WEIGH-TRONIX

Weighline Static Track Scales Installation Guide

The following procedures are intended as a guide and refer to standard Weighline packages. On- site situations or special applications may require changes to these procedures.

Pre-installation site inspection

Weighline requires spotting the car accurately within appx. ± 3 inches. Therefore all cars to be full draft weighed should have similar truck centers. Odd sized cars may be weighed two draft by using the two draft mode of the weight indicator. **Weighline standard packages are intended for use with cars having standard truck axle spacings of 5'9" to 5'10".**

The following items should be addressed:

- Rail size - if rail is other than 115RE, compromise bars will be required. It may be more economic to replace the section of rail between the two Weighline rails than fit 4 extra compromise joints.

  If existing rail is not 115 lb/yd, consideration should be given to replacing the rail for about 25' for single draft systems and 50' for two draft systems on either side of Weighline sections with 115 lb/yd rail. This minimizes the amount of change necessary to the track elevation and disturbance to compacted ballast.

- Track and tie condition - For satisfactory performance, Weighline requires stable track conditions. In general, rail, ties and ballast should be well maintained, well drained and up to or close to main line standards.

  Track throughout the Weighline area and for about 25' (single draft systems) or 50' (two draft systems) on either side of the Weighline sections should be in good condition. Ties in poor condition should be replaced. Badly worn rail in this area should also be considered for replacement. Re-ballasting to main line standards throughout the scale area may be necessary.

Material and services required

Items to be supplied by Customer or Installer:

- 4-hole rail joint bars and bolts. If existing rail is other than 115RE, compromise bars will be required between the Weighline rails and the adjoining rails.
- Tie plates for 115 lb rail.
- Rail and associated mounting hardware for rail between and either side of Weighline sections if applicable.
- Drive-on anti-creep rail anchors for ties in the Weighline area and for 25' either side.
- All cable (unless provided as part of Weighline package)
- New ties (if required).
- Ballast (if required).
- Conduit, conduit box, pull boxes etc.
- All miscellaneous items required for installation.
- Loaded Railroad car of known weight with truck centers the same as the cars to be used. The weight of each truck should be known.

Weighline rail installation

It is assumed that the track is in good condition and close to main line standard. Procedures will vary if the track is to be upgraded as part of the Weighline installation process.

Weighline rails are supplied in matched 5'10" long sections with a center joint bar to form an 11'8" long rail.

Refer to installation drawing.

1. Measure out and mark location of new 11'8" Weighline sections including where rail is to be cut. On full draft systems the center joint lines of the 11'8" Weighline sections should coincide with the truck centers of the car (or most common car) to be weighed.
2. Cut and remove existing rail, tie plates and ties to be replaced. If rail between and/or either side of Weighline sections is to be replaced this should also be removed.
3. Drill existing rail ends for rail joint bar.
4. Remove ballast as necessary to adjust for differences in rail height. DO NOT disturb any more compacted ballast than necessary.
5. Place good quality ballast in the Weighline areas and compact with pneumatic tamper. Final level of com-pacted ballast should be about ½“ (12 mm) above level required to achieve correct top of rail height.
6. Replace ties at the correct position as shown on the drawing for the Weighline rails and position the ties plates. The spacing of the ties either side of the Weighline sections should be such that the inside edge of the tie plates are 36 inches apart. Marks are provided on the rails to help position the ties.
7. Carefully place the Weighline rails into position. **Care must be taken to avoid crushing, pulling or other-wise damaging the Weighline lead out cables.** Weighline is supplied in matched 5'10" lengths with a joint bar. They must be kept in the pairs as shipped. Bolt rails together. Rail pairs may be mounted with cables either to the inside or to the outside of the gauge, whichever is the most convenient for cable routing.
8. Bolt the joint bars (or compromise bars if applicable) into position to connect the Weighline rails to the adjoining rails. The running edge of Weighline rails and the existing rail must be in alignment. Because the newly compacted ballast was deliberately left a little high, it may be necessary to jack up the approach rails to fit the joint bars.
9. Check for correct spacing of ties on either side of Weighline sections and correct gauge before driving spikes. When driving spikes great care must be taken to avoid hitting the Weighline covers. Drive spikes.
10. Tamp ballast using pneumatic tampers to achieve correct track alignment throughout the scale and adjoining areas adding new, clean ballast as necessary. **The area beneath the Weighline sections must be kept clear.**
11. Pass a loaded rail car or locomotive back and forth over the scale area several times to “bed in” the installation. Any “soft” areas should be identified and noted.
12. Re-tamp the ballast throughout the scale and adjoining areas, paying particular attention to the identified “soft areas.”
13. Repeat steps 11 and 12 until the scale and adjoining track areas are stable with no “soft spots”. Maximum track deflection under load should not exceed 0.25".
14. Check that the Weighline sections are correctly installed, aligned and ties are positioned as per drawing. Install drive on anti-creep rail anchors on all ties throughout the Weighline area and for 25' on either side. Ties should be box anchored, i.e. anti-creep anchors applied against sides of the tie on opposite rails. The remainder of the siding feeding the Weighline rail should be anchored in accordance with AREA specifica-tions for industrial track—16 anti-creep anchors per 39' rail length.
15. In locations where ice or other hard material could build up beneath the rail, the area underneath the Weighline sections should be filled with a non-absorbent, flexible material.

