40 Series

Couplers Instructions

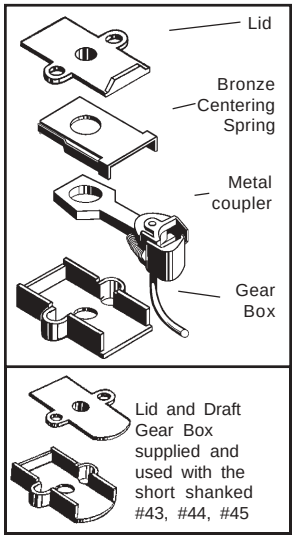
The 40 Series couplers are the same shank design as the 20 & 30 Series couplers but made of metal instead of plastic for strength and rigidity. These couplers with their different offsets and shank lengths, fulfill a wide variety of mounting requirements. The chart below shows the types and dimensions of the 40 Series couplers.

In order to fill requests for closer coupling by the use of Kadee's® shorter shanked #43, #44, and #45 couplers a new coupler box (draft gear box) supplied with these couplers only, was designed that allows the couplers to swing the full width of the box on sharp "S" curves, turnouts, and through #4 switches. The long and medium shanked couplers come with a #5 coupler box.

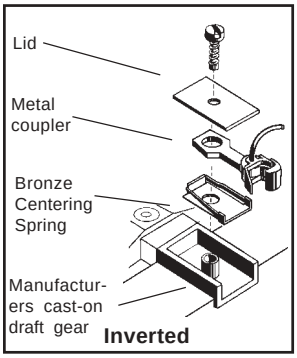
Carefully study each figure and notice the relationship of one part to another. Note: The bronze centering spring plate must always be installed on the top of the coupler.

Remove the draft gear box and lid from the sprue making sure the inside of the box is smooth and free of any flash. An application of Kadee's® #231 Greas-em Dry Graphite Lubricant along with burnishing both sides of the coupler shank will provide a polished surface that considerably reduces friction of the moving parts.

Note the two leaves of the centering spring should be outside and resting on the end stop (the folded up piece at the end of the spring). If they are not, carefully lift them out past the edge of the end stop. Very carefully burnish any burrs from the front lip of the centering spring. Place the centering spring over the boss (centerpost) of the lid, deposit a small amount of graphite on the spring and slip the coupler onto the boss where the shank is between the two leaves (arms) of the spring repeating the application of graphite on the shank. Slide the assembly into the draft gear box carefully pressing them together while making sure the assembled order matches the drawing. Add a "puff" of #231 Greas-em into the draft gear box opening. Move the coupler back and forth a number of times working the Greas-em around, let the coupler snap back to center position a few times checking for ease of movement. You may, when correctly assembled, cement the lid on the box using a very small amount of solvent cement carefully placed along the seams. This, however, is not necessary but only a convenience and is the modelers choice. Note: a characteristic with shorter couplers is that the leverage between it and the centering spring arms is reduced resulting in a stiffer spring action. This requires closer attention being paid to the procedures in the assembly instructions with a few added requirements to obtain maximum satisfaction in these couplers operation (note the various text throughout the instructions pertaining to the short shanked couplers).



Lid and Draft Gear Box supplied and used with the short shanked #43, #44, #45



The draft gear box can be mounted with a screw (2-56 screw) through the center hole or with two screws (Kadees® #401 0-48 Self Tapping Screws, use a #55 [.052"] Drill) through each of the two outer holes. The gear box must be mounted along the centerline of the car or locomotive. The short shanked coupler can sometimes be slightly canted off center towards the knuckle spring side. To do this pivot the coupler box very slightly by trial for maximum results.

To mount on a flat surface place the coupler on centerline with the end of the gear box even with the outside edge (end) of the car. Mark the platform through the hole (about 1/4" from the end), you can pre-spot the hole with a #43 (.086") Clearance Drill from our #246 Tap and Drill set. Drill (#50 Drill) and tap a hole for a machine or a self-tapping screw or drill (#43 Drill) a clearance hole for a screw and nut. The side lugs can be trimmed off to fit into a tighter space or pocket. Where the use of a screw is not possible a solvent cement can be used on a styrene mount and a "CA" glue can be used for other mounts. However, you need to note that where glue or cement is used that it will be more or less a permanent mount and adjusting and servicing the coupler will be more difficult. So be sure before cementing a coupler to a mount that the correct coupler height, function, and clearance is achieved beforehand.

