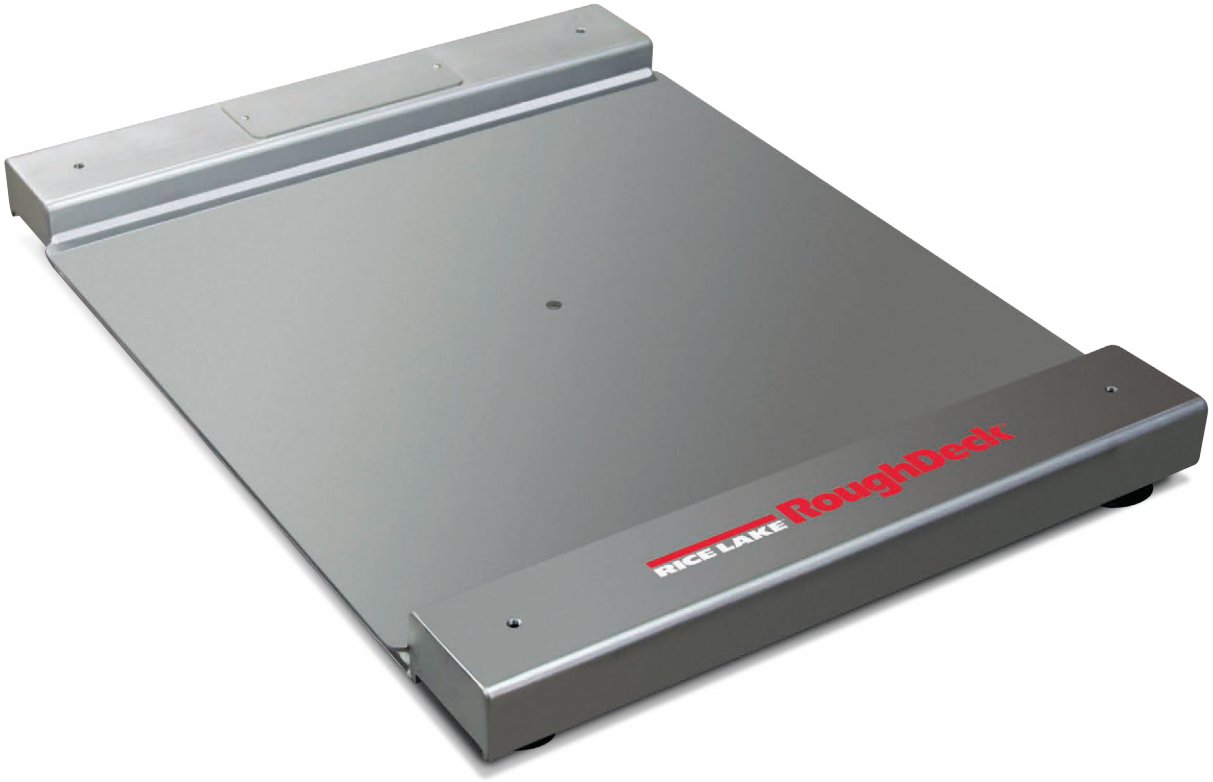
RoughDeck® BDP

Floor Scale

Installation Manual



RICE LAKE®
WEIGHING SYSTEMS

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PN 78065 Rev D

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Revision History

This section tracks and describes manual revisions for awareness of major updates.

Revision	Date	Description
C	September 4, 2025	Established revision history; Junction box cable channel updates
D	January 19, 2026	Updated grounding procedure

Table i. Revision Letter History

Contents

1.0 Introduction

Manuals are available from Rice Lake Weighing Systems at www.ricelake.com/manuals

Warranty information is available at www.ricelake.com/warranties

The RoughDeck BDP is a fully electronic, low profile load receiving barrel scale that provides exceptional performance. The RoughDeck BDP comes in two standard platform sizes and capacities from 1K- to 2.5K-lbs (500–1250 kg).

