



NORSTEEL™

Truck Scale

Installation Manual

Canada

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through Precision Measurement*

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NOTICE

NORAC Systems International Inc. reserves the right to improve products and their specifications without notice and without the requirement to update products sold previously. Every effort has been made to ensure the accuracy of the information contained in this manual. The technical information in this manual was reviewed at the time of approval for publication.

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Introduction

Congratulations on your purchase of an electronic *NORAC NORSTEEL™* Truck Platform Scale. This scale has been manufactured using high quality components and the latest production techniques in order to provide you with a reliable, trouble-free product for years to come. Please read the following instructions to ensure that you will receive top performance as well meet the Weights and Measurements requirements for this type of equipment.



Using This Manual

This manual is divided into five main sections. The first two sections deal with the installation (both mechanical and electrical) of permanent and portable truck scales respectively. The last three sections deal with maintenance, troubleshooting, and warranty for both types of installation.

Permanent Truck Scales

A permanent installation of a NORSTEEL™ Truck Scale requires a permanent concrete foundation. Foundation drawings are available from NORAC and are usually included with the quotation. The following manual sections apply to standard permanent NORAC scales. However, the details of these sections will apply to most custom size scales.

Technical Specifications

Scale Part #	Capacity ton/tonne	Scale Size (ft)		Height (in)	# of Load Bars	Shipping Weight (lbs)
		Width	Nominal Length ¹			
T40L10-25S-260	44/40	10	25	14	2	10,200
T40L10-30S-260	44/40	10	30	14	2	11,200
T60L10-35S-360	66/60	10	35	14	3	12,300
T60L10-40S-360	66/60	10	40	14	3	14,500
T60L12-40S-360	66/60	12	40	14	3	16,900
T90L10-70S-560	100/90	10	70	14	5	25,200
T90L12-70S-560	100/90	12	70	14	5	29,500
T90L10-80S-560	100/90	10	80	14	5	28,500
T90L12-80S-560	100/90	12	80	14	5	33,200
T100L10-100S-660	110/100	10	100	14	6	35,300
T100L12-100S-660	110/100	12	100	14	6	41,300

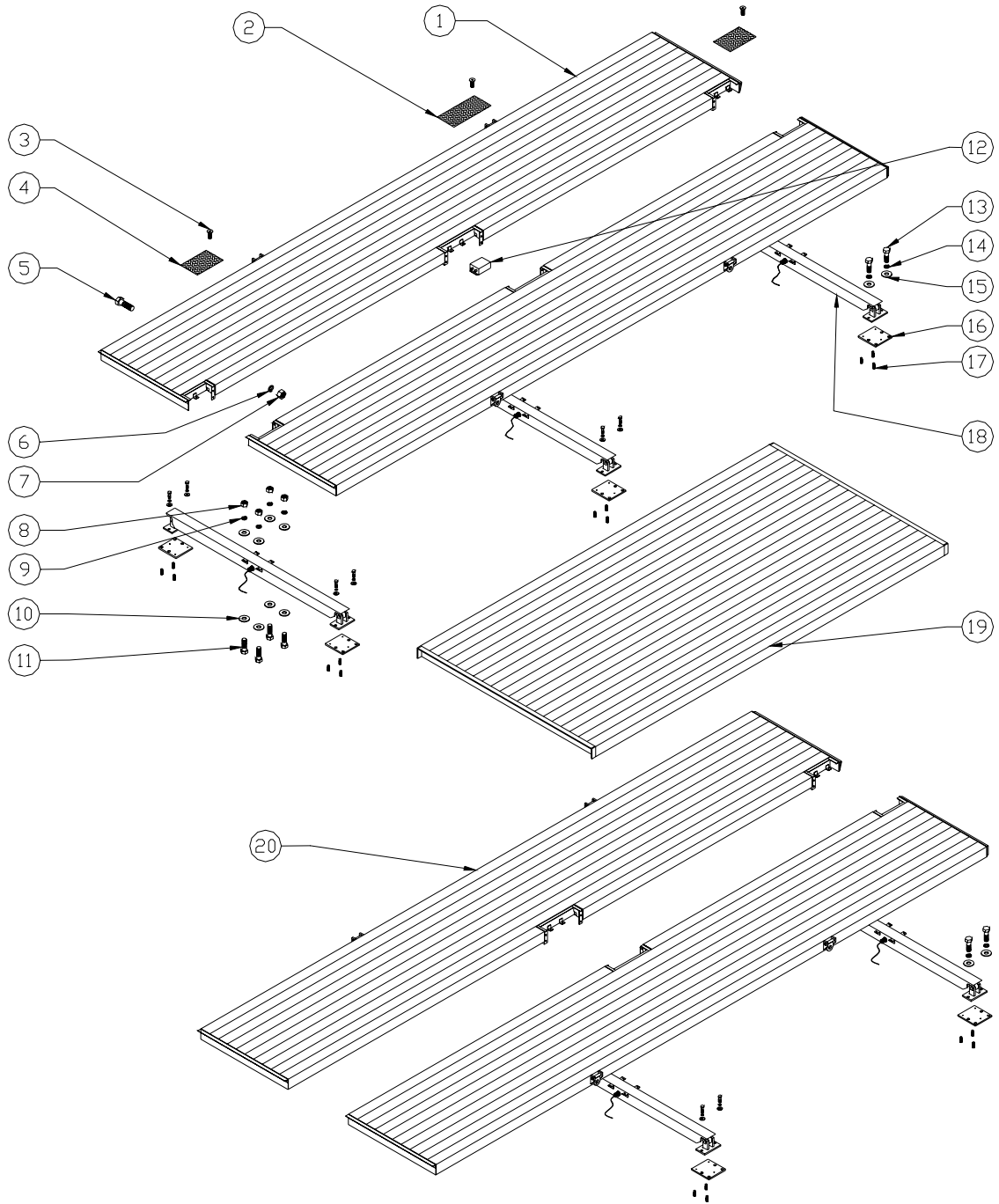
¹ Length of the scale platform is actually 2” shorter than stated.

All Scales are Urethane Painted.

All Scales are fully welded and sealed.

Any scales that are longer than forty feet are made by using two or three shorter scales. For example, an 80’ deck is made using two 40’ decks (one is a standard 40’ deck, the other is a 2-loadbar extension deck). A long scale can be made with one standard deck, and one extension deck, or two standard decks and a filler deck. The type of scale will be dependent on the size ordered. Details on different deck types will be discussed in the following sections.

Parts List



Parts List (Cont.)

Item #	Description	Scale Size				
		10 x 25 Part #	10 x 30 Part #	10 x 35 Part #	10 x 40 Part #	12 x 40 Part #
1	Truck Scale Deck	TD40L10-25S-260	TD40L10-30S-260	TD60L10-35S-360	TD60L10-40S-360	TD60L12-40S-360
2	Large Cover Plates	N/A	73110	73110	73110	73110
3	Bolt Skt 3/8x1 S.S.	100783				
4	Small Cover Plate	73100	N/A	73100	73100	73100
5	Bolt 5/8x1-1/2	100580				
6	5/8" Lock washer	100949				
7	5/8" Nut	100849				
8	1/2" Nut	100850				
9	1/2" Lock washer	100948				
10	1/2" Flat washer	100930				
11	Bolt 1/2x2	100596				
12	Junction Box	31-21	31-21	31-20-L3	31-20-L3	31-20-L3
13	Bolt 3/4x2	100700				
14	3/4" Lock washer	102134				
15	3/4" Flat washer	100941				
16	Removable Lower Pad	67207R-3				
17	Set Screw Sq. Head	100818				
18	Loadbar "Removable" Pads	60KLUR-C120	60KLUR-C120	60KLUR-C120	60KLUR-C120	60KLUR-C144
19	Filler Deck	TFxx-xxS: Specific to Scale, come in sizes 10x10, 10x15, 10x20 as well in 12 foot widths (Ex. TF10-20S)				
20	Extension Deck	TDExx-xxS-x60: Specific to Scale, comes in 10x20, 10x25, 10x30, 10x35, 10x40, 10x45 as well as in 12 foot widths (Ex. TDE10-40S-260)				

Unloading Instructions

When receiving your scale check all items against the packing list to see that all items have been received. Inspect all items for any damage. If missing or damaged items are found, notify your carrier and NORAC as soon as possible.

Each deck section comes with 4 lifting lugs. Use a 4-point overhead lifting harness. **Never lift on less than all 4 lifting lugs.**

If the decks and scale parts are to be stored on site prior to installation, stack the decks one on top of the other separated by 4 x 4 timbers. Place all other items in a clean dry area.

If the scale is to be installed when it is received, proceed with the installation in the order stated for a permanent scale (see Permanent Installation).

Permanent Installation

Foundation and Site Preparation

A concrete foundation (pit) drawing is usually included with the quotation. Contact a *NORAC* Customer Service representative for foundation drawings.

The concrete foundation drawing is intended for reference only. *NORAC* takes no responsibility for local ground conditions that may effect the design. Consult a local professional for ground conditions and foundation recommendations.

Always check the installation area for buried cables, sewer lines, etc. Contact local utilities to identify buried transmission lines of any kind before digging.

Canadian Weights and Measures Regulations state that

1. Access to the underside of the scale deck is provided. Access is also required for service. A totally enclosed foundation requires access either through the deck or through the foundation.
2. The location of the scale allows for direct access of test trucks for inspection. If easy access is not available, equipment and operators must be available to place weights on the scale.
3. The area surrounding the scale allows for adequate drainage away from the scale.
4. The scale indicator to be installed so that the operator and any interested party can see the weight indication and the entire scale deck at the same time.

Equipment and Tools

The following is a list of tools and materials required when installing a permanent *NORAC NORSTEEL™* truck scale.

