MSI-4300

Port-A-Weigh Plus

Technical Manual

RICE LAKE®
WEIGHING SYSTEMS

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An ISO 9001 registered company

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1.0 Introduction

The MSI-4300 Porta-Weigh Plus is the ideal crane scale for heavy-duty applications in industrial environments.

Note

The MSI-4300 Porta-Weigh Plus 7-key model is no longer supported.
For information regarding the MSI-4300 Porta-Weigh Plus 7-key model, see www.ricelake.com.

1.1 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 could result in serious injury or death.

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

Do not stand near the load being lifted as it is a potential falling hazard. Keep a safe distance.

Do not use for purposes other than weight taking or dynamic load monitoring.

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

Do not use the scale if any of the components of the load train are cracked, deformed, or show signs of fatigue.

Do not exceed the rated load limit of the scale, rigging elements, or the lifting structure.

Do not allow multi-point contact with the hook, shackle, or lifting eye of the scale.

Do not allow high torque on the scale unless it is specifically designed for high torque.

Do not make alterations or modifications to the scale or associated load bearing devices.

Do not use improperly rated or sized shackles. Use only MSI recommended shackles.

Do not remove or obscure warning labels.

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

For guidelines on the safe rigging and loading of overhead scales and dynamometers, see the (MSI Crane Scale Safety and Periodic Maintenance Manual PN 153105).

There are no user-serviceable parts within the MSI-4300. Any repairs are to be performed by qualified service personnel only.

1.2 Overview

The MSI-4300 Port-A-Weigh Plus is world renowned for safe and reliable use in heavy-duty industrial crane scale applications. No other crane scale compares with the advanced features and benefits provided by the MSI-4300.

The MSI-4300 includes an extra large 1.6" (41 mm) alphanumeric LCD display with adjustable backlighting providing user-friendly visibility from a distance.

1.2.1 Standard Features

- Designed to meet or exceed all USA, Canadian, United Kingdom and International standards
- Rugged construction throughout. Single printed circuit board is shock mounted to withstand shocks in excess of 50 G's; Switches are totally sealed and rated for over 10 million operations
- Precise high resolution 20-bit A/D conversion coupled with advanced 16-bit microcontroller provides world class features and accuracy
- Six 1.6" high (41 mm) digits for clear weight readings from a distance
- Easy to read annunciators of measurement modes such as NET or GROSS are provided on eight 0.825" (21 mm) alphanumeric characters; Also used for menu prompts
- Display illumination uses rugged, long life, electroluminescent backlighting coupled with a transflective liquid crystal display providing optimum display contrast under all ambient conditions from full sunlight to total darkness; Operation is light-sensing automatic or manually set
- Exceptional battery life: Typically 2000 hours of continuous use provided by eight alkaline D cell batteries; Maximum battery life is reduced by use of the backlighting; full time low light operation provides up to 300 hours of operation; A typical operating cycle of 8 hours daylight use and 2 hours night use provides 10 months of operation on a single battery change; The MSI-4300 automatically powers down when not in use (this feature can be disabled); A low battery indication displays when approximately 10% of battery life remains
- Easy to maintain: Full digital calibration assures reliable, repeatable measurements
- Complete marine sealing ensures reliable operations under harsh weather conditions
- Anti-EMI shielding is standard; Low emissions and susceptibility

1.2.2 Optional Features

- D-cell battery option, provides up to 2,000 hours of operation
- Substitute bottom swivel hook with shackle
- Oversized top-lifting eye or shackle
- Oversized bottom hook
- Universal direct power supply; 85–265 VAC, 47–440 Hz / 130–330 VDC
- Low headroom top adapter
- Audible setpoint alarm
- NTEP Certified configuration
- Custom top and bottom interfaces
- Crane scale cart
- IR Remote control is available as an option; Adds keyboard tare and other features

1.3 Display and Keypad

The display is a backlit, transflective LCD which provides excellent readability from full sunlight to total darkness. The alphanumeric section prompts the operator through setup and calibration.

