

Check packet, it should contain:

1 ea. pilot coupler, pilot draft gear box, 3ea. centering springs w/ wide coils, 1ea. 1/4" #2 screw, 1ea. medium offset coupler, 1ea. draft gear box, 1ea. lid with chamfered hole, 1ea. 3/8" #2 screw, 3ea. centering springs w/ close coils, 1ea. 1/2" #4 screw, 2ea. 3/8" #4 screws, 1ea. 5/8" 2-56 screw, 1ea. 2-56 hex nut, 1ea. knuckle spring, 6ea. white shim strips.

IMPORTANT: Before assembling Couplers, check arrow-marked areas shown in **Fig.1** for burrs and rough spots. Remove all flash and burrs with fine file or a hobby knife to assure freedom of movement after the Coupler is assembled.

Burnish the surfaces indicated by arrows in Fig. 1 with Kadee[®] #231 Greas-em , a fine, dry lubricant specially suited for Kadee[®] Couplers. DO NOT skimp on steps 1 and 2, they are mandatory for smooth, trouble-free, Coupler performance.

ASSEMBLY

PILOT Place the Stop Plate in the Draft Gear Box and then the Coupler into Draft Gear Box as shown in **Fig. 3**. Add a little more **Greas-em** and work Coupler back and forth within gear box to polish.

Swing Coupler to either side and install the first Centering Spring (wide coils) with a small screwdriver or tweezers as shown in **Fig. 3**. Now swing the Coupler to compress the installed spring and hold in place with your thumb. This will give you room to fit the second Centering Spring (wide coils) in place. After installing both springs, allow the Coupler to center itself. Then, assured the springs are properly seated, carefully place Draft Gear Box Lid on Gear Box and secure with a #2 x 1/4" screw. (do not use the longer #2 x 3/8" screw!)





TENDER Place Coupler into Draft Gear Box as shown in **Fig. 4**. Add a little more **Greas-em** and work Coupler back and forth within gear box to polish.

Swing Coupler to either side and install the first Centering Spring (close coils) with a small screwdriver or tweezers as shown in **Fig. 4**. Now swing the Coupler to compress the installed spring and hold in place with your thumb. This will give you room to fit the second Centering Spring (close coils) in place. After installing both springs, allow the Coupler to center itself. Then, assured the springs are properly seated, carefully place Draft Gear Box Lid on Gear Box and secure with a #2 x 3/8" screw.



TESTING

Test Coupler centering action by working it back and forth. If it doesn't work freely and snap back to the center position, take Coupler and Draft Gear apart and start over again. It is possible that the springs aren't properly set in place or a burr is preventing proper movement.

Coupler Knuckle Springs are factory installed. If one should come out during mounting, replace as follows: Insert small screwdriver blade between coils at one end of spring, then place other end of spring over either of the cone-shaped projections in the knuckle spring slot. Compress spring until the end can be slipped over opposite cone, see **Fig. 5.** Use only **#860 Kadee® G Scale Knuckle Springs or #1875 Kadee® #1 Scale Knuckle Springs** designed for this purpose. Any substitutions will not allow the coupler to work properly.





Coupler Assembly is now ready for mounting. **NOTE:** If after extended use, the Coupler does not snap back to center as when new, it is because the uncoupling action tends to collapse one centering spring more than the other and it takes a slightly shorter set. To correct this, simply remove and switch springs from one side to the other.

MOUNTING

Bachmanns' pilot coupler pocket can not be used to mount a functional coupler into because it is metal and the mounting pegs are just "press" into the end sill. It is too difficult to modify and secure it for a coupler mounting. It can, however, be used for a nonfunctional or dummy coupler mounting.

Pilot: The pilot coupler takes a certain amount of modeling skills to mount. The coupler box will be recessed back into the end sill and attached to the "inside" of the back sill (wall). This can only be done if you remove the grating (cowcatcher) from the pilot assembly. Modelers who do not wish to alter the pilot of their locomotive or have yet developed the experience or modeling skills to modify the pilot may wish to only convert the tender to a Kadee coupler. If so, then refer to the section of these instructions titled "TENDER".