Tools:

- 6 inch Level
- Chalk or String Line
- Concrete Drill Bit¹
- Crane, Forklift or Front End Loader
- Electrical Wire Tools
- Fish tape
- Grout mixing pale & tools
- Hammer Drill¹
- Hydraulic jack & block
- Lifting Harness or Chains
- Measuring Tape
- Multimeter
- Socket set, wrenches & hand tools
- Transit
- Welder²

Materials:

- ATV silicon sealant
- Concrete anchor bolts¹
- Grease or Anti-seize compound
- Non Shrink grout
- Removable Loctite (Blue)

¹These are not required if you have installed mounting lugs when the concrete foundation was poured.

²Only required if you have used the installation pads.

Transit

For proper operation, scales must be level. To ensure the *NORAC NORSTEEL* truck scale is installed level, a transit must be used.

When setting up the transit, place it in a location where it should not have to be moved when equipment or scale parts are brought in or out of the site (see Figure 1).

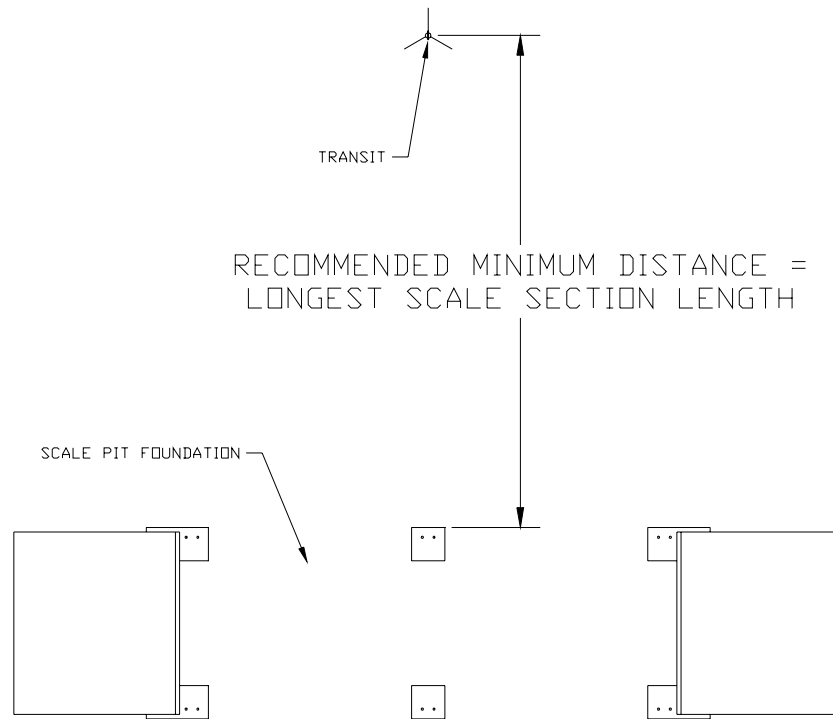


Figure 1 - Transit Set-up

Load Bar Assembly

To ensure proper scale performance, the loadbars (which bolt to the underside of the deck) must be assembled correctly. To assemble the loadbars, follow this procedure.

1. Determine which loadbars require spacers. Only one loadbar per deck requires spacers. See Loadbar Spacers for positioning of loadbars with spacers.
2. Apply anti-seize to the setscrews. Thread set screws into lower pads.
3. Insert the load pin through the upper pad, spacers (assembled on only one loadbar per deck), bearing of the load cell, and the load pin stop (see Figure 3).
4. Apply blue Loctite to the load pin bolt. Thread the bolt into the load pin and tighten using a wrench or ratchet.
5. The upper and lower pads are not bolted together at this time.

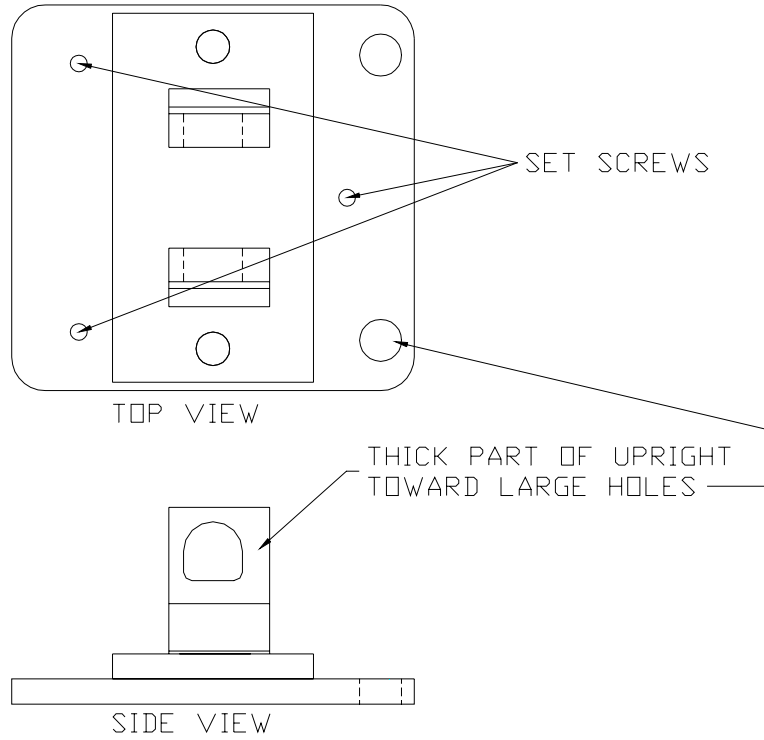


Figure 2 - Lower and Upper Pads

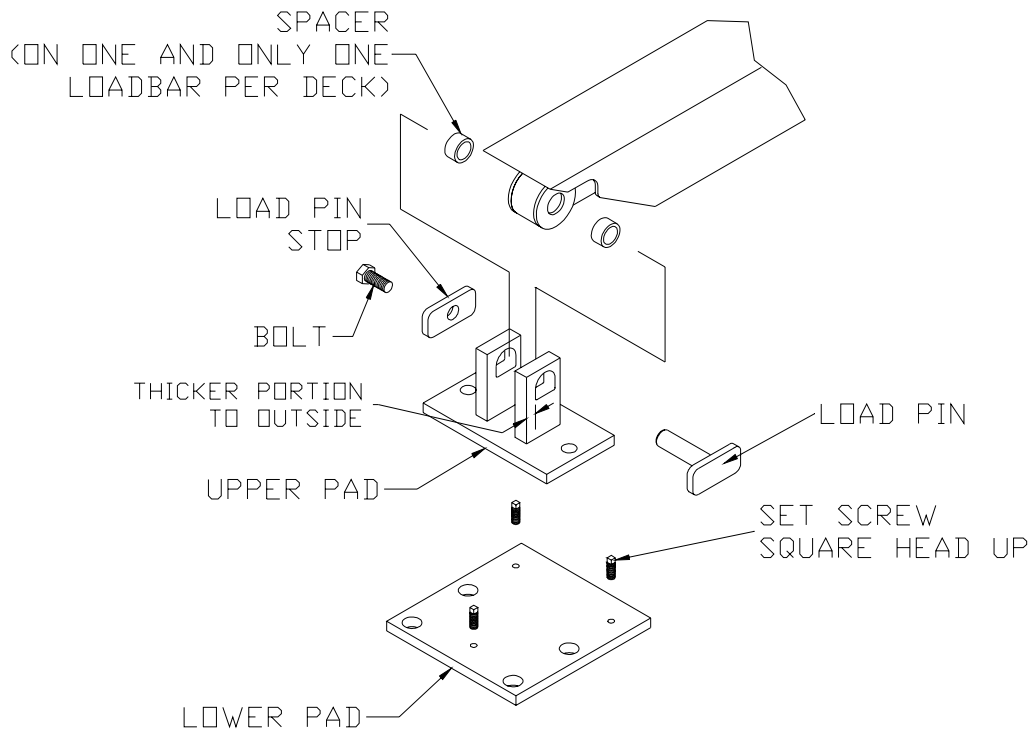


Figure 3 - Loadbar Assembly

Assemble the upper pad to the loadbar using the load pin, load pin stop and bolt. Use blue Loctite on the load pin bolt. The spacers are only installed on one loadbar per deck (see Loadbar Spacers). The upper and lower pads are not bolted together at this time.

Loadbar Spacers

Only one loadbar per deck is assembled with loadbar spacers. This is to allow for expansion and contraction of the deck caused by changes in temperature (see Figure 4). The spacers stop the deck from moving laterally. The other loadbar or loadbars in the deck have no spacers, allowing the scale to move a small amount with the expansion and contraction of the deck due to temperature changes. When installing the deck you must place the loadbars in their proper position. Each deck of the scale must be allowed to expand and contract with temperature. For multi-deck scales, one and only one loadbar per deck must have spacers (see Figure 4).

RULE OF THUMB

Every 20' of deck, starting at the loadbar with spacers installed, will expand ¼" from -40°C to 40°C.

