MINER ENTERPRISES INC.

W. H. MINER DIVISION

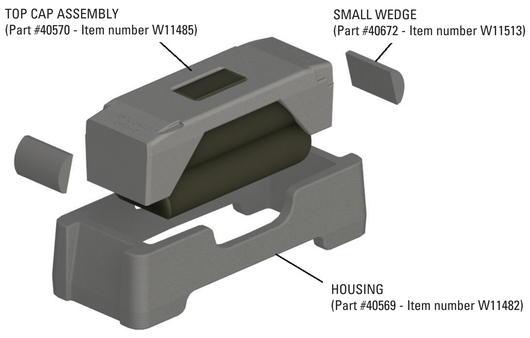
Perfecting Railcar Performance

Constant Contact Side Bearing Low Profile Long Travel Retrofit Kits

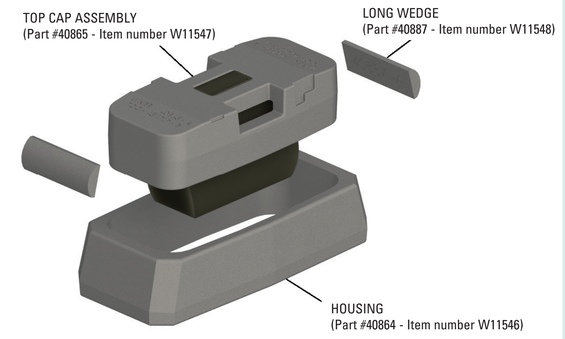
630-232-3000 **minerent.com**

IDENTIFICATION

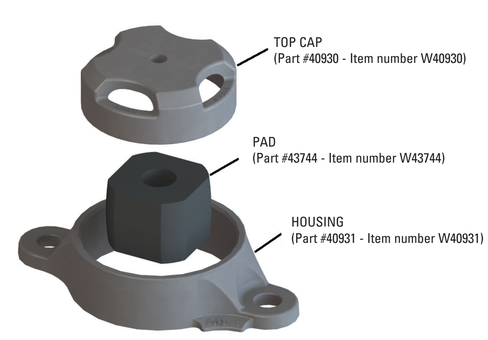
TCC-45 LTLP (Item number W11509)



TCC-45 LTLP-B (Item number W11549)



TCC-45 LTLP-C (Item number W43755)



INSPECTION

Field or Yard Inspection

- For cars with low profile solid block style side bearing pockets (integral cast or welded on ring) or for bolt-on applications.

Height adjustment is required at any time, empty or loaded, when height measured is:

Sum-of-the-Pairs Measurement (Condemning Limit)
Less than 7/8 inch or Greater than 1-5/8 inch

Helpful Tool
Let our online calculator do the math for you or refer to Rule 62.

Condemnable At Any Time

- Bent, broken or missing components other than base plate
- Side bearing cage fastener, loose or missing
- Heat damaged or missing elastomer element
- Metal caps worn through wear limit indicators, where such indicators exist
- Broken welds

Refer to Rule 62 of the Field Manual of the AAR Interchange Rules

CHECK SETUP HEIGHT

Shop or Repair Track Inspection

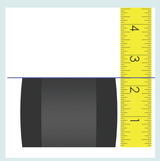
- For cars with low profile solid block style side bearing pockets (integral cast or welded on ring) or for bolt-on applications.
- Measure on straight and level track.

