

******NEW INSTALLTION INSTRUCTIONS******
******Please Review this Important Information******



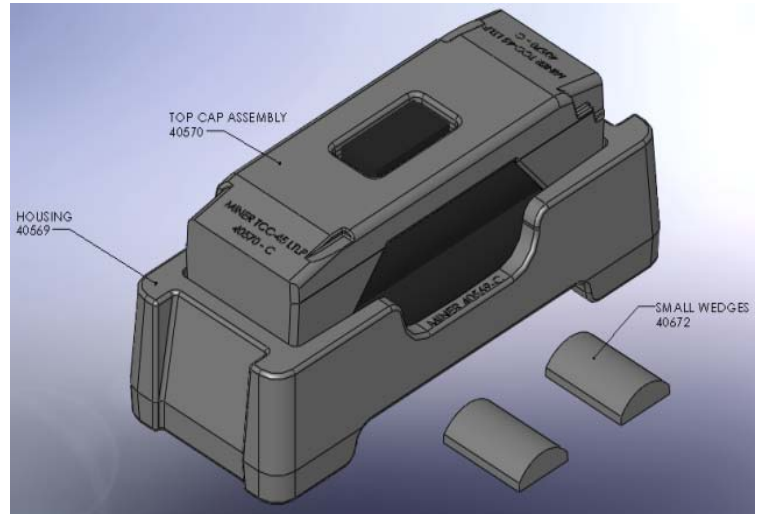
INSTALLATION INSTRUCTIONS MINER TCC-45 LTLP

The **Long Travel Miner TCC-45 LTLP** (patent pending) constant contact side bearing is designed to retrofit into existing weld-on or cast-in "low profile" block style side bearing pockets.

Included in each assembly are:

- A metal top cap attached to a TecsPak® spring
- A housing
- Two small wedges

The TCC-45 LTLP is designed to operate at an installed height of 2-5/8" and provide 4,500 lbs. of preload and 5/8" of travel.



Step 1 - Preparation

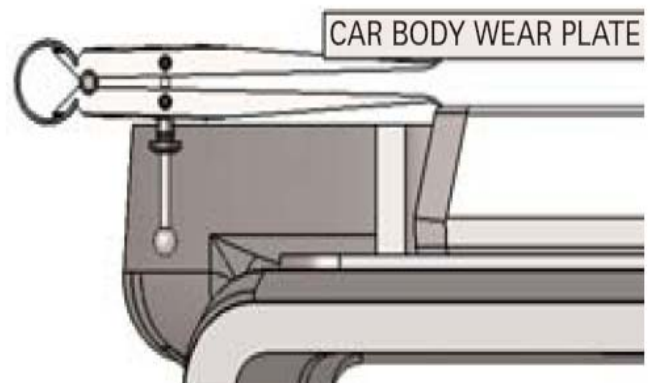
Pocket - Remove the metal block and clean the pocket of any foreign material. Inspect the pocket for cracks or any other damage, and repair if necessary. Insure that the pocket bottom and end walls are relatively smooth and free of any weld spatter, bumps, etc.

Car Body Wear Plate - The car body wear plate size must be large enough based upon the car truck centers reference table, and the car body side bearing wear plate surface must be smooth. Any weld spatter, heavy rust or surface projections must be removed by grinding. Fastener heads must be smooth and not protruding below wear plate surface, and the fasteners securely tightened. Plates with surface variations between fastener holes greater than 1/8", or greater than 1/16" over any 4" space between the fastener holes, must be replaced. Surface must be reasonably parallel to side bearing mounting surface. Variations should not exceed 1/16" across width or 1/8" end to end.

Car Body Wear Plate		
Truck Centers	Min. Width	Min. Length
70' or Less	4"	12"
70+' to 82'	4"	14"
82+' to 94'	4"	16"

Step 2 - Set-Up Height Adjustment

1. The TCC-45 LTLP housing is 2" tall and acts as the solid stop. Therefore, the housing must extend a minimum of 1/16", up to a maximum of 3/8", beyond the top of the pocket wall around the entire perimeter. If the pocket wall is taller than the housing, either
 - a. add shims under the bottom of the housing covering the entire pocket floor
 - b. or remove enough material from the top of wall to insure the 1/16" - 3/16" extension.
2. The set-up height should be adjusted by measuring between the top of the housing and the underside of the car-body wear plate with an empty car positioned on level track before installing the top cap assembly or applying solid center plate lube.
3. Adjust shims as necessary to achieve 5/8" +/- 1/16".



Step 3 - Housing Securement

Housing Placement –

1. Determine Pocket Size – There are many different sizes of pockets that are currently in service. Larger pockets (see below dimensions) will require a different model.

Miner recommends using the TCC-45 LTLP-B for pockets equal to or larger than 9 1/4 x 4 1/4.

