Precision Loads™
RICE LAKE

On-Board Weighing Systems PL9710 Indicator

Installation Manual

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Contents

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1.0 Introduction

This manual is intended for use by technicians responsible for installing and servicing On-Board Weighing Systems indicators.

This manual contains instructions for installing, calibrating, and operating On-board Weighing Systems indicators.

Authorized distributors and their employees can view or download this manual from the Rice Lake Weighing Systems distributor site at **www.ricelake.com**.

1.1 Overview

The *PL9710* digital on-board weighing system consists of a digital indicator, load cells, transmitters, and cables designed for a variety of truck operations.

Benefits of using the *PL9710* include:

- Flexibility to read individual axle weights
- A reliable two-wire hookup between the transmitters and the indicator or an optional wireless hookup
- An extremely bright weight display, visible even in bright sunlight
- Ability to calibrate the indicator without having to have the truck loaded
- Measurements in increments of 10, 20, 50, or 100 pounds or kilograms
- Internal software that can be updated to include the latest enhancements

A modern on-board weighing system consists of load cells to sense the load's weight, transmitters and cables to send the load-cell output to the indicator, and an indicator to change the signals into information usable by the operator.

Load cells are precision-machined high-strength steel beams with strain gages bonded inside. The load cell is installed on the truck between the log load and the truck frame. When the logs are loaded on the truck, the strain gages sense the weight of the logs and send a small electrical signal to the indicator by way of the transmitter.

The transmitter provides the voltage to the load cell to power the strain gages. A signal voltage from the load cell is returned to the transmitter where it is converted to a digital signal before being sent to the *PL9710* indicator through the two-wire cable or a wireless signal.

1.2 Safety Section

Safety Symbol Definitions:

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

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

Safety Precautions

Do not operate or work on this equipment unless you have read and understand the instructions and warnings in the Installation and Operation Manual. Failure to follow the instructions or heed the warnings could result in injury or death. Contact any Rice Lake Weighing System dealer for replacement manuals. Proper care is your responsibility.

⚠️ **WARNING**

Failure to heed may result in serious injury of 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 use for purposes other then 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.
Before opening the unit, ensure the power cord is disconnected from the outlet.

1.3   Front Panel

Figure 1-1. PL9710 Front Panel

The *PL9710* indicator receives the digital signal from the transmitter and interprets and displays it as a weight in pounds or kilograms. Two displays are used on the front of the indicator. The top LED display shows the weight of the load and can easily be switched between truck, trailer, or total weight. The lower dot-matrix information display complements the top display by showing the two non-displayed weights. For example, if the top LED display is set to show the truck weight, the upper line of the information display will show the trailer weight and the total weight. See Figure 1-1.

When the indicator is in the calibration or setup modes, the upper line of the information display will show a calibration or setup message. The lower line will show the appropriate legend for the softkeys, F1 through F5. The function of each of these keys changes depending on the mode that the *PL9710* is in. The labels will change as various menus are selected during calibration or setup. See Table 1-1 for softkey definitions during normal operation.

Softkey	Definition
F1	CH-1 Channel 1 or truck weight
F2	CH-2 Channel 2 or trailer weight
F3	TOT Total Weight
F4	AUTO - Auto cycle between CH-1, CH02, and Total

Table 1-1. Softkey Definition

1.4   Menus

The *PL9710* has different menus used for setup and calibration of the indicator.

1.4.1   Function Menu

The Function menu is used to:

- Reset the empty weight
- Select a gross or net weight mode
- Select the preferred speed for the auto-cycle mode

1.4.2   Setup Menu

The Setup menu is used to:

- Calibrate channel 1 or 2
- Enable the advanced calibration feature
- Select the proper weight unit, such as pounds or kilograms
- Select the different weight increments, commonly called the grad size
- Set the time in hours and minutes
- Set the date

1.4.3   Advanced Setup Menu

The Advanced Setup menu is used to:

- Enable the filter
- Select the number of load cells per channel
- Enable the load and delivery feature
- Enable the lift to weigh feature
- Enable the sensor output feature
- Enable the cal
- Enable the accumulator feature
- Select the transmitter models
- Select the channel mode

1.4.4   Setup ID Menu

The Setup ID menu is used to:

- Establish ID numbers for the load and delivery feature

1.4.5   Setup Serial Port Menu

The Setup Serial Port menu is used to:

- Select the serial port baud rates
- Set the serial ports to continuous output

The following chapters guide you through the setup and calibration of the indicator.

