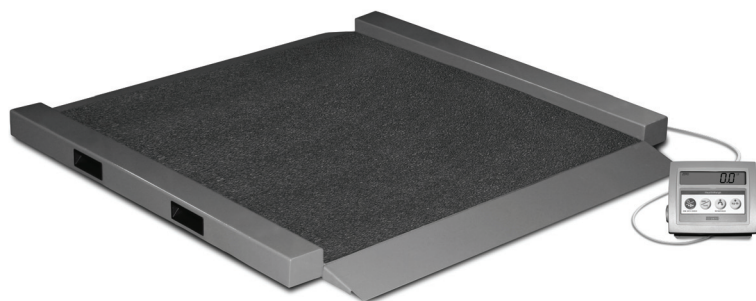
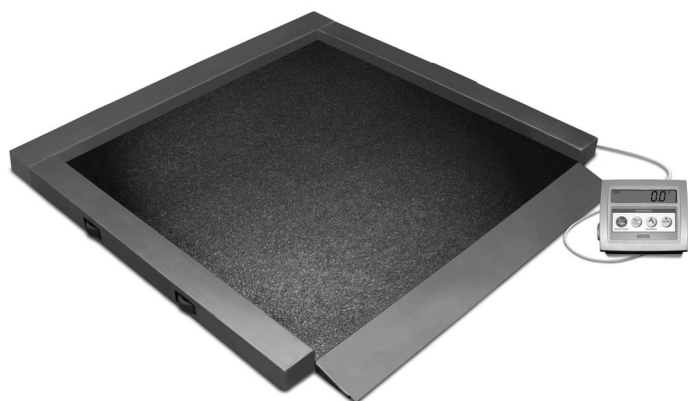


Rice Lake Bariatric Wheelchair


Wheelchair Scale
Software Revision 11387

Operation Manual



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

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1.0 Introduction and System Overview

The Rice Lake Bariatric Wheelchair Scale is a heavy-duty scale that easily accommodates wheelchairs with its large platform size and easy-access ramp in either a single ramp (RL-350-1) or dual ramp model (RL-350-2). It provides exceptional performance in applications where typical wheelchair scales are not large enough to meet the needs of the patient.

The Rice Lake Bariatric Wheelchair Scale is a fully electronic, low profile floor scale that measures 34 in x 34 in (.86 m x .86 m), and has a capacity up to 1000 lbs (500 kg). The Rice Lake Bariatric Wheelchair uses four corner-mounted, alloy steel shear beam load cells, with the cells recessed into the frame channels for protection. The Rice Lake Bariatric Wheelchair Scale offers two integral handles and wheels for ease of portability.

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 in portable applications.

The Rice Lake Bariatric Wheelchair Scale comes equipped with a anti-slip rubber surface on the scale platform and a large 1" LCD indicator display and a 120 VAC or 230 VAC adaptor to use when power is readily available. It is also capable of operating on the internal sealed lead-acid rechargeable battery when no power source is available.