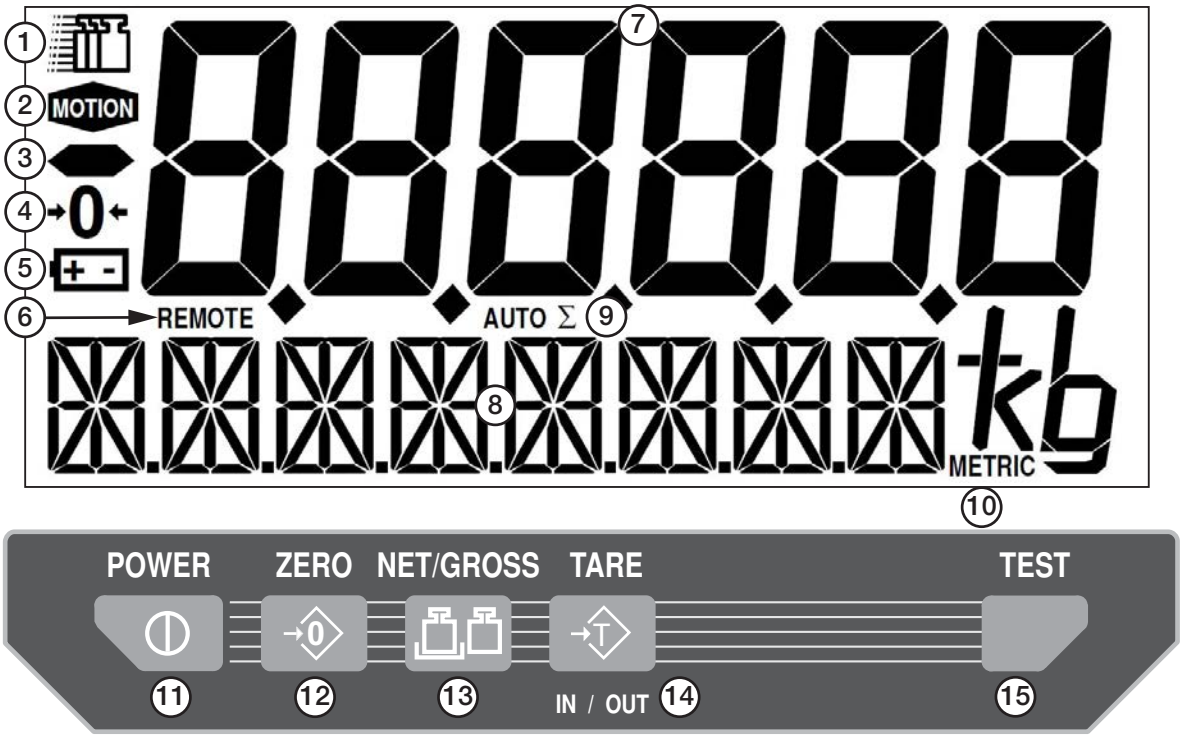

Figure 1-1. Display Feature and Keys

Item No.	Description
1	Motion Icon – Indicates there is motion on the scale
2	Motion Indicator – Indicates there is motion on the scale
3	Negative Symbol – Indicates a negative value
4	Center Of Zero Icon – Indicates the center of zero
5	Low Battery Icon – Indicates if the battery has low power
6	Infrared Remote On – Indicates the function is on
7	Digit Weight – 6 max
8	Character Message Display – 8 max, prompts the operator through setup and calibration
9	Auto Total On – Indicates the function is on
10	Units – Indicates unit of measure for weight displayed; lb, kg, t, METRIC t
11	Power – Turns power on/off; Prompts user to zero the initial deadload
12	Zero – Zeros the scale, zero range depends on standard
13	Net/Gross – Toggles weight between net and gross when a tare is in place
14	Tare In/Out – In ***GROSS*** mode, selecting ***TARE*** zeros weight on the scale which causes the scale to go into the NET mode; When in ***NET*** mode, selecting ***TARE*** clears the ***TARE*** value and the scale reverts to the ***GROSS*** mode
15	Test – Causes a display segment check, provides battery and RCAL tests

Table 1-1. Display Features and Keys

1.3.1 Keyboard Features

Silicon elastomeric rubber switches provide up to 10 million operations which are far more rugged than mechanical switches which can withstand excessive impact without affecting operation

Rubber membrane provides watertight and salt spray-proof seal. Additional poly-shield on underlay provides second layer of integrity and prevents humidity contamination

2.0 Installation

This section provides an overview of the MSI-4300 installation instructions.

2.1 Unpacking

Visually inspect the MSI-4300 for damage, immediately after unpacking. If parts were damaged in shipment, notify Rice Lake Weighing Systems and the shipper immediately. The shipping carton contains the MSI-4300 as well as the following components.