2.0 Indicator Setup

This chapter will guide you through the indicator set up prior to doing the calibration. You will need to make the following decisions:

- Will you want the top weight display to display in pounds (lbs) or kilograms (kgs)?
- Do you want the weight shown in 10, 20, 50, or 100 lbs or kgs increments (grad size)? Selecting 10 or 20 will give better resolution but the display will appear unstable because the numbers will fluctuate more frequently when the truck slightly moves. A grad size of 50 is a good all-around selection.
- Should the weights be shown as gross weight or net weight? Most operators want the display to show gross weight so they can see the same weight that any roadside platform scale or mill scale would see.

2.1 Starting the Indicator Setup

Turn on the indicator by firmly pressing the **Power** key. The information display will first display *Power On* and then display the indicator model, software version, current time and date, transmitter model and number of load cells per channel.

During this time, the indicator is also performing an internal self test which includes briefly lighting all of the small red indicator lights and all segments of the weight display numbers. If the information display shows any error messages, refer to "Troubleshooting" on page 17.

2.2 Setting the Load Units

It is important to see if the indicator is displaying weights in kilograms (kg) or pounds (lb). Look at which of the small red LED lamps is on at the right of the weight display, next to the lb or kg label. If incorrect, do the following:

1. Press the **Menu** key for 5 seconds until the information display shows *Setup Menu*.

    After releasing the **Menu** key, the information display shows *Setup Selection*.
2. Press the **Up** or **Down** key to select the Units menu.
3. Press the **LB** or **KG** softkey to select the desired unit.
4. Press the **Enter** softkey to store the change.
5. When finished press the **Cancel** softkey to exit the Setup menu.

2.3 Setting the Grad Size

The grad size, or graduation, allows the indicator to display the load weight in either 10, 20, 50, or 100 pounds (lb) or kilograms (kg) increments.

1. Press the **Menu** key for 5 seconds until the information display shows *Setup Menu*.

    After releasing the **Menu** key, the information display will show *Setup selection*.
2. Press the **Up** or **Down** key to select the Grad Size menu.
3. If no change is desired, press the **No** softkey.
4. If you want to change the grad size, press the **yes** softkey, followed by the **Enter** softkey.
5. Press the **Up** or **Down** key to select a grad size: 10, 20, 50, or 100.
6. Press the **Enter** softkey to store the change.
7. Press the **Cancel** key to exit the Setup menu.

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2.4 Setting Net, Gross or Test Mode

The NET weight refers to the weight of the load. It does not include the weight of the truck and/or trailer. GROSS weight, however, refers to the weight of both the load and the truck/trailer combination. Look at which of the small red LED lamps is on at the left of the weight display, next to the NET, GROSS or LD label. If incorrect, do the following:

1. Press the **Menu** key to get the Function menu.

Note *If you do not continue with the operation within 15 seconds, the indicator will reset to the normal weighing mode and you will need to press the Menu key again.*

2. Press the **Menu** key again to show *Select Mode*.

3. Press the **Gross** softkey to select GROSS WEIGHT. The red GROSS LED lamp will turn on.

4. Press the **Net** softkey to select NET WEIGHT. The red NET LED lamp will turn on.

5. Press the **LD** softkey to select Load/Deliver. The red LD LED lamp will turn on.

6. Press the **Cancel** softkey to exit the Function menu.

2.5 Converting Channels

To convert between single and dual channels:

1. Turn on the unit.

2. Press and hold both the **MENU** and **UP ARROW** keys until the display reads:
   <Select Overlay>
   <9710   9740   Cancel>

3. Press the **UP ARROW** key. The display reads:
   <Select Number Channel:>
   <1   2   Cancel>

4. Press **F2** for dual channel operation or **F1** for single channel operation.

5. Wait for three seconds, then press **CANCEL**.

Alternatively, program one or two channels in the Advanced Setup menu.See Section 12.8 for more information.

3.0 Calibration

The calibration process allows you to fine tune your weighing system to provide the greatest degree of accuracy. The accuracy of the *PL9710*, however, depends on the accuracy of the information you provide. You will be required to have the weights of your truck and trailer when they are empty (tare weight) and when they are loaded (gross weight).

