RoughDeck® PW-1

Low Profile Floor Scale

Installation Manual

RICE LAKE
WEIGHING SYSTEMS

PN 179344

Contents

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1.0 Introduction

RoughDeck® floor scales are fully electronic, low profile load receivers. The *RoughDeck PW-1* is available in mild or stainless steel in sizes 48" x 48" (1.2 m x 1.2 m), 48" x 60" (1.2 m x 1.5 m), 60" x 60" (1.5 m x 1.5 m) and capacities of 2500 lb or 5000 lb (1000 kg or 2500 kg).

All models use four corner-mounted, FM-approved load cells, with the cells recessed into the frame for protection. The load cell cables are enclosed and held down with replaceable cable ties near each corner, eliminating the possibility of cable damage. A signal-trim summing board for any necessary corner corrections is enclosed in a stainless steel NEMA Type 4X junction box.

A wheel kit option is available for portable applications or the scale can be moved by lifting it with a chain through the eye bolts in the end of the unit. The eye bolts can be removed once the scale is in place.

Adjustable feet are used for leveling the scale to compensate for minor floor irregularities. For permanent installations, two of the four feet can be held in place with optional floor mounting plates to guard against deck movement.

See Section 4.3.4 on page 10 for replacement part and optional equipment part numbers.

1.1 Safety

Safety Signal Definitions:

DANGER *Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. Includes hazards that are exposed when guards are removed.*

WARNING *Indicates a potentially hazardous situation that, if not avoided could result in serious injury or death. Includes hazards that are exposed when guards are removed.*

CAUTION *Indicates a potentially hazardous situation that, if not avoided, could result in minor or moderate injury.*

Important *Indicates information about procedures that, if not observed, could result in damage to equipment or corruption to and loss of data.*

General Safety

Do not operate or work on this equipment unless this manual has been read and all instructions are understood. Failure to follow the instructions or heed the warnings could result in injury or death. Contact any Rice Lake Weighing Systems dealer for replacement manuals.

WARNING

Failure to heed may result in serious injury or death.

Ensure every individual operating or working with this unit has read and understands the following safety information.

Do not allow minors (children) or inexperienced persons to operate this unit.

Do not operate without all shields and guards in place.

Do not jump on the scale.

Do not use for purposes other than weight taking.

Do not place fingers into slots or possible pinch points.

Do not use any load bearing component that is worn beyond 5% of the original dimension.

Do not use this product if any of the components are cracked.

Do not exceed the rated load limit of the unit.

Do not make alterations or modifications to the unit.

Do not remove or obscure warning labels.

Do not use near water.

Keep hands, feet and loose clothing away from moving parts.

1.2 Operating Requirements

Electrical Grounding

For systems 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 Ω resistance throughout its length.

Load Cell Excitation

Rated Excitation: 10 VDC, Maximum Excitation: 15 VDC.

Grade Level Requirements

The supporting surface for the four feet of the scale must be level within 1/4" of horizontal.

Nominal Scale Height

2500 lb to 5000 lb (1000 kg to 2500 kg) models: 3.0" to 3.5" (76mm to 89 mm).

2.0 Installation

2.1 Overview

Standard installation of the *RoughDeck PW-1* floor scale consists of the following steps:

1. Select a site.
2. Ensure the site is level and smooth.
3. Unpack the scale.
4. Install the mounting plates to the floor, if used.
5. Connect the cable from the junction box to the indicator.
6. Calibrate the unit.

2.2 Site Preparation

Consider the following when choosing a site for the *RoughDeck PW-1*.

- Select a site where overweight loads can maneuver easily without crossing the platform
- Avoid areas where damage could occur from side impacts of wheels or forklift tines
- Avoid areas where falling objects could cause shock damage
- Avoid areas where water may damage a scale not meant for a washdown environment
- The scale must be level within 1/4" of horizontal
- The interface cable between the scale and the indicator must be protected against crushing, cutting and moisture damage

Important

The scale must not be loaded beyond capacity, even momentarily.

Choose a site where the floor is level to 1/4" to avoid excessive shimming. The floor may require modification if unable to select an area up to this standard.

If the chosen site has potential dangers to cable integrity, some method of protection, such as running the cable in conduit, is required.