2.2 Batteries

Eight standard D cell batteries are required unless the scale uses another supported power option. Alkaline type is recommended but standard carbon-zinc or Ni-Cad D cell batteries can also be used. Standard carbon-zinc or Ni-Cad D cell batteries reduce the available battery life significantly.

2.2.1 Installing and Changing

The batteries must have enough charge to ensure accurate operation. If the batteries are too low, the scale automatically powers off (eight batteries in series must total more than 5.4 V).

To change:

1. Turn the scale off.
2. Remove the battery tubes by turning the knobs counterclockwise. It is not necessary to remove both tubes at once.
3. Replace all the batteries in each tube. Never mix old batteries with new batteries.
4. Reinstall the battery tubes by inserting the tubes back into the unit and turning the knobs clockwise.

The batteries can be checked with the Test Mode. Power displayed is in relative percent (%) of battery life. If the number with fresh batteries is extremely low (less than 10%), turn off the power, remove the tubes and check if the polarity of all the batteries are correct.

3.0 Operation

This section provides an overview of the MSI-4300 operation instructions.

Note ***Ensure the recommended power supply is secured prior to device operation (Section 2.0 on page 4).***

3.1 Power

Prior to turning on the scale, ensure the batteries have enough charge for operation or the scale does not turn on.

The ambient temperature must be between -22° and +140°Φ (-30° and +60° C).

Press the **POWER** key. The following occurs:

1. Display Check: all segments are illuminated.
2. ***MSI PAW+*** and the software version number display.
3. All internal operations are checked and non-conformance causes an error message.
4. The current weight displays in ***GROSS*** mode.

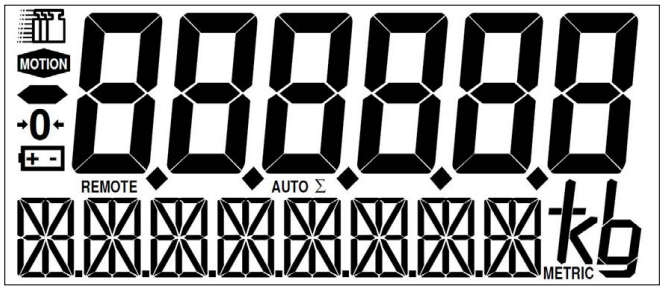

Figure 3-1. Scale Power On Display

Note ***In normal operation on lb or kg is visible (Figure 3-2).***

3.2 Zero Switch

Press ***ZERO*** to zero the scale.

If the scale does not zero, check the following:

1. Ensure the scale is stable. The scale does not zero if the motion annunciator is ***ON***.
2. Ensure the scale is in ***GROSS*** mode. The scale does not zero in ***NET*** mode.
3. The scale only accepts a zero setting over the range of -10%±100% (NIST, Alaska & Industrial Standards) or -1%–+3% (UK, Australia, OIML & Canadian Standards).
4. On initial power up, the zero range is 20%.
5. The weight reading must be stable within ±1 division. The unit displays ***ZEROED*** and the digits display ***0***.
6. The zero setting is stored by the backup memory, which restores it the next time the system is turned on.
7. The unit displays ***GROSS*** and the digits display ***0***.

Figure 3-2. Zeroed Display

3.3 Net/Gross Switch

Switches the display between net and gross modes temporarily.

1. ***NET/GROSS*** works even when the scale is in motion.
2. Not in net mode (Tare = Ø): No action, display continues to read gross weight only.
3. In ***NET*** mode: displays gross weight for 4 seconds. ***GROSS*** displays then returns to ***NET***.

Figure 3-3. Net/Gross Display

3.4 Tare In/Tare Out Switch

Sets and removes tare.

1. Only positive weight readings can be tared.
2. The scale only tares when it is in gross mode.
3. The motion annunciator must be off and the weight reading must be stable.
4. Setting or changing the tare has no effect on the zero setting.
5. Taring reduces the apparent over-range of the scale.

   Example: If a 1000 lb container was tared and the scale capacity is 5000 lb, the scale overloads at a net weight of 4000 lb plus additional allowed overload (usually ~4%) (5000-1000).

Figure 3-4. Tare Display

If no current tare is set:

1. The entire range of the scale can be tared. If the motion condition is met the display temporarily displays ***TARE SET*** then converts to ***NET*** display and the digits register Ø. All subsequent readings are deviations from the set tare value.
2. Once tare is set, the scale displays ***NET*** weight.
3. To remove the tare value, select **TARE**; The tare value is cleared, the scale returns to gross mode.