Height adjustment is required at any time, empty or loaded, when height measurement is:

Single Side Bearing Measurement (Condemning Limit)
Less than1/2 inch or Greater than 3/4 inch

Pad Free Height Limits

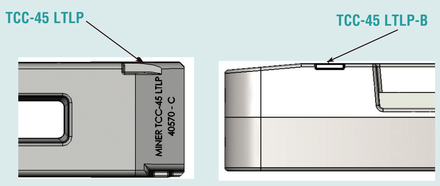
TCC-45 LTLP-B 2-3/4 in. (70 mm)
TCC-45 LTLP 2-3/4 in. (70 mm)



TCC-45 LTLP-C 2-3/8 in. (60 mm)

1. Remove the top cap assembly
2. Allow 1 minute to stabilize
3. Measure height as indicated
4. Must be greater than pad free height indicated in order for pad to be reapplied

Top Cap Wear Indicators



Top Cap & Housing Gap

Less than 1/8 in. (3 mm)

1. If the measured gap is 1/8 in. (3 mm) or greater, remove the top cap
2. Replace with a new top cap or top cap assembly
3. If the gap is still 1/8 in. (3 mm) or greater, replace the housing

SETUP HEIGHT ADJUSTMENT

1. The TCC-45 LTLP, LTLP-B and LTLP-C housing is 2 in. (51 mm) tall and acts as the solid stop. For the TCC-45 LTLP and LTLP-B, the housing must extend above the pocket wall around the entire perimeter, up to a maximum of 3/8 in. (9 mm).

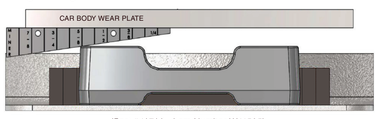
2. **If the pocket wall is taller than the housing,** either:
   a. add steel shims under the bottom of the housing covering the entire pocket floor
   b. remove enough material from the top of wall to ensure the housing is above the pocket wall with a max of 3/8 in. (9 mm) extension

3. 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.

4. Adjust shims as necessary to achieve 5/8 in. (16 mm) +/- 1/16 in. (1 mm)

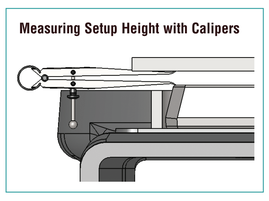
5. Car body wear plate must be large enough based on Table 1.

Height Gage Tool



(Part #40766 - Item Number W11525)

Measuring Setup Height with Calipers



1. Put flat edge of gage up to the car body wear plate
2. Slide the gage in until it contacts the housing
3. Read the indicator mark. The gage has 1/8 in. (3 mm) measurements labeled and 1/16 in. (1.6 mm) measurements lined.
4. If the gap is below 5/8 in. (16 mm) then remove the correct amount of shims and if the gap is above 5/8 in. (16 mm) add the correct amount of shims.

Table 1

Car Body Wear Plate Reference

Truck Centers	Min. Width	Min. Length
70 ft. (21 m) or less	4 in. (101 mm)	12 in. (305 mm)
70+ ft. (21 m) to 82 ft. (25 m)	4 in. (101 mm)	14 in. (356 mm)
82+ ft. (25 m) to 94 ft. (29 m)	4 in. (101 mm)	16 in. (406 mm)
Greater than 94 ft. (29 m)	4 in. (101 mm)	18 in. (458 mm)

Please refer to AAR Manual Rule 61 for more detailed info regarding body wear plates

REPLACE or REPAIR

STEP 1 - Preparation

Pocket / Mounting Surface

- 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.
- Ensure that the pocket bottom and end walls are relatively smooth and free of any weld spatter, bumps, etc.
- Clean the mounting surface for bolt-on application.

Car Body Wear Plate

- 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 in. (3 mm), or greater than 1/16 in. (1 mm) over any 4 in. (101 mm) space between the fastener holes, must be replaced.
- Surface must be reasonably parallel to side bearing mounting surface. Variations should not exceed 1/16 in. (1 mm) across width or 1/8 in. (3 mm) end to end.

STEP 2 - Setup Height Adjustment

See check setup height above.

STEP 3 - Housing Securement

TCC-45 LTLP

Weld-on application.
NOTE: use the small wedges to install the TCC-45 LTLP into the following pocket dimensions.

Minimum Inside Length = 8-1/8 in. (206 mm)
Maximum Inside Length = 8-11/16 in. (221 mm)
Minimum Inside Width = 3-1/4 in. (83 mm)
Shimming is required if pocket length is greater than 8-11/16 in. (221 mm). See Pocket Adjustment Instructions.

