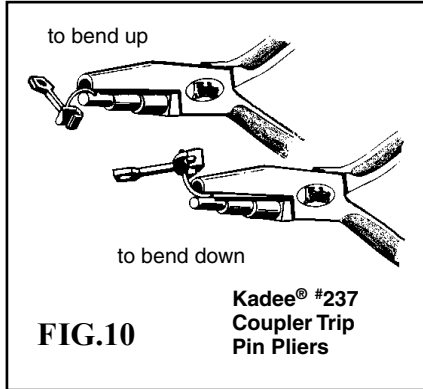


can help you determine the correct height for Couplers, Trip Pins and Magnetic Uncoupling Ramps. To check for proper Trip Pin height, set car or locomotive on track and roll up to **Kadee® #205 Multi-Purpose Gauge**. Trip Pin should just skim over top of gauge lip. If too high or too low, adjust with **Kadee's® #237 Trip Pin Pliers** or with needle-nose pliers as shown in **Fig.10** by slightly bending Trip Pin up or down to a final setting.



DO NOT bend Trip Pin using the coupler head or shank for leverage. Bend the Trip Pin against itself by gently squeezing the pliers to achieve the desired results.

IMPORTANT: Following previous assembly steps carefully is important to assure smooth and trouble-free coupler performance.

NOTE: The #23, #24 & #25 packages include a NO.5® type gear box which is modified to operate on tighter curves see **FIG.11**.

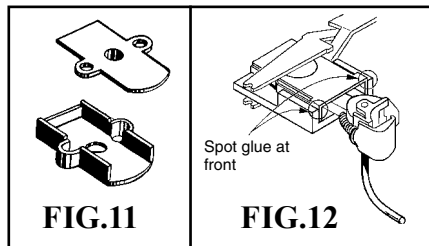
The #21, #24, and #27 **Kadee® Magne-Matic® Couplers have underset shanks** and are used in applications where mounting surfaces are too low for the regular centerline height. With these Coupler Shank variations and the inverted use of the Draft Gear Box, a combination of heights can be obtained to position the Coupler at correct Coupler center line height. See **Fig.4**.

The #22, #25, and #29 **Kadee® Magne-Matic® Couplers have overset shanks** used in applications where mounting surface is too high for regular Coupler centerline height. Inverting of the Draft Gear Box can also be applied to the #22, #25, and #29 Couplers.

Further flexibility is offered by the #23, #26, and #28 **Kadee® Magne-Matic® Couplers with center set shanks** and inverting of Draft Gear Box. See **Fig.4**.

Place the locomotive or rolling stock on the track to test the operation of the Coupler and check for proper heights.

The Magnetic Uncouplers relationship to the top of rail and bottom of Trip Pin is critical to the proper operation of Kadee® Magne-Matic® Couplers. You may wish to try **Kadee's®** simple to use #334 **Uncoupler Glying Jig** which holds the



Uncoupling Magnet in the correct relationship to the top of the rails while the epoxy or white glue that bonds the Uncoupler in place sets, thus eliminating potential problems with Coupler operations.

To prevent losing knuckle springs by being dislodged use the following steps and supplies. Kadee® #241 Dual Tool (Manual Uncoupling Tool & Spring Pic), small piece of blue denim cloth, DUCO® CEMENT or WALTHERS® GOO®, or similar type cement. **CAUTION:** Always follow safety instructions for the cement that you may be using.

1. To pick up spring place it on the cloth (this allows the small springs to be seen and picked up easier) and insert #241 Dual Tool (Manual Uncoupling Tool & Spring Pic) into spring between coils near one end. See **Fig. 1**.



Fig. 1.

2. Touch one end of the spring into the cement so that no more than one or two coils are coated (too much cement will hamper coupler performance). See **Fig. 2**.

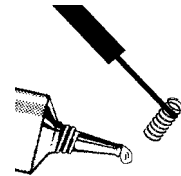


Fig. 2.

3. Place glued end over the knuckle retaining post and then compress spring so that it may slip over the opposing shank retaining post. See **Fig. 3**.

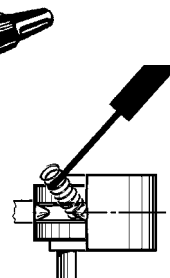


Fig. 3.

