

BenchMark[®] HD-1/HD-2/HD-3

Aviation Scale

Installation & Service Manual



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Revision History

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

Revision	Date	Description
B	April 21, 2026	Established revision history

Table i. Revision Letter History



Technical training seminars are available through Rice Lake Weighing Systems. Course descriptions and dates can be viewed at www.ricelake.com/training or obtained by calling 715-234-9171 and asking for the training department.

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Rice Lake continually offers web-based video training on a growing selection of product-related topics at no cost. Visit www.ricelake.com/webinars

1.0 Introduction

This manual is intended for use by service technicians responsible for installing and servicing the Benchmark® HD Aviation Series single-point bench top scale.

The NTEP-approved bench scale comes standard in a 500 lb capacity with a potted aluminum, single point load cell that is environmentally sealed. It also comes with a standard 10 ft of load cell cable. The heavy duty capacity scale is constructed with a 304 stainless steel cover and mild steel frame construction to withstand many years of rugged use.

While the complete baggage weighing system includes the bench scale, a kiosk display and software to run a custom program, this manual only addresses the installation of the Benchmark HD Aviation Series bench scale.



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

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

1.1 Safety

Safety 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 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 Disposal



Product Disposal

The product must be brought to appropriate separate waste collection centers at the end of its life cycle.

Proper separate collection to recycle the product helps prevent possible negative effects on the environment and to health, and promotes the recycling of the materials. Users who dispose of the product illegally shall face administrative sanctions as provided by law.

2.0 Installation

The following sections explain the installation procedure for the Benchmark HD Aviation Series.