Electrical installation

Refer to wiring diagram.

Steps 1 through 5 below can be done prior to the installation of Weighline rails if preferred. **Metal or metal-lined conduits must be used throughout.**

1. Mount junction box(s) adjacent to Weighline sections. Weighline rails are supplied with 30' leads so junction box must be within about 15' of Weighline sections.
2. Install $1^{1}/_{2}$" conduit from the junction box(s) to the instrument location. Depending upon the type of installation, there may be up to three (3) $^{1}/_{2}$" diameter cables passing through this conduit.
3. If remote display is to be used, mount in a suitable location and run a 1" diameter conduit either from the junction box or from the instrument location as appropriate to the remote display.
4. Using pull wires install 6 conductor load cell cable(s) and a 10 AWG, PVC-covered groundwire from the indicator location to the junction box. If a remote display is to be used and the cable is to be routed via the junction box, this should be installed with the load cell cables. Install remote display cable if applicable.
5. Mount the instrument at a suitable location.
6. Install “Sealtite” flexible metal conduit between the Weighline sections and the junction box(s). Avoid subjecting the Weighline cable to any stress or pulling. Make sure that the "Sealtite" conduit is fully seated inside the gland on the Weighline cover.
7. Terminate all cables.
8. Check out system.
9. Check that there is a low resistance ground connec-tion from the instrument to the rails. This will normally be provided by the conduit and the ground wire.
10. Seal junction box(s) -- refer to Sealing Instruction/ J-Box, P/N 29567-0012.

For calibration instructions refer to Weighline Supplement P/N 29558-0013.

Precautions Against Lightning Damage

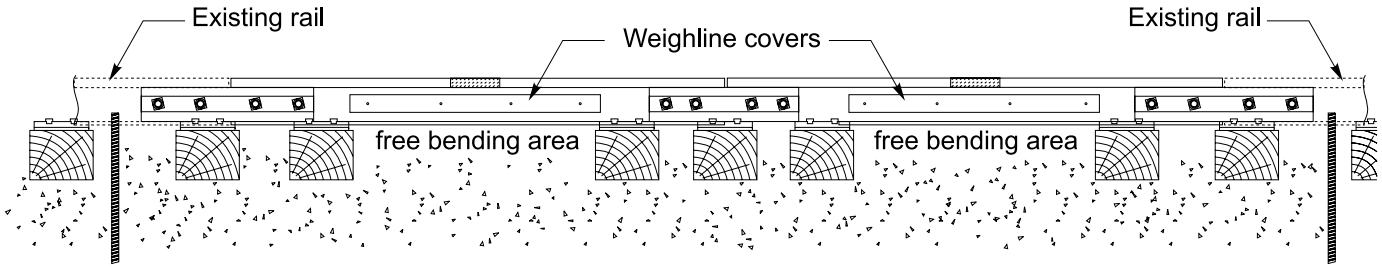
Railroad track is very prone to being hit by lightning discharges. Damage from direct hits is difficult to avoid, but several precautions can be taken to minimize the damage caused by indirect hits. These are by far the most common. The following will help to reduce the likelihood of lightning damage:

1. The track on either side of the Weighline sections (including the center rails if applicable) should be connected to a low resistance ground with heavy gauge cable—less than 1 ohm resistance.

