



451

Extended Swing Gearbox & Metal Whisker® Coupler



CONTENTS: 2 #451 Draft Gear Boxes & Lids, 2 #148 WHISKER® Couplers, 2 Centering Bushings, 2 0-80 x 1/8" Flat Machine Screws, 2 2-56 x 3/8" Flat Machine Screws, 2 Bushing Centering Springs, 2 each Assorted Shims, Extra Springs.

This body mounted extended swing gearbox and coupler is designed for passenger or long freight cars to help negotiate tighter radius curves.

BEFORE ASSEMBLY ALL COUPLERS:

After removing the components from the sprues file off the break away point and any flash, making sure the inside of the box & V shaped bushing hole is smooth and burr free. The WHISKER® centering spring is a thin wire protruding at a "V" angle forward from the pivoting hole at the end of the shank. Because the wire spring is cut by a machine the tips might be sharp and CAUTION must be taken when handling the coupler. Burnish the coupler shank on both sides.

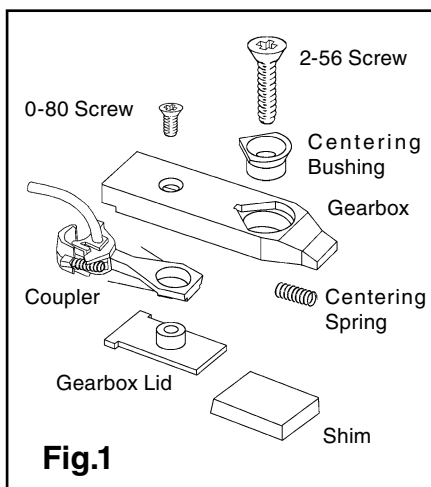


Fig.1

COUPLER ASSEMBLY INSTRUCTIONS

To assemble the coupler follow the illustrations in these instructions. See Fig.1 Hold the lid, coupler & gearbox assembly together with Kadee® #1020 Tweezers according to the illustration. Then carefully insert and tighten the 0-80 screw, a magnetic tip screw driver helps a great deal.

BUSHING ASSEMBLY INSTRUCTIONS

Burnish the bushing & gearbox with #231 Greas-em. To assemble the rest of coupler by following the illustrations in these instructions. See Fig.1 Insert the centering bushing

and invert the assembly. Use our #241 Dual Tool (Manual Uncoupling Tool & Spring Pic) and insert it between the last two coils on either end of the spring. Then slip the end of the spring against the bushing and compress the spring until you can slip the other end onto the spring notch then withdraw the pick while holding the spring in place. Carefully set the assembly aside but take care and keep the bushing in place or the spring will come out. The spring is held in place by the surface the assembly is mounted on.

MOUNTING INSTRUCTIONS

Prepare the surface for mounting. A smooth flat surface is required for mounting the gearbox to the cars frame.

Option #1

Use the platform end of our #206 Height Gauge to determine how many shims will be required to build up the underframe to the proper coupler mounting height. Use the provided shims to build up underframe to 29/64" glue the shims in place with styrene cement. Find and scribe the centerline on the mounting surface and shims.

Option #2

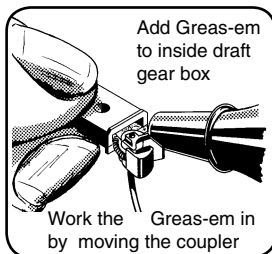
If more truck wheel clearance is needed, and where it's possible, rather the shimming the mounting surface down to 29/64" use our #42 or #142 Overset Coupler in the #451 box in place of the #148. The mounting surface is now 1/2" above the railtop.

Mounting

While holding the coupler in place measure back from the assembled couplers pulling face 15/16" and mark the location. Make sure the trucks will clear the back of gear box on your tightest radius curve. You may need to trim the trucks, coupler gear box or move the mounting hole closer to the end of the car for truck clearance. Now using the Kadee® #246 Tap & Drill set, drill a tap hole for a 2-56 screw with a #50 drill, and then tap the mounting hole on the scribed centerline. Burnish the mounting surface & bottom of the gearbox with #231 Greas-em. Now mount the assembled coupler on the centerline of car with the 2-56 x 3/8" screw provided (if screw is too long use appropriate length flat machine screw) through the Centering Bushing. (Note: the Bushing spring may dislodge easily until the 2-56 screw is secured.) Make sure the gearbox is in line with the centerline of the car before snugging down the screw. The gearbox should move freely and snap back to the centerline.

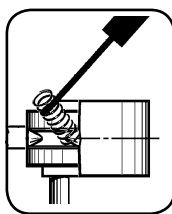
FINAL CHECKS

Add a puff of Kadee® #231 Greas-em on the insides of the Coupler Assembly. Work the coupler back and forth to lubricate and evenly distribute the graphite. This will greatly enhance the coupler's performance. Use our #205 or #206 Height Gauge to check for the correct coupler height and trip pin clearance. The HO-Scale N.M.R.A. standard for coupler height is the centerline of coupler at 25/64" (.390"). Use our #237 Trip Pin Pliers to carefully adjust the trip pin clearance if necessary.

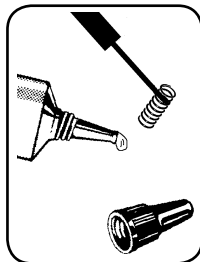


We include extra knuckle springs. To replace the knuckle spring, use our #241 Dual Tool (Manual Uncoupling Tool & Spring Pic) and insert it between the last two coils on either end of the spring. Then slip the end of the spring onto one of the retaining cones in the knuckle and compress the spring until you can slip the other end onto the opposing cone then withdraw the pick.

NOTE: To secure the knuckle spring more durably carefully dip the last two coils in DUCO® (or similar type of glue) or a thick slow drying CA glue ("do not" use the thin CA glue because it can easily "wick" into the knuckle and ruin the coupler). Then slip the end of the spring onto one of the retaining cones in the knuckle and compress the spring until you can slip the other end onto the opposing cone then withdraw the pick.



For Non-Delayed Uncoupling use our #312 Between the Rails Permanent Magnet Uncoupler. For Delayed Action Uncoupling use our code 100 #321 or code 83 #322 Between the Rails Permanent Magnet Uncoupler, #308 Under the Track Permanent Magnet, or our #309 Magne-Electric (Electro-Magnet) Under the Track Uncoupler.



Kadee® coupler conversion lists are available in the Walthers Reference Book. Kadee® coupler conversion list & coupler conversions are on the Kadee® web site for your convenience. www.kadee.com/conv/convpl.htm



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