It is easier to work on the pilot conversion by removing the complete pilot assembly from the front of the locomotive. Remove the four tiny screw holding the boiler supports. Be very careful not to loose the screws, put them into a container or on a magnet. The other ends will slip out of the boiler. Remove the four screws under the pilot deck, because two are longer note which screw fits each hole. Carefully lift the pilot assembly straight up off of the deck, it may seem tight because of the indexed screw holes. The pipe over the top will come off with the assembly. The assembly can now be easily placed back on the deck to check the coupler height.

Remove the original coupler first by removing the bottom plate of the front sill. This exposes the two screws holding the coupler in place, remove these screws and the coupler will slide out. The pocket is attached with four pins protruding through the sill. Take a flat bladed screw driver and from the inside of the sill place the tip on one pin at a time and carefully but firmly press on each of the four pins. They will start to pop out just a little, when they start you can hold the pocket and work it the rest of the way out, do this slowly and carefully or you may tweak or break the end sill.

The cowcatcher is attached to the sill with four pins glued into the holes. On the "inside" of the





front sill trim or file the ends of the pins. Very carefully lift the cowcatcher until you can get a thin screw driver blade in the seam, then carefully work the blade farther into the seam and slowly lift the bracing. Go very slow and gently until the pins pop out or break off, the key is not to break the bracing. If the pins come out that's great but do not worry if they break off because you can still glue the bracing back in place.

Find and mark the centerline of the sill just on the bottom front edge. Measure and mark to each side of the centerline .4175" (.835" on center). Measure up the sill .325" at both marks then mark a line across to meet the side marks. Very carefully cut out this front section and the bracing behind it as illustrated in Fig. 6. Keep the cuts as straight and clean as possible then use a file to clean an adjust the edges. Fit the assembled coupler into the opening and note that the top of the box is sloped with two gussets (ridges), trim the inside of the sill to compensate for the mounting plate and box slope. Mark where the gussets touch the top of the opening then file two slots to fit the gussets about .040" deep and .070" wide or you can file "across" the gussets for the sill to fit against the box top. Do this slowly and carefully to keep it as neat as possible, also note, that the trimmed out piece leaves a portion of two holes. These can be filled in with a body filler and touched up with black paint. The bottom of the box should be about .060' lower than the edge but still be level.

Place the pilot assembly onto the locomotive, carefully hold the coupler box in place and check the coupler height. If needed, file the top of the opening, including the slots for the gussets, deeper until the coupler height is correct. Because of the suspension of the locomotives drive wheels the



coupler height may vary. To compensate for this press down on the loco until the suspension is fully compressed and adjust the coupler height to this, also, many modelers will add weight to their locomotives and this should compress the suspension enough.

For the screw hole locations on the back sill wall, measure from the edge of the opening in the back sill .365" from the left edge and the same from the right edge, lightly scribe a line parallel with the edges of the opening. Measure down each line .205" and scribe across it, the cross is the center of each screw hole see **Fig.6**.

Use a 7/64" or 1/8" drill and drill the holes through the rear sill. Place the coupler in position and check if the holes line up. If needed, use a small round file to adjust the holes. Use two #4 x 3/8" screws through the sill into the coupler mounting plate, hold the plate tight against the sill when tightening the screws. Place the assembly onto the locomotive and check the coupler height. If the coupler is too low because the box is drooping after the screws are tight, loosen the screws and slip thin pieces of shim (white strips) between the sill and coupler box (just against the screws and not around them) until the coupler comes up to the correct height, tighten the screws and check the height again, trim the shims so they are below the edge of the sill. Place the cowcatcher in position and check that the trip pin of the coupler clears the tip of the grating. If the pins of the cowcatcher did not break off you can just press the cowcatcher in back in place, it should hold without glue so you can easily access the coupler. If the pins broke off then use a very small amount of liquid styrene cement and cement the cowcatcher in position. Cut the cover plate in half and trim the ends to fit closely against the coupler box and look as nice as possible then attach the cover plates with their original screws.

Reassemble the pilot to the locomotive in reverse order of the disassembly and be careful with the tiny screws of the supports, they are easy to loose and it is easy to scratch the surface when tightening them. After the pilot is assembled again check the coupler height.