2.3 Unpacking

Remove all packing material and inspect the scale for damage possibly caused during shipment. Contact Rice Lake Weighing Systems and the shipper immediately if there is damage to the scale.

All *RoughDeck PW-1* models have eye bolts in the end of the deck for use when lifting the scale with chains and a spreader bar.

Important ***Lift the scale only with a properly designed spreader bar as shown in Figure 2-1. Lifting force must be vertical to avoid bending the eye bolts.***

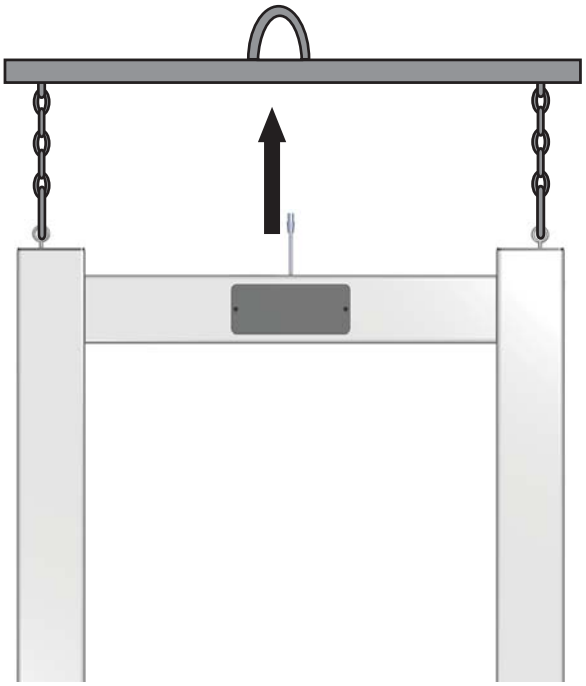

Figure 2-1. Proper Lifting Technique

2.4 Assembly

The following sections describe the assembly of the components of the *RoughDeck PW-1* scale.

2.4.1 Adjusting Feet

The scale feet are shipped detached from the load cells for load cell protection during shipping. The feet are secured to the shipping pallet along with the load cell cable and product literature.

1. Unpack all parts.
2. Ensure each foot is screwed in until the foot touches either the load cell or the underside of the deck; then, unscrew each foot three complete turns.
3. Place a spirit level on the deck.
4. Adjust corners not contacting the floor by unscrewing the feet on those corners until they just contact the floor surface.
5. When all the feet are in contact with the floor, check the deck with the spirit level to ensure the scale is within 1/4" of level.

2.4.2 Mounting Plate Installation

The scale should be secured to the floor to prevent sideways movement for permanent applications. Two optional mounting plates, with holes slightly exceeding the foot diameter, are available for that purpose.

1. Lift the scale until the feet are approximately 1" off the floor.
2. Slide the mounting plates under two diagonally opposed feet.
3. Lower the scale back to the floor and position the plates as shown in Figure 2-2 with the boltdown holes

accessible from above.

4. Use the mounting plates as a templates and drill pilot holes into the floor for suitable anchor bolts.
5. Bolt the plates to the floor using 1/2" anchor bolts.
6. Recheck foot adjustment and deck level.

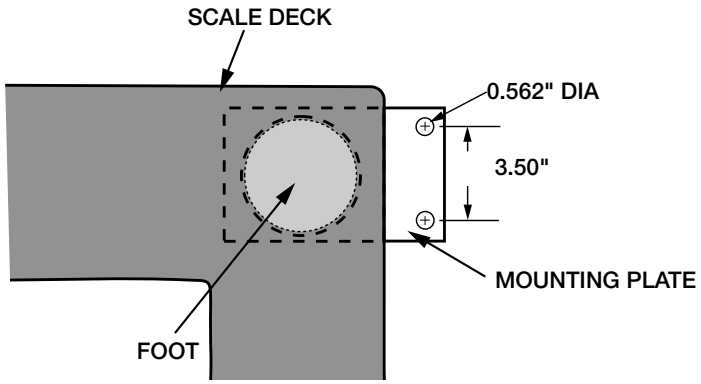

Figure 2-2. Mounting Plate Installation

2.5 Electrical Interface to the Indicator

Each scale is supplied with 20' of 6-wire cable with a 6-pin connection at one end. The corresponding receptacle connector is on the short cable coming from the junction box at the top end of the scale To connect the two cables:

1. Plug the pin end from the indicator cable into the receptacle end of the junction box cable.
2. Push the outer band on the pin connector toward the receptacle connector.
3. Turn the band one quarter to one half turn until it is finger-tight to secure the connectors together. The cables are correctly connected if the connectors do not come apart when pulled gently.