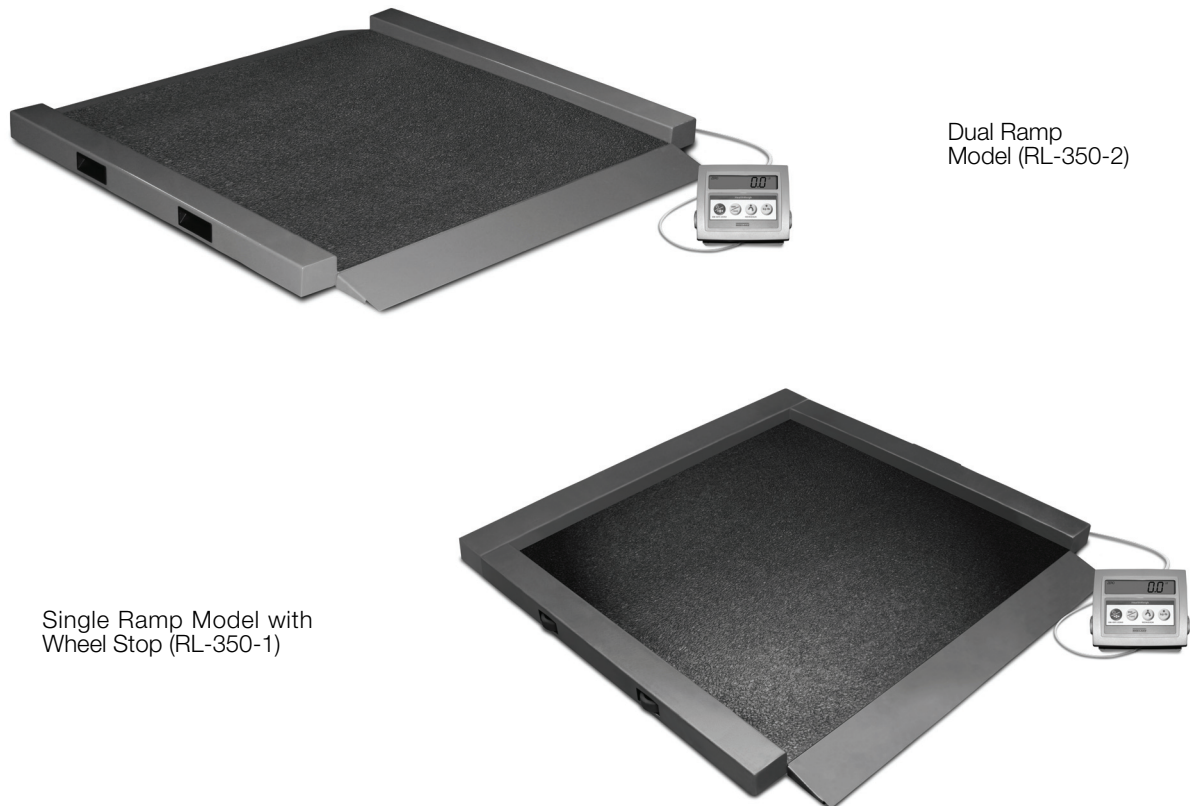


Figure 1-1. Rice Lake Bariatric Wheelchair Scale

The scale is set up to use motion sensing technology, to determine actual weight of a moving patient. The weight can be displayed in either pounds or kilograms and you can enter a tare weight. The Scale Operation Section on page 8 of this manual explains the scale operation and how to obtain a tare weight.



This manual can be viewed and downloaded from the Rice Lake Weighing Systems web site at www.ricelake.com/health. Technical information on these products and other medical products are available on the Rice Lake Weighing Systems web site. Rice Lake Weighing Systems is an ISO 9001 registered company.

2.0 Scale Setup

The following sections describe the correct installation procedures when installing the Rice Lake Bariatric Wheelchair Scale.

2.1 Unpacking Your Scale

The Rice Lake Bariatric Wheelchair Scale comes shipped in a wooden two piece box. Place the unopened box in an open area that has ample room for unpacking the scale.

Recommended tools needed to set up your scale include:

- Scissors or box cutters
- Small Phillips screwdriver

Using scissors or a box cutter, cut the strapping bands that secure the box together. Lift off the top cover. Immediately after opening the box, visually inspect your scale to ensure all parts are included and undamaged.

Parts contained in the shipping box include:

- Rice Lake Bariatric Wheelchair Scale
- This manual
- Parts box which contains the indicator display

2.2 Repacking

If the Rice Lake Bariatric Wheelchair Scale must be returned for modification, calibration or repair, it must be properly packed with sufficient packing materials. Whenever possible, use the original box when shipping the wheelchair scale back.

NOTE: *Damage caused by improper packaging is not covered by the warranty.*

2.3 Setting Up Your Scale

Use the following steps to set up the Rice Lake Bariatric Wheelchair Scale.

1. Locate the users manual and set aside as it will provide instructions on the proper scale set up.
2. Using two people, remove the scale off of the shipping platform that it came in as shown in Figure 2-1.



Figure 2-1. Un Box the Scale

3. Move the scale into the area where the weighing process will occur. It's recommended to place the scale on a hard, level surface for the most accurate weightings. Thin carpeting is fine but not recommended.