Find a certified platform scale of known accuracy, such as a state operated weight-enforcement highway scale or a mill scale. Have your empty log truck and trailer weighed with the trailer down. Get the truck weight (including the steer axle and the drive axles) and the trailer weight. For future reference, record the weights here:

Truck (steer and drive axles): _____ lb or kg

Trailer (trailer axles): _____ lb or kg

Total weight: _____ lb or kg

Not all platform scales read the same, so try to use the same scales whenever you need to recalibrate the indicator or check the calibration. Use the same scales for recording loaded weights that you used for getting your empty weights.

3.1 Entering the Empty Weight

Before entering the empty weight into the indicator, make sure the indicator display is set to GROSS. See "Setting Net, Gross or Test Mode" on page 5. Also, make sure the truck and trailer are empty and the trailer is on the ground with the indicator cable connected.

1. Press the **Menu** key for 5 seconds until the information display shows *Setup Menu*.

   After releasing the **Menu** key, the information display will show *Setup selection* and the weight display will show *Setup*.

2. To enter the truck empty weight, press the or **Up** or **Down** key until the information display shows *Calibrate Channel 1*.

3. Press the **Empty** softkey.

   The information display will briefly (for about 4 seconds) show *EMPTY - Channel 1*. It will then show *Set Ch-1 Empty Weight*.

   The last number of the weight display will be flashing, telling you that number is ready to be changed.

4. To change the number's value, press the **Up** or **Down** key.

5. To select a different number, press the **left arrow** or **right arrow** softkey.

6. When the number on the weight display matches your truck (channel 1) empty weight, press the **Enter** softkey to store the weight in the indicator's memory.

   The information display will briefly show *Store Ch-1 empty weight* and then return to *Setup selection* and the weight display will show *Setup*.

7. To enter the trailer empty weight, press the **Up** or **Down** key until the information display shows *Calibrate Channel 2*.

8. Press the **Empty** softkey. The information display will briefly show *EMPTY - Channel 2*. It will then show *Set Ch-1 Empty Weight*.

9. The last number of the weight display will be flashing, telling you that number is ready to be changed. To change the number's value, press the **Up** or **Down** key. To select a different number, press the **left arrow** or **right arrow** softkey.

10. When the number on the weight display matches your trailer (channel 2) empty weight, press the **Enter** softkey to store the weight in the indicator's memory. The information display will show then return to *Setup selection*.

At any time, you can exit the calibration process by pressing the **Cancel** softkey. The information display will briefly show *CANCEL - Setup*.

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3.2 Entering the Loaded Weight

The following steps can be completed only after having your loaded truck weighed at a certified and accurate platform scale. The accuracy of your indicator will completely depend upon the accuracy of the platform scale. For best results, use the same scales you used for getting your empty weights.

The steps involved are similar to those used for entering the empty weights.

1. Press the **Menu** key for 5 seconds until the information display shows *Setup Menu*.

   After releasing the **Menu** key, the information display will show and the weight display will show *Setup selection*.

2. To enter the truck's loaded weight, press the **Up** or **Down** key until the information display shows *Calibrate Channel 1*.

3. Press the **Full** softkey. The information display will briefly show *Load Channel 1 before Entering Full weight*. It will then show *Enter Ch-1 Full Weight*.

4. The last number of the weight display will be flashing, telling you that number is ready to be changed. To change the number's value, press the **Up** or **Down** key. To select a different number, press the **left arrow** or **right arrow** softkey.

5. When the number on the weight display matches your trailer's (channel 1) loaded weight, press the **Enter** softkey to store the weight in the indicator's memory.

   The information display will show *Store Ch-1 full weight* then return to *Setup selection*. And the weight display will show *Setup*.

6. To enter the trailer's loaded weight, press the **Up** or **Down** key until the information display shows *Calibrate Channel 2*.

7. Press the **Full** softkey. The information display will briefly show *Load Channel 2 before Entering Full weight*. It will then show *Enter Ch-2 Full Weight*.

8. The last number of the weight display will be flashing, telling you that number is ready to be changed. To change the number's value, press the **Up** or **Down** key. To select a different number, press the **left arrow** or **right arrow** softkey.

9. When the number on the weight display matches your trailer's (channel 2) loaded weight, press the **Enter** softkey to store the weight in the indicator's memory.

   The information display will show *Store Ch-2 full weight* then return to *Setup selection*.

At any time, you can exit the calibration process by pressing the **Cancel** softkey.

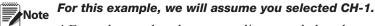The information display will briefly show *CANCEL-Setup*.