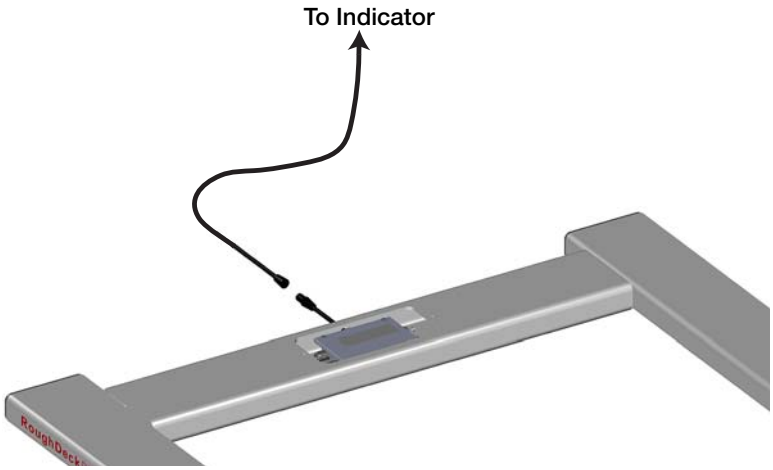

Figure 2-3. Scale Connection to Indicator

Figure 2-4. Quick Connectors

3.0 Adjustments and Calibration

3.1 Mechanical Adjustments

Jam nuts are not supplied for locking the feet due to a slight decrease in accuracy when the jam nuts are tightened. If the scale application requires jam nuts to secure the feet, they may be added. The feet must be unscrewed beyond the minimum height to allow room for the jam nuts between the foot pads and the load cells.

Adjust the Feet

1. Slightly lift the scale corner of the foot needing adjustment with a pry bar.
2. Turn the foot until it is contacting the floor
3. Repeat as needed until all feet are contacting the floor equally.
4. When height adjustments are complete, check level of the deck with a spirit level. The deck must be level within 1/4".

Important ***When adjusting the scale feet, prevent the scale foot from bottoming out against the underside of the load cell. In addition, the foot stem may be damaged by bending or stripping threads if extended beyond the maximum height adjustment.***

3.2 Corner Corrections

All *RoughDeck* scales are delivered with the junction box corner-trimmed; however, corner trimming is necessary after replacing a load cell.

For this process, the indicator must be connected, calibrated and indicate an approximate weight value; an exact weight value is not necessary. A test weight of 25% of scale capacity recommended for this procedure.

Example: 500 lbs for 2000 lb models, 5000 lbs for 20,000 lb models.

1. Remove the junction box cover and identify the correct load cell terminal corresponding to each corner, labeled CELL 1, CELL 2, CELL 3 and CELL 4. See Figure 4-2 on page 9 for scale deck corner numbering.
2. With no weight on the scale, zero the indicator.
3. Turn all four potentiometers (shaded areas of Figure 3-1) until a clicking sound is heard from each potentiometer. This ensures the maximum signal from each load cell.
4. Place the test weight on one corner and record the indicated weight.
5. Repeat Step 4 for each of the other three corners. The load cell with the lowest corner reading is used as the reference point and will not be trimmed.

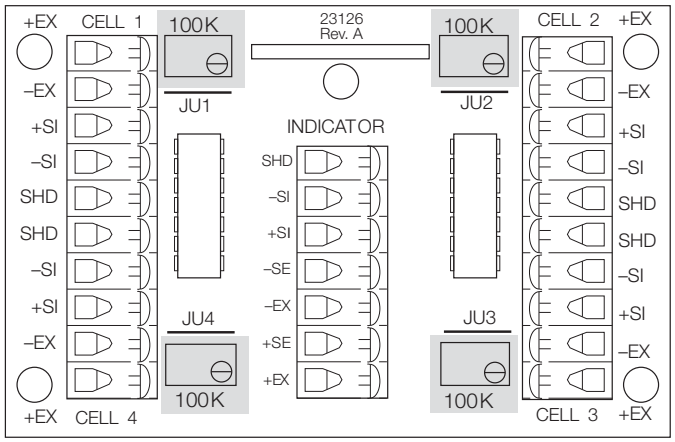

Figure 3-1. Potentiometers

6. Place the test weight on one of the other three corners and use that load cell's potentiometer to adjust the load cell output down to the reference cell output.
7. Repeat Step 6 with the other two high output 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 the scale be exercised before calibration to ensure everything is seated.

