

Avery Weigh-Tronix

RLP
Railweight Low-Profile
Track Scale

Installation and User's Manual

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Tools Required

1. Transit level
2. Spirit Level
3. 100 ft tape measure
4. Set of heavy duty ratchets/sockets
5. Hand tools for nuts and bolts up to 1 1/2" Dia.
6. Never-sieze grease
7. Shim material, 1/16" and 1/8" thick
8. Wooden blocks (to hold the bridges in place when installing a double section)
9. 20-ton Jacks (Minimum 2)
10. Crane and necessary cables for lifting the scale weighbridge(s).
11. Certified Test-Weights and Certified Test Car(s) for the calibration and verification of the scale (As per Local Weights & Measures)

Verification of the Foundation

Pit Installations: Standard drawings supplied are for above ground installation of the scale. If the scale is installed in a pit, proper drainage must be provided.

Proper clearance (24" recommended) must be allowed between the scale and the pit wall on the length side. This clearance is required for the installation of load cells, checking system, covers etc.

Refer to the Foundation Drawing

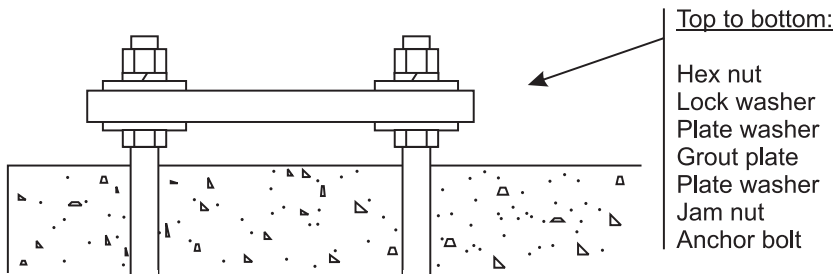
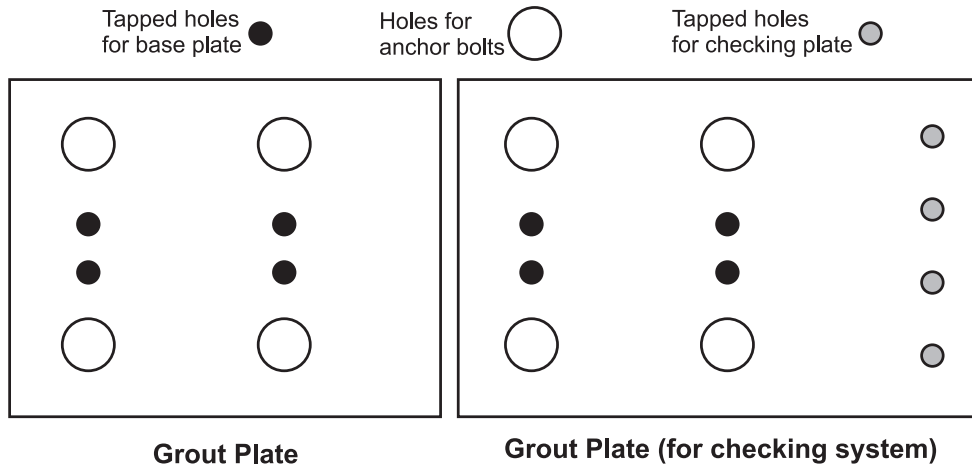
Verify the distance between the approach (bottom or top of the rail) and the top of the concrete where the grout plates will be installed.

Verify the distance from approach to approach and if the scale is installed in a shallow pit, the length & width of the pit.

Verify the location of the anchor bolts.