3.3 Advanced Calibration

Another way to enter the loaded weight into the indicator is with the advanced calibration feature. This method allows the calibration of several trucks to be centrally controlled. The driver does not have to enter the setup mode of the indicator, even for calibration. After setting in the tare weight, the driver need only record two sets of numbers:

- The truck and trailer loaded weight shown by the platform scale.
- The channel 1 and channel 2 weights recorded on the *PL9710* while the truck is on the platform scale.

The following steps are used for the advanced calibration, which can be done on an empty truck.

1. Press the **Menu** key for 5 seconds until the information display shows *Setup Menu*.

   After releasing the **Menu** key, the information display will show *Setup selection* and the weight display will show *Setup*.
2. Press the **Up** or **Down** key until the information display shows *Set Advanced calibration*.
3. Select the channel to calibrate by pressing the **CH-1** softkey or the **CH-2** softkey.

📝 **Note**   *For this example, we will assume you selected CH-1.*

   4. Enter the number that was earlier recorded as the number shown on the indicator's weight display for channel 1 while sitting on the platform scale. Change the numbers in the same manner as then setting the original loaded-weight calibration. See "Entering the Loaded Weight" on page 7. Press the **Enter** softkey when completed.
5. The information display will show **Enter Ch. 1 Legal weight**.
6. Enter the number that was earlier recorded as the legal truck weight from the platform scale. Change the numbers in the same manner as in Step 4, above.
7. Press the **Enter** softkey when completed.

   The information display will show *Advanced calibration Ch. 1* and then show *Setup selection*.
8. Press the **Cancel** softkey to return to normal operation.

📝 **Note**   *Channel 2 is calibrated in a similar manner.*

4.0 Operating the Indicator

Now that the indicator is set up and calibrated, it will continuously monitor the truck's load. The operator can lock the weight display to always show the truck or trailer weight or the total weight while viewing the other two channels in the information-display window. Auto-cycling can also be selected to continuously and automatically switch the weight display between the three channels.

4.1 Selecting the Weight Display Channel

1. Press the **CH-1** softkey to have the red LED weight-display window show the channel 1 weight.
   The information display will show the weight for channel 2 and the total weight.
2. Pressing the **CH-2** softkey or the **TOT** softkey will similarly change both displays.

4.2 Selecting the Auto Cycle Function

The auto-cycle function lets the indicator continuously change the weight display from the channel 1 weight to the channel 2 weight to the total weight, then repeats the cycle.

1. Press the **Auto** softkey to continuously cycle the weight display through the three channels.
2. The weight-display window will momentarily show *Auto* then switch to the appropriate weight. The red LED lamp labeled AUTO will turn on and the LED lamps labeled 1 and 2 will alternately turn on, depending on which channel is being displayed.
3. To leave the Auto-Cycle function, press either the **CH-1, CH-2** or **TOT** softkey.

The weight display will then show whichever channel you selected and the information display will show the other two weights.

4.3 Changing the Auto Cycle Speed

The time that the indicator dwells on each channel display when in auto cycle can be selected by the operator. Three times are available:

- SLOW (10 seconds)
- MID (6 seconds)
- FAST (3 seconds)

1. Press the **Menu** key to get the Function menu.

📝 **Note** *If you do not continue with the operation within 15 seconds, the indicator will reset to the normal weighing mode and you will need to press the key again.*

   2. The information display will show *Reset Empty weight*.
3. Press the **Menu** key two more times and the information display will show *Select Auto Cycle speed*.
4. Press the appropriate key to select the desired time.

Press the **Cancel** key if you decide not to change the time. If no keys are pressed within 15 seconds, the indicator will return to normal operation.

4.4 Recalling the Tare Weight

During normal day-to-day operations, one or both of the channels may slightly drift from the originally-set empty-weight (tare-weight) calibration. Various reasons can explain a small drift, for example:

- Large changes in outdoor temperature from morning to mid-day.
- Dropping a log on the front or rear bunks.
- Mud or snow accumulations.

To recall the tare weight, perform the following steps:

1. Press the **Menu** key to get the Function menu.

   The information display will show *Reset Empty Weight*.

> **Note** *If you do not continue with the operation within 15 seconds, the indicator will reset to the normal weighing mode and you will need to press the key again.*

   2.Select the appropriate channel by pressing the **CH-1** softkey or the **CH-2** softkey. The indicator will return to the previously set tare weight for the channel selected and will be ready for normal operation.