1. Load the scale to near capacity two or three times.
2. With no load on the scale, place the indicator in 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, distribute them evenly around the platform.
4. Perform a span calibration.
5. Remove the test weights and check the zero reading.
6. Repeat the calibration process, if necessary.

4.0 Service information

4.1 Troubleshooting

Issue	Cause	Solution
System does not operate No display	Power disconnected	Check and reconnect
	Indicator fuse blown	Replace fuse; check for cause
	Interface cable cut or disconnected	Repair
	Signal leads incorrectly installed at indicator	Install according to indicator installation manual
Display remains at zero	Indicator defective	Service indicator
	Load cell connections defective	Check cable connections in junction box and at indicator
Erratic weights	Vibration near scale	Remove source of vibration or move scale
	Platform not level to withiin 1/4''	Level scale by adjusting feet or shimming if necessary
	Water damage to load cell or cable	Replace
	Debris under load cells or platform	Clean
	Indicator defective	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 indicator manual
	Platform binding	Obtain adequate clearance for free platform movement
	Indicator not calibrated	Calibrate according to the indicator manual and Section 3.3 on page 7
	Load cells defective	Test and replace defective load cells
	Feet touching deck underside	Adjust feet downward to provide clearance

Table 4-1. Troubleshooting

4.2 Periodic Maintenance

The space beneath the platform must be periodically cleaned to prevent debris build up.

Important ***Do not attempt to use scales with load cells not hermetically sealed in washdown applications. Water damage is a common cause of failure in non-hermetically-sealed load cells***

Use care when using high pressure steam washdowns for hermetically-sealed load cells. The steam may not damage the load cells, however, elevated temperatures may cause incorrect readings until the unit cools to room temperature.

4.3 Load Cell Replacement

4.3.1 Remove Load Cell

1. Lift scale with chains and a proper spreader bar. See Figure 2-1 on page 4.
2. Remove the defective load cell.
3. Remove the foot from the load cell.
4. Disconnect the load cell cable from the junction box and cut the cable ties.
5. Pull the cable out of the scale frame channels.

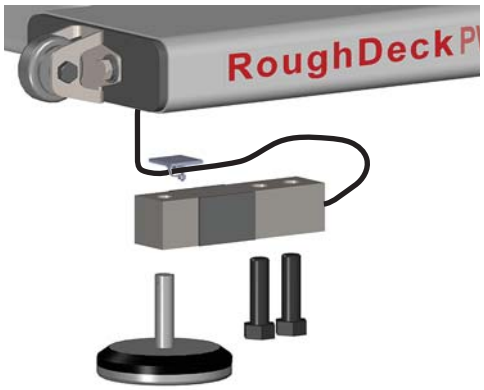

Figure 4-1. Load Cell Assembly

4.3.2 Install Load Cell

1. Set the new load cell near the corner it is to be installed.
2. Thread the cable from the load cell through the conduit tubing in the frame to the junction box according to the wiring diagram in Figure 4-2.

Note ***Figure 4-2 displays both the scale and the junction box as 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 4-2.***