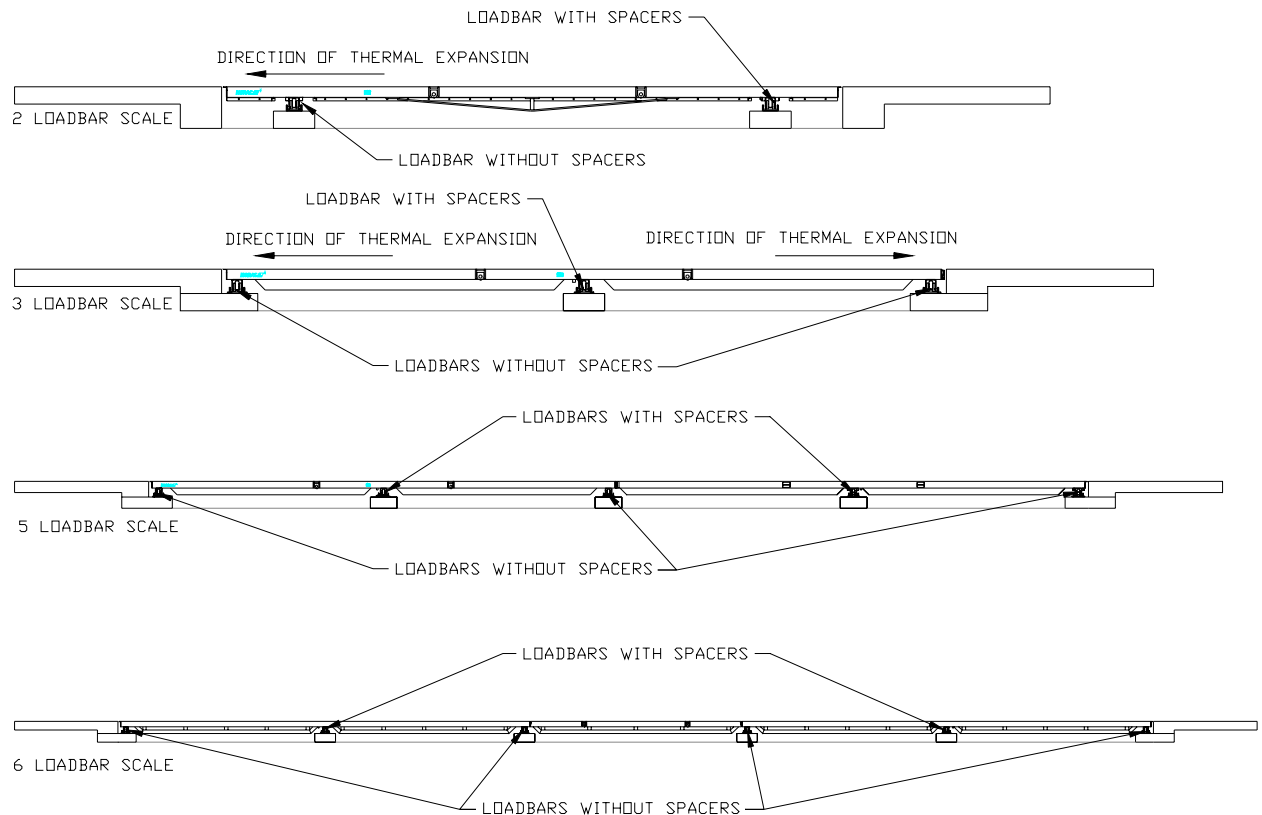


Figure 4 - Thermal Expansion / Loadbar Spacers

Loadbar Installation

After the loadbars have been assembled, they can be installed into the foundation. Two methods can be used to install the loadbars in the foundation: grouted installation, and installation using installation pads. Both methods of installation are shown in the foundation drawing supplied by *NORAC*.

Grouted Installation

1. Measure the elevation of the pile caps or piers, using a transit, relative to the top of the approach ramps and to each other. Make sure that the height from the piles to the top of the ramps is $15\frac{1}{2} \pm \frac{1}{8}$ " (See Figure 5).

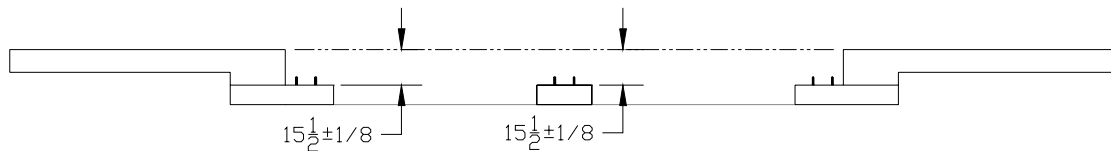


Figure 5 - Pile Caps for Grouted Installation

2. If a pile is higher than $15\frac{3}{8}$ " below the approach, it must be sanded or ground down to within tolerance.
3. If a pile is lower than $15\frac{5}{8}$ " a shim must be added. Shims are available from *NORAC* in $\frac{1}{8}$ ", $\frac{1}{4}$ " and $\frac{1}{2}$ " sizes.
4. Roughly locate the lower removable pads on the foundation piles with the large holes facing towards the outside of the deck. Ensure that the setscrews in the lower pad are facing up (to allow for adjustment). If mounting lugs were installed when the foundation was poured, simply place the lower pad over the lugs. The width from outside to outside of the lower pads should be $126\frac{1}{2}$ " (see Figure 6).
5. Place the grout forms around the pads (see Figure 7).
6. Place the loadbars onto the lower pads. Apply anti-seize to the $\frac{3}{4}$ " x 2" bolts. Loosely bolt the upper pads to the lower pads using the $\frac{3}{4}$ " x 2" bolts, flat washers and lock washers.

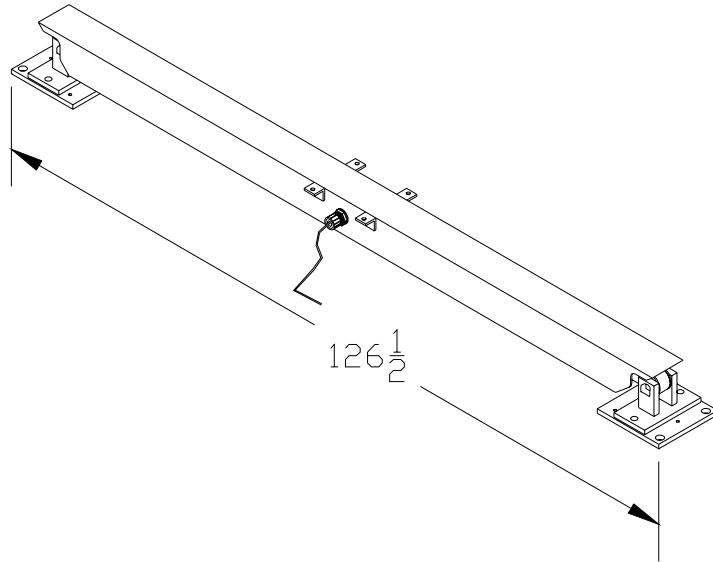


Figure 6 - Loadbar Length

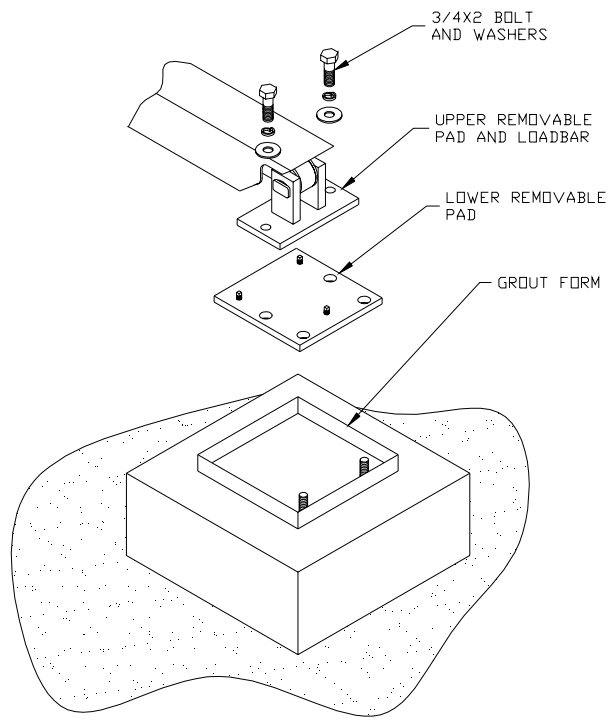


Figure 7 - Grouted Installation

Installation Pad Installation

To use this installation, the installation pad 67207i must be installed when the concrete is poured for the foundation.

1. The elevation of the installation pads is therefore fixed when the concrete is poured. The elevation of the pads should now be rechecked. Measure the elevation from the top of the installation pads, using a transit, relative to the top of the approach ramps and to each other. Make sure that the height from the pads to the top of the ramps is $14'' \pm 1/8''$ (See Figure 8).

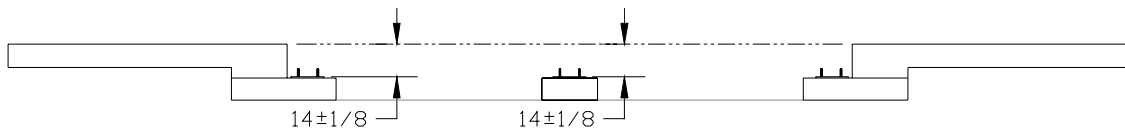


Figure 8 - Pile Caps with Installation Pad

2. If a pad is higher than $13-7/8''$ below the approach, all other pads must be shimmed to level the scale. Shims are available from *NORAC* in $1/8''$, $1/4''$ and $1/2''$ sizes.
3. If a pad is lower than $14-1/8''$ below the approach, a shim must be added under that pad. Shims are available from *NORAC* in $1/8''$, $1/4''$ and $1/2''$ sizes.
4. Roughly locate the lower removable pads on the installation pad. Ensure the setscrews in the lower pad are facing up (to allow for adjustment). The outer holes of the lower pad will slide over the lugs on the installation pad (Figure 9).
5. Place the loadbars onto the lower pads. Apply anti-seize to the $3/4'' \times 2''$ bolts. Loosely bolt the upper pads to the lower pads using the $3/4'' \times 2''$ bolts, flat washers and lock washers.