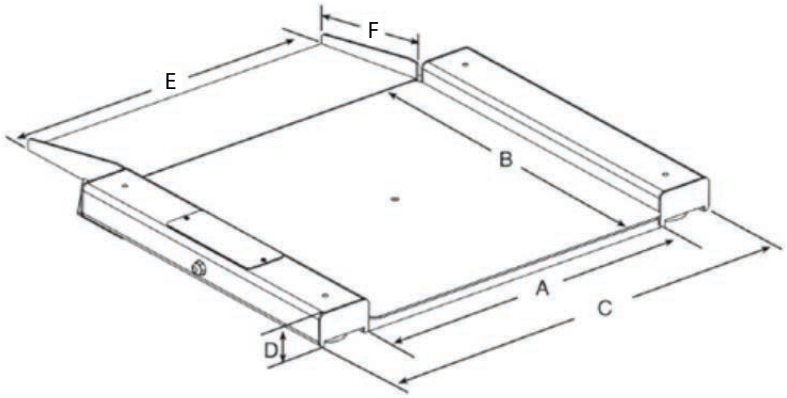

Figure 1-1. RoughDeck BDP Dimensions

Model	A	B	C	D	E	F
30 x 31	30 in 762 mm	31 in 787.4 mm	40 in 1016 mm	3.31 in 84.074 mm	30 in 762 mm	12 in 304.8 mm
36 x 37	36 in 914.4 mm	37 in 939.8 mm	46 in 1168.4 mm	3.31 in 84.074 mm	36 in 914.4 mm	12 in 304.8 mm

Table 1-1. RoughDeck BDP Dimensions

NTEP-certified, alloy steel shear beam load cells or stainless steel load cells are available with the cells recessed into the frame channels for protection. Also included is a signal-trim summing board enclosed in a durable stainless steel enclosure that has a convenient top-access for any necessary corner corrections.

Load cell cables are run through the main channels and held down with replaceable cable ties near each corner, eliminating the possibility of cable damage. The adjustable feet are used to allow leveling the scale to make up for minor floor irregularities. The threaded lifting holes double as foot adjustment holes adding to the ease of installation. Options are available for both stationary and portable applications of the RoughDeck BDP.

1.1 Model Designations

Mild Steel

Mild steel versions come equipped with the following:

- Treaded top plate
- Stainless steel NEMA 4X junction box
- Alloy steel load cells

Stainless Steel

Stainless steel versions come equipped with the following:

- Smooth top plate
- Stainless steel NEMA 4X junction box
- Stainless steel load cells

2.0 Installation

The following sections describe the correct installation procedures for installing the RoughDeck BDP.

2.1 Site Preparation

The scale must not be loaded beyond its capacity, even momentarily. Avoid areas where the scale might receive damaging side impacts from wheels or forklift tines, or shock damage from falling objects. Avoid areas where water may damage a scale not meant for a washdown environment.

The interface cable between the scale and the indicator must be protected against crushing, cutting, or moisture damage. If the chosen site has such potential dangers, some method of protection is necessary, such as running the cable in conduit.

In operation, the scale must be level within 1/4 inch. Either choose a site where the floor is close to this standard to avoid excessive shimming, or modify the floor at the chosen site to meet this standard. Use the bubble level in the center of the scale deck to determine if the scale is level.

2.2 Unpacking

Remove all packing material and visually inspect the floor scale for visible damage caused during shipment. If any parts were damaged in shipment, notify Rice Lake Weighing Systems and the shipper immediately.

The shipping container for the scale should contain the following:

- Floor scale
- Floor scale feet
- Installation manual
- Ten foot length of load cell cable

WARNING: Eye bolts must always be inserted into the top of the scale. Lifting should always occur with the top plate facing up and the eye bolts securely attached through the nuts welded to the bottom side of the top plate. Lifting from the bottom of the plate could cause nuts to break loose and the scale to fall.

All RoughDeck BDP models have four threaded eyebolt holes located in the corners of the deck to allow installation of eyebolt hooks for use when lifting the scale with chains.

Threaded holes, located in the top corners of the deck, allow for placement of removable eyebolts to lift the scale from above with chains and safely place the scale. Because of the possibility of foot and load cell damage from forklift tines, the scale should always be lifted from above with chains through the eyebolts. It's recommended to use 1/2 in-13NC eyebolts in 1K–2.5K-lb capacity scales.

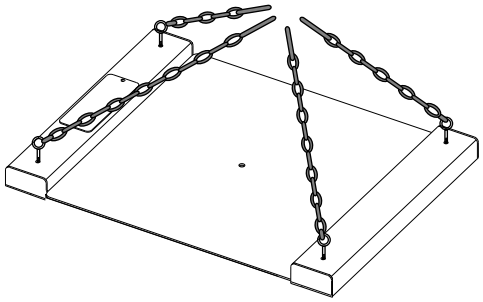

Figure 2-1. Proper Lifting Technique

2.3 Assembly

The following paragraphs give instructions for installing scale feet, anchor plate and wiring.

2.3.1 Installing and Adjusting Feet

For load cell protection during shipping, the scale feet are not installed in the floor scale.

Screw one foot into each load cell and turn all the way in until the top of the foot touches the load cell or the foot stem touches the underside of the deck. Then unscrew each foot six complete turns.

Place a spirit level on the deck. Adjust any "high" corners not in contact with the floor by further unscrewing the feet on those corners until they just contact the floor surface. When all feet are in contact with the floor, check the deck with the spirit level to be sure the scale is within 1/4 inch of level or use the bubble level located in the center of the deck.