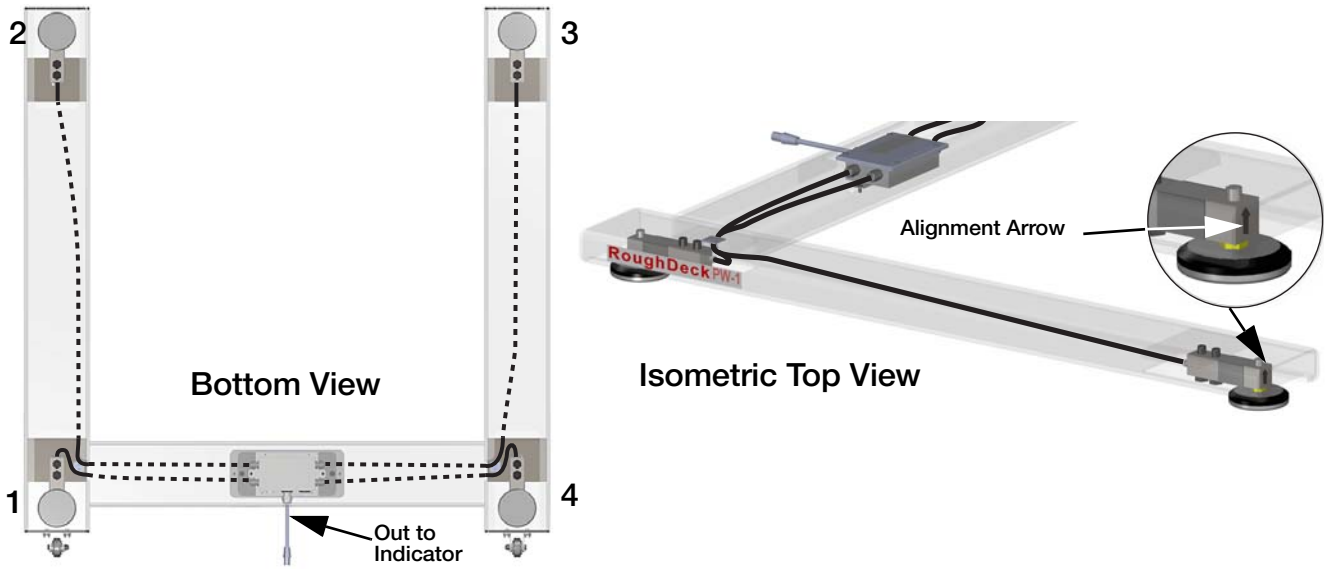

Figure 4-2. Load Cell Wiring Diagram

3. Ensure the threaded holes for the load cell screws are free of debris. Use compressed air to clear the holes, if necessary.
4. Position the load cell with alignment arrow pointing up toward the deck and loosely install the provided hex head cap screws.
5. Tighten all bolts with a torque wrench to 75 ft-lb (2500 to 5,000 lb capacity scales).
6. Route the load cell cable near each corner so the cable is free from possible contact with each foot.
7. Hold the cable in position with the adhesive-backed cable ties supplied in the hardware kit.

Important ***Do not cut the load cell cables. Coil extra cable before it enters the junction box, tie with cable ties, and insert the coils into the channel near the junction box.***

8. Pass each individual end of load cell cable through its grommet in the junction box cover (or through cable fittings in the NEMA Type 4X junction box).
9. Corner correction trimming and calibration is necessary after load cell replacement. Follow the instructions in Section 3.2 on page 6 and Section 3.3 on page 7.

4.3.3 Load Cell Wiring to the Junction Box

The four load cells are each wired to their respective terminal in the junction box in accordance with the corner numbering system shown in Figure 4-2, and the coloring code in the load cell specifications.

When using the NEMA Type 4X stainless steel junction box with strain relief hubs:

1. Pull the excess cable out of the junction box enclosure.
2. Tighten the strain relief hubs with a wrench.
   To be watertight, the hubs must be tightened to the point where the rubber sleeving begins to protrude out of the hub.
3. Pull on each of the four cables to ensure they do not slip.

Note ***See load cell specifications for proper color code wiring information.***