2.1 Unpacking the Benchmark

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

2.2 Leveling the Scale

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

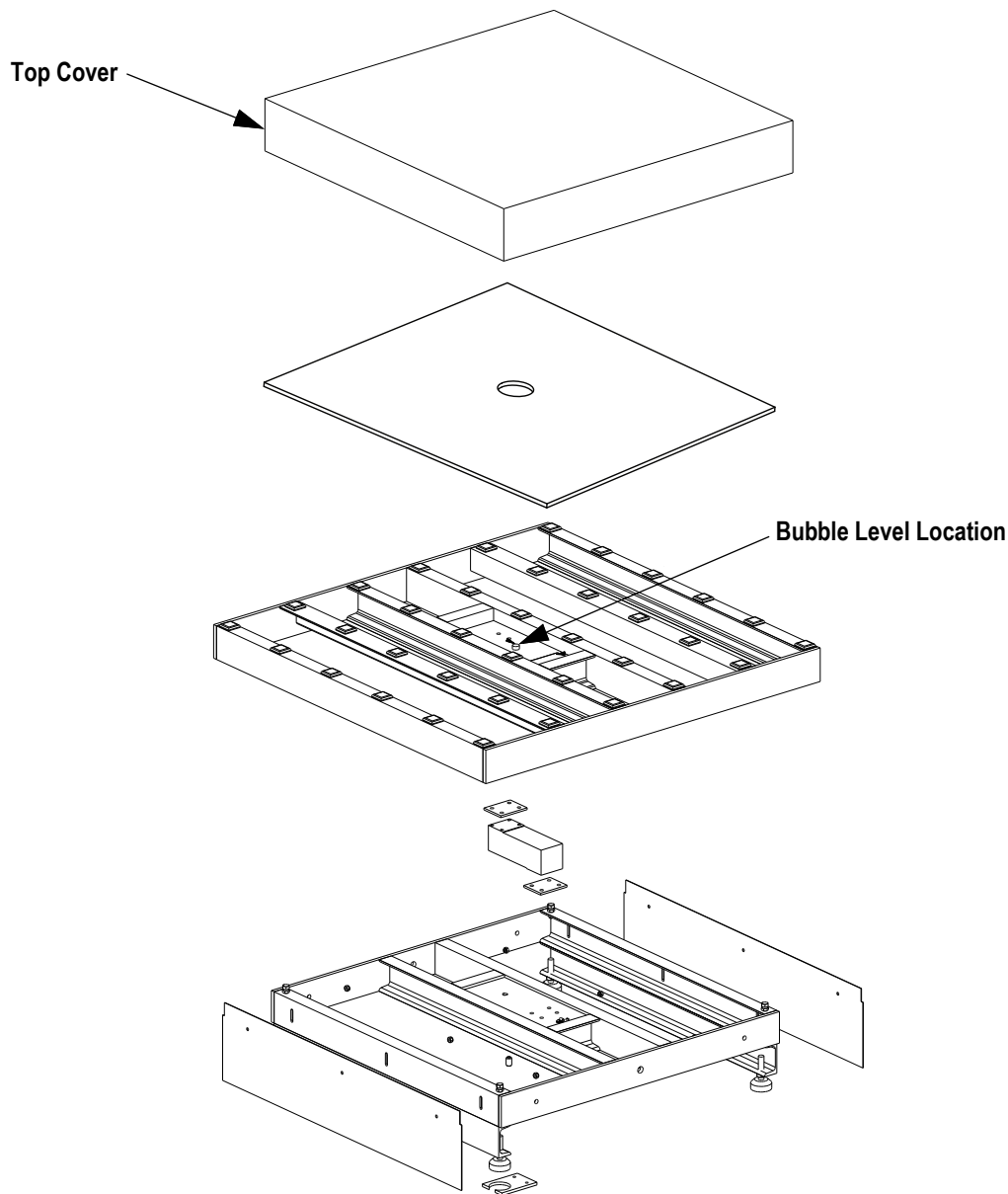


Figure 2-1. Top Plate Removed Showing Bubble Level Location

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

2.3 Connecting the Scale Base

The BenchMark HD Aviation models come with a factory installed DB9 connector, designed for connection to the Tracer AV2 baggage weighing instrumentation. When using other electronics, remove the connector and wire according to the load cell color code. Once complete, install the top cover for the bench scale back onto the scale.

2.4 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. The Benchmark HD Aviation scale has two grounding screws located on the bottom of the lower frame for this purpose.

2.5 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 Aviation scale place test weights on the scale platform equal to 70-100% of the scale’s capacity. If several weights are used, distribute them evenly around the platform.

2.6 Dimensions

2.6.1 BenchMark HD-1

The BenchMark HD-1 is designed to sit between two luggage airline check-in counters. This product contains the following parts:

- 1 BenchMark HD Scale
- 2 Kick Plates (for the front and back of the scale)
- 2 Foot Keepers