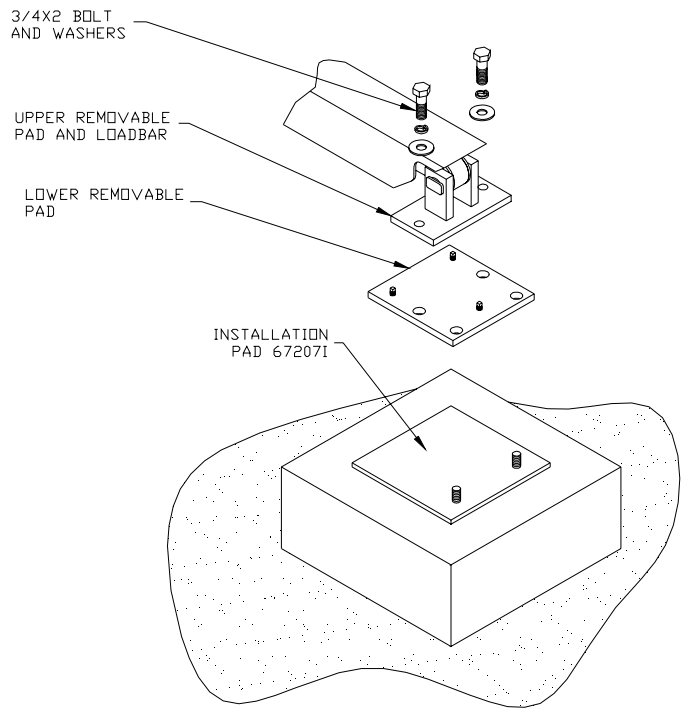


Figure 9 – Installation Pad Installation

Deck Assembly

After the loadbars have been installed into the foundation, the scale decks can be assembled.

1. Position the first deck half over the loadbars reasonably square and evenly spaced from the end walls.¹
2. Position the second deck half over the loadbars next to the first deck half.
3. Align the deck halves to each other. Apply anti-seize to the 5/8" x 1½" bolts. Insert the 5/8" x 1½" bolts, lock washers, and nuts starting from the center of the deck and moving outward. Insert all bolts before starting to tighten to ensure alignment. Torque bolts to 150 ft.lbs starting from center and moving outward.
4. Align the mounting tabs on the loadbars with the mounting tabs in the deck. Apply anti-seize to the ½" x 2" bolts. Insert the ½" x 2" bolts, lock washers and nuts. Insert all bolts before starting to tighten to ensure alignment. Torque bolts to 77 ft.lbs in a cross pattern for each bar.

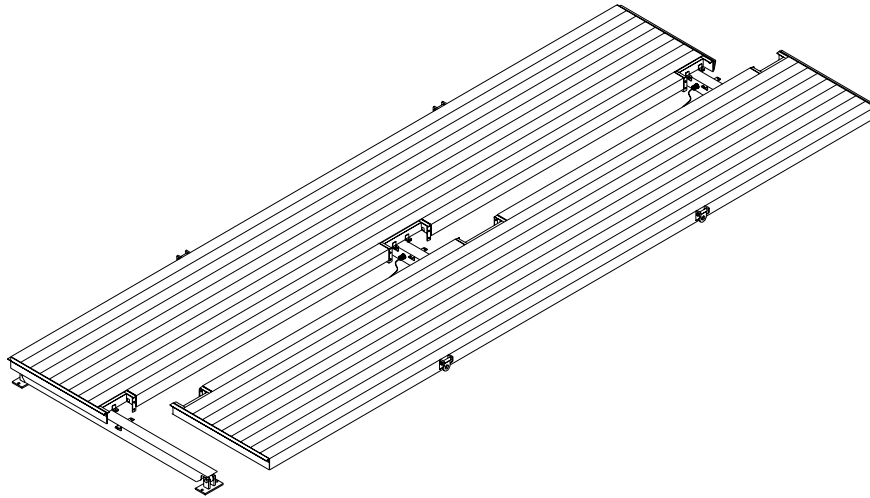
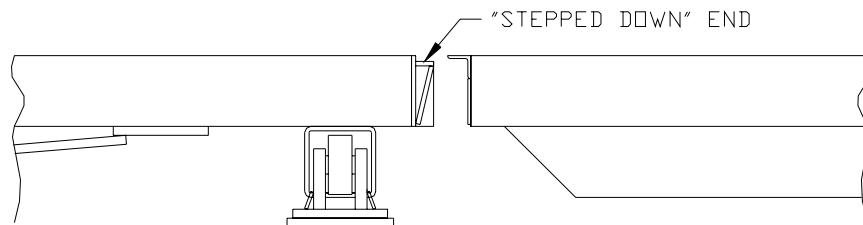


Figure 10. Deck Halves and Loadbars

¹NOTE: For a scale with more than one deck, always situate the “stepped down” end of a deck toward the middle of the foundation. This is the end that a filler or extension deck will hang on (see below).



Positioning Scale in Foundation

After all the mechanical components of the scale have been bolted together, the entire scale must be located in the pit properly. The next four subsections deal with the positioning of scales with different numbers of loadbars.

Remember the rule of thumb for thermal expansion:

Every 20' of deck, starting at the loadbar with spacers installed, will expand $\frac{1}{4}$ " from -40°C to 40°C .

2 Loadbar Scales

Position the scale 1" from the edge of the foundation on the end of the scale with the loadbar with spacers installed (see Figure 11). Check the gap between the scale and the foundation on the other end of the scale. This gap should be between $\frac{3}{4}$ " and $1\frac{1}{4}$ ". If it is not, center the deck in the pit.

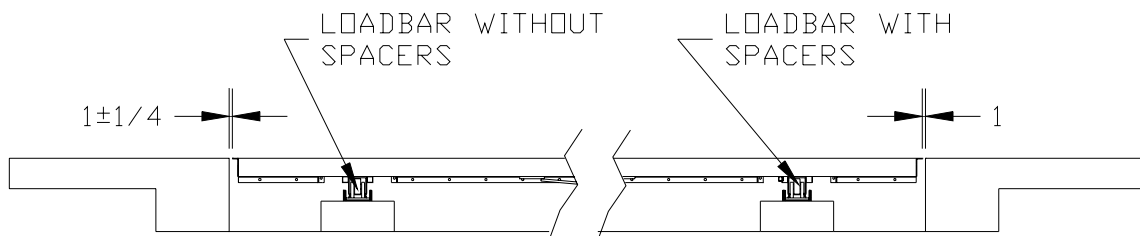


Figure 11 - 2 Loadbar Installation

3 Loadbar Scales

Position the scale square to the foundation walls and centered in the foundation (see Figure 12). The loadbar with spacers installed will be in the center of the deck, allowing the scale to expand evenly in both directions. Check the gap between the scale and the foundation wall on both ends of the scale. These gaps should be between $\frac{7}{8}$ " and $1\frac{3}{8}$ ".

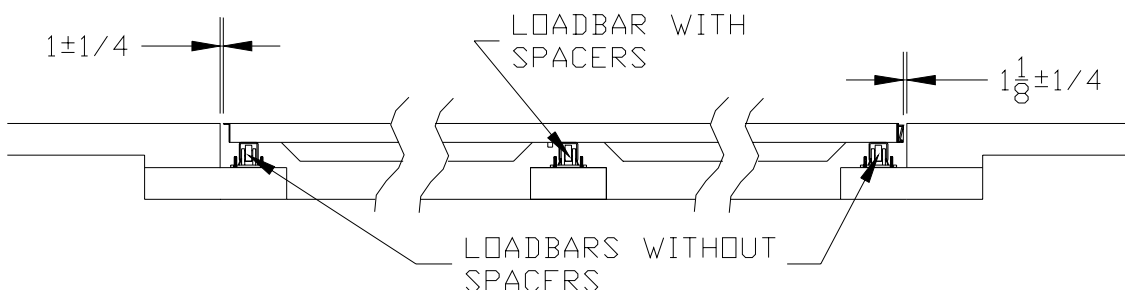


Figure 12 - 3 Loadbar Installation

5 Loadbar Scales

Care must be taken when installing a scale with 2 or more decks. The critical point in this type of installation is the overhang between the decks.

For a five-loadbar scale, one deck will be a standard, 3 loadbar deck, the other will be a 2 loadbar extensions deck. The free end of the extension deck hangs on the standard deck. Spacers are installed only on the loadbars in the center of each deck, allowing each to expand and contract in both directions.

1. Position the standard deck. Position the deck square to the foundation and with a gap between the deck and the foundation wall of approximately 1" (see Figure 13).
2. Position the extension deck. Position the extension deck such that the gap between the decks is $\frac{1}{2}$ " ($\frac{7}{8}$ " on an extremely cold day, $\frac{1}{8}$ " on an extremely hot day).

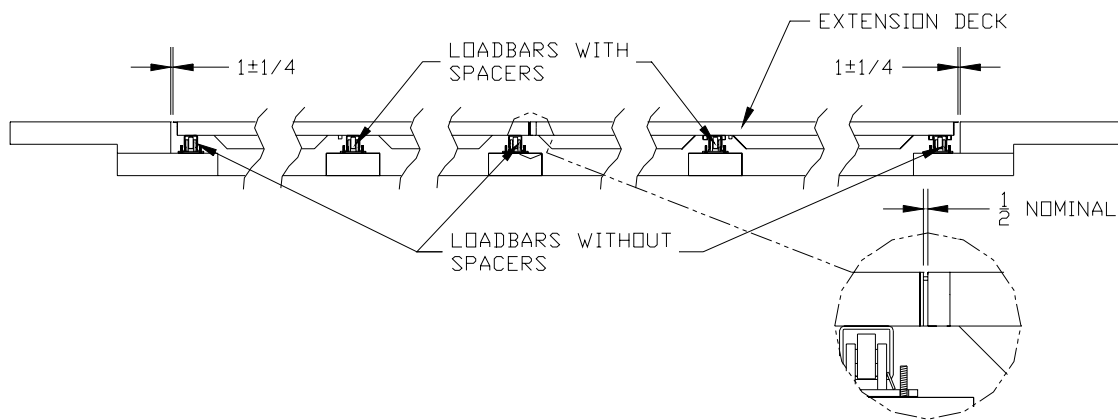


Figure 13 - 5 Loadbar Installation

3. Check the gap between the extension deck and the foundation wall. The gap should be between $\frac{3}{4}$ " and $1\frac{1}{4}$ ". If it is not, center the scale in the foundation, maintaining the gap between the decks from step 2.