2.3.2 Junction Box Wiring

Ten feet of 6-wire cable to connect the scale to the weight indicator is supplied with each scale. The junction box is easily accessible through a top access plate located on the top of the RoughDeck BDP. Use the following steps to wire up the junction box:

1. Remove the two screws using an 1/8 inch allen wrench to remove the scale junction box cover plate.
2. Slide the junction box assembly out of the deck.
3. Open and remove the top of junction box.
4. Push the cable end into the junction box through a cord grip.
5. Connect the wires to the indicator terminal (Figure 2-2) as shown in Table 2-1.
6. Pull out excess cable and tighten the cord grip to hold the cable snugly.

Cable Color Code	Junction Box
Red	+ Excitation
Black	- Excitation
Green	+ Signal
White	- Signal

Table 2-1. Junction Box Connections

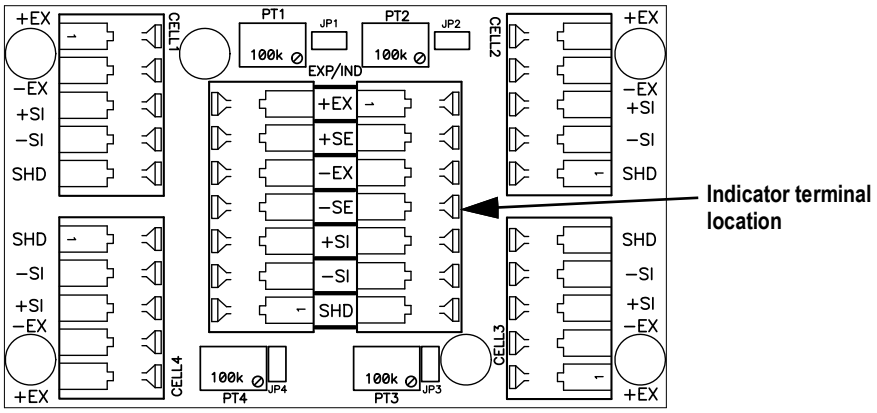

Figure 2-2. Junction Box Wiring Diagram

For permanent installations it's desirable to have the cable routed to the indicator in a manner that will protect the cable from damage. This method of cable protection in non-washdown applications is shown in Figure 2-3.

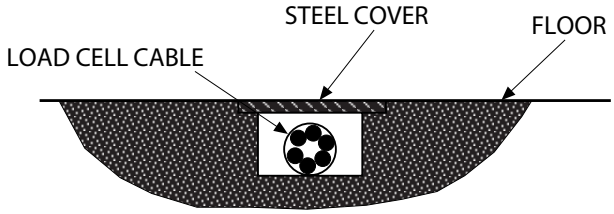

Figure 2-3. Load Cell Protection

7. When the interface cable is protected and in its final position, complete connections to the indicator. See the indicator installation manual for wiring information.
8. If necessary, trim corners as described in Section 3.2 on page 12.
9. Check all strain relief fittings for tightness.
10. Put the cover back onto the junction box assembly and place the junction box back in the scale.
11. Secure the scale junction box cover plate.

2.3.2.1 Electrical Grounding

Rolling or wheeling loads onto the scale can build up large static charges that may damage the attached indicator unless it is properly grounded to prevent ESD. This is especially true in dry environments where charges drain off slowly, or if wheeling on materials which already contain a static charge, like rolls of paper or plastic film material that have been recently spooled.

For permanent installations where the scale is connected to a 115 VAC circuit, the indicator must be directly connected to an earth ground with a ground interface cable of no more than 3 Ohms of resistance throughout its length.
For portable applications, ground by plugging the indicator into a grounded outlet, ensuring that there is no more than 3 Ohms of resistance throughout its length.

IMPORTANT: To prevent ESD damage, the indicator requires a three-prong 120 VAC outlet plug with continuous earth ground. Do not attempt to use the scale with two-prong 120 VAC power without a ground.

If using the scale with an intrinsically safe indicator, refer to FM control documents for proper grounding procedure.

2.4 Optional Installations

The following sections give instructions for installing optional features.

2.4.1 Anchor Plate

For permanent applications with no access ramps the scale should be secured to the floor to prevent sideways movement. Two mild steel, floor anchor plates with holes that slightly exceed the foot diameter are available as an option for that purpose. Use the following steps to install floor anchor plates:

1. Lift the scale so that the feet are approximately one inch off the floor.
2. Slide mounting plates under two diagonally opposed feet.
3. Lower the scale back to the floor, and position the plates as shown in Figure 2-4 so that the boltdown holes are accessible from above.
4. Using the mounting plates as templates, drill pilot holes into the floor for suitable anchor bolts. Bolt the plates to the floor using 1/2 inch anchor bolts.
5. Recheck foot adjustment and deck level after this operation.