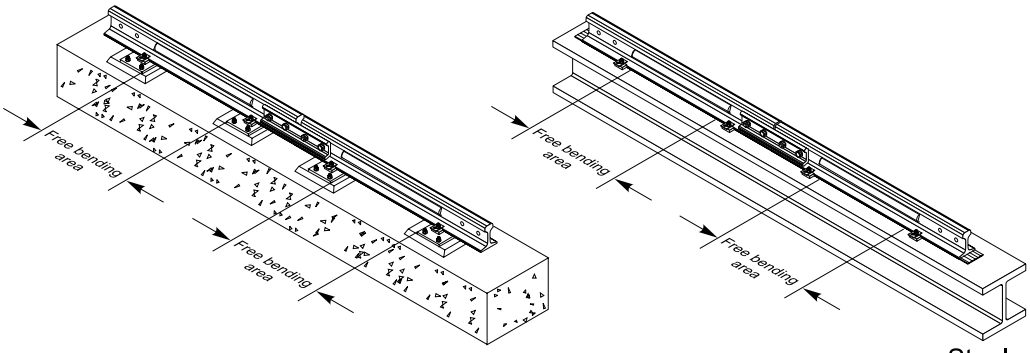
   The form of the low resistance ground will vary from site to site. In many cases it will be necessary to drive suitable ground rods down below the water table adjacent to the scale area. There must be a low resistance—less than 1 ohm—between grounds to avoid problems due to different ground potentials. Connect all grounds with heavy gauge wire if necessary. If there is a large embedded metal structure close to the scale area, this may be an effective ground.
2. Grounded, metal or metal-lined conduits must be used throughout. Good electrical connections must be maintained throughout the conduit system. Use same ground as used for the rails adjacent to the Weighline sections.
3. The scale instrument supply socket's ground should be connected via a low resistance connection to the same ground as the rails.
4. The indicator should be powered via a high performance surge protector.

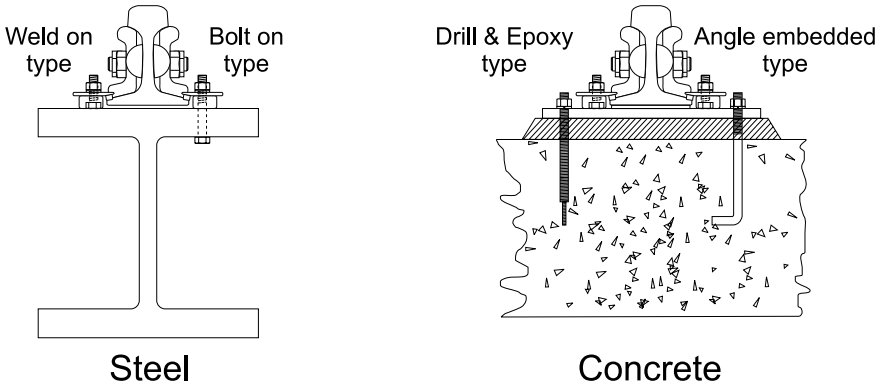
Illustrations

Side view of Weighline on ties and ballast



Weighline mounted on inflexible foundation (Concrete and Steel)





Mounting Types

Installation notes

To operate properly, Weighline rail section must be free to deflect and the foot of the rail must be free to move slightly.

For Weighlines mounted on concrete, longitudinal beams or any non-flexible foundation, a flexible mounting must be proved. This material must be able to withstand the associated loads. Suppliers such as "Fabreeka" or "Gantrex Crane" rail products are available.

The area required for free bending is marked on the Weighline rail. This area can be filled with a silicone type sealant to keep debris from interfering with the correct operation of the scale system.

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