6 Loadbar Scales

Care must be taken when installing a scale with 2 or more decks. The critical point in this type of installation is the overhang between the decks.

For a six-loadbar scale, two decks will be standard 3 loadbar decks; the third deck will be a "filler" deck with no loadbars. The filler deck hangs on the two standard decks in the middle of the scale. Spacers are installed only on the loadbars in the center of each deck.

1. Position the standard decks. Position the decks square to the foundation and with a gap between the decks and the foundation walls of approximately 1" (see Figure 14).
2. Position the filler deck. Position the filler deck such that the gaps between the filler deck and the standard decks are both $\frac{1}{2}$ " ($\frac{7}{8}$ " on an extremely cold day, $\frac{1}{8}$ " on an extremely hot day). Move the standard decks to adjust these gaps.
3. Recheck the gaps between the standard decks and the foundation walls. The scale should be centered in the foundation. The gaps should be between $\frac{3}{4}$ " and $1\frac{1}{4}$ ".

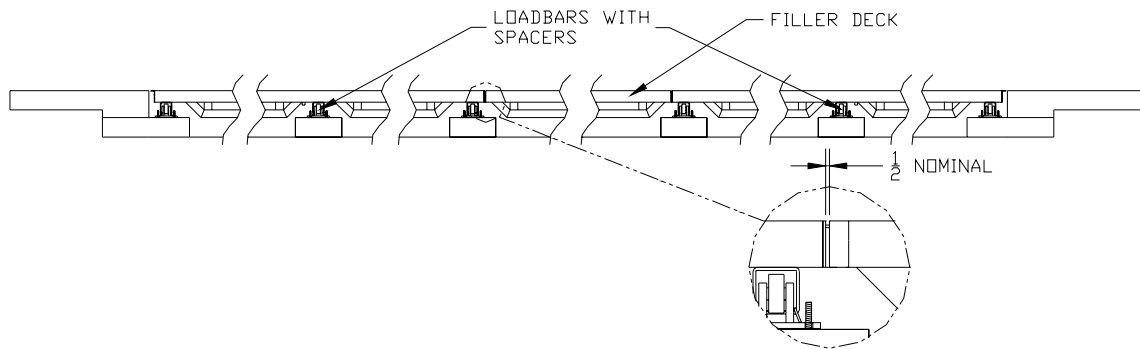


Figure 14 - 6 Loadbar Installation

Final Installation Instructions

Pad Centering

Before tightening the mounting lugs or drilling holes for anchor bolts, the loadbar pads must be centered on the load pins for each bar that does not have spacers. This is done by lifting the weight off of the load pins with a jack and sliding the pad until it is centered with the load cell collar and the load pin is centered in the pad upright (see Figure 15). After the pad is centered with the load cell, center the lower removable pad to the upper pad.

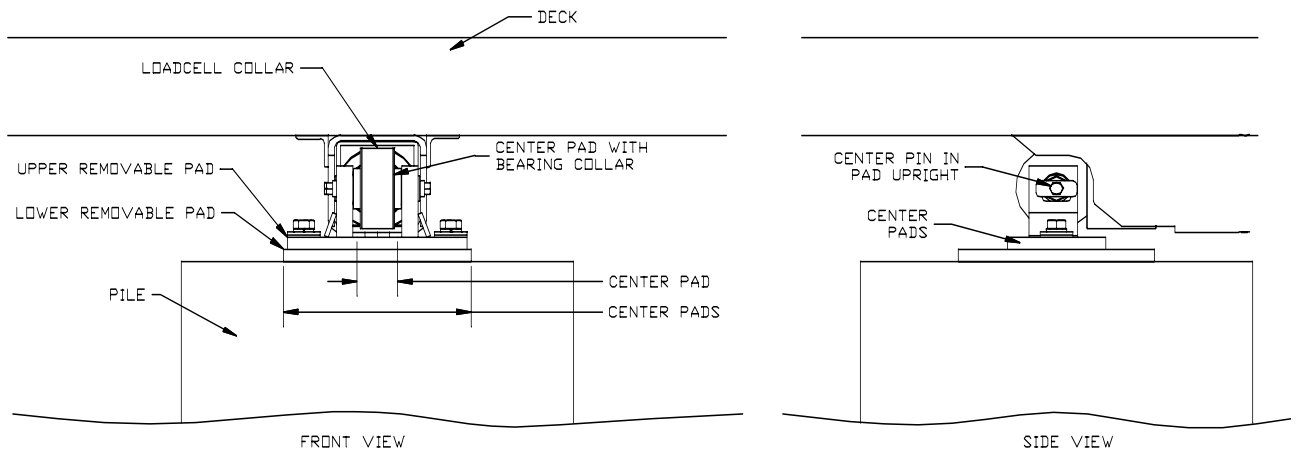


Figure 15 - Centering Loadbar Pads

If mounting lugs have been installed, or the installation pad has been used, place the nuts and washers on the lugs and tighten. Make certain the upper pads are centered on the load pins (see Figure 15, side view). If mounting lugs have not been installed yet, use a hammer drill to drill through the center of the holes in the lower removable pad at each pile location. Insert the anchor bolts and secure them.

Leveling

After the scale has been properly positioned in the foundation, check to ensure the scale is close to level. Check the level at each loadbar both down the length of the scale and across the scale. Since the height of the piles (or piers) was checked with a transit earlier in the installation process, the scale should be close to level at this point.

Adjust the setscrews (leveling screws) to level each individual load cell pad and the scale as a whole. If the scale cannot be leveled using the setscrews, check for any debris lodged between the deck and loadbars, the upper and

lower removable pads, or the lower removable pad and the pile (or pier). If there is no debris lodged under the scale, shims will be required.

Once the scale is level, tighten all the mounting bolts and recheck the scale for level.

Grouting

(For grouted installation only)

When all mounting bolts are tight, and the pads and scale as a whole is level, grout the lower pads for each loadbar.

Electrical

General

1. **Do not Cut or Trim the wires from a Loadbar.** All *NORAC* Loadbars have been factory calibrated and made to the length required for a *NORAC NORSTEEL™* Platform Scale. Any excess cable length can be stored inside the loadbar by feeding the cable back into the tube after installation is complete.
2. AC and DC cables should be located in different trenches. When AC and DC power lines must be located in the same trench, keep the cables separated as much as possible to avoid any interference.

Conduit (2 or 3 Loadbar Scales)

The junction box sums the signal from the individual loadbars and transmits this signal to the indicator. Conduit helps protect the loadbar cables from the elements and from rodents.

Junction Box Location

The junction box is normally located near one of the loadbars (under the cover plate). For a two loadbar deck, the junction box may be located at either load bar. For a three loadbar deck, it is recommended that the junction box be located at the middle load bar (see Figure 17).

Conduit Length

For each loadbar that is at a different location than the junction box, the conduit length is equal to the center to center distance from the loadbar in question to the junction box loadbar.

The conduit length for the loadbar that is located with the junction box is different for each junction box type; it must be able to reach the junction box without a kink. For a 31-21 (2 bar) junction box the conduit length is about 3 ft, for routing see Figure 16. A 31-20-L3 (3 bar) junction box may allow the conduit to be attached directly from the loadbar to the junction box in a short loop. If the conduit cannot be easily routed directly, the conduit length should be about 3 ft.