4. Carefully remove pic from spring.

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**20
SERIES**

**For automatic coupling nudge cars together.
For delayed uncoupling:**

1) Stop with the couplers over an uncoupler and back up slightly with the couplers still over the uncoupler, allowing slack to occur between couplers. 2) Pull forward slightly. Couplers are now in the delayed position. 3) Back up, pushing the car(s) to the desired location. Do not permit slack to develop between couplers. 4) Pull forward, leaving the car(s) where desired. Couplers automatically return to normal coupling position.

COUPLER ASSEMBLY INSTRUCTIONS

Rolling stock manufacturers have a variety of coupler mounting situations including adaptations of "Athearn" type standardized coupler pockets, various other body mounted coupler pocket styles, and various "Talگو" (truck mounted coupler) styles. A lack of a standard design for locomotive coupler mounting platforms and coupler pockets by manufacturers causes variations in mounting heights and space limitations. Therefore, the mounting of couplers to the front of most HO-Scale locomotives is often very different than mounting adaptations for HO-Scale cars.

All these variations in design, may require cosmetic alterations to the rolling stock in order to make an effective, workable coupler adaptation. We can only make suggestions and urge modelers to rely on their own ingenuity in achieving satisfactory results.

Please read and familiarize yourself with **all** of the enclosed information before beginning coupler assembly.

The 20 Series Kadee® Magne-Matic® Couplers with included adaptors and NO.5® Draft Gear Boxes have been designed primarily for: **A:** Locomotive pilot mounting, **B:** Special, tight, small or unusual body mounting situations; and **C:** Mounting on Talگو-style trucks.

MOUNTING NO.5® DRAFT GEAR BOX: The 20 Series Couplers can also be installed using the included NO.5® Draft Gear Box, see **Fig.1**. NO.5® instructions are enclosed.

Note: The **Bronze Centering Spring** **must always** be installed on top of coupler, right-side up with spring leafs facing down.

THE UNIVERSAL ADAPTOR PLATE, see **Fig.1**, is used in applications that require a lid with a centering boss. Assemble Coupler and centering spring holes aligned over centering boss of the Universal Adaptor Plate (raised sides keeps spring straight). Fasten assembly to coupler mounting platform with a 2-56 Screw.

Note: **Fig.1** represents a listing of parts only, at no time would all these components be used in a single mounting situation.

BEFORE ASSEMBLY: Check all parts, Bronze Centering Spring, Coupler Shank and Knuckle areas for flash and rough spots. Remove any burrs which can hinder the coupler operation or spring movements. Burnish top and bottom of Coupler Shank and Knuckle Faces with **Kadee® #231 Greas-em** (a fine dry graphite lubricant especially suited for Kadee® Couplers).

COUPLER CONVERSION: Use Kadee's® #205 Multi-Purpose Gauge (Coupler Height Gauge) to help determine the correct coupler height and which coupler configuration and method of mounting will be necessary for your particular situation, see **Fig.4**.

Fig.2 shows three common types of Talگو-truck coupler mounting brackets on the market today. Compare the Talگو-truck you are working with to the drawings in **Fig.2**, then follow the corresponding instructions.

