



HiRAIL

Rubber Grade Crossings

**Pocket
Installation
Guide**



Hi-Rail

Crossing Preparation

It is recommended that all standard safety practices be followed when installing grade crossing surfaces.

- ① Road Should Be Completely Closed**
 - to assure safety and speed of installation
- ② 6 Feet Of Approach Cleared On Each Side Of The Track**
 - less than 6 feet is acceptable if the road approach is sufficiently compacted prior to re-opening
- ③ New Ties On 18" Centers**
 - ties should extend an even distance to each side of the rail
- ④ Continuous Welded Rail**
 - minimizes future maintenance in crossing area
 - all welds should be ground as flush as is permissible
 - if field welds are used, it may be necessary to notch the Hi-Rail material to assure a proper fit around the weld
- ⑤ Rail Anchors**
 - Hi-Rail crossings are manufactured to accommodate most types of rail anchors
 - box anchor the three ties that extend past each end of the rubber crossing surface
- ⑥ Gauging, Leveling, Tamping**
 - must be completed prior to installation of crossing materials
- ⑦ Clearing Of Excess Ballast**
 - ballast in crib area should be lower than the top of each tie

STEP 1

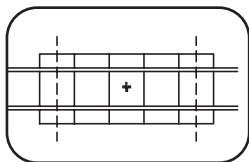
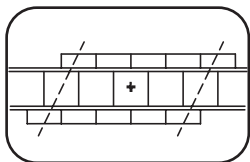
Center The Crossing

① Locate The Exact Center Of The Crossing

- with respect to the highway centerline
- determine whether the total number of gauge pads to be installed is odd or even (important for Step 2)

② Determine The Crossing Skew

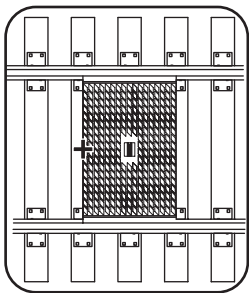
- the angle of skew is measured by the highway relative to the track
- if the crossing is skewed, field pads should be staggered depending on the degree of the skew
- the expected pattern of vehicular traffic will determine how much the field pads need to be staggered



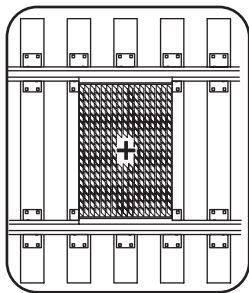
stagger field pads in relation to traffic flow

STEP 2**Gauge Pads****① Position Of The First Gauge Pad**

- start in the center of the crossing and work toward one end at a time
- proper placement of the first gauge pad will depend on whether the total number of gauge pads to be placed is odd or even



If the total number of gauge pads is even, the edge of the first pad should be placed on the center of the center tie.



If the total number of gauge pads is odd, the first pad should straddle the center tie of the crossing.

② Lubricate Gauge Pad And Rail Contact Area

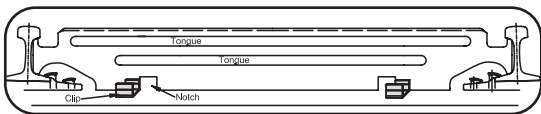
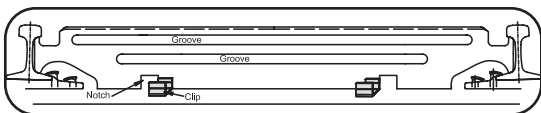
- use waterless hand cleaner or a mixture of dish soap and water
- lubricate the ball of the rail and the rail contact area of the first gauge pad

STEP 2a**Gauge Pads****1 Install The First Gauge Pad**

- top of the ties must be free of all ballast to ensure a proper fit
- pad must remain lubricated throughout all phases of this process
- seat one flangeway under the ball of the rail, then seat the opposite side of the pad by applying pressure towards the center of the track with a backhoe or other piece of equipment and forcing the pad between the rails. You may also use the installation tool available from HiRAIL.
- tuck all rubber completely under the ball of the rail by tapping with a lining bar.

2 Install Stabilizer Clips

- after the first gauge pad is in place, install two stabilizer clips on the side opposite of where the next pad is to be placed using the 3 inch wood screws to fasten the stabilizer clips to the tie
- proper placement of these stabilizer clips is determined by whether you are at the tongue or groove end of the pad
- the edge of each clip should be flush with the edge of each notch to allow for clearance over the clip when the next pad is installed

clip placement for the tongue side of the padclip placement for the groove side of the pad

STEP 2b

Gauge Pads

① Install The Second Gauge Pad

- lubricate the ball of the rail, the rail contact area and the tongue and groove of the second gauge pad
- seat the pad between the rails in the same manner as the first pad
- applying even pressure with track jacks or a machine (such as a backhoe), compress the first and second pads as tightly as possible making sure the tongue and groove fit snugly to form a smooth and level seam
- with the pads compressed, position stabilizer clips against the second gauge pad as shown above
- using the 3 inch wood screws fasten the stabilizer clips to the tie