NOTE: For installations using access ramps, mounting plates are not necessary as the ramps have built-in mounting plates to secure the scale feet.

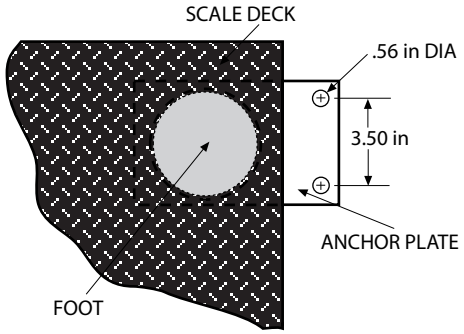

Figure 2-4. Optional Anchor Plate Installation

2.4.2 Access Ramps

Optional access ramps for the RoughDeck BDP barrel scale come in both mild steel and stainless steel versions and have a standard treaded plate. They are designed to bolt to the floor, with built-in mounting plates that surround the scale feet. When used with anchored access ramps, side movement of the scale is automatically eliminated, and no other mounting plates are necessary.

Access ramps can only be installed to the scale on one of the two scale sides that are opposite the side rails (see Figure 2-5).

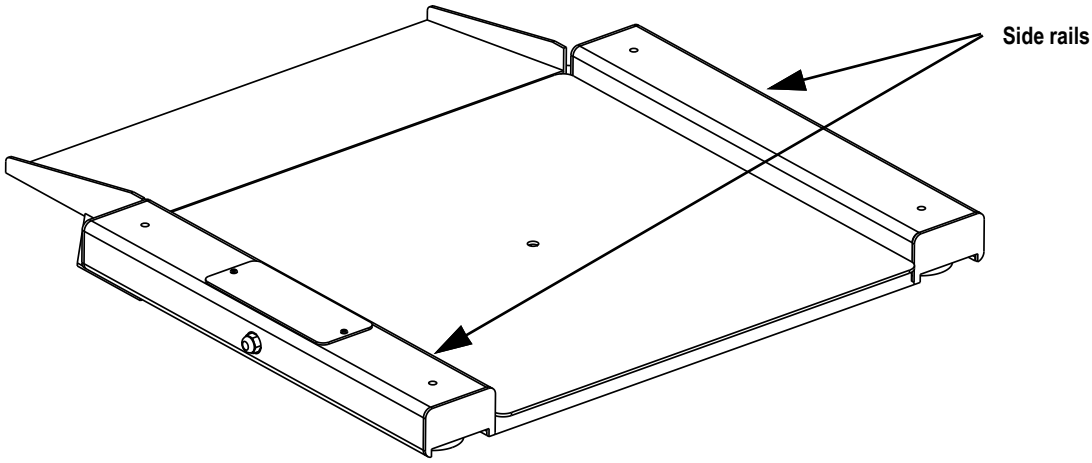

Figure 2-5. Optional Access Ramp

2.4.3 Backstop

The optional backstop may be attached with the screws from the hardware kit to block weight from falling off one side of the RoughDeck BDP (see Figure 2-6).

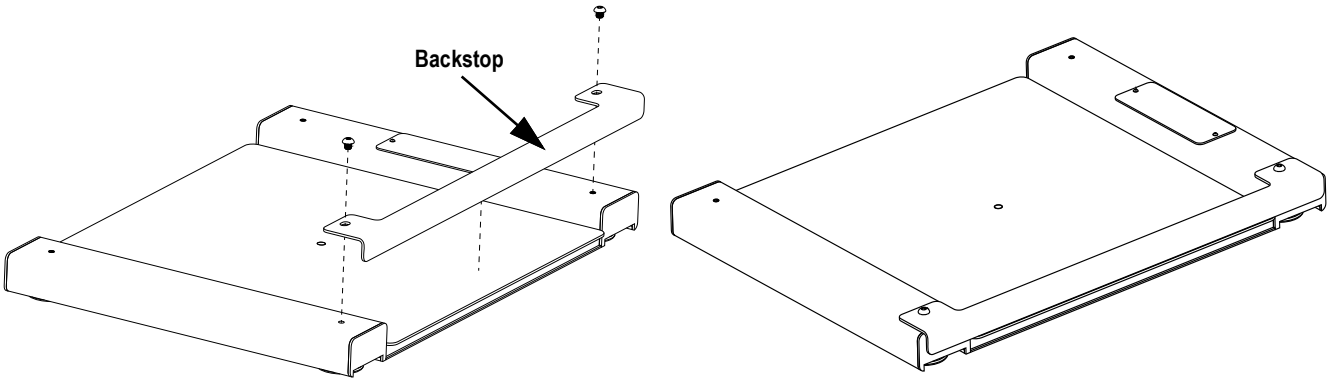

Figure 2-6. Optional Backstop

2.4.4 Portability Frame

The RoughDeck BDP has a portability frame option, which makes the RoughDeck BDP easy to move from place to place. The portability frame is compact and sits below the live side rails so it will not interfere with weighing pallets or larger items. The frame contains casters, indicator stand, and mounting hardware. Due to the wheel lever design, the wheels will not interfere with larger items.