An error message may be shown for 5 seconds in the information display if the tare weight of channel 1, for example, has drifted more than 3000 lbs or 2500 kgs.

The display will change to show *Remove load or calibrate Ch1 empty weight* and the weight display will return to the tare weight shown before the attempted change.

4.5 Recording the Cal Factor

The cal factor is a number related to the calibration of each channel of the indicator. Should you need to change indicators, using the cal factor will considerably speed the process. By entering into the new indicator the cal factors from the old indicator, the new indicator will have the same calibration. Use the space on the next page to record your indicator's cal factor.

Truck (channel 1) cal factor   _____

Trailer (channel 2) cal factor   _____

1. Press and hold the **Menu** key about 5 seconds until the information display shows Setup menu.
2. After releasing the **Menu** key, the information display will show *Setup selection* and the weight display will show *Setup*.
3. To find the cal factor for the truck (channel 1) channel, press the **Up** or **Down** key until the information display shows *Calibrate Channel 1*.
4. Press the **CAL** softkey.

   The information display will show *Enter Ch. 1 Cal-Factor*.
5. The last number of the weight display will be flashing, telling you that number is ready to be changed. If you are only recording the number and not changing it, record it above and then press the **Enter** softkey.
6. If you are installing a replacement indicator and want to enter the truck (channel 1) channel cal factor from the previous indicator, press the **left arrow** or **right arrow** softkey to select the number for changing.
7. When the number on the weight display matches your truck (channel 1) cal factor, press the **Enter** softkey to store the cal factor in the indicator's memory.

   The information display will show *Store Ch. 1 Cal-Factor* and then return to *Setup selection* and the weight display will show *Setup*.
8. To find the cal factor for the trailer (channel 2) channel, press the **Up** or **Down** key until the information display shows *Calibrate Channel 2*.
9. Press the **CAL** softkey.

   The information display will show *Set Ch. 2 Cal-Factor.*
10. The last number of the weight display will be flashing, telling you that number is ready to be changed. If you are only recording the number and not changing it, record it on the previous page and then press the **Enter** softkey.
11. If you are installing a replacement indicator and want to enter the trailer (channel 2) channel cal factor from the previous indicator press the **left arrow** or **right arrow** softkey to select the number for changing.
12. To change the value of the number, press the **Up** or **Down** key.
13. When the number on the weight display matches your trailer (channel 2) cal factor, press the **Enter** softkey to store the cal factor in the indicator's memory.
14. After recording or resetting the cal factor numbers, press the **Cancel** softkey.

    The information display will briefly show *CANCEL - Setup* and then return to normal operation.

4.6 Setting the Time and Date

Having the correct time and date entered into the *PL9710* is important if you will be using the indicator's printer function or if you will be downloading weight information to another computer. Setting the time will be shown first, followed by setting the date.

1. Press and hold the **Menu** key about 5 seconds until the information display shows Setup menu.
2. After releasing the **Menu** key, the information display will show *Setup selection* and the weight display will show *Setup*.
3. To enter the correct time, press the **Up** or **Down** key until the information display shows *Set Time*.
4. Press the **Yes** softkey to set the time.
   The information display will show *Set Minute* and the weight display will be flashing the minutes.
5. To change the minutes, press the **Up** or **Down** key.
6. Press the **Enter** softkey to save the minutes setting.
7. To select the hours, press the **left arrow** softkey.
   The information display will show *Set Hour* and the weight display will be flashing the hours.
8. To change the hours, press the **Up** or **Down** key.
9. Press the **Enter** softkey to save the hours setting.
10. To select AM or PM, press the **left arrow** softkey.
    The information display will show *Set AM or PM* and the weight display will be flashing AM or PM.
11. To change the setting, press the **Up** or **Down** key.
12. Press the **Enter** softkey to save the setting.

Press the **Cancel** key at any time to return to the Setup menu.

13. To enter the correct date, press the **Up** or **Down** key until the information display shows *Set DATE. Select formats*.
14. Press the **MMDDYY** or **DDMMYY** softkey to select the date format.
    The information display will show *Set Day*.
15. Press the **left arrow** or **right arrow** softkey to select the day, month, or year to change. Press the **Up** or **Down** key for the correct number.
16. Press the **Enter** softkey to save each changed setting.
17. Press the **Enter** softkey to return to the setup menu.

Press the **Cancel** softkey to return to normal operation.