3.5 Test Switch

Provides a functional system test and an on-demand display check without disturbing the current weighment.

Provides calibration verification in the form of a load cell calibration number.

To start the text sequence select **TEST**.

1. All digits (7 segment and 16 segment) count once from 0–9. All annunciators are tested. 16 segment displays also go through “*”.
2. Battery condition is displayed next in the form: “%” (percent) of battery life with a figure from 1–100 on the digits. Additional warnings display if the battery is below 5%. The % battery life varies depending on whether the backlight is on or off.
3. The Cal number is displayed next. To ensure the Cal number is accurate the scale must be near zero in the same state it was calibrated in. The original Cal number is printed on the right battery tube calibration label. Cal number shifts of up to 10 counts are insignificant.
4. Internal tests are performed to further ensure scale integrity.
5. The reading returns to the last condition or an error message is displayed.

Figure 3-5. Test Display

3.6 Optional Infrared Remote Control

Note ***The optional infrared remote control is no longer available.***

Operating the MSI-4300 with the Infrared Remote Control is identical to operating the scale from the standard keyboard.

Additional features are available using the remote and certain cautions are warranted.

The Infrared Remote is highly directional and requires fairly accurate aiming to achieve the maximum operation range.

The shape of the remote is designed to help in aiming. Aiming becomes less critical as the distance decreases.

3.6.1 Power On/Off

To turn the scale on with the remote, hold down the **POWER** key until the scale turns on. Power-on is the only function which requires more than a short press of a button. Power-off is instantaneous. Holding down the power-off button turns the unit to turn back on.

3.6.2 ID Number

Up to 9 separate ID codes are available. Each ID code has a total register and a tare register. Weighing setups can be prearranged by setting the ID number and establishing a tare memory for the ID number. The next time the particular ID number is selected the proper tare value is already established and the previously stored total value is enabled.

The ID number is changed by selecting **ID NUMBER** then select the desired number (1–9). The default ID number is 1 which is the only available ID without the remote.

3.6.3 Printing

Selecting the **PRINT** key on the remote prints the current displayed value (requires EIA-232 option).

To print gross, net or total values:

1. Select **NET/GROSS** or **VIEW** to place the desired mode on the display.
2. Select **PRINT**.

To print tare:

1. While in net mode, select **TARE**.
2. Select **PRINT**.

CAUTION ***Do not select TARE while in gross mode as this clears the old tare and establishes a new tare.***

3.6.4 Numeric Entry

The Tare memory values and Set-Point values can be directly entered from the remote. Instead of using the **SELECT** key to scroll through values, push the desired number directly. The Tare memory number can be accessed directly (**SHIFT** - **TARE** - **3** directly selects Tare memory #3).

3.7 Remote Control Battery Replacement

Type – Standard 9 volt (NEDA/ANSI 1604 A, IEC 6LR61), alkaline type is preferred due to high LED peak currents. There is storage space for a spare battery internal to the remote.

When to Change – The internal 9 volt battery needs to be replaced when the indicator LED is no longer visible when a button is pushed. The operating range of the remote gradually decreases. When the range is insufficient for the normal mode of operation, replace the battery (even if the LED is still visible).

Installing/Changing

1. Turn the remote unit over. Remove the three Phillips screws with a number 2 Phillips head screwdriver.
2. Turn the unit right side up. Pop the front panel out by applying pressure to the lower left corner of the blue urethane case thus exposing a corner of the front panel/switch assembly. With a flat screwdriver blade, carefully pry out the switch from the urethane case by working the screwdriver up the left edge of the switch assembly.

CAUTION ***Do not insert the screwdriver up the left edge of the switch assembly.***

Do not insert the screwdriver too deep to prevent damage to the internal electronics

3. Fold the switch assembly to the left side of the unit, exposing the battery and the printed circuit board.

4. Pull the battery connector off the battery. Remove the battery by tilting it up sideways.
5. Install the new battery by tilting it in sideways and wedging it in the small indented region between the printed circuit board and the case wall.
6. Reconnect the battery connector. Check for operation by pushing a key on the front panel and ensuring the indicator LED is lit. If the LED is not lit, check the keyboard connector to ensure the connector is seated properly and the battery is fresh.
7. Replace front panel/switch assembly by centering it over the open area and pressing the edges evenly until it seals.
8. Replace the three screws. Make sure the screw seal gaskets are in good condition.