WARNING: Do not use casters to transport a load. When lifting or lowering the casters, assist by lifting the end of the scale with one hand while operating the toggle with the other.

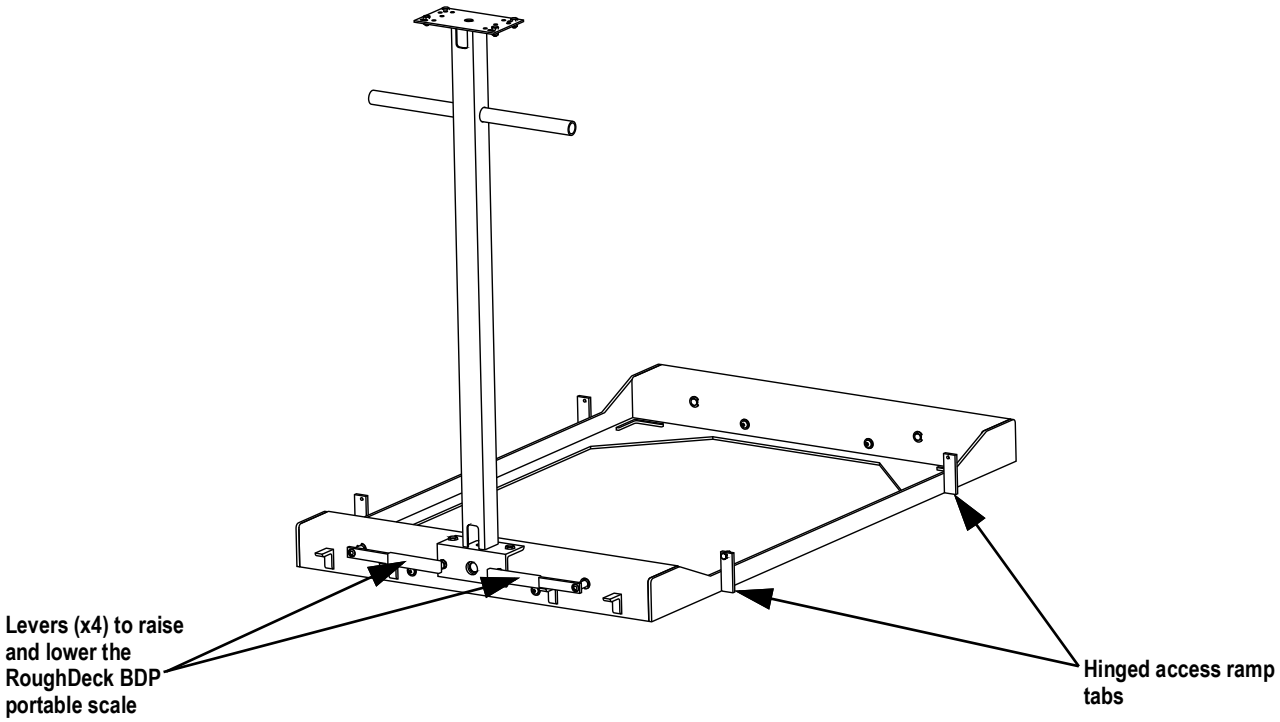

Figure 2-7. Portability Frame Kit Diagram

The RoughDeck BDP scale fits inside of the portability frame. Refer to Figure 2-1 on page 6 for the proper lifting technique when setting the scale into the portability frame or removing it out of the frame. Four levers located on the sides of the portability frame are used for raising or lowering the portability frame for movement.

To lower the frame into a stationary position, engage the levers on the sides of the portability frame and lower them down. This lever action will drop the entire frame down onto the floor making the frame and scale stationary.

To raise the scale so that it can be moved, engage the levers on the sides of the portability frame and raise them up. This will raise the entire frame and then the scale can be easily moved from one location to the next.