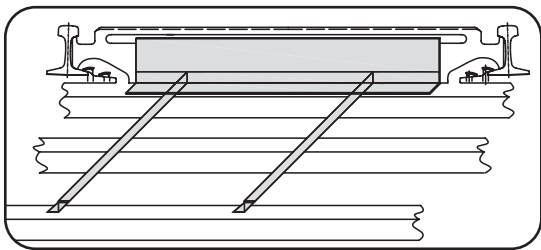
② Continue Gauge Pad Placement To The End Of The Crossing

- continue to install stabilizer clips after every two gauge pads have been installed

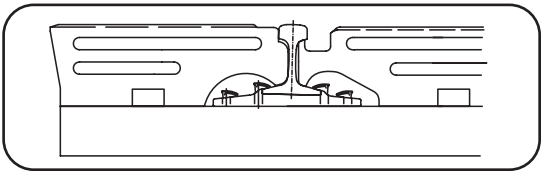
STEP 3

Gauge End Blocks

- ① Center The Steel End Block Against The Last Gauge Pad**
 - using track jacks or a machine compress the end block against the last pad
- ② Secure The Steel End Block**
 - with 6 of the wood screws
- ③ Install Optional Deflector Shields**
 - to protect the end of your crossing from items that may be dragging beneath passing trains
- ④ Complete Gauge Pad Installation To The Other End Of The Crossing**
 - install stabilizer clips after every 2 gauge pads
 - secure end of crossing with gauge end blocks and deflector shields



gauge end block

STEP 4**Field Pads****1 Position Of The First Field Pad**

- will depend upon skew of the crossing (see step 1)
- for skewed crossings, field pads should be staggered
- for non-skewed crossings, seams of the field pads should line up with seams of the gauge pads
- start near the center of the crossing and work toward one end

2 Lubricate The Field Pad And Rail Contact Area

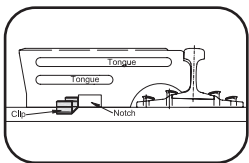
- use waterless hand cleaner or a mixture of dish soap and water
- lubricate tongue and groove of field pad and ball of rail where first pad is to be placed

3 Install The First Field Pad

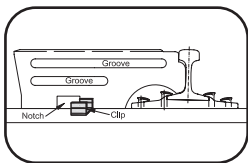
- top of the ties must be free of all ballast to ensure a proper fit
- pad must remain lubricated throughout all phases of this process
- position pad firmly in contact with web of rail

4 Install Stabilizer Clip

- after the first field pad is in place, install one stabilizer clip on the side opposite of where the next pad is to be placed using the 3 inch wood screws to fasten the stabilizer clip to the tie
- proper placement of the stabilizer clip is determined by whether you are at the tongue or groove end of the pad
- the edge of each clip should be flush with the edge of each notch to allow for clearance over the clip when the next pad is installed

STEP 4a**Field Pads**

clip placement for the tongue
side of the pad



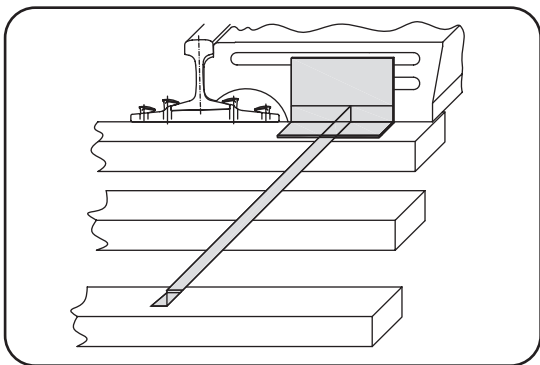
clip placement for the groove
side of the pad

① Install Second Field Pad

- position pad firmly in contact with web of rail
- applying even pressure with track jacks or a machine (such as a backhoe), compress the first and second pads as tightly as possible making sure the tongue and groove fit snugly to form a smooth and level seam
- with the pads compressed, position a stabilizer clip against the second field pad as shown above
- using the 3 inch wood screws fasten the stabilizer clips to the tie

② Continue Field Pad Placement To The End Of The Crossing

- continue to install stabilizer clips after every two field pads have been installed

STEP 5**Field
End Blocks**

field end block

**① Center The Steel End Block Against
The Last Field Pad**

- using track jacks or a machine compress the end block against the last pad
- the horizontal leg of the end block should be closest to the rail
- secure the steel end block with 3 of the wood screws

② Install Optional Deflector Shields

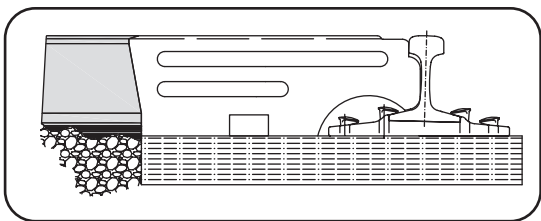
- to protect the end of your crossing from items that may be dragging beneath passing trains

**③ Complete Field Pad Installation To The Other End
Of The Crossing**

- install a stabilizer clip after every 2 field pads
- secure end of crossing with gauge end blocks and deflector shields

STEP 6

Repaving Approaches



- ① Complete Approaches with Asphalt Or Concrete**
— to full depth at edge of all field pads
- ② Allow Sufficient Time For Pavement To Cure Before Opening Crossing**
— if approaches are not paved immediately, check to be sure all field pads fit tightly against the web of the rail before final paving
- ③ Open Crossing To Traffic**

Hi-Rail

HIRAIL[®]

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