Use our #205 Height Gauge to check for the correct coupler height and trip pin clearance. Place it and the car or locomotive on a straight and level piece of track with the couplers together. Be sure they are the same height for the best operation. With the methods of adjustment described below this can easily be achieved. Minor coupler height adjustments can be made by shimming (#211 Shims) between the car bottom and the draft gear box and / or using the #208 (.015") or #209 (.010") Shim Washers between the trucks and bolster (truck mounting position). If the difference in height between the coupler on the height gauge and on the car is too great, use the next offset coupler, as from an underset to a mediumset and so forth. For optimum operation the trip pin should just clear the bottom plate of the height gauge and not be less than 1/64" above the Magne-Matic® uncoupler (between .015" and .020") and not less than 1/32" above the rail. You can use .015" and .020" thick pieces of plastic placed on the #312 and #321 Magnetic Uncouplers to check trip pin height. Use our #237 Trip Pin Pliers to carefully adjust the trip pin. Following these procedures will result in excellent delayed uncoupling action.

The coupler and centering spring will simply "drop in" many cast-on draft gear boxes (a draft gear box that is a part of molded framework or body of a car or locomotive). It will also fit into many manufacturers screw on and clip on draft gear boxes. Make sure the inside of the box is free of any obstructions and flash. Test fit the spring, it must have room to flex the arms without binding.

Some manufacturer's centerpost's diameter may be too small, allowing too much coupler play and will hinder centering action. Compare the play in the #5 Draft Gear Box to the cast on draft gear box and check if the spring functions properly. A small bushing can be made to fit over the post by filing the inside of a piece of plastic tubing (.123" outside diameter) or a bushing from one of our 20 Series coupler packages. Another way is to use the lid from a #5 gear box filing the inside diameter of its post hole larger before trimming the base from around the post. If the centering spring is not secure you may have to glue it into position using a very small drop of a CA type of glue.

Place the spring and coupler into the draft gear box, again making sure the spring is on top of the coupler. Place the lid on the box and secure according to the manufacturers instructions. Do not over tighten for some lids may bind the spring. On Athearn and other types of clip on lids you may need to file the edge of the tabs that the lids clip onto to relieve any binding.

To replace a Knuckle Spring use a Kadee® #235 Spring Pic and insert the tip between the last two coils of one end of the Knuckle Spring then carefully dip the last two coils of the other end into a drop of DUCO or Testors type of cement before installing on the coupler. Slip the end with the cement over the small spring post of the knuckle, compressing the spring until it can be slipped over the spring post of the shank releasing the compression until the pick can be withdrawn. Too much cement can wick into the other coils or knuckle hinge rendering the coupler inoperative. Due to the extreme wicking (capillary) action of the CA glues they are not recommended for this procedure.

For Non-Delayed Uncoupling use our #312 Between the Rails Permanent Magnet Uncoupler. For Delayed Action Uncoupling use our #321 Between the Rails Permanent Magnet Uncoupler, #308 Under the Track Permanent Magnet, or our #307 Magne-Electric (Electro-Magnet) Through the Track Uncoupler.

#41 **#46** **#49**	**Long** underset shank raises knuckle height **Long** centerset shank knuckle is centered **Long** overset shank lowers knuckle height	.250" .505" .100" .050" .390" **Long Underset Shank**
#47 **#5** **#42**	**Medium** underset shank raises knuckle height **Medium** metal centerset shank knuckle is centered **(#10 & #11 pack)** **Medium** overset shank lowers knuckle height **Short** underset shank raises knuckle height	.250" .405" .050" .050" .281" **Medium Centerset Shank**
#44 **#43** **#45**	**Short** centerset shank knuckle is centered **Short** overset shank lowers knuckle height All the above couplers can be used in any of the #5, #20 or #30 series Draft Gear Boxes, also the	.250" .365" .050" .100" .25" **Short Overset Shank**
Draft Gear Box in the #454 kit.		

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