3.7.1 Infrared Remote Comments

Due to the sensitivity required to allow for full sunlight operation, it is possible to overload the input to the infrared remote receiver in the scale if the remote is too close. This situation is characterized by erratic remotely controlled operation.

The simple remedy for this is to not aim directly at the scale but aim slightly off center when very close.

The range of the remote is optimized when the scale is 8' or more off the ground. The infrared sensor is aimed slightly down to help diminish sunlight overload. When the scale is closer to the ground, aim the remote up into the infrared window from below. if the scale is used normally very low to the ground it is sometimes possible to bounce the infrared signal off the ground and up into the sensor.

SHIFT key functions require the keys are entered in rapid fashion. While entering values, if more than five seconds pass between the **SHIFT** key and subsequent key presses, the scale forgets the prior **SHIFT** entry. This could mean the scale powers off rather than go into test function (Shift, Power).

- The ID# function has a five second maximum window for the number entry otherwise the ID# remains as before
- As shipped, the MSI Infrared Remote operates the MSI-4300; Up to 8-channels are possible; Contact the factory for more details

Note ***By special order it is possible to encode infrared transmissions so a separate remote is required for each MSI-4300.***

3.8 Proper Loading Procedures

Follow Figure 3-6 for proper loading procedures.

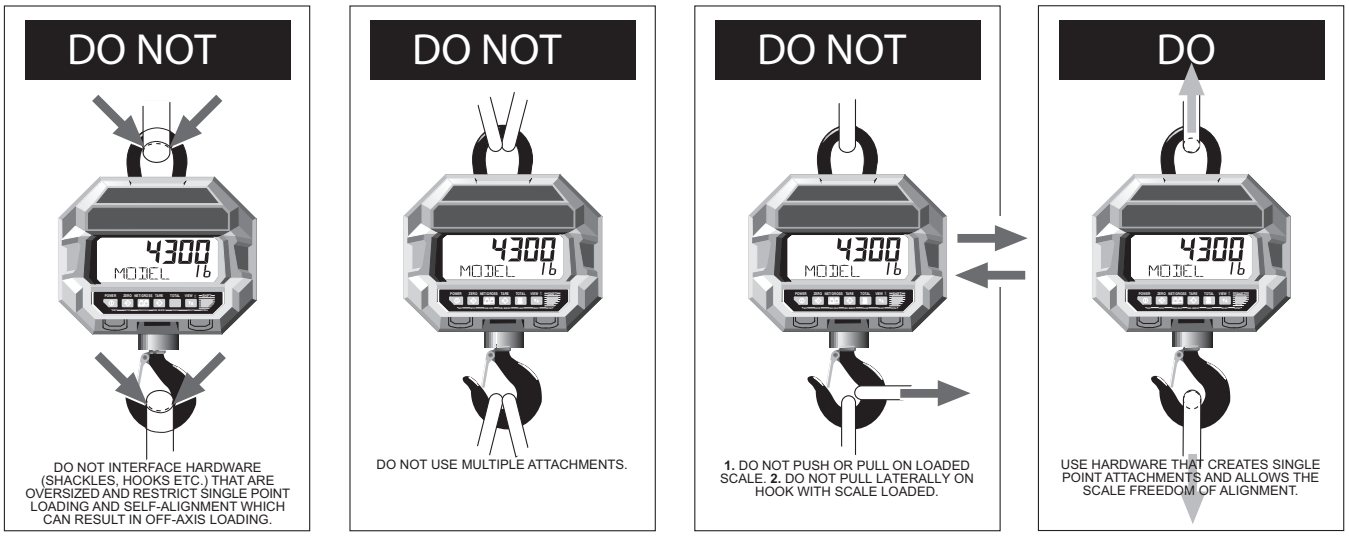

Figure 3-6. Proper Loading Procedures

4.0 Configuration

This section provides an overview of the MSI-4300 configuration instructions.

