

provided metal Shims, until the correct coupler centerline height is achieved. If necessary, adjust the coupler Trip Pin height with the **Kadee® #237 Trip Pin Pliers**.

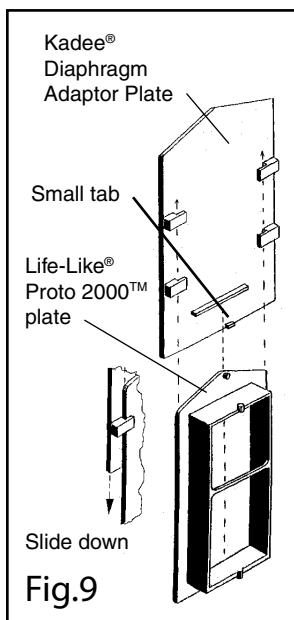
17. Place the locomotive shell over the chassis and observe the interference between the Rear Bracket and the bottom of the shell which will have to be trimmed to allow the bracket to swing freely. With this done, snap the shell onto the chassis.

DIAPHRAGM ADAPTOR PLATE:

18. Due to the length of the locomotives equipped with the new Kadee® Close Coupling Swing Brackets, the clearances between the two locomotives when run back-end to back-end causes the diaphragms to touch. This results in a problem on "S" curves of less than 30" radius due to the diaphragms swinging past each other, thus causing the diaphragms to interlock, resulting in a derailment of the locomotives.

19. This problem will be eliminated by the use of the extra width Kadee® Diaphragm Adaptor Plate, supplied with this kit, which is slipped down and snapped over the manufacturers existing face plate, **see Fig.9**, thus preventing the diaphragms from bypassing each other on 18" or larger radius curves.

20. These coupler adaptations will couple and uncouple when over the magnets. However, since both locomotives will move together when the track is energized, one locomotive will need to be held manually or on an electrically switched off section of track adjacent to the magnet in order to separate the two locomotives. Nor can the locomotives now be lifted up and easily separated, as with other locomotives without the Kadee® Diaphragm Adaptor Plate. This is due to the interference of the diaphragms because of the shortened distance between locomotives. These steps are not necessary if locomotives are equipped with Digital Command Control (DCC).



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CLOSE COUPLING SWING BRACKET ADAPTOR KIT

For all LIFE-LIKE®
PROTO 2000™ "E"-Units

Contains: (Metal parts) 1 ea. Front Swinging Bracket, 1 ea. Steel Torsion Spring, 1 ea. Swinging Bracket Cover Plate (pie-shaped), 1 ea. .025" Round Shim, 2 ea. .015" Round Shims, 1 ea. 9/32" x 13/64" double lipped Rear Shim, 1 ea. opposing lipped Shim, 1 ea. single lipped Shim and 1 ea. 1/4" x 5/16" Shim, 2 ea. Splined Bushings and 2 ea. Flat Bronze Springs. (Plastic Parts) 1 ea. Rear Bracket, 1 ea. Diaphragm Adaptor Plate, 2 ea. 30-Series Draft Gear Boxes with Lids. #33, #36 and #38 Couplers, 3 ea. phosphor bronze Torsion Springs and 2 extra Knuckle Springs. 1 ea. 0-80 x 3/8" Round Head Screw, 1 ea. 0-80 x 3/8" Flat Head Screw and 2 ea. 0-80 Hex Nuts.

1. For pilot: If the locomotive is assembled, remove the body, the pilot, the original clips and couplers from the chassis. It may be easier to work with loco on its side.

2. Note the front coupler mounting platform has two holes. The front hole needs to be drilled completely through using a #52 (.063) drill from a **Kadee® #780 Tap and Drill Kit**. Remove all burrs and smooth with a fine file.

3. Use the #36 Long Shank Coupler with the long nosed pilot having the large rectangular opening. Use the #38 Medium length Shank Coupler with the short nosed pilot having the oval coupler opening. If using the short nosed pilot with the small oval opening, the right hand edge must be trimmed out to match the opening on the left hand edge to allow for the swinging of the coupler and coupler box, especially on tight 18" radius curves. **See Fig.1**.

