

BenchMark[®] HD

Heavy Duty Bench Scale

Installation Manual



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1.0 Introduction

This manual provides reference information to install and wire the BenchMark HD series single-point bench-top scale.



Manuals and additional resources are available from the Rice Lake Weighing Systems website at www.ricelake.com

Warranty information can be found on the website at www.ricelake.com/warranties

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.



Failure to heed could result in serious injury or death.

Failure to heed may result in serious injury or death.

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.

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

1.2 Calibration

It is recommended that the scale be “exercised” by loading it to near capacity two or three times before calibration to be certain that everything is seated. To calibrate the BenchMark HD scale place test weights on the scale platform equal to 70 - 100% of the scale capacity. If several weights are used, distribute them evenly around the platform.

See the indicator manual for specific indicator calibration procedures.

2.0 Installation

This section provides an overview of the BenchMark HD installation procedure and grounding information.

2.1 Unpacking

Immediately after unpacking, visually inspect the BenchMark HD to ensure that the unit is undamaged. The shipping carton should contain the bench scale and this manual. If the scale was damaged in shipment, notify Rice Lake Weighing Systems and the shipper immediately.

2.1.1 Leveling the Scale

1. Place the scale in the desired location.
2. Lift off the deck cover and locate the bubble level (Figure 2-1).

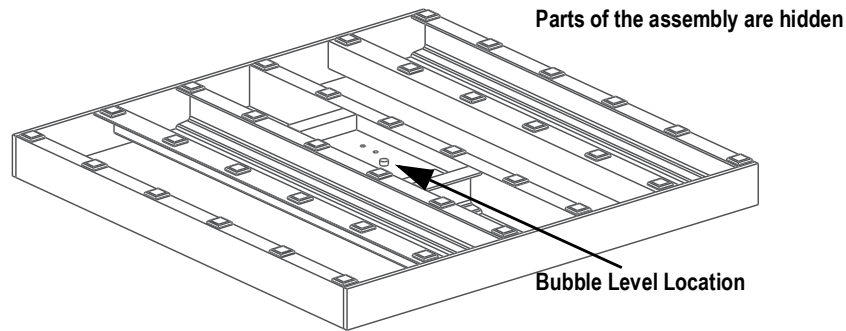


Figure 2-1. Top Plate Removed Showing Bubble Level Location

3. Adjust the four corner feet until the scale is level and all feet contact the support surface, so the scale does not move.
4. Lock the jam nuts on the feet when the final level is correct.

2.2 Connecting the Load Cell Cable

The BenchMark HD comes with an RL26018A load cell and a standard 10' color-coded load cell cable.



Note The load cell is temperature compensated for an exact length of 10'.

IMPORTANT

Do not cut the load cell cable.

See the indicator manual to determine the proper load cell cable input connectors. Use the following color codes to wire the load cell cable. Once complete, install the top cover for the bench scale back onto the scale.

Color Code	Function
Red	+ Signal
White	- Signal
Green	+ Excitation
Black	- Excitation
Blue	+ Sense
Yellow	- Sense

Table 2-1. 6-Wire Load Cell Wiring

2.3 Grounding the Scale Base

Bench scales can build up static electricity charge during weighing operations. If powerful enough, this charge can travel through the load cell cable to the indicator. To prevent this, all bench scales should be adequately grounded so that static charges and transient electrical surges can drain directly to the ground. A recommended practice is to connect the scale base to an AC ground circuit using at least #12 wire. All BenchMark series scales have either a grounding screw or a hole for such a grounding screw located on the bottom of the lower frame for this purpose.