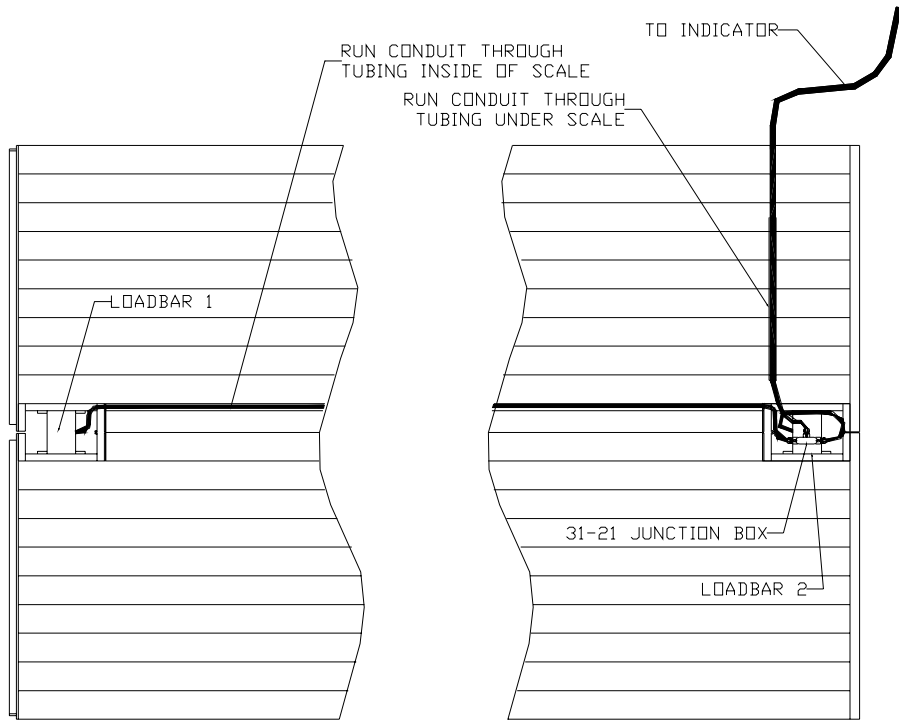


Figure 16 - Conduit for 2 Loadbar Scale

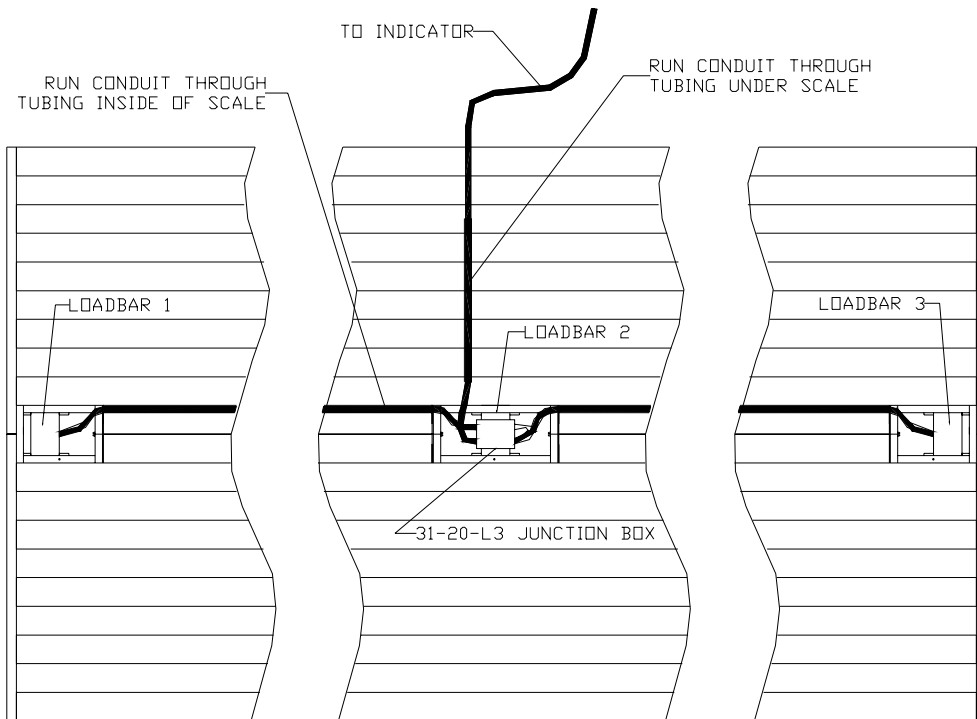


Figure 17 - Conduit for 3 Loadbar Scale

Cutting Conduit

When cutting conduit, it is best to use a cutoff saw or a grinder with a cutting wheel. A hacksaw can be used, but be careful not to unravel the inside of the conduit. A knife or side cutter will also work to cut conduit.

1. Cut the rubber around the outside of the conduit with a knife.
2. While holding on to both sides of the cut, twist the conduit to separate the conduit at the cut, exposing the tin inside section of the conduit.
3. Cut the tin portion of the conduit with side cutters.

Routing Conduit

A pipe runs from each loadbar location to the next inside the deck. Feed the individual pieces of conduit through the pipes in the deck.

Liquid Tight Connectors

After the conduit has been routed, the Liquid Tight connectors can be installed on the ends of the conduit. The three parts of the connector that must be installed on the conduit are shipped threaded onto the mating connector on the junction box.

1. Unscrew the nut from the junction box, and remove the sealing ring and end cap.
2. Place the nut, with threads facing outwards, over the conduit (see Figure 18).
3. Place the sealing ring over the conduit.
4. Screw the end cap on to the end of the conduit.

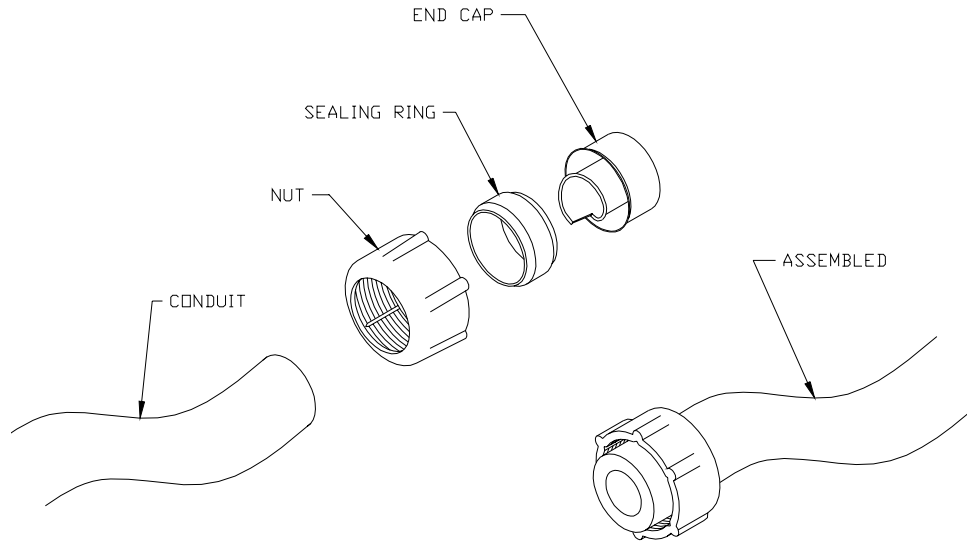


Figure 18 - Liquid Tight Connector

Loadbar Cables

Once the Liquid Tight connectors have been installed on the conduits, the loadbar cables can be fed through the conduit.

1. Pull enough loadbar cable out of the loadbar to reach the junction box, and feed it through the conduit.
2. Route the loadbar cable into the junction box (see Figure 19 or Figure 20 for the 3 and 2 loadbar junction boxes respectively). Allow enough cable to wire the cable to the junction box circuit board.
3. Feed any excess loadbar cable back into the loadbar.
4. Screw the Liquid Tight connectors onto the mating connector on the junction box and loadbar.

Multiple Deck Scales

5 Loadbars

In a five loadbar scale, one junction box is used. Run all conduit and loadbar cables to the single junction box. It is recommended to locate the junction box at the loadbar in the middle of the scale.

6 Loadbars

In a six loadbar scale, a minimum of two junction boxes are required. Each deck is wired as per a standard 3 loadbar scale. The output cable from each

junction box can then be run straight into the indicator. Alternately, the two outputs from the junction boxes can be wired to another junction box, then wired to the indicator.

Junction Box Wiring

All NORAC loadbar and indicator wiring follows the same wiring color code. The 31-20-L3 junction box has both the wire color and loadbar number printed directly on the circuit board (see Figure 19). The circuit board in the 31-21 junction box is not labeled, but follow the same wiring convention as all NORAC scales (see Figure 20). When looking at the front of the connector, wires are located from left to right by color alphabetically. Always ensure that only same colored wires are connected to each other.

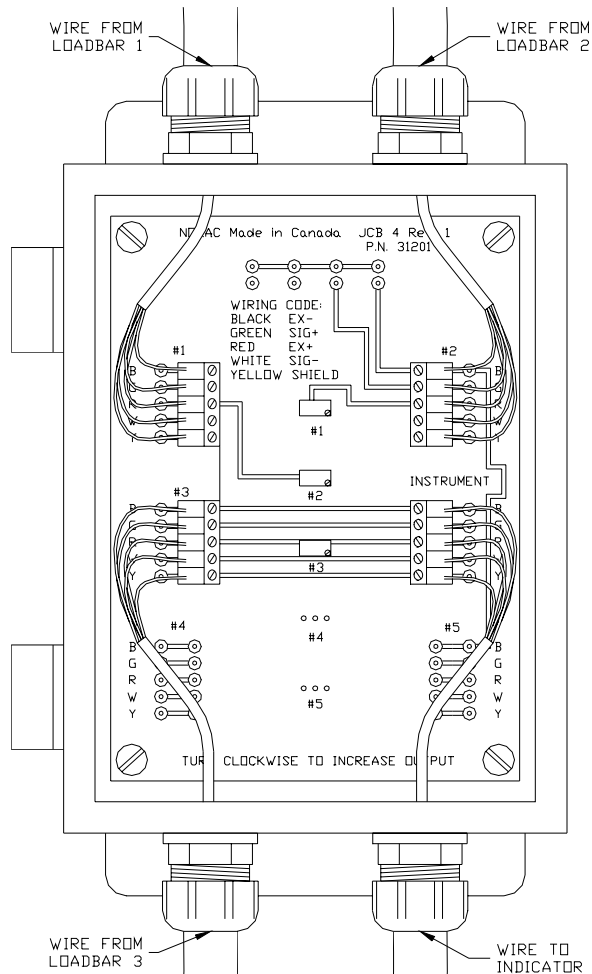


Figure 19 - 31-20-L3 Junction Box

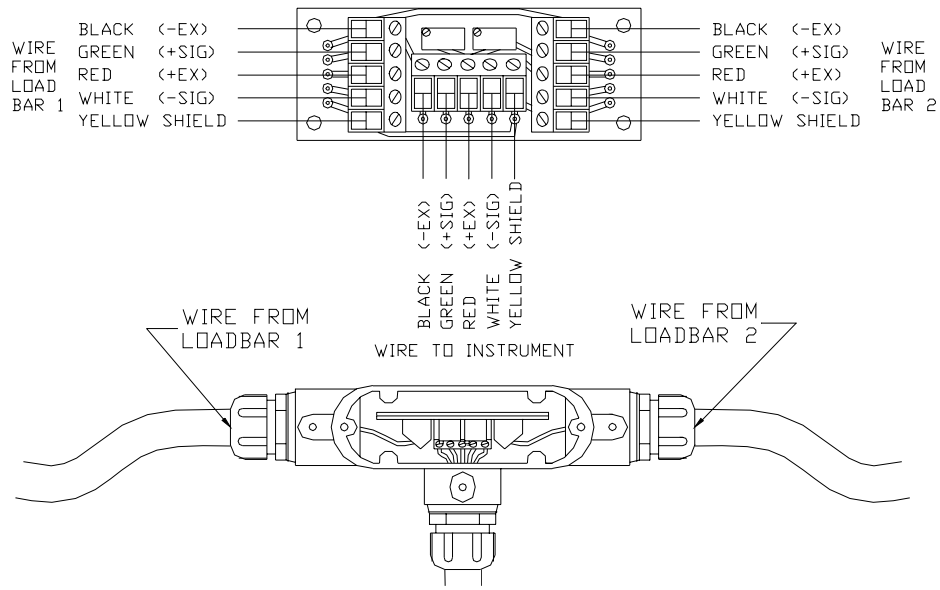


Figure 20 - 31-21 Junction Box Wiring

Sense Lines

If the scale deck is located a large distance from the indicator (over 100 feet), sense lines may be required to compensate for voltage drops over the excitation and signal lines. Sense lines are connected to the positive and negative excitation lines at the junction boxes, and the positive and negative sense terminals of the indicator. The indicator then compensates for voltage drops.