TCC-45 LTLP-B

Weld-on application.
NOTE: use the long wedges to install the TCC-45 LTLP-B into the following pocket dimensions.

Minimum Inside Length = 9-1/4 in. (235 mm)
Maximum Inside Length = 9-5/8 in. (244 mm)
Minimum Inside Width = 4-1/4 in. (108 mm)
Use the TCC-45 LTLP-B for pockets equal to or larger than 9-¼ in. (235 mm) x 4-¼ in. (108 mm). For larger pockets, see Oversized Pocket Adjustment Instructions.

1. Shift the housing in the pocket to the outboard side of the bolster.
2. Insert wedges in both ends.
3. Ensure that the flat side of the wedge is against the Miner housing and rounded side is against the pocket wall.
4. Ensure that all wedges do not extend beyond the housing top surface.
5. Once the welds are finished and cool, insert the top cap assembly with the metal cap facing upwards and lower the car body.

TCC-45 LTLP-C

Bolt-on application.

1. Surface must be clean and smooth and free of protrusions. Reference AAR standards:
   - S-3013 Side Bearing Mounting Pad - Surface Requirements
   - S-394 Side Bearing Pad for Two Hole Application
2. AAR bolt hole location is 8-1/2 in. (216 mm).
3. Bolt housing to bolster using appropriate fasteners and torque requirements.

   Acceptable fasteners:
   - Camcar standard dome head fastener (reference part #794-20100-130).
   - Huck fastener (reference part #C71LR-BR24-28/32 and #3LC-2R24GL).
   - 7/8"-9 Grade 5 or better HEX head bolt with self-locking nut.

   Torque:
   – Dry: 375-425 ft.-lbs. (Produces a clamping force of 20,000-30,000 lbs. per bolt).
   – Waxed or well lubricated: 280-320 ft.-lbs. (Roughly 25% reduction from dry values).

STEP 3 - Continued

LTLP SHIMMING - POCKET ADJUSTMENT INSTRUCTIONS

Shims are required for the following pocket dimensions:

Inside Length Greater than 8-11/16 in. (221 mm)
Optimal inside length after shimming should be 8-1/4 in (210 mm).
Shims to be of mild, weldable steel material.

Inside Length - If the wedges hit the pocket floor before contacting the end wall (inside length roughly greater than 8-11/16 in. (221 mm), shim application is required.

1. Ensure shim is thick enough to keep wedge off pocket floor.
2. Fabricate the shim so that it is ¼ in. (6 mm) 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. See welding instructions.

Inside Width - If there is a gap greater than 1/4 in. (6 mm), shimming will be required.

1. Estimate the shim thickness needed to reduce the pocket width to between 3 1/8 in. (79 mm) and 3 3/8 in. (86 mm).
2. Fabricate the shim so that it is approximately ¼ in. (6 mm) 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. See welding instructions.

LTLP-B SHIMMING - OVERSIZED POCKET ADJUSTMENT INSTRUCTIONS

Shims are required for the following pocket dimensions:

Inside Length Greater than 9-5/8 in. (244 mm)
Optimal Inside Length when Shimming = 9-3/8 in. (238 mm)
Shims to be of mild, weldable steel material.

Inside Length - If the wedges hit the pocket floor before contacting the end wall (inside length roughly greater than 9-5/8 in. (244 mm), shim application is required.

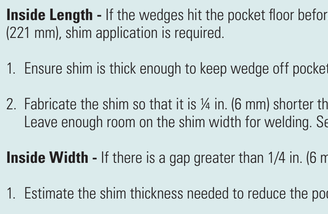
1. Ensure shim is thick enough to keep wedge off pocket floor.
2. Fabricate the shim so that is ¼ in. (6 mm) shorter than the pocket wall and no wider than the flat portion of the end wall. Leave enough room on the shim width for welding. See welding instructions below.