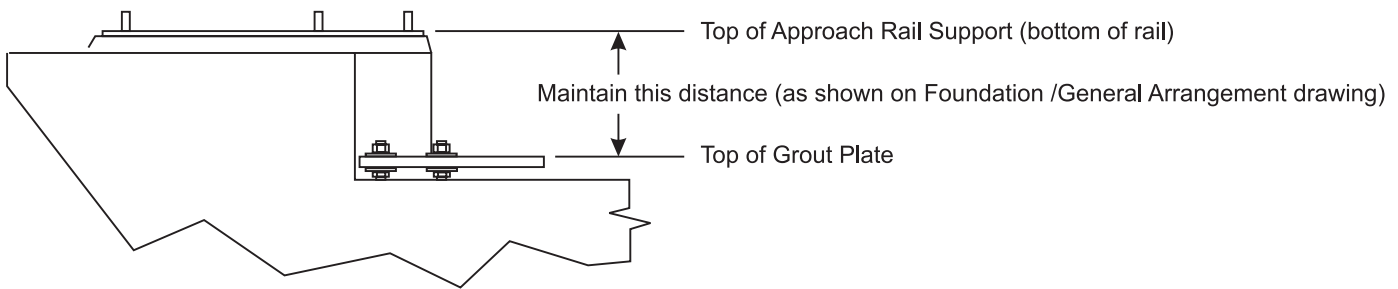
Installation of the Grout Plates

Two types of grout plates are used in this scale. One type has provision to connect the checking system and the other type does not. Refer to the Foundation / General Arrangement Drawing for the selection and location of these grout plates.



Install a jam nut and a plate washer on each of the grout plate anchor bolts.

Position the grout plate on the plate washers. Place a second plate washer, a lock washer, and a hex nut on the top of the base plate.

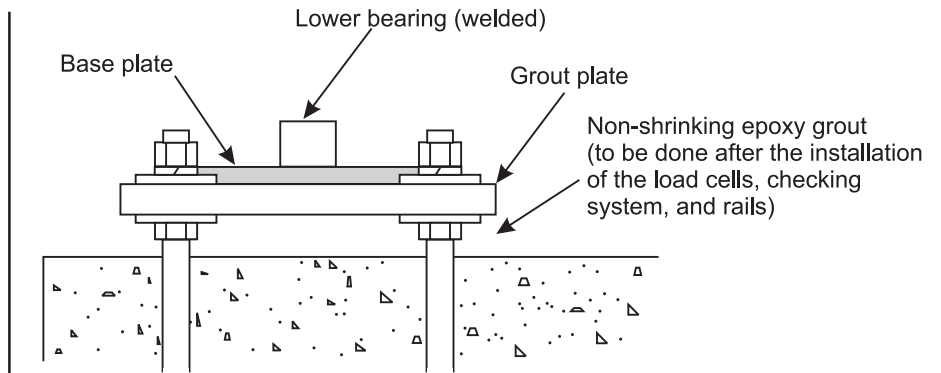


Attention

All threaded fasteners should have a generous coating of never-sieze grease.

Adjust the Grout Plates by positioning them per Load Cell centerlines. Level the Grout Plates to within 1-degree using jam nuts. Use the jam nuts to adjust the elevation of grout plates so as to maintain the distance between the top-of-Grout Plates to top-of-Approach Rail Support as shown on the drawing, by adjusting the jam nuts. Lock all the grout plates in place.

Installation of the Base Plates



Place the base plate on the grout plate. Use supplied washer plates, lock washers and bolts to hold the base plate in place, **but do not tighten them completely at this time**. The base plate will be locked tightly **only after** the final positioning and alignment of the load cells.

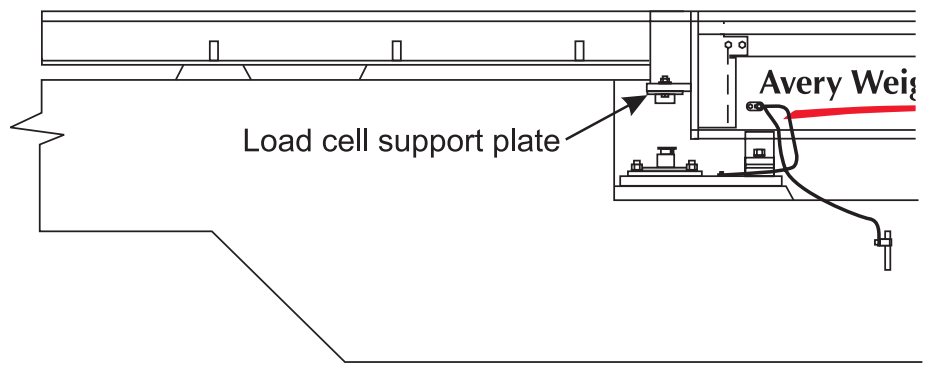
Installation of Weighbridge(s)

All wooden blocks must be of uniform height.