4.1 Navigation

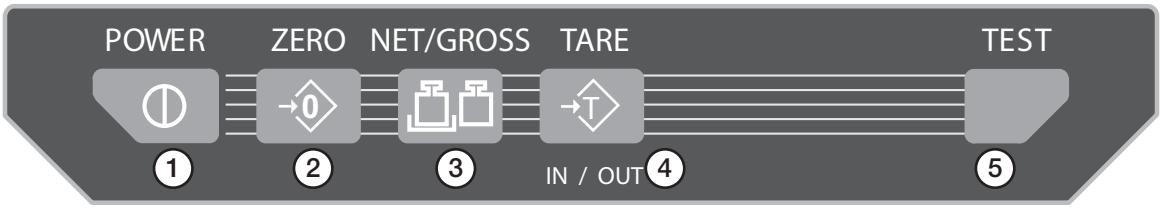

Figure 4-1. Navigation Keys

Item No.	Description
1	Power – Escape calibration/setup
2	Zero – Zero the scale during calibration; ***CLEAR*** during setups
3	Net/Gross – Scroll through menu items; Used in ***FINE CAL*** as **UP**
4	Tare In/Out – Used only in ***FINE CAL*** as **DOWN**
5	Test – Used as **ENTER**; When desired menu item displayed, press to store item

Table 4-1. Navigational Keys

4.2 Calibration

There are three modes of calibration available:

- Standard calibration
- Fine calibration
- Calibration with the resistor calibration number (***RCal***)

The following section instructs the user to perform each one.

4.2.1 Enable Calibration/Setup

1. Remove the seal port on the right side of the MSI-4300 front casting.
2. Select the small button located inside the seal port. Table 4-2 parameters display.

See Table 4-1 for navigation keys to use this menu.

Parameter	Selections
FILTER	Low, Med, High
UNITS	kg, lb, Ton, Metric Ton
STD CAL	Starts Cal procedure
FINE CAL	Minor calibration adjustments
CAL RCAL	Emergency calibration only
STANDARD	Industry, NIST, OIML, Alaska, Canada, United Kingdom, Legal-for-Trade, Australia
AUTO OFF	Enabled, Disabled
AZM	Enabled, Disable
REMOTE	Enabled, Disabled
LIGHTING	Automatic, On, Off
CONTRAST	Eight steps with numerics at “123456” and message reading “Contrast”
EXIT	Select Enter (Test) to quit setup
HI SET PT	Hi Value Disabled, Gross, Netgross Response Normal, Blanklcd, Blinklcd Exit
LO SET PT	Lo Value Input Wt Mode Disabled, Gross, Netgross Response Normal, Blanklcd, Blinklcd Exit
TOTALIZE	Manual, Auto

Table 4-2. Calibrate Setup Menu

4.2.2 Standard Calibration

Standard calibration is recommended to be used for normal test weight or cal fixture calibration.

1. Select the key behind the seal port to enable calibration.
2. Press the **SELECT** (**NET/GROSS**) key to scroll to the ***STD CAL*** message.
3. Select the **ENTER** (**TEST**) key. ***Ø SCALE*** displays.
4. Remove all weight from the scale.
5. When motion ceases, push the **ZERO** key.
6. If the detected zero weight are within acceptable limits ***WEIGHT*** displays, indicating it is time to add the test weight(s).
7. Pick up a test weight of at least 20% of capacity.

Note ***A test weight of 50% or more of capacity is recommended for highest accuracy.***

8. Press the **SELECT** (**NET/GROSS**) key to match the displayed value to the weight of the test weight.
9. When a match is made select the **ENTER** (**TEST**) key.
10. Repeat for the remaining digits. When the last digit is entered the scale is steady. This can affect calibration accuracy.
11. Select the **CLEAR** (**ZERO**) key to return to normal scale operation or press the **SELECT** (**NET/GROSS**) key to choose another calibrate setup function.

4.2.3 Fine Calibration

Fine calibration is for minor adjustments to the calibration and is usually not necessary.

1. Select the key behind the seal port to enable calibration.
2. Press the **SELECT** (**NET/GROSS**) key to navigate to ***FINE CAL***.
3. Select the **ENTER** (**TEST**) key.
4. Pick up a test weight of at least 50% of capacity. The weight is indicated on the numeric digits.

Note ***This function does not work unless the scale is loaded at 45% of capacity or more.***

5. Press the **SELECT** (**NET/GROSS**) key to move the displayed reading up.
6. Select the **TARE** key to move the reading down.
7. When the displayed reading is acceptable select the **ENTER** (**TEST**) key.
8. Select the **CLEAR** (**ZERO**) key to return to normal scale operation or press the **SELECT** (**NET/GROSS**) or the **ENTER** (**TEST**) key to choose another Calibrate Setup function.

4.2.4 Resistor Calibration Number (RCal) Value

Cal RCal is for emergency calibration when test weights or a calibration system is not available.