The small wedges are designed to install the TCC-45 LTLP into the following smaller pocket dimensions:

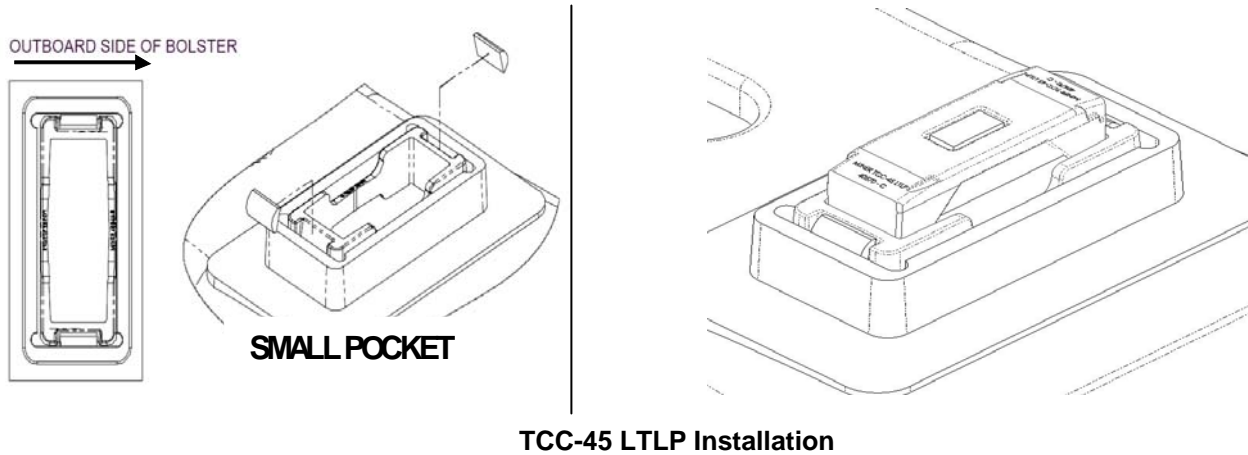
Minimum Inside Length = 8-1/8 in.

Maximum Inside Length = 8-11/16 in.

Minimum Inside Width = 3-1/4 in.

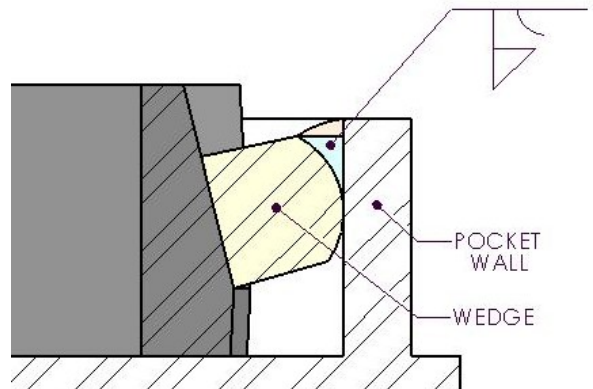
INSTALLATION

2. Shift the housing in the pocket to the outboard side of the bolster.
3. Center housing along its length in the pocket and insert small wedges in both ends.
4. Insure that the flat side of the wedge is against the Miner housing and rounded side is against the pocket wall.
5. Insure that the wedges on the ends are approximately at the same height and that all wedges do not extend beyond the housing top surface.
6. Once the welds are finished and cool insert the top cap assembly with the metal cap facing upwards and lower the car body.



6. Flare bevel groove weld Wedge to Pocket Wall (1-1/2" minimum length) with 70-ksi minimum tensile strength weld material. If the wedge is below the pocket wall, add reinforcement fillet weld on top. Insure that weld and pocket wall are at least 1/16" below housing wall. All surface preparation and welding must comply with ANSI/AWS D15.1 Railroad Welding Specification – Cars and Locomotives, latest edition, including preheat when required.

DO NOT WELD DIRECTLY ON MINER HOUSING.



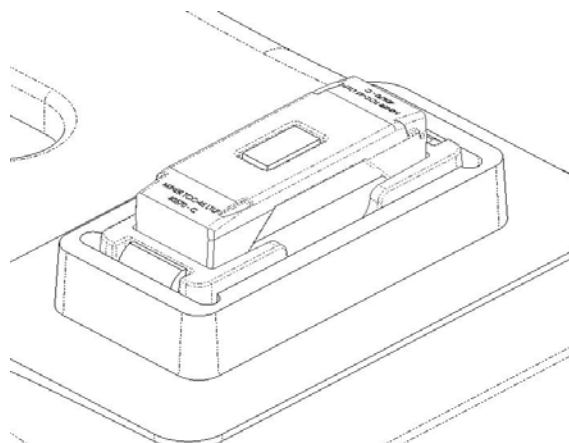
Some pockets may be slightly larger than the TCC-45 LTLP is designed for.

- Inside Length - If the wedges hit the pocket floor before contacting the end wall (inside length greater than 8-11/16"), shim application is required. **Optimal inside length after shimming should be 8-1/4"** Fabricate the shim so that is 1/4" shorter than the pocket wall and no wider than the flat portion of the end wall. Leave enough room on the shim width for welding. Fillet weld the shim to one end of the pocket using 70-ksi minimum tensile strength weld material.
- Inside Width – If there is a gap greater than 1/4" along with width of the pocket shimming is required. Estimate the shim thickness needed to reduce the gap between the housing and the pocket wall to 1/8" or less. Fabricate the shim so that it is approximately 1/4" shorter than the pocket wall and no longer than the flat portion of the pocket side wall. Leave enough room on the shim length for welding. Fillet weld the shim to the outboard side of the pocket using 70-ksi minimum tensile strength weld material.



Step 4 - Final Assembly

1. After the weld has cooled, place top cap assembly into housing and lower car.
2. The TecsPak® pad must not be exposed to temperature environments higher than 200° F., or 175° F for extended periods of time (2-3 hours).
3. After the side bearings have been installed, and the car body lowered onto the trucks, the set up height will probably be greater than the original set up.
4. Initial set needs to take place and this height will gradually reach the design set-up height.
5. The TecsPak® pads should be maintained at a 40° F. or higher temperature for at least 24 hours before assembly on a car.
6. At temperatures lower than 40° F., the settling time for the setup height may require at least 24 hours.



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