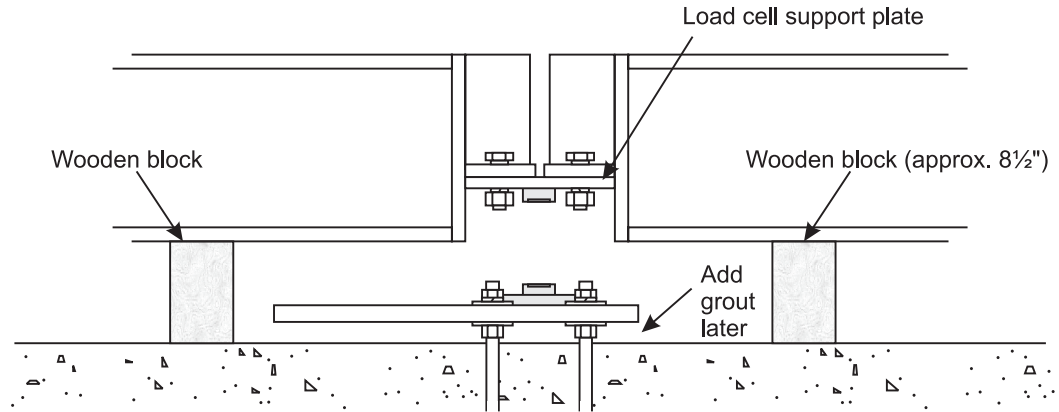
Check for proper orientation so that weighbridge(s) match the grout plates as shown on the Foundation/General Arrangement drawing. Lower the weighbridge(s) onto wooden blocks.

Installation of Load Cell Support Plate on Single Weighbridge

Attach load cell support plates to the weighbridge(s) using the supplied hardware.

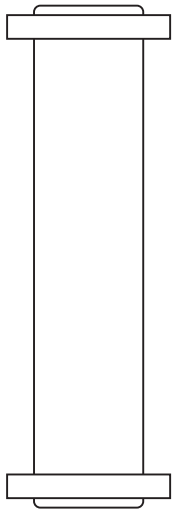


Installation of Load Cell Support Plate on Double Weighbridge



In double weighbridge scenarios, attach the load cell support plates to the weighbridges using the supplied hardware.

Alignment of Load Cells



Alignment tool

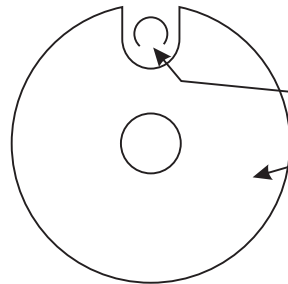
We suggest you use the load cell alignment tools to facilitate accurate alignment of weighbridge(s) and load cell base plates before installing the load cells. See illustration of the tool at left.

If alignment tools are not used, skip to the next section.

Using hydraulic jacks, raise the weighbridge(s) enough to remove the wooden blocks. Insert the alignment tools on the base plates. Slowly lower the weighbridge(s) while making adjustments to the base plates so the alignment tools engage the load cell support plate while maintaining vertical alignment. When the weighbridge(s) are resting on all the alignment tools, check for proper clearances and vertical alignment of the alignment tools. Make any necessary adjustments and tighten all base plate bolts.

Inserting the Load Cell Anti-Rotation Pin

Jack up the weighbridge(s) and remove the alignment tools. Insert the anti-rotation pins into the lower bearings, and drive them all the way in, using a hammer. Apply grease to the dowel pins and load cell rotation stops.



Radially position the open side of the **dowel pin** such that the opening is either facing the inside or outside of the **load cell rotation stop**. This keeps the openings from interfering with each other, facilitating free rotation.