1. Remove the right battery tube (facing the back). An RCal value is printed on the calibration label.
2. Make a note of the value and reinsert the battery tube.
3. Power the scale on and select the key behind the seal port to enable calibration.
4. Press the **SELECT** key to navigate to the ***CAL RCAL*** message.
5. Select the **ENTER** (**TEST**) key. ***Ø SCALE*** displays.
6. Remove all weight from the scale.
7. Select the **ZERO** key. When motion ceases and assuming the detected zero weight is within acceptable limits, ***ZEROED*** displays.
8. Press the **SELECT** (**NET/GROSS**) key and select the **ENTER** (**TEST**) key to match the left most digit of the displayed reading to the RCAL value noted earlier.
9. Repeat for the remaining digits. Select the **ENTER** (**TEST**) key.
10. Select the **CLEAR** (**ZERO**) key to return to normal scale operation or press the **SELECT** (**NET/GROSS**) key to choose another calibrate setup function.

4.3 Other Setup Functions

FILTER – The filter must be set to ***LO*** to pass most LFT (Legal for Trade) jurisdictions. In industrial applications, setting the filter to medium or high can provide a more stable reading.

AUTO OFF – When enabled, the auto off feature prolongs the battery life of the scale by turning the power off after 1 hour of inactivity. When a key is depressed or the detected weight is in motion the 1 hour limit is reset. The scale remains powered on indefinitely if the weight is changing or when a key is pressed at least once within an hour. This feature defaults to the enabled mode when initially calibrated. When disabled, the scale remains powered on and only the **POWER** key turns it off.

LIGHTING – The electroluminescent backlight is normally controlled by a photocell which detects ambient light and determines if the backlight is to be on or off (***automatic*** mode). The backlight can be permanently enabled (***on*** mode) or for increased battery life, permanently disabled (***off*** mode).

REMOTE – This option enables or disables the optional IR Remote control. This option must be installed to function.

CONTRAST – Contrast is used to optimize the contrast of the liquid crystal display at various viewing angles. This is a factory preset for optimal viewing from below the scale. By going through the 8 steps, the viewing angle can be changed slightly to improve contrast for other applications.

SETPOINT – A function used to enter low and high setpoint values, mode (disabled, gross, net/gross) and response (normal, blank display, blink display) of setpoints. When the weight exceeds a Hi Setpoint value, or falls below a Low Setpoint value, the scale may respond in a variety of ways. The normal response is to turn on an open Drain MOSFET which can be used to drive relays, lights, sirens and others (contact the factory or MSI distributor for more details). Other responses include blanking the display (***BLANKLCD***) or flashing the weight reading on and off (***BLINKLCD***).

Follow the Setpoints Setup procedure for entering setpoints:

4.3.1 Setpoints Setup

1. Select the key behind the seal port to enable calibration.
2. Press the **SELECT** (**NET/GROSS**) key to scroll to the ***HI SETPT*** or ***LO SETPT*** message.
3. Select the **TEST** key.
4. ***HI VALUE*** displays.
5. Push the **TEST** key.
6. The most significant digit flashes. ***INPUT WT*** displays.
7. Push the **SELECT** key until the first digit of the desired weight value is displayed.
8. Push the **TEST** key. The **CLEAR** (**ZERO**) key can be used to change an entry if necessary.

Note ***To enter 100 kg on a 10,000 kg scale, the first two digits must be entered as zeros (00100).***

9. The next most significant digit flashes. Press the **SELECT** key and the **TEST** key to finish out the entry.

Note ***With the IR remote, the value can be entered directly.***

10. After the entire Hi Setpoint is entered, ***MODE*** displays. Select the **TEST** key.

The first selection is ***DISABLED***. This mode allows the user to program a setpoint without the setpoint actually operating.

1. To enable the setpoint, push the **SELECT** key until either gross mode or net/gross mode is selected.
2. In gross mode the setpoint operates at the value based on gross weight regardless of tare values being subtracted. If this is the desired setpoint operation mode select the **TEST** key.
3. If the setpoint operates relative to a tared weight the net/gross mode is used. Press the **SELECT** key to change from ***GROSS*** to ***NETGROSS*** then select the **TEST** key. In this mode the setpoint operates at the value which represents either a gross weight or a net weight.

The next selection **TEST** the setpoint ***RESPONSE*** – what the scale does when a setpoint value is reached.