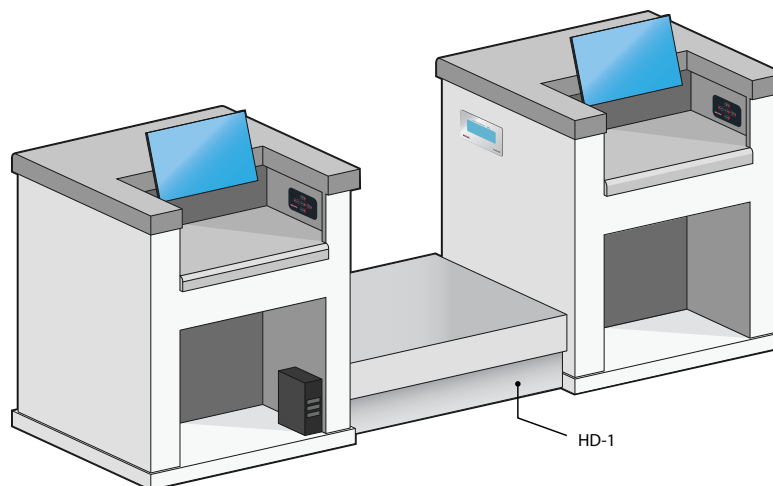


Figure 2-1. BenchMark HD-1 Placement

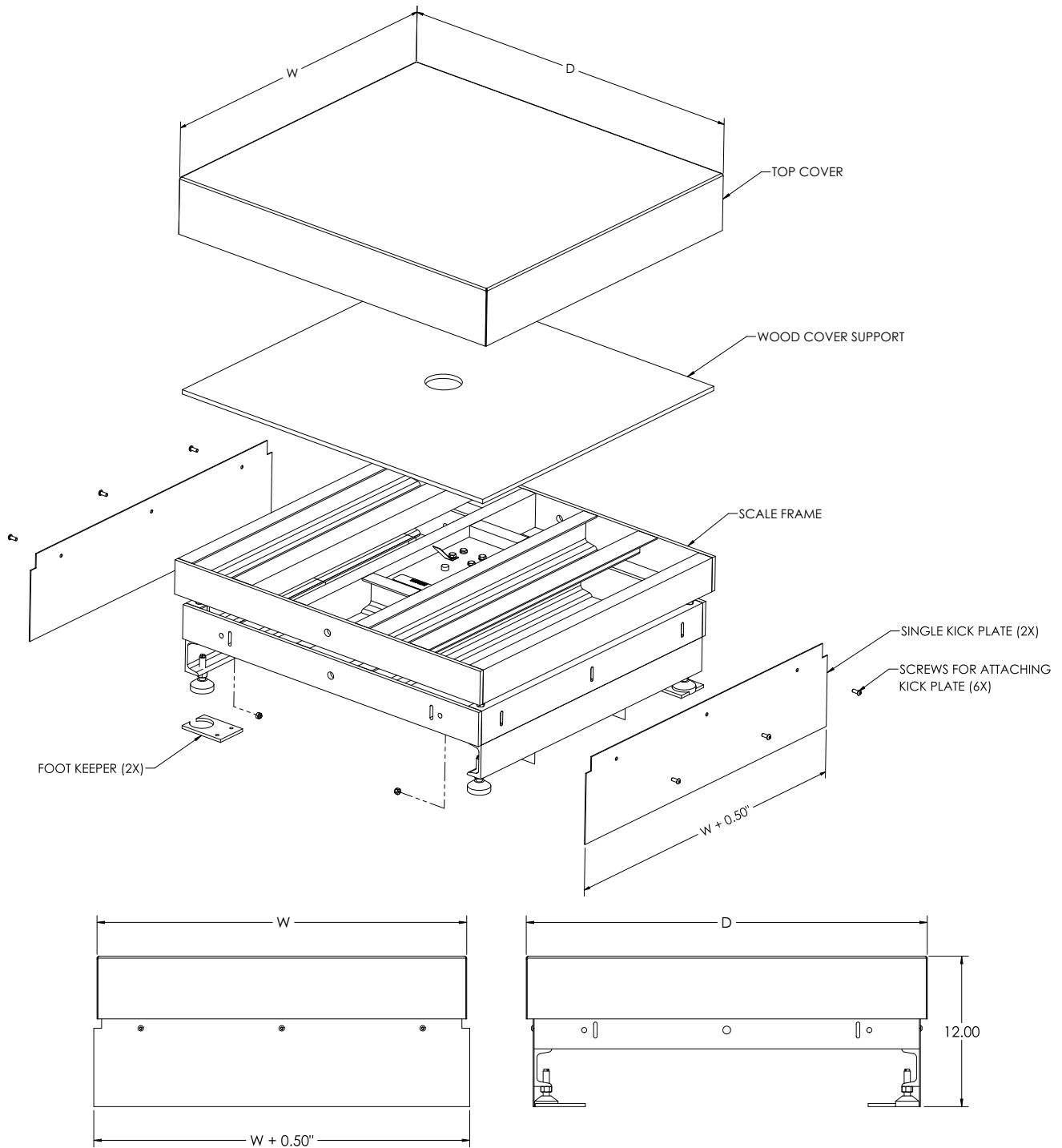


Figure 2-2. BenchMark HD-1 Dimensions

2.6.2 BenchMark HD-2

The BenchMark HD-2 is designed to sit at the end of a luggage airline check-in counter. This product contains the following parts:

- 1 BenchMark HD Scale
- 1 3-sided Kick Plate
- 2 Foot Keepers

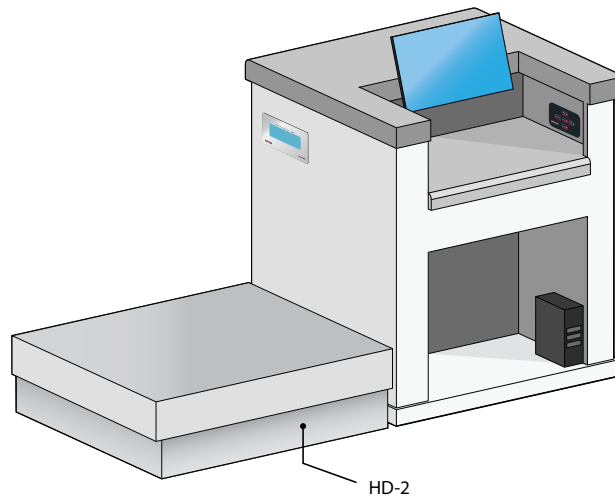


Figure 2-3. BenchMark HD-2 Placement

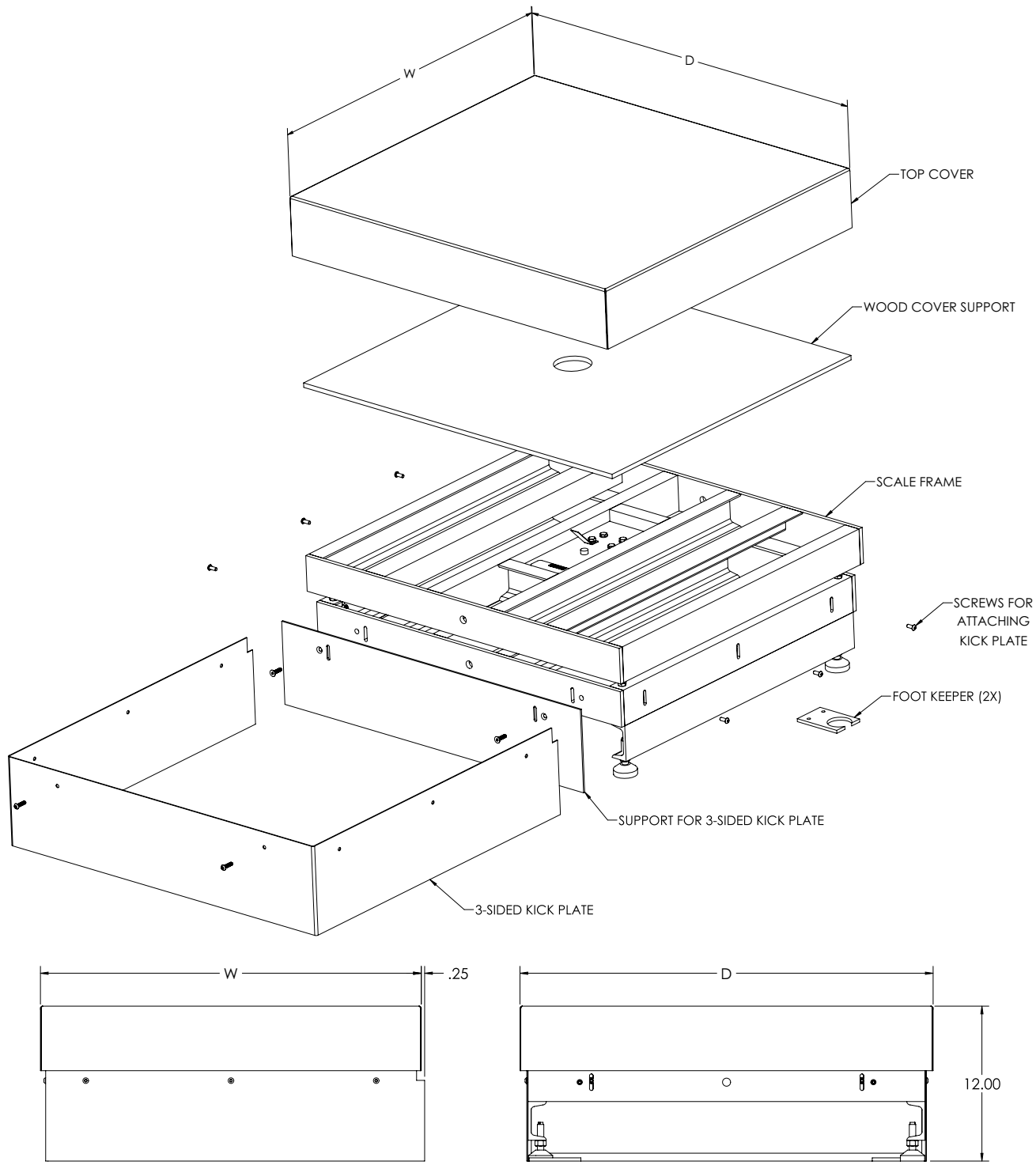


Figure 2-4. BenchMark HD-2 Dimensions

2.6.3 BenchMark HD-3

The BenchMark HD-3 consists of two scales designed to sit between two luggage airline check-in counters. This product contains the following parts:

- 2 BenchMark HD Scales
- 2 Kick Plates (for the front and back of both scales)
- 4 Foot Keepers

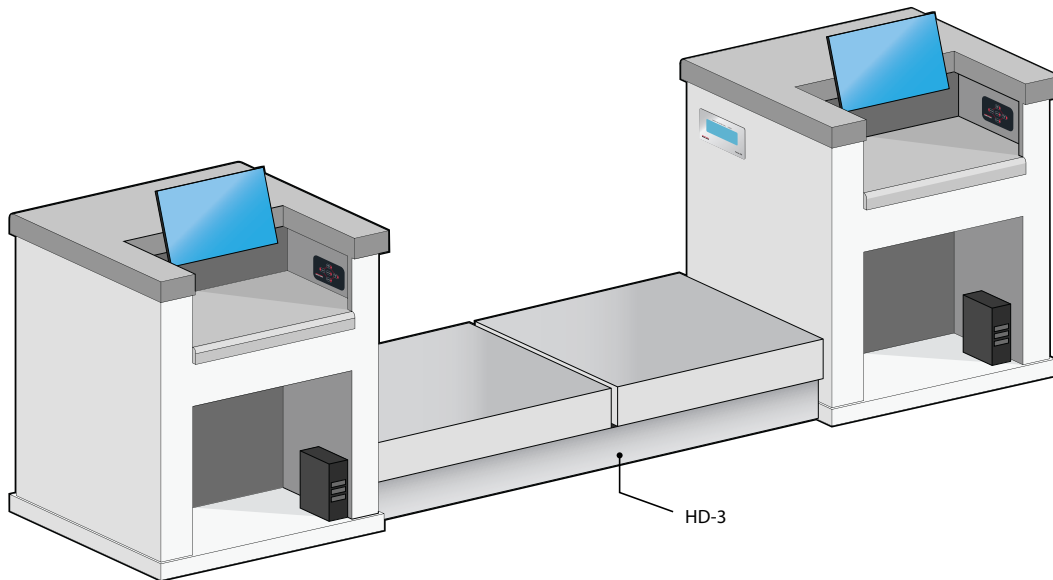


Figure 2-5. BenchMark HD-3 Placement

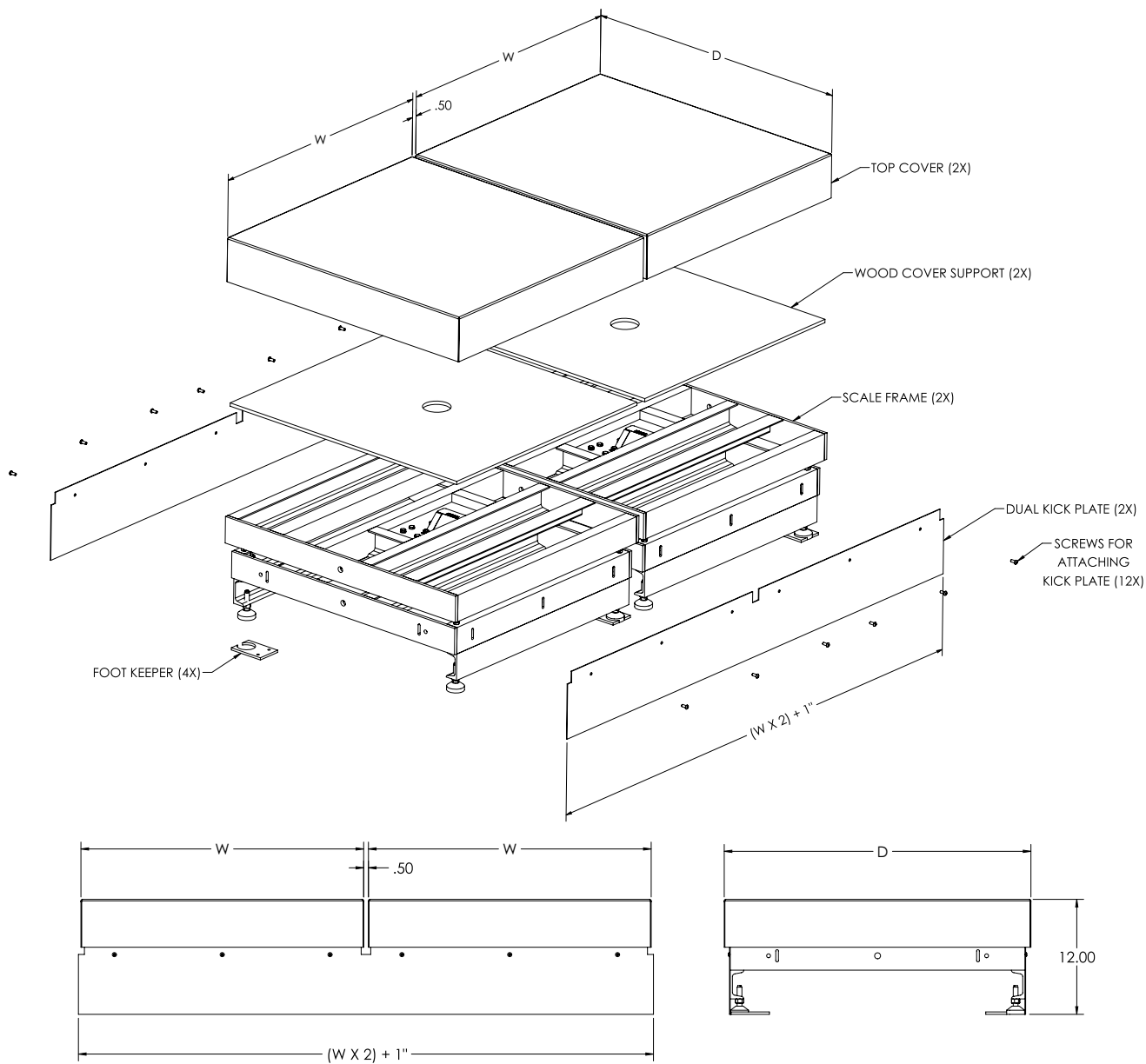


Figure 2-6. BenchMark HD-3 Dimensions

3.0 Maintenance

3.1 Load Cell Replacement

Use the following steps to replace load cells.

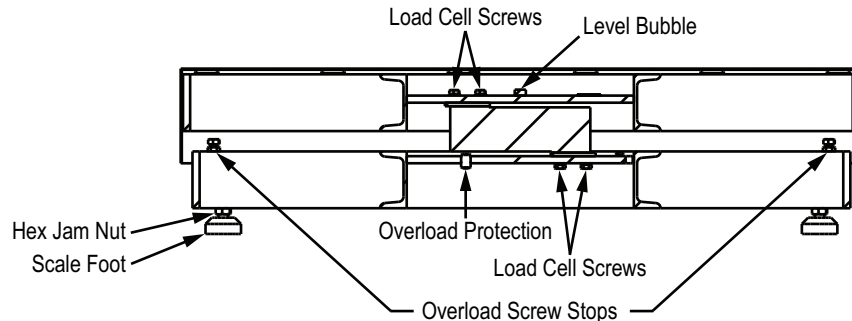


Figure 3-1. Load Cell Mount

1. Unplug AC power from the indicator and disconnect the load cell cable from the indicator.
2. Lift off the scale top cover and cover support to 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 5](#) 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.

3.2 Troubleshooting

Please refer to [Table 3-1](#) in helping to identify various problems.

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

4.0 Specifications

Load Cell, NTEP Certified

IP67 aluminum, environmentally sealed

Output Impedance

350 ohm

Maximum Overload

200%

Overload Protection

Five-point, independently adjusted

Cable Length

10 ft (3 m)

Temperature

Compensated: 14 °F to 104 °F (-10 °C to 40 °C)

Warranty

Two-year limited

Approvals



NTEP

06-010, Class III 5,000 d

Measurement
Canada
Approved

Measurement Canada
AM-5625



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