Optional Lightning Protection

If lightning protection is required for your scale, call a NORAC sales representative for more details.

Portable Truck Scales

A *NORAC NORSTEEL™* Portable Truck Scale does not require a permanent concrete foundation. The Portable Truck Scale can be set up in almost any location requiring only a firm, well-compacted base of suitable material. The following section applies to standard *NORAC* Portable Truck Scales. The details of these sections should also apply to most custom size portable scales.

Technical Specifications

Scale Part #	Capacity ton/tonne	Scale Platform Size ¹ (ft)		Height (in)	# of Load Bars	Shipping Weight(lbs)
		Width	Length			
T40L10-20SP-260	44/40	10	20	14-5/8	2	9,400
T40L10-25SP-260	44/40	10	25	14-5/8	2	10,900
T40L10-30SP-360	66/60	10	30	14-5/8	3	11,700
T60L10-30SP-360	66/60	10	30	14-5/8	3	12,600
T60L10-35SP-360	66/60	10	35	14-5/8	3	14,400
T60L10-40SP-360	66/60	10	40	14-5/8	3	16,700

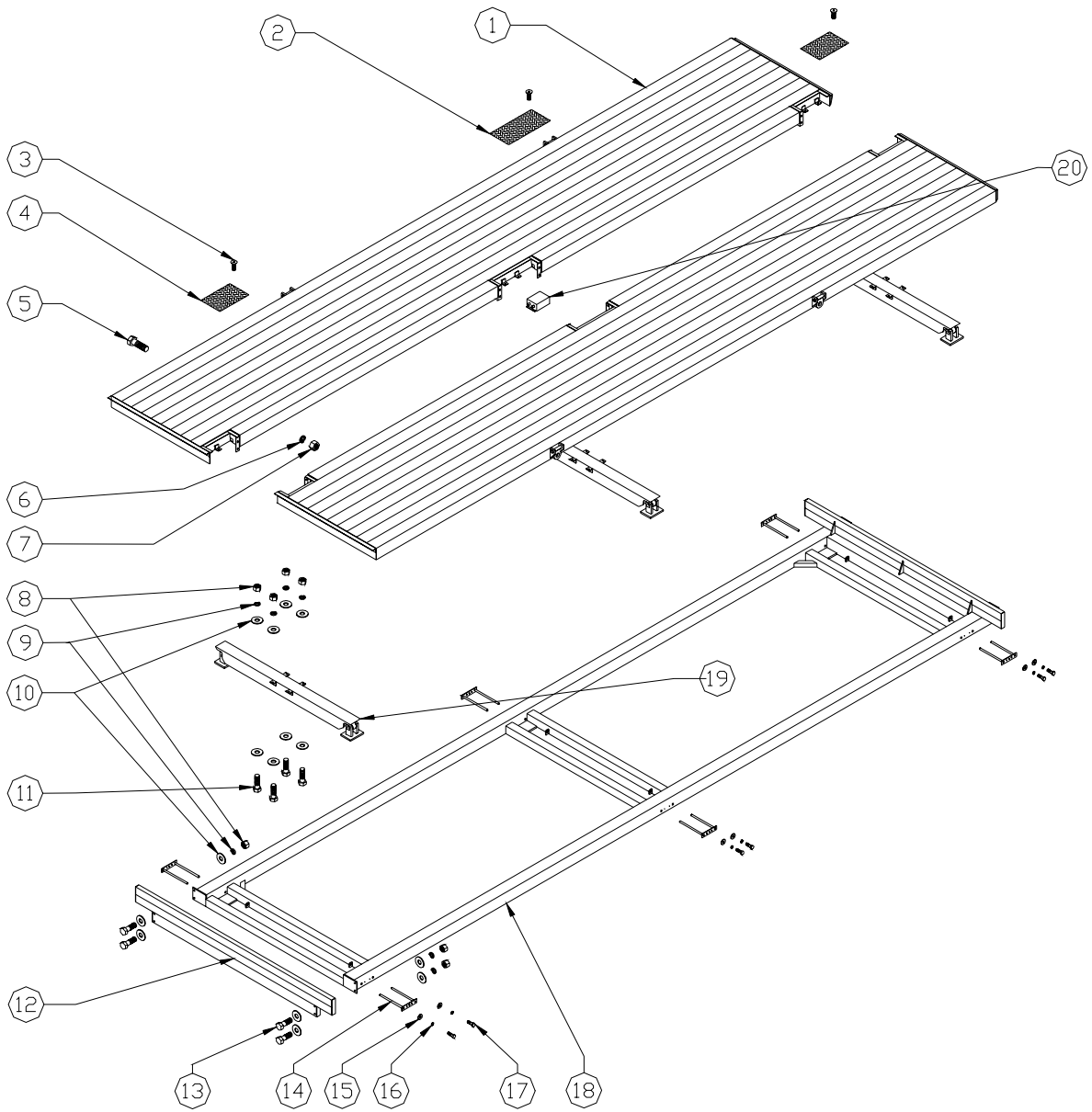
¹ Length of the scale platform is actually 2" shorter than stated.

All Scales are Urethane Painted.

- All Scales are fully welded and sealed

Any scales that are longer than 40' are made by using two or three shorter scales. For example, an 80' deck is made using two 40' decks. When making a longer scale, the two or three scale decks can be different. The type of scale will be dependent on the length ordered. Details on the different types of decks will appear in later in this manual.

Parts List



Parts List (Cont.)

Item #	Description	Scale Size				
		10 x 20 Part #	10 x 25 Part #	10 x 30 Part #	10 x 35 Part #	10 x 40 Part #
1	Truck Scale Deck	TD40L10-20S-260	TD40L10-25S-260	TD60L10-30S-260	TD60L10-35S-360	TD60L10-40S-360
2	Large Cover Plates	N/A	N/A	73110	73110	73110
3	Bolt Skt 3/8x1 S.S.	100783				
4	Small Cover Plate	73100	73100	N/A	73100	73100
5	Bolt 5/8x1-1/2	100580				
6	5/8" Lock washer	100949				
7	5/8" Nut	100849				
8	1/2" Nut	100850				
9	1/2" Lock washer	100948				
10	1/2" Flat washer	100930				
11	Bolt 1/2x2	100596				
12	Retaining Wall	PBF100				
13	Bolt 1/2x3-1/2	100720				
14	Lock Pin	PBF210				
15	3/8" Flat washer	100929				
16	3/8" Lock washer	100947				
17	Bolt 3/8 x 1-1/4	100611				
18	Portable Base Frame	PBF10-20-260	PBF10-25-260	PBF10-30-260	PBF10-35-360	PBF10-40-360
19	Portable Loadbar	60KLUP-C82.5				
20	Junction box	31-21	31-21	31-21	31-20-L3	31-21-L3

Unloading Instructions

When receiving your scale check all items against the packing list to see that all items have been received. Inspect all items for any damage. If missing or damaged items are noted notify your carrier and NORAC as soon as possible.

Each deck section comes with 4 lifting lugs. Use a 4-point overhead lifting harness. **Never lift on less than all 4 lifting lugs.**

If the decks and scale parts are to be stored onsite stack the decks one directly on top on the other on a relatively flat surface. Place all other items in a clean dry area.

If the scale is to be installed when it is received, proceed to Portable Installation.

Portable Installation

Site Preparation

The *NORAC NORSTEEL™* Portable Truck scale does not require a concrete foundation. All that is required is a firm, well compacted, level base of suitable material, preferably 8" of compacted gravel, and some 4"x12" timbers. Ramps up to the scale can be constructed of packed material.

Canadian Weights and Measures Regulations state that

1. Access to the underside of the scale deck is provided. Access is also required for service. A totally enclosed foundation requires access either through the deck or through the foundation.
2. The location of the scale allows for direct access of test trucks for inspection. If easy access is not available, equipment and operators must be available to place weights on the scale.
3. The area surrounding the scale allows for adequate drainage away from the scale.
4. The scale indicator to be installed so that the operator and any interested party can see the weight indication and the entire scale deck at the same time.
5. A temporary (portable) installation that is subject to distortion or motion due to frost action is not to be used during periods of the spring and fall when the foundation would not provide a stable support.

Equipment and Tools

The following is a list of tools and materials required when installing a *NORAC NORSTEEL™* Portable Truck scale.