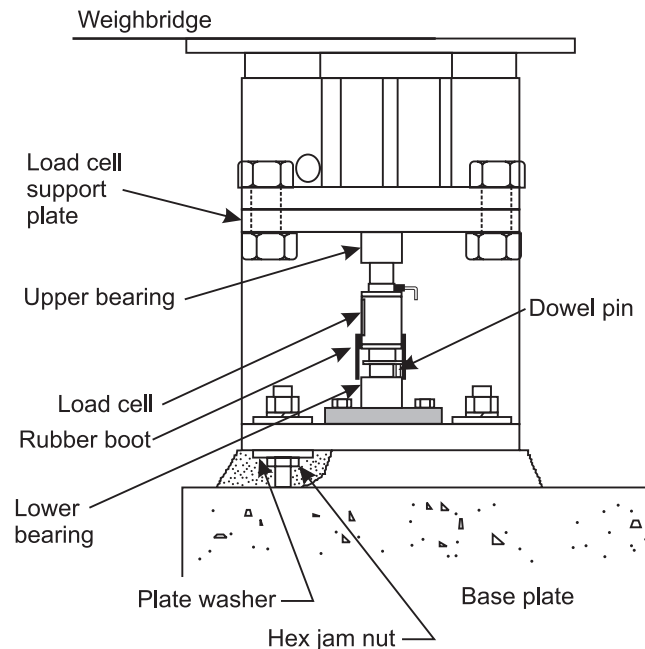
Installing Load Cells

Slide the O-rings onto the lower portion of the load cells.

Apply sufficient amount of grease to the top and bottom of the load cells to protect them from wear, dirt, and corrosion.

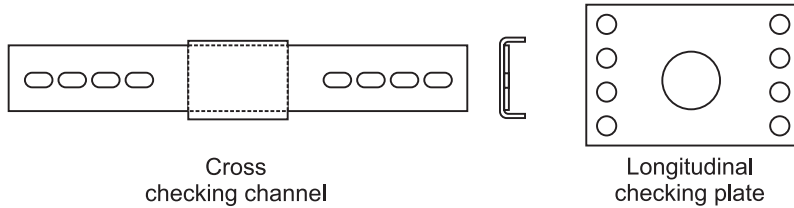
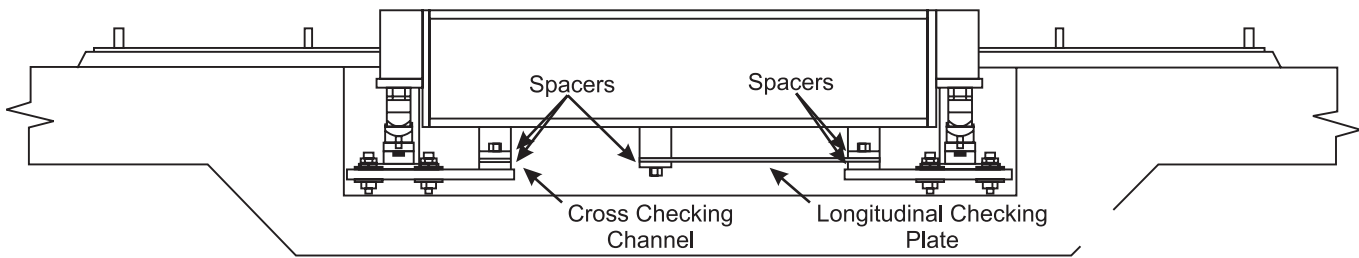
Install the load cells in the lower bearings, insuring that the dowel pins are engaged in the load cell rotation stops.

Install the load cell rubber boots.



If alignment tools are not used, position the lower bearings and load cells on the base plate such that the load cells are vertically plumb. Slowly lower the weighbridge(s) onto the load cells. Verify that all load cells are still vertically plumb.

Installation of the Checking System



Before completely tightening the checking system, ensure that the load cells are still vertically plumb.

The checking system consists of longitudinal and cross checking. One end of the checking is bolted down to the grout plate and the other end to the weighbridge.