Assemble the desired couplers as described in the 30-Series Coupler instructions

Two types of optional pilots included
with Life-Like® Proto 2000™
E-type locomotives

Trim shaded area. If necessary trim back inside edge at the bottom lip

Inside of bottom lip

Fig.1

Large coupler opening

Small coupler opening

with the Torsion Spring on the bottom and the Coupler on top. It may be necessary to trim the back inside edge of the short pilot at the bottom of the opening to clear the coupler bracket.

4. To assemble the coupler brackets, remove the die-cast components from the runners. Note: always bend or break towards the flat or smooth side, opposite the stepped side of the die-cast gate (the gate is where the part and runner connect) which will result in a cleaner break. **See Fig.2**.

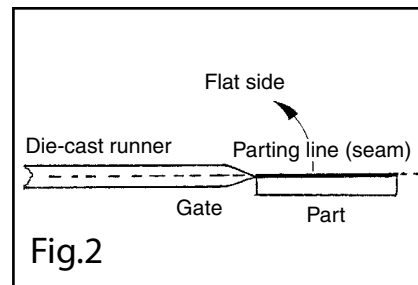
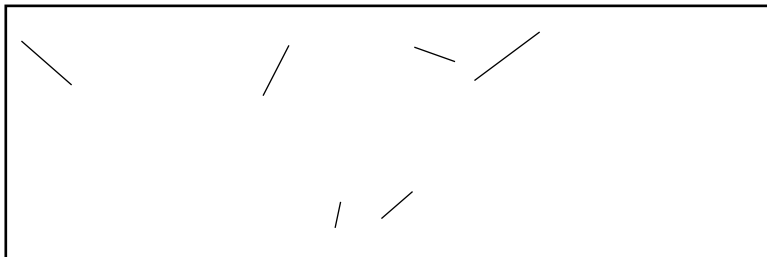


Fig.2

5. Place the Front Swinging Bracket,

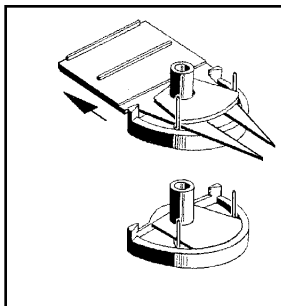
flat side down, on a smooth surface. Place the Steel Torsion Spring over the post with the vertical legs pointing up and straddling the pie shaped area in the bracket. **Use care** as the tips of the Steel Torsion Spring are sharp enough to puncture a finger. Slide the Forked Assembly Tool from the back to the front with post between the fork prongs. Keep the tool down flush with the top of the bracket as you slide it. The tool will spread the legs of the Steel Torsion Spring. Slide tool until it indexes to the back of the bracket, **see Fig.3**.

Holding tool down, in position, slip the Swinging Bracket Cover Plate (pie shaped



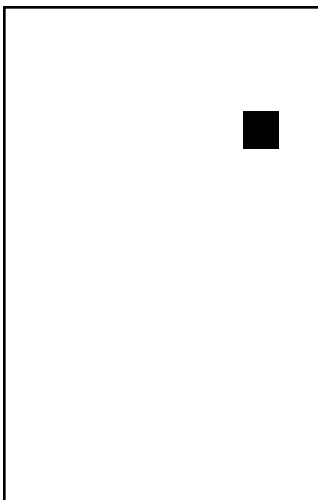
part) over the post and down against the assembly tool. Be sure Cover Plate is between the Steel Torsion Spring legs. Pressing down on the Cover plate, pull Forked Assembly Tool out, allowing the Cover plate to drop into bracket. Be sure to carefully fit the alignment pin on the Cover Plate into the small hole in front of the bracket's post.

Note: the Cover Plate must fit flush with the front and rear edges of the bracket, capturing the Steel Torsion Spring in the proper position. It may be necessary to use pliers to press the lid down properly. The fit is purposely tight to keep Cover Plate in place. **See Fig.4**.



6. The Swinging Bracket is now ready for use with the 30-Series Coupler. Note: when separating the 30-Series Coupler parts from the runner, cut only the gates from the runners, particularly the flat side of the Coupler Lid, since the angled side of the Lid forms the Torsion Spring stops.