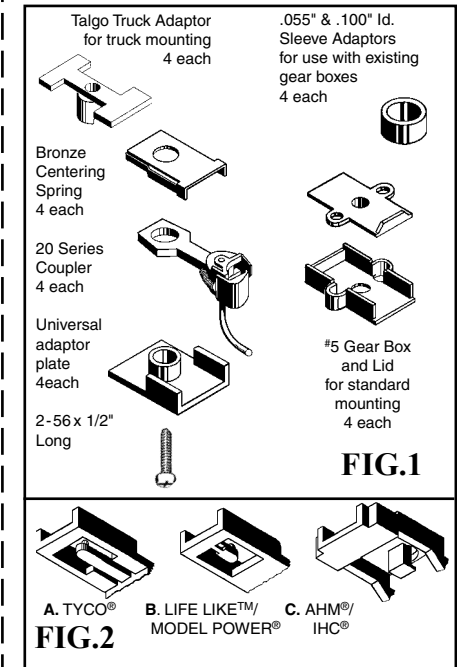


FIG.2

FIG.1

CONVERSION INSTRUCTIONS FOR TYCO® & LIFE-LIKE™/MODEL POWER®

1. Remove Talگو-truck from underframe and twist horn hook coupler out of coupler box.

2. With a sharp hobby knife, remove areas shown in **Fig.3** from the existing coupler box. The opening must be

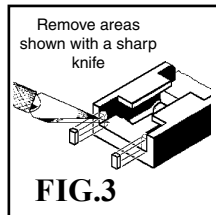
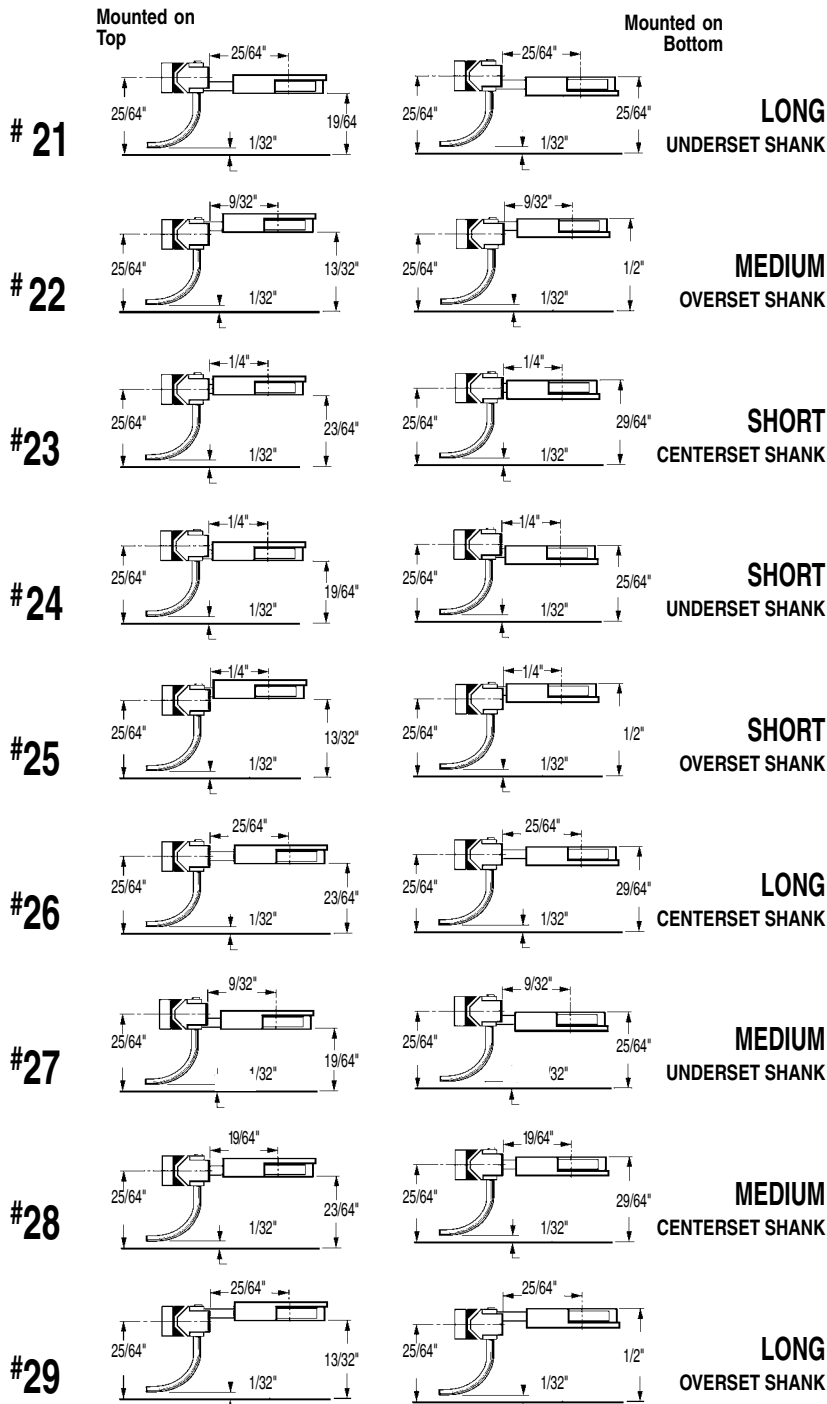


FIG.3

FIG. 4

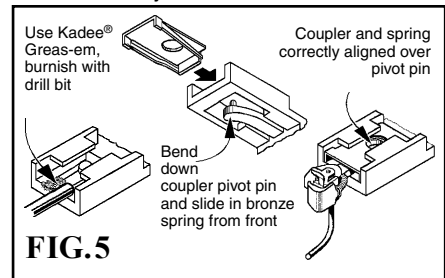
20 Series Kadee® Magne-Matic® Couplers



just wide enough to hold the Bronze Centering Spring without binding or distorting it.