4. Stand the scale on its side so that the plastic packaging material can be removed.



Figure 2-2. Remove Plastic Wrapping off of Scale

2.4 Scale Feet Adjustment

The scale feet are shipped attached to the scale. Adjustments need to be made in order for the scale to sit properly on the floor.

1. There must be adequate clearance between the scale base and the floor so screw each foot out counter clockwise two full turns. This will ensure that there is enough clearance between the scale base and the floor.



Figure 2-3. Backing Out the Scale Feet

2. Carefully unwrap the load cell cable located on the underside of the scale. It will run out the underside of

the scale.



Figure 2-4. Unwrap the Cable from the Underside of the Scale

3. Gently set the scale base down to the floor. There should be minimal clearance between the scale base and the floor without having the scale base actually touching the floor.

NOTE: By not having clearance around the scale base will create inaccurate weighments.

4. It's also important to make sure that the scale is completely level. Gently press down on all corners of the scale base to ensure that there are no high spots or rocking of the scale base.

NOTE: An un-level base will produce innacurate weight readings.

2.5 Cable Connections

Ten feet of 4-wire cable to connect the scale to the weight indicator is supplied with each scale.

NOTE:The cable is pre-installed from the factory.

The cable must be routed to the indicator in a manner that will protect the cable from damage. Cabling should exit the underside of the scale on the portable wheel side of the scale and not the ramp side(s). When planning cable routing, leave a loose coil of excess cable under the scale to facilitate future lifting of the scale for servicing or cleaning.

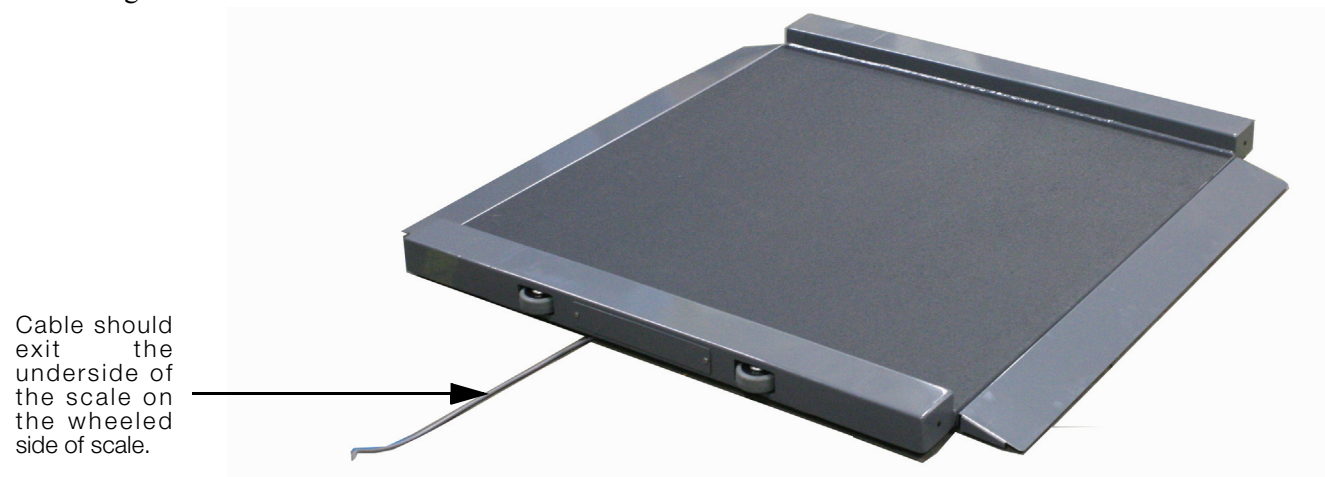


Figure 2-5. Indicator Cable Exiting the Side of the Scale Platform

5. When the interface cable is protected and in its final position, complete connections to the indicator as described in Section 3.1.

3.0 Indicator Setup

To protect the indicator during transit, the indicator is shipped in a separate box inside the main shipping container. The following sections apply to indicator connections and setup.

3.1 Load Cell Connections

Your scale comes with ten feet of load cell cable which comes from the bottom of the scale (shown in Figure 3-1). The load cell cable must be connected to the indicator display.