2.4.4.1 Wire Routing

The portable RoughDeck BDP indicator stand has two holes to route cabling through. Perform the following instructions to route cabling from the junction box to the indicator:

1. Insert the loose end of the junction box cable into hole A (see Figure 2-8).

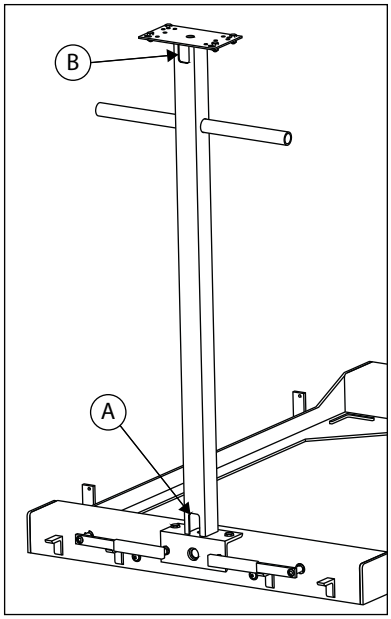

Figure 2-8. Wiring Hole Locations

2. Thread cable into hole A until the cable is visible through hole B.
3. Carefully pull the cable out of hole B.
4. Remove the back cover of the indicator.
5. See the indicator installation manual for wiring information.
6. If necessary, trim corners as mentioned in Section 3.2 on page 12.
7. Check all strain relief fittings for tightness.
8. Put the cover back onto the junction box assembly.
9. Place the junction box back in to the scale.
10. Secure the scale junction box cover plate.

2.4.4.2 Hinged Access Ramps for Portability Frame

Optional hinged access ramps are available with the portability frame. The RoughDeck BDP's low profile design allows the ramps to sit flush with the ground eliminating a speed bump, yet hinged so the operator can rest them on the scale's surface when moving the scale. Ramps come in either mild steel or stainless steel. The hinged access ramps attach to the portability frame by attaching them to the access ramp tabs (as shown in Figure 2-7 on page 10), with 1/4-20 bolts and nuts.

3.0 Calibration

The following sections describe adjustments that need to be made to the RoughDeck BDP barrel scale.

3.1 Mechanical Adjustments

To accommodate minor floor unevenness, the scale feet can be used to adjust scale height up or down a fraction of an inch. Adjust the feet by hand or with a screw driver until all feet are contacting the floor equally. No jam nuts are supplied for locking the feet, as there is a slight decrease in accuracy when jam nuts are tightened. However, if you feel that your application requires you to secure the feet, we suggest using Teflon® tape or Loctite®.

When adjusting scale feet, use care to prevent the scale foot from bottoming out against the underside of the load cell. Also, the foot stem can be damaged by bending or stripping threads if extended beyond the maximum height adjustment.

When height adjustments are complete, recheck the bubble level located in the center of the deck. The scale deck must be level within 1/4 inch.

3.2 Corner Correction

Corner trimming is necessary after replacing a load cell. To calibrate the scale, the output from each load cell must be matched by adjusting the signals with potentiometers in the junction box—a process known as trimming.

Remove the junction box cover and identify the correct load cell terminal corresponding to each corner (labeled CELL 1, CELL 2, and so on). See Figure 4.2 on page 14 for scale deck corner numbering.

The indicator must be connected and calibrated approximately, but it need not indicate the exact weight value. A test weight is required. The recommended test weight for all RoughDeck BDP models is 25% of scale capacity; for example, 250 lbs for 1K-lb models, 650 lbs for 2.5K-Lb models.

With no weight on the scale, zero the indicator. Then turn all four potentiometers (Figure 3-1) clockwise to increase the reading until a clicking sound is heard from each potentiometer. This ensures the maximum signal from each load cell.

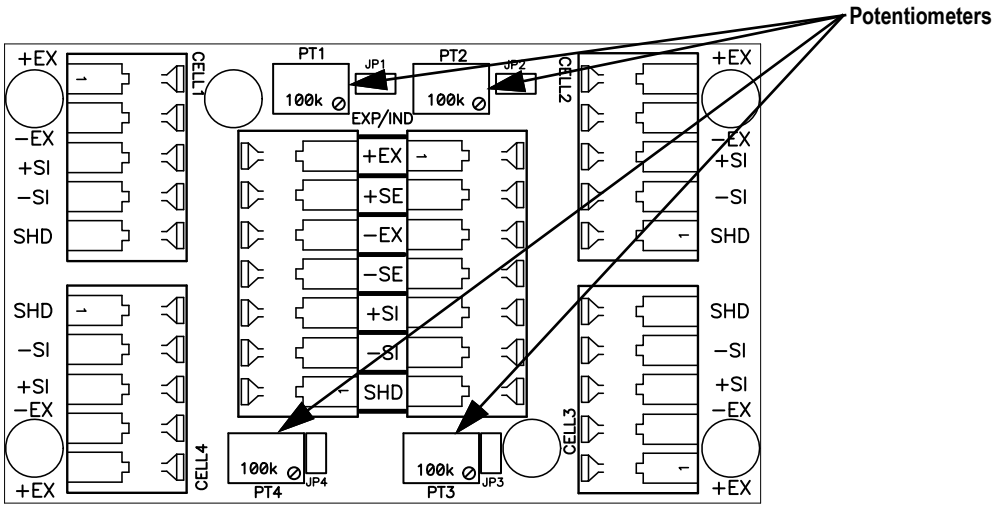

Figure 3-1. Summing Board Diagram

With all potentiometers at full signal, place the test weight over one corner and record the indicated weight. Repeat the process for each of the other three corners. The load cell with the lowest corner reading is used as a reference point and will not be trimmed.