TENDER: medium offset rear coupler. Remove the original coupler assembly from the mounting bracket. If you do not wish to alter the original coupler box then you need to make a shim platform instead. Make a platform (shim stock) .075" thick and .800" wide by 1.010" long. Measure along the longitudinal centerline from the end back .677" and drill a 13/64" hole. Place the platform on the mounting bracket fitting the post through the hole, it should be a tight fit. The end should touch the sill plate and be level with the edge, see **Fig. 7**.

To use the original coupler box, disassemble the box from the plate, it is only pressed together at the rear corners, and remove the coupler. Use the plate with the post and trim off the small boss (post) and the two small tabs along the sides, on the underside of the plate, flush to the surface. Trim off the large post evenly to .080" high then trim the post off of the mounting bracket level with the walls (attached to the floor of the tender) see **Fig.7**. The mounting plate should fit over the mounting bracket and the top surface even with the edge of the sill plate.

Take the assemble coupler and place it onto the platform then secure it with the #4 x 1/2" screw included in the coupler package see **Fig. 7**. Make sure it is centered then use a #50 drill and, through the small hole in the coupler box, drill a hole through the platform then tap it for a 2-56 x 5/8" screw or you can use a #43 drill (2-56 clearance) and then use a hex nut on the screw end under the platform. This and the platform being against the sill plate will keep the coupler form turning during operation. Secure the coupler and platform to the mounting bracket and check for the correct coupler height.

OPERATION

One of the many desirable features of Kadee[®] Magne-Matic[®] Couplers is their ability to perform "delayed uncoupling". **TO COUPLE:** Simply push cars together. Upon touching, the operating knuckles move to opposite sides then couple in a closed position. Only a "feather touch" is required



to couple. TO UNCOUPLE: Stop over a Magnetic Uncoupler so your Kadee® Magne-Matic® Couplers are approximately half way over the Uncoupler. You must create slack between the Couplers which will allow them to be drawn open by the magnetic force acting on the two Trip Pins. Each Coupler has a wire or "Trip Pin" extending down from its knuckle, towards the track, that looks like an unhooked air hose. See #1. Note: You may find it best to pull the train past the magnet, then back the cars over it. Now, when you pull forward, the Couplers disengage. At this point, magnetic force will draw the Couplers off-center, see *2. Couplers will hold this position as long as they remain over the magnet. When you back up, bringing Couplers together again over the magnet, they will not recouple, but will mismate in the "delayed" position, see #3. With a single Kadee[®] Uncoupling Ramp, you can set the Couplers on one car, or a string of cars, in the "delayed" position for spotting cars at several points beyond the Uncoupler. Just push the car or cars to the desired location and drop off. As you pull forward again, the two Couplers in the delayed" position separate and snap back to their normal centered position, ready for recoupling, see #4. Kadee[®] Magne-Matic[®] "delayed action" uncoupling has unlimited possibilities for realistic operation of your railroad. Kadee® Couplers work even better than the prototype because they work automatically, with nothing touching them.

Use **Kadee® #231 Greas-em**, the dry lubricant recommended for use with all Kadee[®] Magne-Matic[®] Couplers. Greas-em will not attract the dirt and dust that gums up the inside of couplers like oil, grease or other lubricants will.

Use Kadee[®]#840, #841, #842, and #844 Magnetic Uncouplers with our G and #1 scale Couplers. The #840 and #841 Uncouplers are mounted in the track section of your choice, either LGBTM #840, or Kalamazoo #841. #842 Uncouplers come without track and are for mounting in LGBTM or other similar tracks. It will be necessary to cut the track, complete instructions are included. #844 Uncouplers also come without track and are for use with LGBTM or other similar types of track. No cutting of the track is necessary. We cannot guarantee the satisfactory operation of our Couplers if other kinds of magnets are substituted for the Kadee[®] Magnetic Uncouplers.

NOTE: To prevent damage to couplers: If you plan to store your equipment in the original box, the gear box may need to be modified to properly allow clearance for your new Kadee[®] Couplers. Simply cut openings in the gear box ends to give extra clearance for Kadee[®] Couplers.