To gain access to the load cell connection point, do the following:

1. Unscrew and remove the tilt stand bracket from the indicator.

Unscrew tilt stand knobs and remove tilt stand from indicator



Figure 3-1. Remove Tilt Stand From Indicator

2. Remove the four back retaining screws as shown in Figure 3-2 and remove the back cover to the indicator.

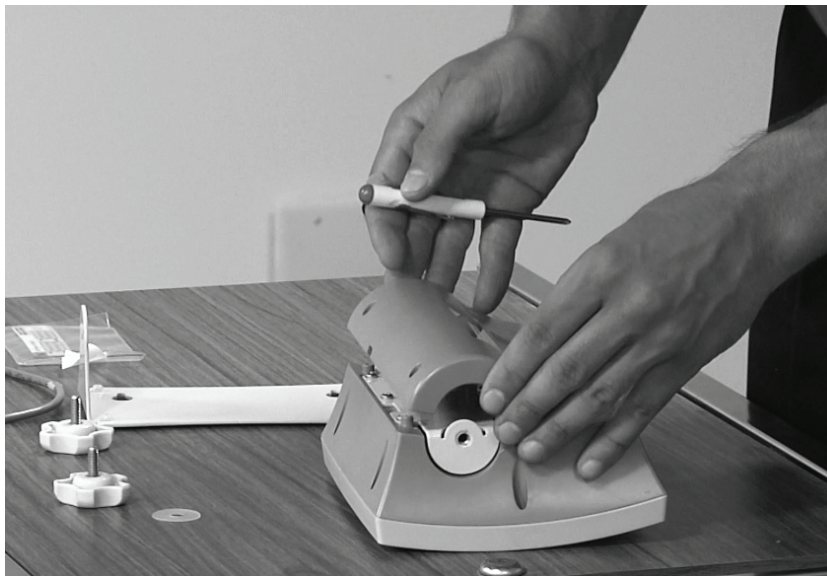


Figure 3-2. Remove Back Cover of Indicator

3. Figure 3-3 illustrates where the load cell connection point is located.

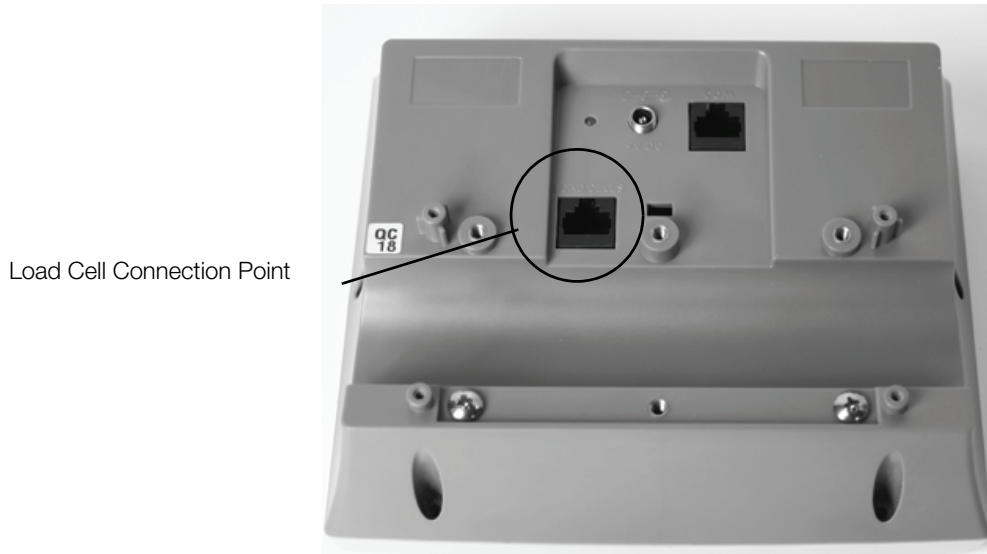


Figure 3-3. Load Cell Connection Point

Plug the end of the load cell cable into the load cell connection point shown in Figure 3-3. You will hear a "click" when the load cell cable has been properly seated into the connection point.

Replace the back cover on the indicator with the four back retaining screws and re-attach to the tilt stand.