Next, place the test weight over one of the other three corners and use that cell's potentiometer to adjust the cell output down to the reference cell output. Repeat this procedure with the other two high corners.

Adjustments are somewhat interactive, and adjusting the three higher outputs may affect the reference cell output, especially in smaller scale decks. Rezero the indicator and repeat the test until all corners read within ±0.1% of the test weight used.

3.3 Calibration Procedure

Refer to the indicator manual to determine correct calibration procedures.

It is recommended that the scale be “exercised” before calibration to be certain that everything is seated. Use the following steps:

1. Load the scale to near capacity two or three times.
2. With no load on the scale, place the indicator in its calibration mode and perform a zero calibration.
3. Place test weights on the platform equal to 70% - 80% of the scale’s capacity. If several weights are used, they should be evenly distributed around the platform. Perform a span calibration.
4. Remove the test weights and check the zero reading.
5. Repeat the calibration process if necessary.

4.0 Maintenance

The following sections describe basic service and maintenance procedures.

4.1 Troubleshooting Guide

Table 4-1 lists some of the common problems and their suggested solutions.

Problem	Symptom Description	Solution
System does not operate - no display	Power disconnected	Check and reconnect
	Indicator fuse blown	Replace the fuse. Check for cause
	Interface cable cut or disconnected	Repair
	Signal leads incorrectly installed at the indicator	Install according to indicator installation manual
Display stays at zero	Load cell connections faulty	Check cable connections in junction box and at indicator
	Indicator faulty	Service indicator
Erratic weight readings	Vibration near scale	Remove source of vibration or move scale
	Platform not level to within 1/4 inch	Level scale by adjusting feet or shimming if necessary
	Load cell or cable water damage	Replace
	Debris under load cells or platform	Clean
	Indicator faulty	Use simulator to test indicator for stability. Service indicator
Consistently high or low weights	Indicator not properly adjusted to zero	Zero the indicator according to the indicator manual
	Platform binding	Obtain adequate clearance for free platform movement
	Indicator not calibrated	Calibrate according to indicator manual and Section 3.3 on page 13
	Load cells faulty	Test and replace load cells if necessary
	Feet touching deck underside	Adjust feet downward to provide clearance

Table 4-1. Troubleshooting Table

4.2 Periodic Maintenance

The space between the platform side, the portable deck assembly and the surface beneath the platform must be cleaned frequently to prevent debris build up. Do not attempt to use scales with load cells that are not hermetically-sealed in washdown applications. Water damage is a common cause of failure in non-hermetically-sealed load cells. Use care with high pressure steam washdowns for hermetically-sealed load cells. The steam may not damage the load cells, but the elevated temperatures may cause incorrect readings until the unit cools to room temperature.

4.3 Load Cell Replacement

Lift the scale with a chain and remove foot, then remove the defective load cell. Disconnect load cell cable from the junction box and cut cable ties. When the cable is freed, pull cable out of the scale frame channels.

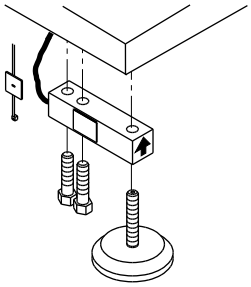

Figure 4-1. Load Cell Assembly

Follow the steps below to install new load cells.

1. Lay out the four load cells near the corners where they are to be installed.
2. Thread the cable from each load cell in the frame and into the junction box according to the wiring diagram in Figure 4-2 on page 15.

NOTE: Both the scale and the junction box are viewed from the bottom. To verify correct load cell/junction box terminal matching, see the numbers on the terminals inside the junction box and the corner numbering diagram in Figure 4-4 on page 16.