Pocket With Oval Cut Outs - If the pocket has oval cut outs at each end, it is recommended if space is available, that shims be inserted to each end to ensure a good surface to weld the wedge too.

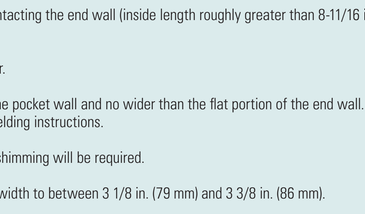
Inside Width - If the inside width of the pocket exceeds 4-5/8 in. (117 mm), shimming will be required.

1. Estimate the shim thickness needed to reduce the pocket width to between 4-1/4 (108 mm) and 4-1/2 (114 mm).
2. Fabricate the shim so that it is approximately ¼ (6 mm) 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. See welding instructions below.

Welding



Wedge Welding Cutaway



Shim Fabrication Guideline

All surface preparation and welding must comply with AWS D15.1 Railroad Welding Specification – Cars and Locomotives, latest edition. Specification M-214 can be used for more information on preheating.

1. Grind, clean and prepare for welding.
2. For cast pockets, AAR M-214 recommends preheating between 300° F (149° C) and 600° F (315° C), not exceeding 600° F (315° C).
3. Materials
   - Type of weld: Flare bevel groove
   - Wedge: Cast Steel ASTM-A-27 Grade 65-35
   - For cast in pockets determine Grade of Steel of the bolster casting: Reference AAR Standard S-312

   – Grade B bolsters use AWS electrode E7018, or equivalent
   – Grade B+ bolsters use AWS electrode E8018, or equivalent
   – Grade C bolsters use AWS electrode E9018, or equivalent

   - For fabricated pocket, identify material and choose appropriate electrode per AWS D15.1 If the wedge is below the pocket wall, add reinforcement fillet weld on top.

STEP 4 - Final Assembly

LTLP & LTLP-B

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 (93° C) or 175° F (79° C) 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 (4° C) or higher temperature for at least 24 hours before assembly on a car.
6. At temperatures lower than 40° F (4° C), the settling time for the setup height may require at least 24 hours.

LTLP-C

1. Place TecsPak® pad inside the housing.
2. Place top cap on pad. There is a male end on top cap that should go inside the female end of the pad.

FAQ

Do I need to replace the entire side bearing if the welds are broken?
No, if the all other parts (housing, top cap, pad, gap between housing and cap) are in good condition, replace the wedges and re-weld.

Does Miner sell just Wedges?
Yes. Small wedge W11513, Long wedge W11548

Is the side bearing rejected if only one wedge is broken?
Yes

How flat does the pocket floor need to be for housing installation?
The pocket floor should be as flat and as clean as possible with no obstructions (weld spatter, bumps, etc).

Where do I take the set-up height measurement if the housing is not level with wear plate?
Measure both the high and low ends of the housing and take the average of the two measurements.

Do I need to use the wedges provided?
Yes

What do I do when I can't remove enough wear plate shims to achieve 5/8 in. set-up?
Refer to Rule 47 in the AAR Field Manual for rules pertaining to shimming the center bowl.

How long do I need to wait before recording pad free height?
You should wait 1 minute after removing the pad to measure the free height.

Is the pad rejected if it's leaning or bent over to one side but meets the acceptable free height?
If the pad is not melted or split and meets the acceptable free height there is no need for it to be replaced.

If a properly installed LTLP in a large pocket still has life left during inspection, should it be replaced with a new LTLP-B?
If the LTLP is still good based on Rule 62 then it is ok to keep, as long as the mate on the other side of the truck is the same.

If a first generation LTLP still has life left during inspection, should it be replaced?
Yes. Miner recommends replacing it with our current model.

How much outboard wear is acceptable on housing and top cap?
No more than 1/8 in.

For additional information go to: minerent.com/SBguide