2.4 Replacement Parts

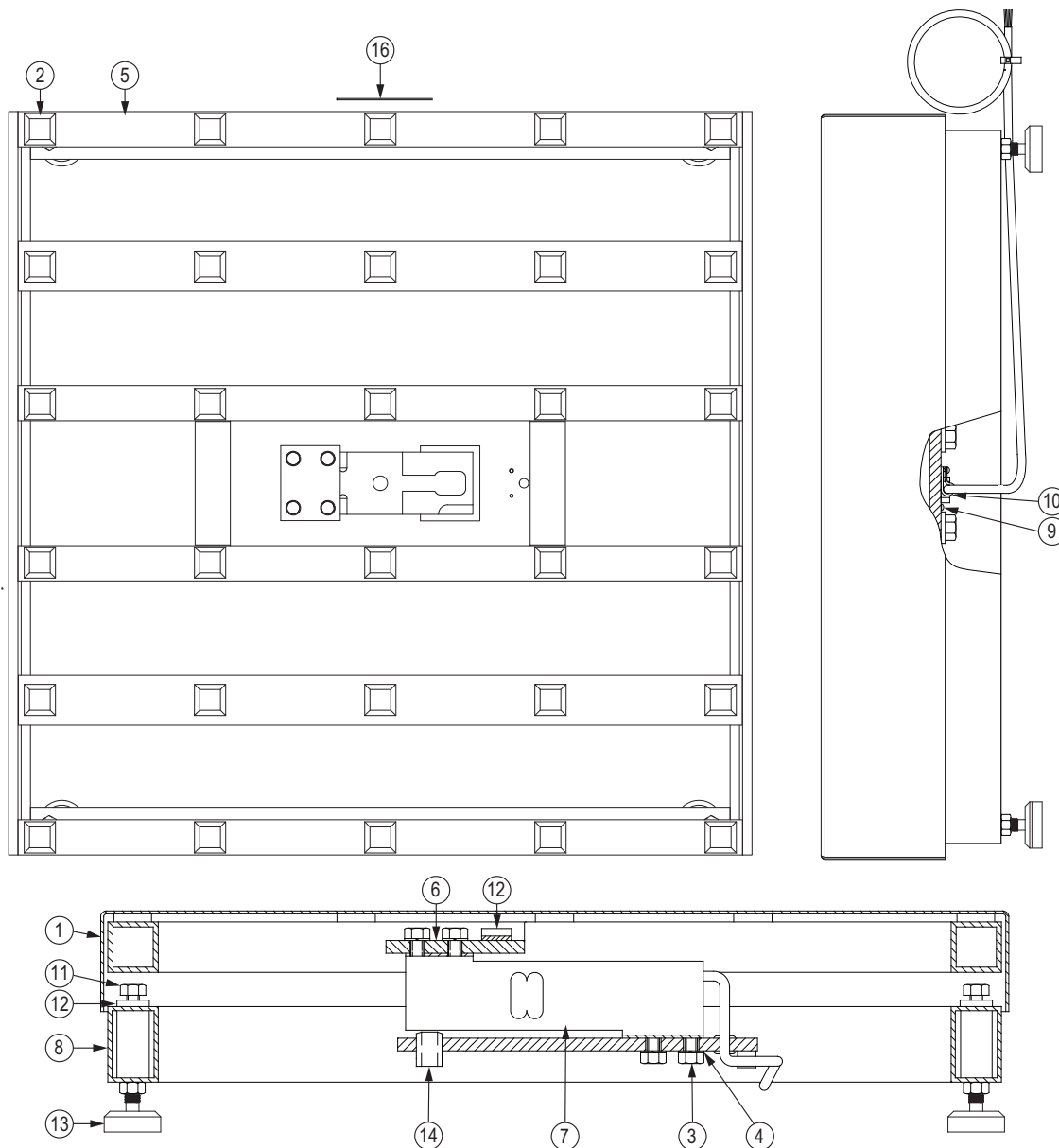


Figure 2-2. BenchMark HD Assembly Drawing Breakout

The following replacement parts are available for BenchMark HD Scales:

BenchMark HD 30" x 30"

Item No.	Part No.	Description	Qty.	Item No.	Part No.	Description	Qty.
1	93775	Top Cover, 30" x 30"	1	8	93759	Frame, Bottom, 30" x 30"	1
	93768	Top Cover, 36" x 36"		93761	Frame, Bottom, 36" x 36"	1	
2	26407	Bumper, Self Adhesive	30	9	14858	Screw, Mach, 8-32NC x 3/8, Phillips Zinc Plated	2
3	49788	Screw Cap, 5/16 - 18NC x 32	8	10	15409	Clamp, Cable No. 8 Hole Nylon	1
4	15153	Lock Washer, 5/16 Regular	8	11	14742	Bolt, 3/8-16NC x 1 Hex Head Zinc Plated	4
5	93758	Top Frame, 30" x 30"	1	12	14649	Nut, Jam 3/8-16NC Hex Zinc Plated	4
	93760	Top Frame, 36" x 36"		13	74585	Foot, Floor Scale Rigid	4
6	87358	Shim, 3/16 x 2 - 3/8 x 3 SST	2	14	15051	Screw Set, 1/2-20NF x 3/4 Hex	1
7	188687	Load Cell RL26018A for 250 lb Scales	1	15	15410	Level, Spirit Bubble	1
	188689	Load Cell RL26018A for 500 lb Scales		16	52342	Label, 4.00 x 1.25 8000T	1

Table 2-2. BenchMark HD Assembly Replacement Parts

3.0 Maintenance

This section provides additional information about the BenchMark HD.

