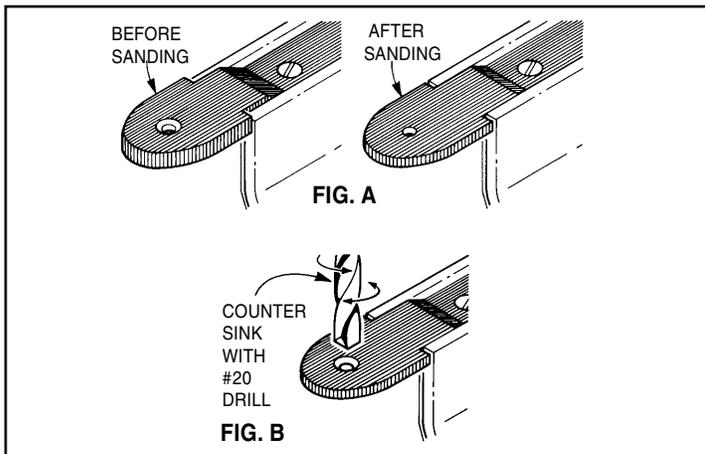


FIG. A

FIG. B

4. Finish modification by taking a #20 drill and countersinking the end holes in the mounting plate as shown in Fig. B. Twist drill slowly by hand using a shaving action rather than cutting action to prevent going all the way thru the hole.

**WIRING:**

After installing uncoupler in the track, it's time for hooking it up electrically for use. You will have to wire the uncoupler coil to the DC side of a power pack thru a push button switch (not included) the Kadee #165 (N.O) normally open push button switches are recommended, see Fig. X. The push button switch needs to be a single pole, single throw (SPST) momentary contact type and should be able to handle at least 3 amp, 8-12 volts DC the Kadee #165 meet the requirements. For additional information, refer to Kalmbach book "How to Wire Your Model Railroad" by Linn Westcott. Push button switches are available thru hobby shops or radio/electronics stores.

Use insulated #20 AWG wire for hook up. Get color coded wire to avoid cross-wiring. Study wiring diagram (Fig. X) for connecting 1, 2, 3 or more uncouplers. Also keep in mind that all hook-up wires must be stripped of insulation wherever it connects with another wire. **Wires from the uncoupler coil have a thin coating of insulation which must be scrapped off when hooking up for electrical contact.** First, run a wire from one DC power pack

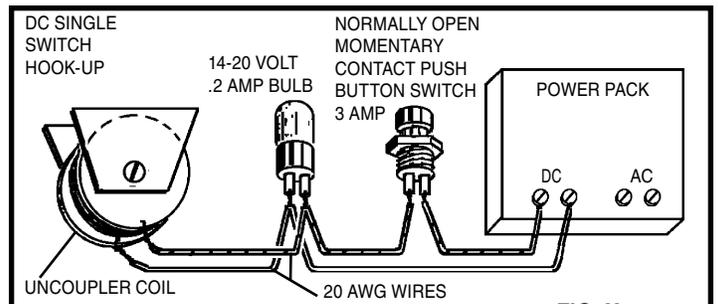


FIG. X

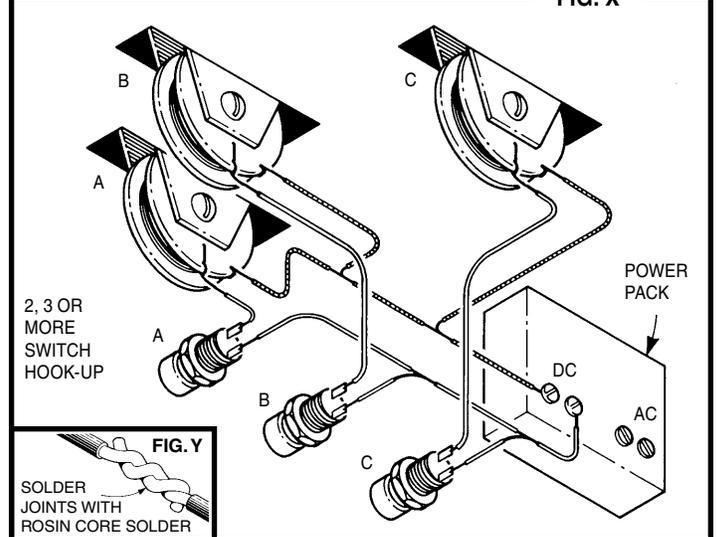


FIG. Y

terminal straight to one of the two wires at the uncoupler coil. Twist this power pack wire and coil wire together. **Remember the power pack has to be large enough to provide 3 AMPS per uncoupler being used at the same time.** Second, run a wire from the power pack DC terminal to one of the two leads at the push button switch. Twist this power pack wire onto the lead. Third, twist a length of wire onto the other push button lead long enough to reach the remaining unconnected wire at the uncoupler coil. (Optional light bulb or LED can be placed in this section of wire as show in Fig. X to visually show when the circuit is active) Twist this wire from the push button and coil wire together. You should now be able to operate the uncoupler by activating the push button. Tryout according to "Operation" section and then if desired, solder all twisted wire connections with rosin core solder, 1/16" size, Fig. Y.

**OPERATION:**

**WARNING:** Do not use the electric uncoupler continually, but rather intermittently with periods of time between uses. **"DO NOT" activate the uncoupler for longer than "2 MINUTES" at one time.** This will avoid possible overheating which will damage the uncoupler.

To uncouple, pull or push coupled cars/locomotives to a stopped position at a point where the connected couplers are directly over the uncoupler, allowing slack to occur between the couplers. Energize the uncoupler (push button), Knuckles will open, Withdraw slightly to disengage the couplers. They will stay open as long as the uncoupler is activated (energized). Now you can enter over uncoupler again, couplers are in "delayed" position allowing you to push "spot" the car as long as you continue the pressure against the open couplers to desired location. Release the (push button) after couplers are in the "delayed" position or you are finished uncoupling.

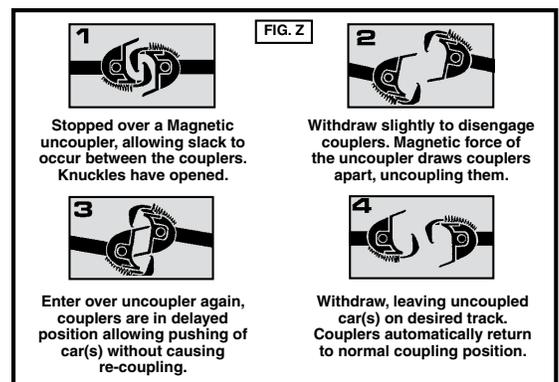


FIG. Z