3. Carefully place the Bronze Centering Spring into the coupler box to test for clearance. Remove any obstructions which may interfere with the coupler operation. Burnish inside coupler box surfaces with **Kadee® #231 Greas-em** as shown in **Fig.5**.

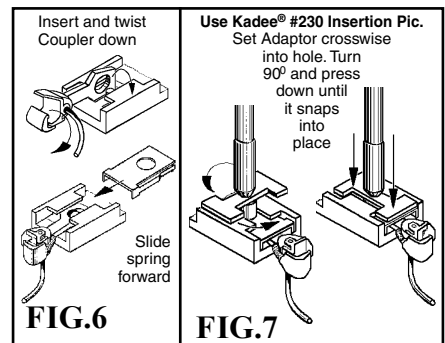
4. **WITH THE TYCO® STYLE TRUCK** (long tongue, rear attachment), insert Bronze Centering Spring, see **Fig.5**. Bend down coupler pivot pin just far enough to slide spring past it from the front. Push spring back against center post to make room for Coupler. Pull pivot pin down once more and insert Coupler until hole in Coupler Shank rests directly above coupler pivot pin. Now, slide centering spring forward, aligning spring hole with both coupler hole and pivot pin, see **Fig.5**. Proceed to 7 for completion of this assembly.



5. **WITH THE LIFE-LIKE™ MODEL POWER® DESIGN** (short tongue, front attachment), install Coupler from the front at an angle and slide Coupler Shank underneath one lip of coupler box, see **Fig.6**. When the coupler hole is centered over pivot pin, twist Coupler down over pin, letting both lips capture Coupler Shank.

6. Insert Bronze Centering Spring from the rear, bringing it forward over Coupler. Align holes in both the Coupler and spring over the pivot pin, see **Fig.6**.

7. Using the **Kadee® #230 Insertion Pic**, set Talgo-Truck Adaptor cross-wise into the spring and Coupler holes. Turn Insertion Pic and attached Adaptor 90° and press down, snapping Adaptor into position, see **Fig.7**. *Make sure*

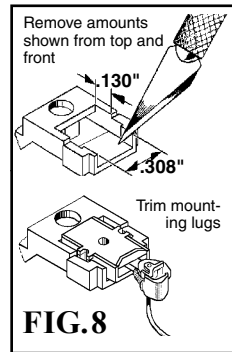


the broad section of the Adaptor faces toward the Coupler Knuckle and pivot pin has entered hole. Re-assemble truck to equipment and check coupler.

CONVERSION INSTRUCTIONS FOR A.H.M.® TALGO-TRUCK:

1. Remove Talgo-truck from underframe and twist horn hook coupler out of coupler box.
2. With a sharp knife, remove areas shown in **Fig.8** from the top and front of Talgo-truck coupler box.

3. Mount the #27 Coupler in a NO.5® Draft Gear Box, then trim a small amount from the two side mounting lugs for clearance. The assembled Coupler may now be set into the modified Talgo-truck and glued, using any one of the "Super Glues".



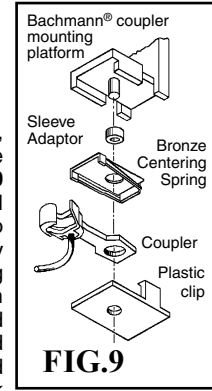
BACHMANN® ENGINE CONVERSION

1. On **Bachmann®** engines, slip an Adaptor Sleeve over the existing center post and glue with Super Glue. This will enlarge post diameter to accept Kadee's® Bronze Centering Spring and Coupler.

2. Place plastic clip over assembly and snap in place, see **Fig.9**.

GENERAL 20 SERIES COUPLER ASSEMBLY INSTRUCTIONS

For ease in handling, you may wish to use the **Kadee® #1020 Coupler and Special Purpose Tweezers** to hold Coupler Assembly together while testing Coupler centering action by toggling back and forth. Coupler should move freely and automatically snap back to center position. If so desired, when the Coupler functions properly, Bronze Centering Spring can be spot glued to the Draft Gear Box with a suitable glue. *Only a minute dab of adhesive is necessary at the indicated points.* See **Fig.12**. Cementing, however, will prevent disassembly. Dust a small amount of **Kadee® #231 Greas-em** on the insides of the Coupler Assembly. Work Coupler back and forth to lubricate and evenly distribute graphite. This will greatly enhance Coupler performance.



The **NMRA** specified coupler centerline height referred to in **Fig.4** is 25/64". The Trip Pin (Glad Hand) should clear the top of rails by 1/32". **Kadee's® #205 Multi-Purpose Gauge**