5.0 Customer or Product ID and Load/Deliver

When the Load/Deliver mode has been enabled (See "Advanced Setup" on page 25.), each customer account or product being loaded or delivered will need a unique identification (ID) number. The ID number can be selected prior to pickup or delivery by using either the indicator keypad, an external keypad, or an optional bar-code scanner.

5.1 Setting the Customer or Product ID

1. Press the **Menu** key for about 7 seconds until the information display shows *Setup ID*.
2. After releasing the **Menu** key, the information display will show *ID Number selection*.
3. Press the **Add** softkey to add an ID number.

   The information display will show *Add ID. Record #001* and the last number of the weight display will be flashing, telling you that number is ready to be changed.
4. To change the number's value, press the **Up** or **Down** key. To select a different number, press the **left arrow** or **right arrow** key.
5. Press the **Enter** key when finished.

   The information display will show *Store ID Number*. If the entered number has already been selected, the information display will show *Error - Duplicate Number* and you should enter a different number.
6. When the correct number has been entered, press the **Cancel** key.

   The information display will show *ID Number selection*.

Press the **Cancel** key again to return to normal operation.

5.2 Using the Customer or Product ID with Load/Deliver

Calibrate the *PL9710* indicator as outlined in Chapter 3, Calibration, using 00000 for EMPTY weights. Enter the net payload values obtained from a certified scale for the FULL values. When calibrating the system, fill the trailer with payload to no less than 80% of the maximum full load. Since the empty weights are set at 00000 during calibration, the gross-weight reading will be the same as the net-weight reading.

In the single-channel mode, the Accumulator function can be used to add (or subtract, if delivering) each individual pickup to previous pickups and store the accumulated total in the indicator's internal memory. At the end of the job, a grand total of all pickups is available.

A paper ticket can also be printed for each individual pickup or delivery if a printer is attached and enabled through the serial port at the back of the indicator (See "Using the Serial Ports" on page 14.). The paper ticket will show:

- ID number
- Weights
- Date
- Time of day


```
ID number         ===================================
weights           ID: 000002
date              Gross Weight
time of day       CH-1:  15000 lb.
                  CH-2:  12500 lb.
                  TOTAL:  27500 lb.
                  Time: 11:05 am   Date: 02/12/05
                  ===================================
```

Figure 5-1. Paper Ticket Example

The Accumulator function is not available in the 2-channel mode but paper tickets may be printed with a properly attached and enabled printer.

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The following steps will guide you in using the customer or product ID in the Load/Deliver mode.

For single-channel operation, make sure Accumulator (if desired) and Load/Deliver have been enabled. See "Advanced Setup" on page 25.

1. Select Load/Deliver by pressing the **LD** softkey. The red LED labeled LD at the left of the weight display should be lit.
2. Select the correct customer or product ID by pressing the **ID** softkey.

    The information display will briefly show *Select ID number* and then show *Select ID*.

    Use the **Up** and **Down** keys until the correct ID shows in the weight display and then press the **Select** softkey.
3. Before picking up or delivering each load, press the **Zero** key.

    As each load or delivery is made, the net weight shown in the information display will increase or decrease to show the total of all the pickups or deliveries.
4. At any time between or after incremental loading or delivering, the NET mode is accessible for viewing the total net payload on the truck.

    Press the **Net** softkey. The weight display will show the total NET payload weight.
5. Press the **Print** key to print a paper ticket for the load and, if the Accumulator function has been enabled, the current load will be added to the indicator's internal memory for retrieval later.

For two-channel operation, make sure Load/Deliver has been enabled. See "Advanced Setup" on page 25. The indicator must be in TOTAL for Load/Deliver to operate correctly. The Accumulator function is not available.

1. Press the **Menu** key to get the *Function Menu*.

    If you do not continue with the operation within 15 seconds, the indicator will reset to the normal weighing mode and you will need to press the **Menu** key again.
2. Select Load/Deliver by pressing the **LD** softkey. The red LED labeled LD at the left of the weight display should be lit.
3. Select the customer or product ID by pressing the **ID** softkey.

    The information display will briefly show *Select ID number* and then show *Select ID*.
4. Press the **Up** or **Down** key for the appropriate product or customer ID, then press the **Select** softkey.
5. Before picking up or delivering each load, press the **Zero** key
6. Press the **Print** key to print a paper ticket for the load.