3.2 AC Power Connections

The Rice Lake Bariatric Wheelchair Scale has a 120 VAC adaptor or 230 VAC adaptor to use when power is readily available. The AC power adaptor plugs into the back of the indicator as shown in Figure 3-4.

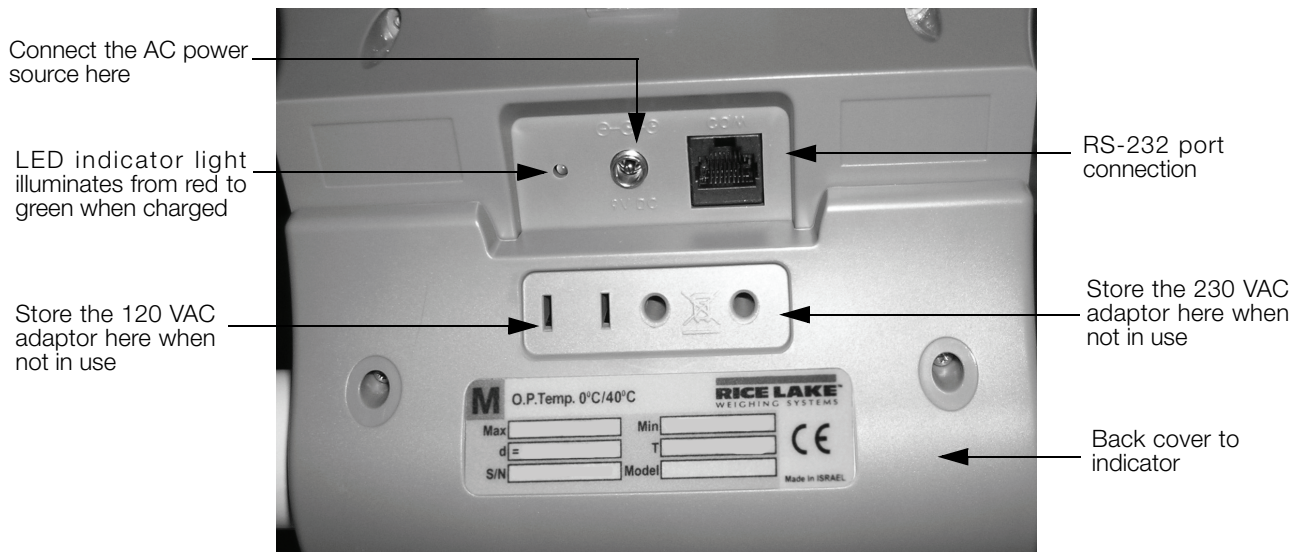


Figure 3-4. LED Light Location

The AC adaptor, when not in use, plugs into the back housing of the indicator. Figure 3-4 shows that location.

The Rice Lake Bariatric Wheelchair Scale is capable of running its internal sealed lead-acid rechargeable battery if no additional power source is available. Battery life is approximately 75 hours. If the *LO Bat* indicator is showing on the display, recharge the battery or connect the scale to an AC power source as soon as possible for accurate weighing.

Battery Charging

When the AC adaptor is connected to a power source, the rechargeable battery goes into recharge mode.

NOTE: To maintain battery longevity we recommend you charge it on a regular basis rather than waiting until it is fully discharged.

The LED indicator light on the back of the scale housing will illuminate red during the charging period, and change over to green when the battery becomes fully charged.

3.3 Getting Ready to Weigh a Patient

Once the scale is properly unpacked and set up, and prior to weighing a patient, step on the scale to check the scale that all functions are working correctly. The scale is calibrated from the factory so simply turn on the scale and step on the scale to get a weight reading. Press the **REWEIGH** key again to verify the weight.



Figure 3-5. Press the Reweigh Key to Verify Weight

4.0 Scale Operation

The display has various front panel keys. They are shown below and their function is described in Table 4-1.