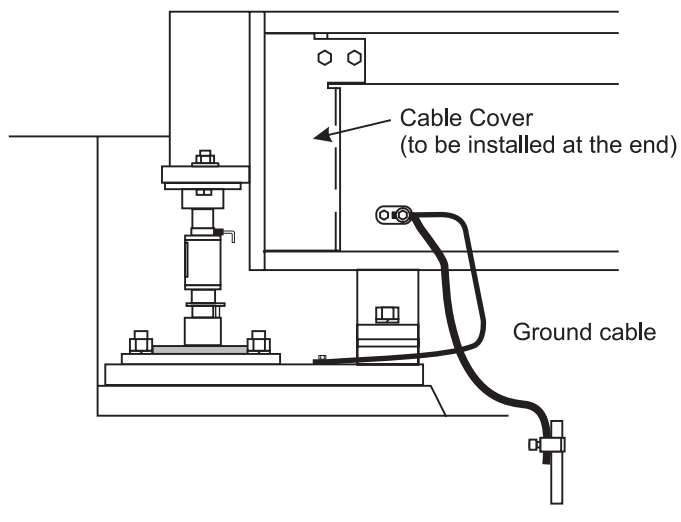
First, attach the longitudinal checking plate and cross checking channels to the grout plates, with spacers (one above and one below), then bolts and washers. Next, attach them to the weighbridge. See note at left.

Once the checking system is installed, check once more that the load cells are vertical and lock the checking system in place.

Make sure the rubber boots are installed on all the load cells.

Grounding

Install the ground straps between the weighbridges, base plates and ground rods using the hardware supplied.



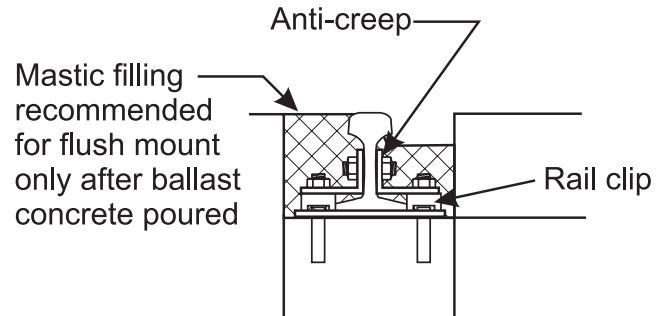
Installation of the rails

Rails **MUST** be installed precisely using appropriate clips, bolts, and other hardware. You **MUST** meet all local AREMA requirements. It is highly recommended to get the rails installed by a rail specialist.

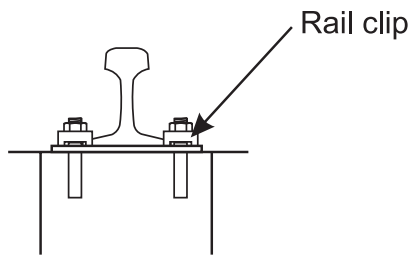
The rails **MUST** be installed using proper rail clips and special bolts. (Rail clips and bolts may have been supplied with the scale as an option). Insure that you have proper rail clips and hardware.

Anti-creep devices **MUST** be installed at each end of the scale, one set on the scale and one set on the approaches to prevent the rail from slipping and causing a weighing error.

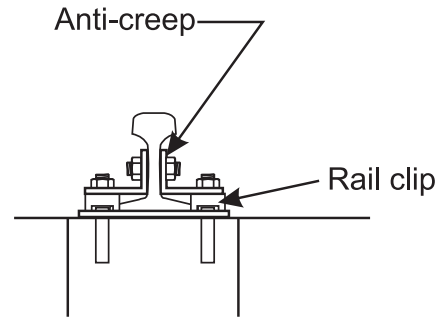
The rails on the scale weighbridge **MUST NOT** have any joints.



Weighbridge Rail



Approach Rail



Approach Rail Anti-Creep

Grouting

Verify the elevation and position of the scale and vertical alignment of the load cells.

Grout the grout plates, using non-shrinking epoxy grout, while making sure that there are no air pockets.