Tools:

- Crane, forklift, or front end loader
- Lifting harness or chains
- Transit
- 6 inch level
- Socket set, wrenches, and hand tools (only required for a multiple deck scale)

Materials:

- 4" x 12" timbers (2 per loadbar)
- anti-seize compound (only required for a multiple deck scale)

Transit

For proper installation, scales must be level. To ensure the *NORAC* NORSTEEL™ Portable Truck scale is level, a transit must be used.

When setting up the transit, place it in a location where it should not have to be moved when equipment or scale parts are brought into or out of the site (see Figure 21).

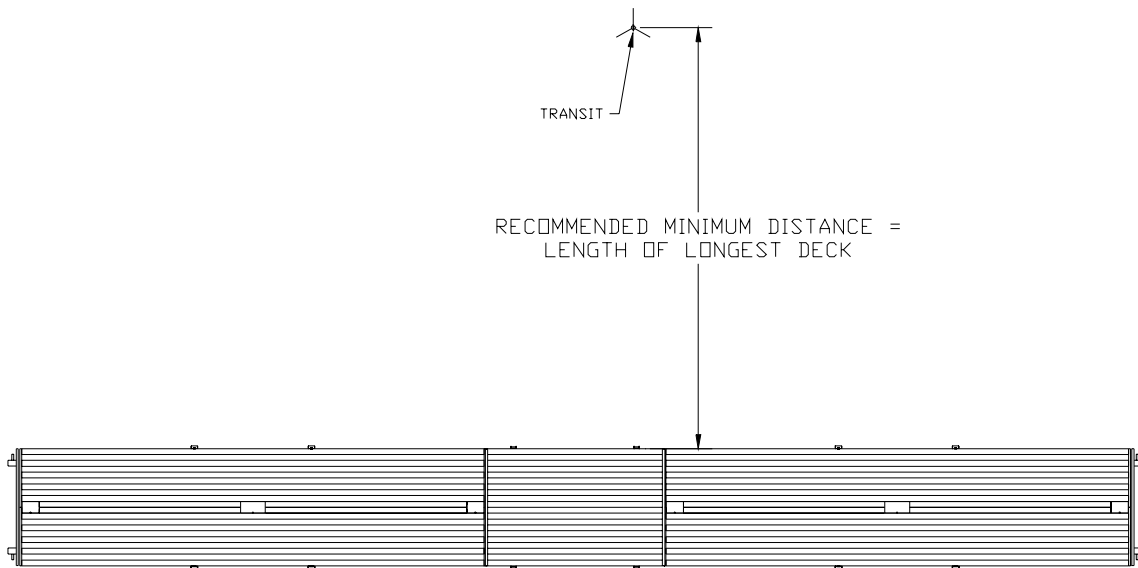


Figure 21 - Transit Set-up

Installation

Prior to installing the scale, timbers of at least 4" x 12" and as wide as the scale should be placed under the scale at each loadbar location. (See Figure 22 and Figure 23) Leveling at this point is important. The timbers should be leveled across the width and along the length of the scale. Use a 6" level to approximately level the timbers; the transit will be used in the final leveling of the scale.

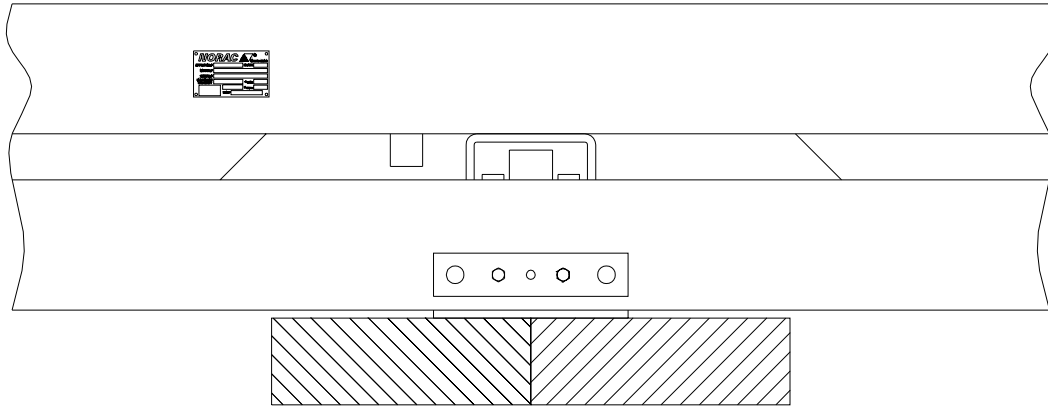


Figure 22 - Timbers under Loadbar

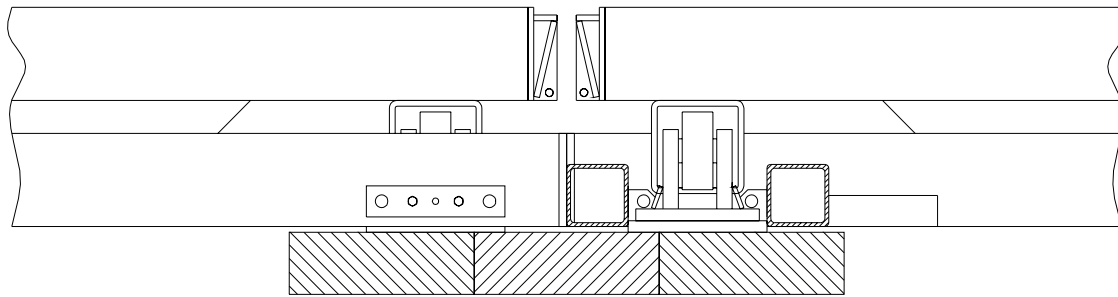


Figure 23 - Timbers under Loadbars at Scale Section Junction

Making sure there is no obstructions between the portable base frame, the scale, or any other object such as the ground or timbers, position the scale on the timbers making certain the loadbars are centered along the timbers. If your scale has more than one section, bring the other sections into place, and bolt the portable base frames together. The scale should remain level when hoisting with a crane or a front-end loader.

Final leveling of the scale must be done with metal shims of at least 18" x 18". A transit is required for this operation. Measure the elevation of the scale at each end of each loadbar and shim accordingly. At this point the scale should be loaded by driving a fully loaded truck over the scale at least five times. This will allow any settling to occur. Repeat the final leveling of the scale.

When you have your scale leveled you must check each loadbar pad location to make certain the pads and portable base frame are contacting the ground. Drive an empty truck over the scale and watch the scale and the portable base frame at each pad location. If the scale moves a large amount a pad may

not be contacting the ground firmly, you must shim that particular pad so as to remove any play in that location. When you have checked each pad location, recheck the scale for level.

The material used as backfill for the approach ramps should not be permitted to get under the scale, as it may interfere with the operation of the scale.

Electrical

After the scale has been installed and leveled the indicator can then simply be plugged into the scale. If you scale has more than one scale section the indicator wire will have multiple ends, or a “Y-cable” will be supplied. Plug each end of the indicator cable or Y-cable into the scale sections.

Sense Lines

Sense lines may be required if the scale deck is located a large distance away from the indicator (over 100 feet). Contact a NORAC sales representative for more details.

Optional Lightning Protection

If lightning protection is required for your scale, call a NORAC sales representative for more details.

Maintenance

The best way to keep your scale operating correctly is to perform regular maintenance.

Every scale should be checked with a level or transit periodically to ensure the platform is in the level position.

Check under and around the scale to see if any thing may be touching the scale. If anything has built up around or under the scale such as ice, dirt, mud or manure this must be removed. Also check all cables and connectors and replace any components that appear worn or broken.

You should have your scale checked and calibrated once a year by a Certified Scale Technician to ensure proper functioning of your *NORAC NORSTEEL™* Platform Truck Scale.

Call *NORAC* at 1-800-667-3921 for your nearest authorized service dealer.

Trouble Shooting

If you are having trouble with your Truck Scale, a few simple procedures should help you determine the possible problem.

1. The first action to take is to inspect the scale for any physical damage. Take special note of the cable and any connectors. When inspecting the cable and connectors, wiggle them around while watching the indicator display. If the readout jumps around while moving a cable or connector, this usually means that there is a short, loose or broken connection and repair or replacement is necessary.
2. Check under and around the scale to see if anything may be touching the scale. If anything has built up around or under the scale such as ice, dirt, mud or manure this must be removed.
3. If the scale readout is drifting, this is indicative of moisture being present somewhere in the circuit. Check to see if there is moisture in any of the connectors, load cells, or cables. You can also remove the cover of the junction box to check for condensation. However if your scale has a Weights and Measures seal on the junction box **DO NOT** open it. In any location where you suspect moisture is present, dry it off with a hair dryer and check to see if this solves the problem. If you find a place where moisture is collecting and causing a problem, take steps to prevent this by using a waterproof sealant.

If you cannot isolate a problem with a *NORAC NORSTEEL™* Truck Scale, contact *NORAC* Service at 1-800-667-3921.

Warranty

All *NORAC* scale products are warranted against defects due to faulty material or workmanship for a period of one (1) year. *NORAC Systems International Inc.* extends this warranty only to the original purchaser or original user.

In the event, a defect develops during the warranty period; *NORAC* will repair or replace the unit with a new or reconditioned model of equivalent quality. In order to obtain performance of any obligation of *NORAC Systems International Inc.* under the warranty, the original purchaser or original user must return the defective unit, with a written description of the complaint, freight prepaid to the manufacturer or a designated service depot. In the event of replacement with a new or reconditioned model, the replacement unit will continue the warranty period of the original unit.

NORAC Systems International shall not be liable for loss of use of the unit or the incidental or consequential damages, expenses, or economic loss, or for any claim or claims for such damage, expenses or economic loss.

Any questions with respect to the warranty should be taken up with *NORAC Systems International Inc.* at 306-664-6711.