3.1 Troubleshooting

Symptom	Probable Cause	Remedy
No display	Power disconnected	Connect power
	Cable cut or disconnected	Repair cable
	Signal leads incorrectly wired at indicator	Connect according to indicator manual
Display stays at zero	Incorrect load cell cable connections	Connect according to manual
	Faulty indicator	Service the indicator
Erratic weight display	Vibration near the scale	Remove the source of vibration, or adjust the digital averaging of the indicator to minimize the erratic display
	Scale is not level	Level the scale
	Water damage to the load cell or load cell cable	Replace the load cell
	Faulty indicator	Service the indicator
	Loose load cell screws	Tighten the correct torque
	Faulty load cell	Test and replace if necessary
Consistently low weights	Indicator is not properly adjusted to zero	Zero the indicator correctly
	Scale deck cover is binding	Obtain adequate clearance
	Overload stops set too high	Reset overload stops correctly
	Indicator not calibrated for scale	Calibrate
	Faulty load cell	Test and replace if necessary

Table 3-1. Troubleshooting Guide

3.2 Load Cell Replacement

Use the following steps to replace load cells.

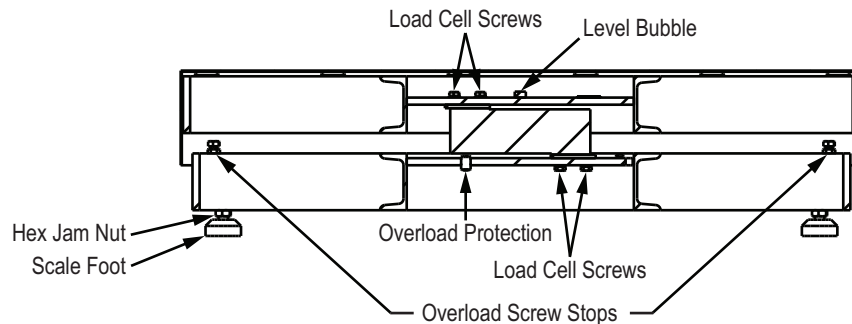


Figure 3-1. Load Cell Mount

1. Unplug AC power from the indicator and disconnect the load cell cable from the indicator.
2. Lift off the scale top cover and locate the four upper load cell screws. Use a 1/2" wrench to unscrew and remove those four load cell screws (Figure 3-1).
3. Lift off the scale's top frame.
4. Remove the spacer between the load plate and load cell and set it aside.
5. Loosen the four overload stop screws and turn each screw once to provide ample clearance for the new load cell.
6. Turn the scale over and back off the overload protection screw one complete turn to provide clearance.
7. Unscrew and remove the lower load cell screws.
8. Remove the bottom shim beneath of the load cell and set it aside.
9. Remove the load cell and cable from the scale.
10. Position the bottom shim directly beneath the load cell and screw in the lower load cell screws.



Note Torque bolts to 200 in-lbs.

11. Turn the scale upright. Position the spacer plate on the load cell, then place the top frame into position.
12. Screw in the four upper load cell screws.
13. Connect the load cell cable to the indicator.
14. Recalibrate the scale as described in [Section 1.2 on page 1](#) of this manual.
15. Adjust the load cell overload protection screws on the bottom of the scale by loading the scale to 125% capacity. Place this weight on the top cover, centered on the platform. Use a hex wrench to screw in the load cell overload protection screw until it touches the load cell, then back off 1/6 turn.
16. Recheck calibration.
17. To reset corner overload stop screws, load the top spider over one corner with approximately 30% of scale capacity.
18. Adjust the screw under that corner to just touch the top frame.
19. Place a drop of a non-permanent, high-strength locking compound such as Loctite® on the thread.
20. Back screw off slightly so it is not touching the top frame.
21. Repeat for each corner.
22. Replace the top cover and re-level the scale if necessary.

4.0 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. All systems and components are warranted against defects in materials and workmanship for two years.

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's 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.

5.0 Specifications

Load Cell

IP67 aluminum, environmentally sealed

Available Sizes

30" x 30" (762 mm x 762 mm) – 250 lb (125 kg)

30" x 30" (762 mm x 762 mm) – 500 lb (250 kg)

36" x 36" (914.4 mm x 914.4 mm) – 250 lb (125 kg)

36" x 36" (914.4 mm x 914.4 mm) – 500 lb (250 kg)

Rated Output

2 mV/V

Maximum Overload

200% depending on capacity

Overload Protection

5 point, independently adjusted

Cable Length

10' (3 m) – 6 wire shielded

Output Impedance

350 Ω

Compensated Temperature Range

14° F – 104° F (-10° C – 40° C)

Warranty

Two-year limited warranty

Certifications and Approvals



NTEP

CoC 06-010

Accuracy Class III; 5000 d



Measurement Canada

AM-5625, Class III 5000 d



Load cell is cFMus approved



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