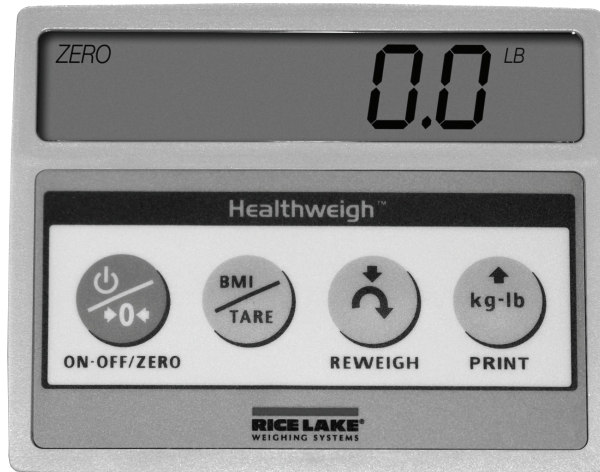


Figure 4-1. Front Panel Display Keys






Key	Name	Function
	ON-OFF/ZERO	ON-OFF - Switches the scale on or off ZERO - Clears weight off the scale and returns it back to zero.
	BMI/TARE	BMI - Enables the user to access the BMI (Body Max Index) function. TARE - Used to subtract a weight off the scale ie: wheelchair
	REWEIGH	Allows you to reweigh a patient without having them leave the scale.
	Kg-Lb/PRINT	Allows the user to toggle between kilograms and pounds. Press this key to print a weight if connected to a printer.

Table 4-1. Key Functions

Caution  The keys on the front panel display are very sensitive so only a gentle pushing motion is required to obtain results.

The scales have the capability of performing different operations beyond just calculating weight. The various operating instructions are described below.

4.1 Weighing

Use the following steps to weigh a person.

1. Press the **On-Off/Zero** key to turn on the scale and *0.0* will appear on the display.
2. Ask the patient or person to step onto the scale. The display shows *WEIGH*, then the person's weight, and beeps to indicate the end of the weighing process.
3. To reweigh, press the **REWEIGH** key.
4. To change the display from Kg to Lb and vice-versa, press the **Kg-Lb** key.
5. If the display hold feature is on (OP6=1), the weight will remain on the display even after the patient steps off the scale. To clear the weight, press the **On-Off/Zero** key.
6. To turn off the scale, press and hold the **On-Off/Zero** key until *OFF* appears on the display.

4.2 Using the Body Mass Index (BMI) Function

Body mass index (BMI) is the relationship between weight and height associated with body fat and health risk. It is a reliable indicator of body fatness for people and even though BMI does not measure body fat directly, research has shown the BMI correlates to direct measures of body fat. BMI is an inexpensive and easy-to-perform method of screening for weight categories that may lead to health problems for adults.

Calculating BMI is one of the best methods for population assessment of overweight and obesity. Because calculation requires only height and weight, it is inexpensive and easy to use for clinicians and for the general public. The calculation is based on the following formulas:

Calculate BMI by dividing weight in pounds (lbs) by height in inches (in) squared and multiplying by a conversion factor of 703.

Example: weight = 150 lbs, height = 5'5 (65")

Calculation: $[150 \div (65)^2] \times 703 = 24.96$

The standard weight status categories associated with BMI ranges for adults are shown in the following table.

BMI	Weight Status
Below 18.5	Underweight
18.5 - 24.9	Normal
25.0 - 29.9	Overweight
30.0 and Above	Obese

Table 4-2. Standard Weight Status

The following examples show weight ranges, the corresponding BMI ranges and the weight status categories for a sample height.

Height	Weight Range	BMI	Weight Status
5'9"	124 lbs or less	Below 18.5	Underweight
	125 lbs to 168 lbs	18.5 to 24.9	Normal
	169 lbs to 202 lbs	25.0 to 29.9	Overweight
	203 lbs or more	30 or higher	Obese

Table 4-3. BMI Ranges and Weight Status Example

Use the following steps in determining the BMI.

1. To use the BMI function, weigh the patient as described under Weighing (above)4.1 and then press the **BMI** key. If weighing in Lbs, the default height of (5 feet) appears on the display. Use the up or down arrows to increase the feet height by one foot increments). Press the **BMI** key again to display inches (default is 7.0 inches) Again, use the up or down arrows to increase or decrease the inches height by 0.5" increments. Press the **BMI** key again to accept the inches value. The final height value will be displayed ie: 5-07.5 = 5' 7.5".
2. If you are weighing in Kgs, the default will be 170.0 cm. Use the up or down arrows to increase or decrease by 0.5 cm increments.
3. To see the patient's calculated BMI, press the **BMI** key again. The BMI appears.
4. To cancel the BMI display, press the **BMI** key.