6.0   Using the Serial Ports

The rear panel of the *PL9710* indicator has connectors to provide RS232 serial output for printers, remote displays, remote keypads, an on-board computer, or other peripherals. Two communication ports are available, COM1 and COM3. Both COM ports have the following specifications:

- Baud rates: 1200, 2400, 4800, and 9600 baud
- Parity: None
- Stop bit: 1
- Data: 8 bits

Only the baud rates are selectable. The default baud rate is 9600.

COM1 is used for output to a printer or to accept input from a bar-code scanner or external keypad.

COM3 is used for a large-digit remote readout (scoreboard) or a wireless remote handheld display.

6.1   Setting the Serial Ports

Two options are available when setting the serial ports, the baud rate and whether or not continuous output is needed. If you are using the PL6050 printer, do not change the default of 9600 baud.

1. Press the **Menu** key for about 10 seconds until the information display shows *Setup Serial Port.*
2. After releasing the **Menu** key, the information display will show *Setup selection* and the weight display will show *Setup.*
3. To set the COM1 baud rate, press the **Print** key until the information display shows *Select Baud COM1.*

   If you need a baud rate other than the default 9600, press the appropriate softkey. The selected baud rate will show at the end of the first line in the display.
4. Press the **Cancel** softkey to complete the selection and return to *Setup selection.*
5. To set the COM3 baud rate, press the **Up** key until the information display shows *Select Baud COM3.*

   Select the proper baud rate.
6. To set up COM1 for continuous output, press the **Up** key until the information display shows *COM1 Send Continuous YES.*

   Press the appropriate softkey for YES or NO. The selection will show at the end of the first line in the display.
7. Press the **Cancel** key to complete the selection and return to *Setup selection.*
8. To set up COM3 for continuous output, press the **Up** key until the information display shows *COM3 Send Continuous YES.*
9. Press the **Cancel** softkey to complete the selection and return to *Setup selection.*
10. Press the **Cancel** key again to return to normal operation.

6.2 Connecting a Serial Printer

A serial printer has a two-wire cable, which connects to the back of the *PL9710* indicator at the COM1 serial port. The power wire attaches to the 12VDC positive (+) terminal, the ground wire connects to the GND (-) terminal, and the signal wire connects to the TXD terminal. Consult the printer operator's manual for the ground and signal wire colors.

Note *For the printer to operate properly, the COM1 baud rate must be set to 9600 baud (Step 3 above).*

The COM1 serial port should not be set for continuous output (Step 6 above) if a printer is connected. Continuous output will cause the printer to print a ticket each time the indicator's weight display is updated. With continuous output set to NO, the printer will print a ticket only when the PRINT key is pressed on the indicator's front panel.
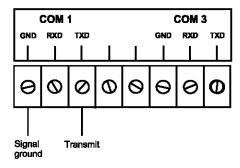

Figure 6-1. Serial Printer Connections

6.3 Connecting a Wireless Remote Display System

The transmitter for a wireless remote display system is connected to the COM3 port on the back of the *PL9710* indicator. The red power wire attaches to the 12VDC positive (+) terminal, the ground wire attached to the COM3 GND terminal, and the signal wire attached to the COM3 TXD terminal. Consult the remote display operator's manual for the ground and signal wire colors.

Note *For the printer to operate properly, the COM3 baud rate must be set to 9600 baud (Step 5 of the previous section).*

The COM3 serial port should be set for continuous output (Step 8 of the previous section) if a wireless remote display is connected. Continuous output will allow the remote display to show the same as the indicator's weight display.
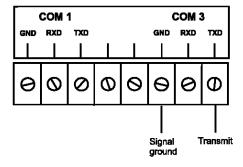

Figure 6-2. Wireless Remote Display Connections

6.4 Connecting a Remote (Scoreboard) Display

A remote hard-wired display, sometimes called a scoreboard display, is connected the same as described above for the transmitter of a wireless remote display.

6.5 TTL Connections

The following instructions explain how to use the remote zero and print pushbuttons in the load/deliver mode.

Use TTL connections on the rear of the 9170 indicator. Connect the following:

- RM1 to **ZERO** push button
- RM2 to **PRINT** push button
- Each RM terminal to GND (function will activate as a short is created when the button is pressed)

7.0   Lift to Weigh

Some tipping-body applications for on-board scales are best done utilizing the Lift-To-Weigh program. The lifting ram(s) can be scaled using a pin, load cells, or pressure transducer to measure the load once the ram is activated. These installations require that the body be elevated only slightly (about 4 to 6 inches) for accurate payload weights to be displayed.