4.3.4 Replacement Parts List and Accessories

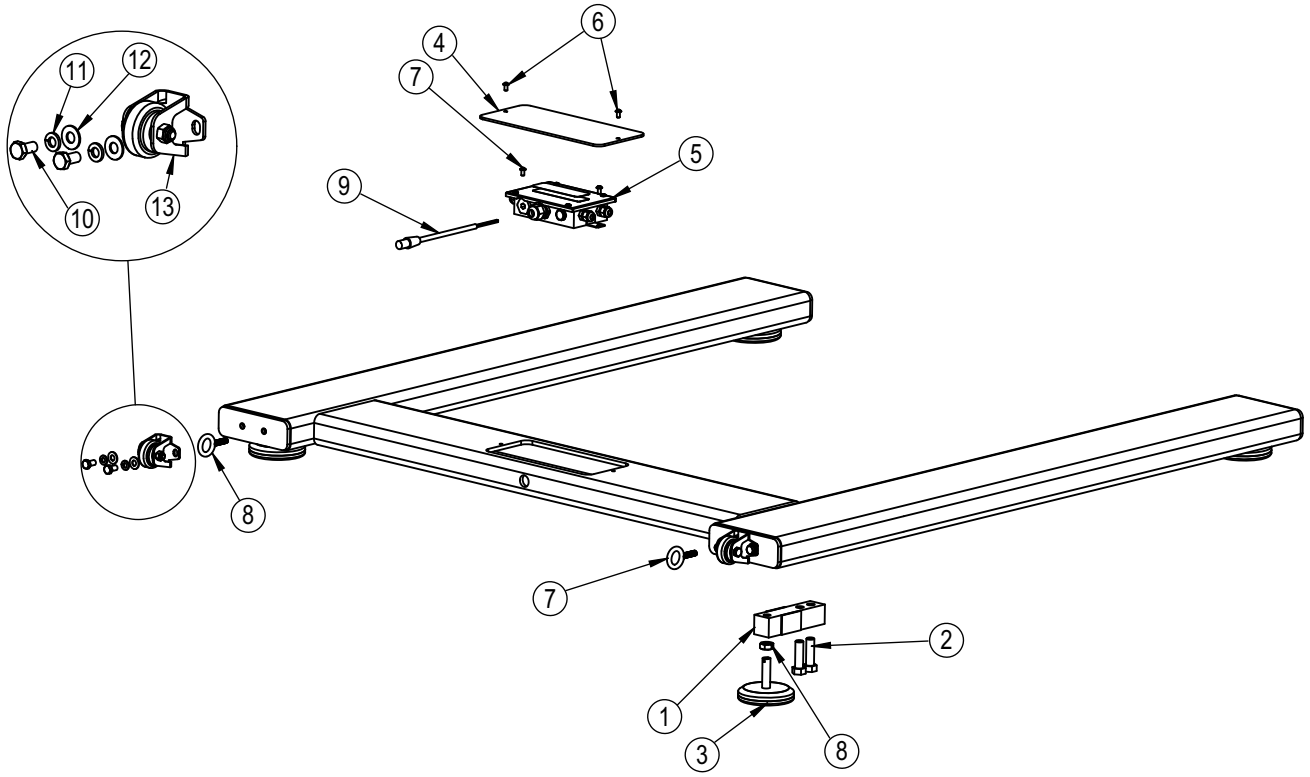

Figure 4-3. RoughDeck PW-1 Parts Diagram

Item No.	Part No.	Description	Qty
1	21528	Load Cell, SEB RL35023-N5-1K	4
2	30532	Screw, Cap 1/2-20NF x 1.719	8
3	18756	Foot, Floor Scale, Surefoot™	4
4	178086	Cover Plate, junction box	1
5	99381	Junction box, JB4SS 4 Channel Signal Trim With Plug, Stainless Steel Nema 4X	1
6	14932	Screw, Cap 10-32NF X 3/8 Hex Socket Button Head: Alloy Steel Black Oxide	4
7	178613	Eyebolt, 5/16-18NC X 1-1/8 Shank, 900 lb Steel Zinc Plated	2
8	14664	1/2-20 NF Jam Nut	4
9	179100	Cable Assy, Mini Conx Fem w/9'' EL146 HE Survivor Cable 6 Socket	1
NS	53640	Cable Assembly,Mini Conx M	1
Optional Wheel Kit (inset Figure 4-3 and Figure 4-4 on page 11)			
10	1118020	Screw, Cap, 5/16-18NC x 5/8 Hex	4
11	15154	5/16 Lock Washer SST	4
12	44237	Washer, Plain STD 5/16 SST, ID 0.344 OD 0.750 Thickness 0.050	4
13	178241	Wheel/Bracket Assembly.	2