4.3 Using the Tare Function

You can use the tare function for deducting an extra weight (such as a wheelchair, or medical equipment attached to the patient) in a weighing operation.

NOTE: *To get the most accurate reading, always use the same equipment for pre-weighing (getting the tare weight) which includes things like the wheelchair footrests, blankets, etc.*

Determining a Tare

Use the following steps to use the tare function.

1. With the scale set to 0.0, place the extra load on the scale. The display shows *WEIGH* and then the weight of the load.
2. Press and hold the **TARE** key until *TARE* appears on the display. The display returns to 0.0 and *TARE* appears on the left side of the display.
3. Remove the load from the scale. The weight of the load appears with a negative symbol to the left of it.
4. Ask the patient to step onto the scale with the load. The display then shows the patient's weight without the weight of the load.
5. The weight of the load remains stored in memory, so you can continue to weigh patients who are carrying the same tare weight. For example, when using the same wheelchair for weighing more than one patient.
6. To cancel the tare weight, press and hold the **TARE** key until *TARE* disappears from the display. The tare weight is also cancelled when the scale is turned off.

Entering a Known Tare Manually

Use the following steps to enter a tare without placing that item on the scale. An example of this would be if you've got a patient in a wheelchair and the wheelchair has a known weight (has been tagged) you can enter that weight manually.

1. With the scale set to 0.0 *Lbs* (there must be no weight on the scale), press the **TARE** key. The display will alternate between a value and the word *TARE*.
2. To change the value, press and hold the **Kg/Lb** key until the right most digit is equal to the first digit of the value you want. Example: If you want 103.5, hold the key until the display is 0.1.
3. To advance to the next digit, press the **Kg/Lb** key twice quickly. The digit you changed will move left and the right most digit will again be 0. Again, hold the **Kg/Lb** key until the right most digit is equal to the next digit in the numbers you want.
4. Continue as in Step 3 until you are displaying the value you want, then press the **TARE** key.
5. You can now accurately weigh the patient.
6. To cancel the tare weight, press and hold the **TARE** key until *TARE* disappears from the display. The tare weight is also cancelled when the scale is turned off.

5.0 RS-232 Communications

The scale comes with an RS-232 port which enables weight data to be transmitted to other equipment, such as a computer or printer. The RS-232 cable with DB-9 connector (PN 100719) is available from Rice Lake Weighing System. Figure 4-1 on page 7 shows where the RS-232 connection is.

The RS-232 parameters are 9600 baud (selectable in the programming mode), 8 data bits, 1 stop bit, no parity and no handshaking.

There are three methods of communication:

- Pushbutton keypad print
- Standard remote protocol
- Escape protocol

5.1 Pushbutton Keypad Print

With a stable, in-range weight, press and hold the **Kg-Lb/Print** key for at least three seconds, or until the scale emits two quick beeps. Note that if the scale does not beep after five seconds, then release the button as the weight was either in motion, or out of range.

- If displaying weight and not BMI, the scale will send out the following 21 character string:

```
xxxxxxxx<SP>uu<SP>mmmm<SP><CR><LF>
```

Where:

xxxxxxxx is the weight with decimal point and " - " sign, if negative uu is the unit (lb or kg).

mmmm is the mode (gross or net)

Examples:

```
-10 Lb net = <SP><SP><SP><SP>-10.0<SP>lb<SP><SP>Net<SP><SP><SP><CR><LF>
```

```
10 Lb gross = <SP><SP><SP><SP><SP>-10.0<SP>lb<SP>Gross<SP><CR><LF>
```

- In BMI mode (displaying the BMI value), the scale will send out the following data:

```
GROSS WEIGHT    215.0 LB
TARE WEIGHT      0.0 LB
NET WEIGHT       215.0 LB
PATIENT HEIGHT  6-01.0 FT
PATIENT BMI      28.4
```