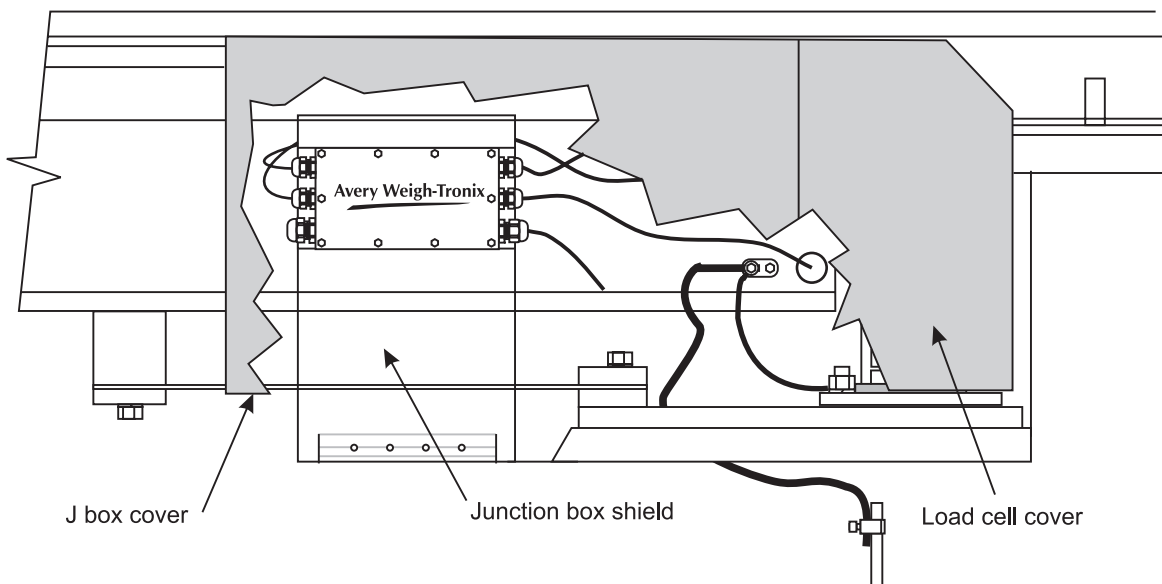
Concrete Work

Pour concrete ballast into the weighbridge(s).

Refer to the General Arrangement drawing for the type and amount of concrete required.

Connection of the Load Cells and Indicator

Connect the load cells to the junction box(es) and join all the junction boxes per the wiring diagram included in the foundation general arrangement drawing.

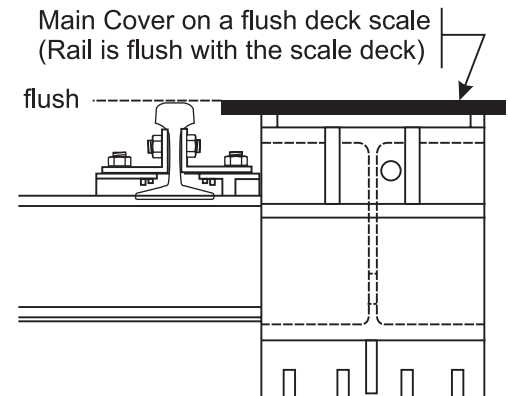


Installation of the Covers

Install the junction box shield, cable covers and the load cell covers.

Flush Deck Scale:

A flush deck scale has special main covers that make the main beams of the scale flush with the rails. Install the main covers, the load cell covers, and then the junction box shields. Main covers and the load cell covers must be installed before installing the junction box shields



Testing

The scale is now ready for testing.

Scale **MUST** be tested using certified test weights and certified test car(s). The number of certified test-weights and test car(s) vary depending on Weights & Measures or the local serving rail company. Please refer to your local controlling authority for details.

Maintenance

Avery Weigh-Tronix recommends a regular maintenance program of a minimum of two visits per year by an authorized distributor. The number of visits per year may vary depending on the traffic and environment. Items 1-5, below, should be checked on a frequent and regular basis by the scale operator.

During each visit, the following **MUST** be done as a minimum:

1. Visually inspect the deck, checking for debris in the clearance under the scale. If any debris, remove it.
2. Visually inspect approach at each end of the scale. If the scale is installed in a pit, insure the proper clearance between the main covers (or grating part of the pit) and the scale bridge. If needed, repair or report it for immediate repairs.
3. Visually inspect the rails, to make sure they have the minimum clearance between the approach rails and the deck rails. If rubbing or too close, repair or report it for immediate attention.
4. Make sure that all the load cells are plumb, and adjust them if necessary.
5. Verify the grounding connections on the load cells and the weighbridge(s). Repair as necessary.
6. Verify the scale weighing precision using a test car or certified test weights, for the section and span reading. Adjust as required.

Recommended Spare Parts List

No spare parts are normally recommended for this scale. However, you might choose to store a load cell and a junction box, depending on the cost of the scale downtime and the availability of parts in the surrounding area.

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