Table 4-2. RoughDeck PW-1 Parts List

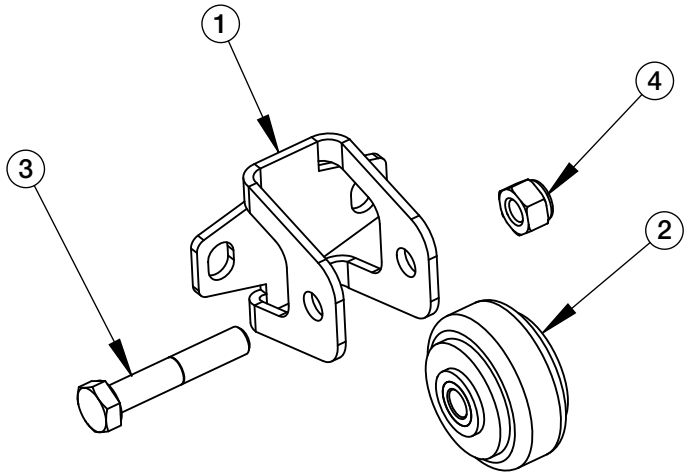

Figure 4-4. Optional Wheel Assembly

Item No.	Part No.	DESCRIPTION	QTY
1	178240	Bracket, Wheel	1
2	178178	Wheel	1
3	25511	Screw, Cap 5/16-18NCX1-3/4 Hex Head SST	1
4	35170	Nut, Lock 5/16-18NC Hex SST	1

Table 4-3. Wheel Assembly Parts List

RoughDeck Limited Warranty

Rice Lake Weighing Systems (RLWS) warrants that all RLWS equipment and systems properly installed by a Distributor or Original Equipment Manufacturer (OEM) will operate per written specifications as confirmed by the Distributor/OEM and accepted by RLWS. RoughDeck fabricated platforms and weldments are warranted against defects in materials and workmanship for two (2) years. Load cells are warranted for two (2) years and all other components are warranted for one (1) year.

RLWS warrants that the equipment sold hereunder will conform to the current written specifications authorized by RLWS. RLWS warrants the equipment against faulty workmanship and defective materials. If any equipment fails to conform to these warranties, RLWS will, at its option, repair or replace such goods returned within the warranty period subject to the following conditions:

- Upon discovery by Buyer of such nonconformity, RLWS will be given prompt written notice with a detailed explanation of the alleged deficiencies.
- Individual electronic components returned to RLWS for warranty purposes must be packaged to prevent electrostatic discharge (ESD) damage in shipment. Packaging requirements are listed in a publication, "Protecting Your Components From Static Damage in Shipment," available from RLWS Equipment Return Department.
- Examination of such equipment by RLWS confirms that the nonconformity actually exists, and was not caused by accident, misuse, neglect, alteration, improper installation, improper repair or improper testing; RLWS shall be the sole judge of all alleged non-conformities.
- Such equipment has not been modified, altered, or changed by any person other than RLWS or its duly authorized repair agents.
- RLWS will have a reasonable time to repair or replace the defective equipment. Buyer is responsible for shipping charges both ways.
- In no event will RLWS be responsible for travel time or on-location repairs, including assembly or disassembly of equipment, nor will RLWS be liable for the cost of any repairs made by others.

THESE WARRANTIES EXCLUDE ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. NEITHER RLWS NOR DISTRIBUTOR WILL, IN ANY EVENT, BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

RLWS AND BUYER AGREE THAT RLWS' SOLE AND EXCLUSIVE LIABILITY HEREUNDER IS LIMITED TO REPAIR OR REPLACEMENT OF SUCH GOODS. IN ACCEPTING THIS WARRANTY, THE BUYER WAIVES ANY AND ALL OTHER CLAIMS TO WARRANTY.

SHOULD THE SELLER BE OTHER THAN RLWS, THE BUYER AGREES TO LOOK ONLY TO THE SELLER FOR WARRANTY CLAIMS.

No terms, conditions, understanding, or agreements purporting to modify the terms of this warranty shall have any legal effect unless made in writing and signed by a corporate officer of RLWS and the Buyer.

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230 W. Coleman St. • Rice Lake, WI 54868 • USA
U.S. 800-472-6703 • Canada/Mexico 800-321-6703 • International 715-234-9171 • Europe +31 (0)26 472 1319

www.ricelake.com

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