The UK’s newest and most cost effective lateral resistance solution

Benefits of Trackwork’s Lateral Resistance Plates

- Network Rail Product approved - PA05/06696
- Vertical ‘spades’ installed directly into compacted ballast providing increased stability and lateral resistance compared with alternative solutions.
- Faster installation, with vertical ‘spades’ retro-fitted without the need for ballast excavation.
- Heavy duty construction, eliminating the risk of deformation or buckling.

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LATERAL RESISTANCE PLATE ASSEMBLIES—CENTRE FITMENT

STANDARD TYPE C1 (SLEEPER) OR C2 (BEARER)

0057/069144—TYPE C1 FOR ALL STANDARD SLEEPERS BELOW 295MM WIDTH

0057/069146—TYPE C2 FOR ALL BEARERS ABOVE 295MM WIDTH

FITTING INSTRUCTIONS

1. Remove Ballast from around the Sleeper Centre localised area. Approx 100mm from around chosen area. Remove only enough Ballast from under the Sleeper to allow the Clamp Assy to fit. Remove Spades and Spade fixings from the supplied assembly and place aside. Release the Lock-Nut and remove one of the lower clamp assemblies using an M16 socket set.

2. Fit the assembly over the Sleeper. Re-fit the other Clamp using the M16 Screws and Disc Spring Washers, previously removed. Centralise the assembly and nip-up the clamp screws.

3. Alternate tightening between the 2 x M16 Screws (to keep them level) - (approx torque 300NM). Ensure the assembly is still aligned with the Sleeper (if not release slightly and tap into place). If required re-tighten the Screws. Once achieved, tighten Lock-Nuts to complete. Replace any Ballast before re-fitting the Spades.

4. Take one of the 450mm Spades, place through the slot with top and base assembly. Using a Sledge Hammer, drive the Spade through the slots into the Ballast. The Spade can then be driven down until the ‘stop’ under the Spade head hits the assembly. Once the first Spade is fully inserted, repeat for the 2nd Spade.

5. When both Spades are driven into position, the threaded holes within the Spades align with the small slots in the end face of the assembly. Replace the fixings (M12 x 60mm Hex Head Screws and Disc Spring Washers). Tighten to retain position of Spades to a torque setting of approx. 120NM). These 2 x Screws are not a function of the LRP Assy. but used to retain the Spades only.

Note: Spades can be easily removed prior to tamping by placing pry bar under the head. Follow steps 4-5 to replace.
**Fitting Instructions**

1. Remove any Ballast from around the Sleeper End (approx. 75mm around end area) 
   Remove Spades and Spade fixings (2 x M12 x 30mm Hex Head Screws and 2 x Disc Spring Washers) from the supplied assembly and place aside. 
   Slide the assembly onto the Sleeper end 

2. Once positioned on the end of the Sleeper, push the assembly against the Sleeper end. They will touch against a stop block when correctly fitted. 
   Keeping the assembly level, alternate tightening between 2 x M16 Screws (approx. 300NM) 
   Make sure the assembly is still aligned with the Sleeper (if not release slightly and tap into place. 
   If required re-tighten the screws. 

3. Once the sub-assembly parts are fitted and locked in place onto the end of the Sleeper, replace and Ballast before fitting the spades. 
   Take one of the 500mm long Spades, place it through the slots within the assembly (top & base) and using a Sledge Hammer, drive down through assembly into the Ballast. 
   The Spade can then be driven right down until the stop under the head of the Spade hits the assembly. 
   Once this is achieved, repeat for 2nd Spade. 

4. Once both Spades have been driven into position the threaded holes within the Spades will align with the small slots in the end face of the assembly. 
   Replace the Spade fixing (2 x M12 x 30mm Hex Head Screws and 2 x Disc Spring Washers). 
   Tighten to retain the spades in place to a torque setting of approx. 120NM. 
   These 2 screws are not a function of the LRP assembly but are used to retain the Spades only. 

*Note: Spades can be easily removed prior to tamping by placing pry bar under the head. Follow steps 3-4 to replace*
Lateral Resistance Plates, FAQ

1: Depth from underside of sleeper?
Centre Assembly = 290mm (when using a standard 450mm spade)
End Assembly = 264mm (when using a standard 500mm spade)

2: How much do they weigh?
Standard Centre Assembly = 23.9kg
Standard End Assembly = 23.5kg
Larger (Bearer) Centre Assy = 24.5kg
Larger (Bearer End Assy = 25.7kg

They come apart for assembly so individual components able to be handled by one person

3: How are they setting them out in a curve in the UK?
This entirely depends upon the curvature of the track and speed of the train and the quality of the aggregate and substrata as to where and how many are placed.

Lateral Resistance Plates are fitted to sleepers or bearers to enhance lateral resistance to thermal and traffic forces.

Typical usage when using Continuously Welded Rail (CWR) is on curves below 400 m radius and within shorter switches.

For CWR, Concrete and timber sleepers and timber bearers Trackwork lateral resistance plates shall be configured as follows:
\[a\] On curves with a radius between 500 to 351 m, one lateral resistance plate shall be fitted to alternate sleepers or bearers;
\[b\] On curves of radius between 350 to 250 m, one lateral resistance plate shall be fitted to each sleeper or bearer.

When installing lateral resistance plates, the sequence of work shall be as follows:
1. the track shall first be tamped to the correct line and level;
2. the lateral resistance plates shall then be fitted;
3. the ballast shall then be consolidated around the resistance plates;
4. the track may then be stressed.

Exerts taken from Network Rail ‘Design and construction of track’ NR/LR/TRK/2102