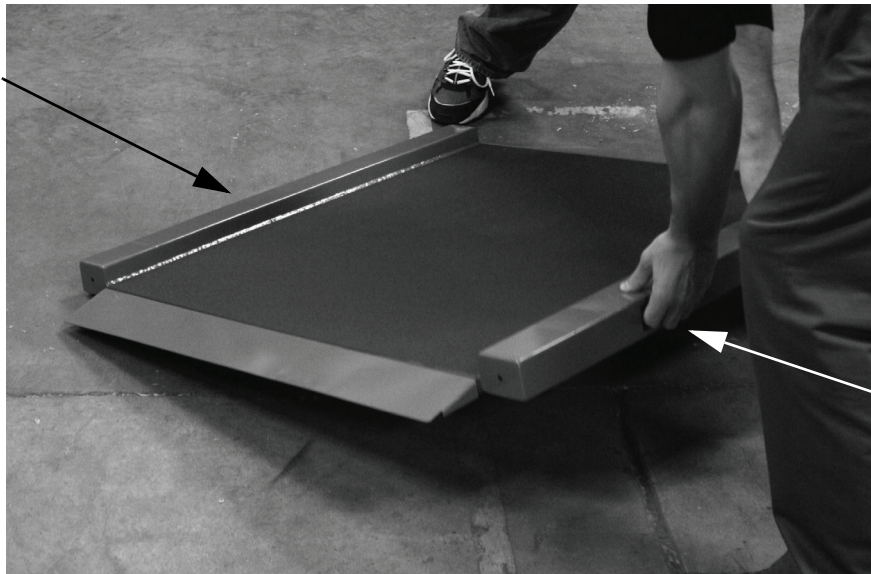
6.0 Maintenance

6.1 Transporting & Storing the Scale

For ease of portability, the Rice Lake Bariatric Wheelchair Scale comes with two built in handles and wheels. This allows the user to transport the scale from one location to another. Use the following steps to transport the scale or to store it.

1. Carefully pick up the scale by standing on the side **opposite** of the wheels and where the cabling comes out from the bottom of the scale platform.

Wheels and cable on this side of scale (not shown)



Two recessed handles for lifting

Figure 6-1. Pick up Scale Using Handles

2. With scale upright, wrap cable around brackets on underside of scale and hang indicator on bracket.
Handy bracket for indicator storage



Figure 6-2. Storage Brackets for Cabling and Display on Underside of Scale

3. Roll scale to another location or for storage.



Figure 6-3. Roll Away For Transporting or Storage

7.0 Rice Lake Bariatric Wheelchair Scale Specifications

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 inch of horizontal.

Nominal Scale Height

3.0 inch (76 mm)

Approvals



7.1 Indicator Specifications

Power

120 VAC-9VDC-50Hz / 230 VAC-9VDC-50Hz

Battery Type

Sealed lead acid battery

Battery Use

75 hours

Automatic power-off can be configured

Environmental

Operating Temperature

50 to +104°F (14 to 40°C)

Storage Temperature

32 to 158°F (0 to 70°C)

Humidity

85% relative humidity

Certifications and Approvals

RoHS Compliant

For More Information

System Manuals

- *Rice Lake Bariatric Wheelchair Scale Technical and Operating Manual*, PN 118308

Literature

- *Wheelchair Scales, 4 Color*, PN 115157

Web Site

- <http://www.ricelake.com/health>

Contact Information

Hours of Operation

Knowledgeable customer service representatives are available 6:30 a.m. - 6:30 p.m. Monday through Friday and 8 a.m. to 12 noon on Saturday. (CST)

Telephone

- Sales/Technical Support 800-472-6703
- Canadian and Mexican Customers 800-321-6703
- International 715-234-9171

Immediate/Emergency Service

For immediate assistance call toll-free 1-800-472-6703 (Canadian and Mexican customers please call 1-800-321-6703). If you are calling after standard business hours and have an urgent scale outage or emergency, press 1 to reach on-call personnel.

Fax

Fax Number 715-234-6967

Email

- US sales and product information at prodinfo@ricelake.com
- International (non-US) sales and product information at intlsales@ricelake.com

Mailing Address

Rice Lake Weighing Systems

230 West Coleman Street

Rice Lake, WI 54868 USA

Rice Lake Bariatric Wheelchair Scale 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.

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