7. With the 30-Series Coupler Draft Gear Box assembled, slide it down over the pivot post, in between the spring legs, making sure it is free to swing back into center position. If it binds because of a tight hole, carefully drill out hole with a #44 (.086") drill in a **Kadee® #240 Pin Vise**.



8. Assemble the Front Swinging Bracket to the underside of the chassis coupler mounting surface, using the size 0-80 x 3/8" round head screw and nut, as shown in **Fig.5**. Align and center the 30-Series Coupler to the locomotive centerline by adjusting the Front Swinging Bracket. If the 30-Series box is too thick, lightly file an equal amount from each side until the bind is relieved and the box swings free and clear to the center. Use a small amount of **Kadee® #231 Greas-em** graphite lubricant.

9. Test for correct height using the **Kadee® #205 Coupler Height Gauge**. If the coupler is too high, first check to make sure the chassis is

not bent by laying a straight edge along the sides and observe if the top edges of the ends of the chassis are straight and even where the chassis and weight joins. If they are not they can, with care, be bent straight. Should the coupler still be too high, use one or more of the round metal washer Shims stacked together between the chassis and the Front Swinging Bracket to lower the coupler. Then repeat step #9 again, until the coupler is the correct height. Next, adjust the Trip Pin if necessary using the **Kadee® #237 Trip Pin Pliers**.

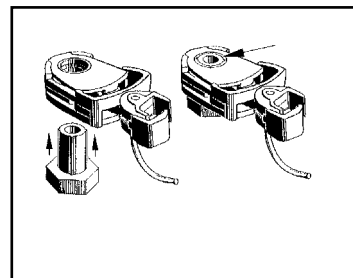
10. The pilots can be assembled to the chassis with a slight flexing, twisting action around the coupler and slipped into place.

11. Rear, or B-unit bracket: Remove the locomotive Rear Bracket by slipping a small screwdriver blade between the chassis and the bracket, lifting the upper arm off first, then the lower arm off the die cast posts. Discard flat bronze spring, after noting its location.

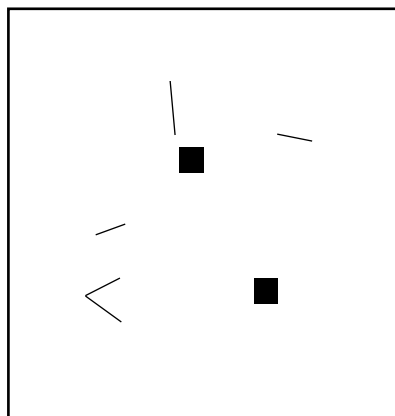
12. Install the Rear Bracket (both ends on B-unit) by slipping it over both chassis die-cast posts. Do this by first gently pushing Kadee® bracket forward, tipping the end down to allow the bottom hole in the bracket to slip over the bottom chassis post. Then, tip the bracket up and forward so that it slips over and rests on the top die-cast chassis post to allow the insertion of one small Kadee® Flat Bronze Spring into the chassis spring retainer seat. Now, gently press the bracket forward allowing it to completely snap over the top chassis post capturing the Flat Bronze Spring. If the bracket is too tight, insert a small screwdriver under the top leg bending it up until the spring will center the bracket without binding. **See Fig.6 and 8**.



13. Assemble the #33 Coupler per 30-Series instructions with the Torsion Spring on top and Coupler on bottom. Glue coupler assembly together with a tiny amount of plastic compatible glue placed along seams only.



14. Press the Splined Bushing from bottom side into the 30-Series Coupler and Draft Gear Box assembly until it is seated against the bottom side and the splined shaft is flush with the top of the box, **see Fig.7**.



15. Attach the coupler assembly to the Rear Bracket (plastic) using the 0-80 x 3/8" flat head screw and 0-80 nut with one or more of the square 1/4" x 5/16" x .015" die-cast metal Shims, as needed, in between and tighten the screw. Note: The lips on the edges of two of the shims are used to align them to the edge of the bracket and to each other to prevent them from turning, **see Fig.8**.

16. Place the locomotive chassis on the track to determine the correct coupler height with the **Kadee® #205 Coupler Height Gauge**. If it is too high, shim the coupler assembly down, using the