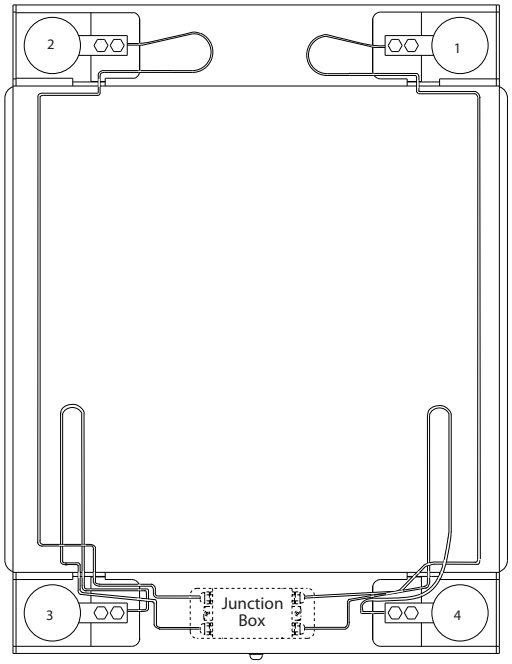

Figure 4-2. Bottom View of Scale

3. Check that the threaded holes for the load cell screws are free of debris. Use compressed air to blow out holes if necessary.
4. Position load cells with alignment arrows pointed up toward the deck and loosely install the hex head cap screws provided, as shown in Figure 4-1 on page 15. If the base is used with an access ramp, position the load cell to maintain the dimension shown in Figure 4-3 on page 16. With the torque wrench, tighten all bolts to 75 ft-lbs.

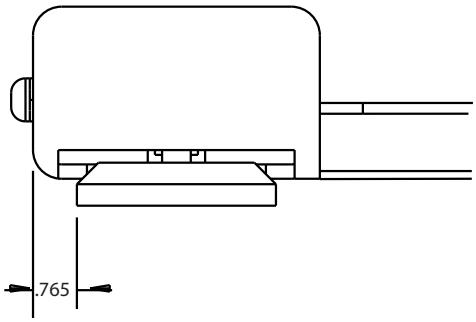

Figure 4-3. Foot Pad - Side View

5. Route the load cell cables near each corner so that the cable is free from possible contact with each foot. Hold the cable in position with the supplied adhesive-backed cable ties.

NOTE: Do not cut load cell cables. Coil the extra cable and slide it into the scale between the top and bottom plates. A slot in the main channel is provided for this purpose.

6. After coiling excess cable, pass each individual end of load cell cable through its grommet in the junction box.

NOTE: Corner correction trimming and calibration is necessary after load cell replacement. Follow instructions in Section 3.0 on page 12.

4.3.1 Load Cell Wiring to Junction Box

The four load cells are each wired to their respective terminals in the junction box according to the corner numbering system shown in Figure 4-4, and the coloring code in Table 4-2.

Pull excess cable out of the junction box enclosure and tighten the cable grips with a wrench. To be watertight, the cable grips must be tightened to the point where the rubber sleeving begins to protrude out of the hub. Finally, pull on each of the four cables to make sure that they do not slip.

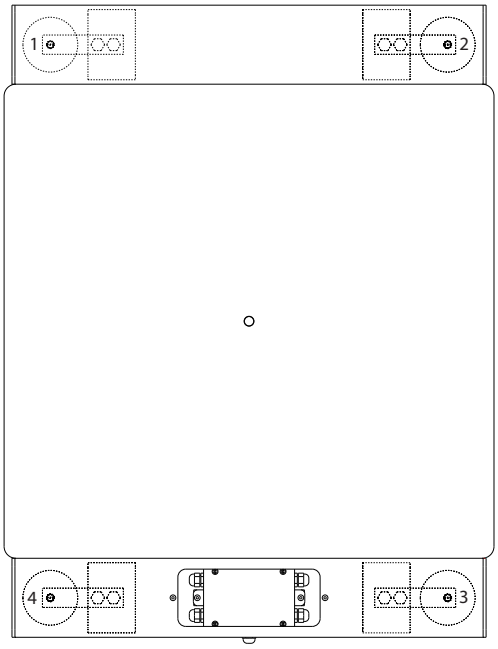

Figure 4-4. Corner Numbering - Top View of Scale

Cable Color Code	J-Box Terminal
Red	+Excitation
Black	-Excitation
Green	+Signal
White	-Signal
Bare or Clear	Shield

Table 4-2. Load Cell Wiring

5.0 Specifications

End Load Capacity
1,000 lb: 100% full scale
2,500 lb: 80% full scale

Cable Length
10ft (3m)

Scale Weldment
AISI304L, glass bead blasted for even appearance

Junction Box
TuffSeal® JB4SS stainless steel, NEMA Type 4X junction box with signal trim card

Welding
Stitch, consult factory if continuous is required

Threaded Eyebolt
Holes are 1/2-13 threaded for lifting scale

Warranty (limited)
Weldment: Five-year
Load cells: Two-year
All other components: One-year

Approvals

NTEP
CC 03-060
Class III 2,500 d

Measurement Canada Approved

Measurement Canada
AM-5578
(500 kg) Class III 2,500 d
(1,000 kg) Class III 2,000 d

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