1. Select the **TEST** key. There are now three selections: The ***NORMAL*** response turns on the internal MOSFET which is connected to a user-supplied alert device such as a siren or strobe light.
2. Press the **SELECT** key to change the response to ***BLANKLCD***. In this mode the liquid crystal display weight reading blanks out and the message ***HI SETPT*** displays. The MOSFET functions as before.
3. Press the **SELECT** key again to change to the ***BLINKLCD*** response. Weight readings continue, but the display alternates between a standard weight reading and a ***HI SETPT*** indication.

In all three modes, the overload condition overrides the display mode.

4. After the desired setpoint response is selected, press the **TEST** key.
5. The Setpoint Menu displays. Press the **SELECT** key to return to the above operations (***VALUE***, ***MODE***, ***RESPONSE***) if modifications are required.
6. To quit and return to normal scale operation use **SELECT** until ***EXIT?*** displays.
7. Select the **TEST** or the **CLEAR** key (no shift required) to return to the Setup Menu.
8. Select the **CLEAR** key to get out of the menu and back to standard scale operation. Use the same procedure for a Low Setpoint.

4.3.2 Disable Setpoint

It is often useful to be able to set up a setpoint ahead of time and disable it for testing purposes.

1. From the ***SETUP*** function, press the **SELECT** (**NET/GROSS**) key until ***HI SETPT*** (or ***LO SETPT***) displays.
2. Select the **TEST** key. This allows the ***HI SETPT*** to be modified.
3. Press the **SELECT** key until ***MODE*** displays.
4. Select the **TEST** key.
5. Press the **SELECT** key until ***DISABLE*** displays.
6. Select the **TEST** key. This disables the setpoint and returns to the Setpoint Menu.
7. Select the **CLEAR** (**ZERO**) key twice to exit the Setpoint and Setup menus or press the **SELECT** key to select the next desired operation.
8. To re-enable the Setpoint, follow Step 1 through Step 3 above. On Step 4 select ***GROSS*** mode or ***NET/GROSS*** mode.

4.3.3 Initialize the Scale

This procedure must be followed by a complete Setup and Calibration. Be sure to set the Calibration Units to the desired unit of measure and the legal standard as required before starting initial calibration.

1. Remove the seal port but do not select the **Calibration Switch**.
2. Select the **TEST** key then select the **Calibration Switch**. ***RESET*** displays.
3. Press the **SELECT** (**NET/GROSS**) key to scroll to ***UNITS***.
4. Select the **TEST** key.
5. Press the **SELECT** (**NET/GROSS**) key to scroll to ***STANDARD***.
6. Select the **TEST** key.
7. Press the **SELECT** (**NET/GROSS**) key to scroll to the desired standard.
8. Select the **TEST** key.
9. Press the **SELECT** (**NET/GROSS**) key to scroll to ***STD CAL***.
10. Select the **TEST** key.
11. The default capacity of the scale displays. If the capacity is correct, select **TEST** key.
    - If not, press the **SELECT** (**NET/GROSS**) key and the **TEST** key to change the capacity

A capacity entered must match the load cell capability and in the case of LFT units--must be a certified capacity.

12. Next the count-by is entered. Divide the capacity by the count-by to determine total counts.
13. Go to the Calibration Procedure section for the rest of the initial calibration.

5.0 Specifications

Accuracy
±0.1% +1 d of applied load

Resolution
3,000–5,000 d standard (Up to 10,000 d available)

Enclosure
NEMA Type 4, IP66, marine grade 356 alloy anodized cast aluminum

Top Lifting Eye, Shackle and Hook
Crosby® or equal with 360° thrust-bearing swivel hook

Design Overload
200% Safe / 500% Ultimate (except where noted)

Functions
Power, zero, net/gross, tare and programmable test/user

Display
6 digit, 1.6" (40 mm) LCD (upper) 8 digit, 0.8"
(20 mm) LCD (lower) with adjustable display contrast

Displayable Units
Pounds, kilograms, tons and metric tons selectable

Power
12 V rechargeable battery
115/230 VAC battery charger included

Operating Time
Up to 2000 hours with typical use; 300 hours in low light conditions

Operating Temperature
5°F–122°F (-15°C–50°C)

Filtering
OFF, LO, Medium and HI selectable

Warranty
One-year limited

Approvals

NTEP
CC 92-176 - 5,000 lb (2,500 kg)
Accuracy Class IIIL n_{max}: 5 000

Measurement Canada
Approval AM-4984

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