7.1   Using Lift-to-Weigh

1. Make sure Lift-To-Weigh has been enabled. See "Advanced Setup" on page 25.
2. Make sure the display is set to show NET, not GROSS.
3. The indicator's weight display will show bars along the bottom of the main display when the body is in the down (relaxed) position.
4. Use the standard calibration procedure for calibrating the empty and loaded weights, except that the body must be raised slightly for each calibration. See "Calibration" on page 6.
5. The Lift-To-Weigh program places a +/-500 lb/kg threshold around the empty weight entered. This threshold requires that a minimum of 500 lb/kg of material be present in the body for the scale to display payload weight.

8.0   Troubleshooting

Troubleshooting is a systematic process of testing, identifying, and eliminating areas of the weighing system that are causing problems or malfunctions. The *PL9710* is designed to aid in troubleshooting by providing error codes which identify problems. Many of the error codes will show either channel 1, the truck channel, or channel 2, the trailer channel, whichever is applicable.

The *PL9710* system has two wires going from each transmitter to their respective load cells. One wire has a red band next to the load cell connector and is called the red side and the plain black wire, to the other load cell, is called the black side. The *PL9710* will sometimes refer to the red side or the black side in the error messages.

An effective and easy troubleshooting method is called substitution. For example, if the error message says the red side is defective, swap the red and black wires at the load cells. If the error message remains the same, then the trouble is with the wire. If the message changes to say the black side is defective, then the load cell is the problem. The same idea can be used with the channel 1 and channel 2 wires at the back of the indicator.

The weight display will show **Er CH1** if there is a problem with channel 1 or, if channel 2 is not working, **Er CH2** will be displayed.

Additional details to aid in troubleshooting will be shown in the information display window.

The following sections will show how the error codes are displayed, list the possible causes, and some troubleshooting hints.

Ch.1 Red side defective
The red-banded wire may be damaged between the load cell and the channel 1 transmitter.

- The load cell connected to the red-banded wire of channel 1 may be defective.
- Swap the two load-cell cables. If the message is the same, the red-banded wire is damaged, possibly pinched or cut. If the message changes to read the black side is defective, then the load cell is the problem.

Ch.1 Blk side defective
The black wire may be damaged between the load cell and the channel 1 transmitter.

- The load cell connected to the black wire of channel 1 may be defective.
- Swap the two load-cell cables. If the message is the same, the black wire is damaged, possibly pinched or cut. If the message changes to say the red side is defective, then the load cell is the problem.

Ch.2 Red side defective
The red-banded wire may be damaged between the load cell and the channel 2 transmitter.

- The load cell connected to the red-banded wire of channel 2 may be defective.
- Swap the two load-cell cables. If the message is the same, the red-banded wire is damaged, possibly pinched or cut. If the message changes to read the black side is defective, then the load cell is the problem.

Ch.2 Blk side defective
The black wire may be damaged between the load cell and the channel 2 transmitter.

- The load cell connected to the black wire of channel 2 may be defective.
- Swap the two load-cell cables. If the message is the same, the black wire is damaged, possibly pinched or cut. If the message changes to say the red side is defective, then the load cell is the problem.

Ch.1 not connected
Channel 1 is not connected to its transmitter.

- The channel 1 wire may have been disconnected at the back of the indicator.
- The channel 1 wire may be damaged between the channel 1 transmitter and the indicator. Disconnect the channel 1 wires from the indicator. Assuming channel 2 is working, connect the channel 2 wires to the channel 1 terminals. If the message stays the same, the indicator is defective. If the message goes away and channel 1 works again, then the wire is the problem. Check for a cut wire or a connector unplugged.

Ch.2 not connected
Channel 2 is not connected to its transmitter.

- The channel 2 wire may have been disconnected at the back of the indicator.
- The channel 2 wire may be damaged between the channel 2 transmitter and the indicator. Disconnect the channel 1 wires from the indicator. Assuming channel 1 is working, connect the channel 2 wires to the channel 1 terminals. If the message stays the same, the indicator is defective. If the message goes away and channel 2 works again, then the wire is the problem. Check for a cut wire or a connector unplugged.

ERROR Reset Ch1 empty weight out-of-range 3000
The difference between the original empty weight and the current empty weight is too large for the recall empty weight command to function. The difference is limited to 3000 lbs or 2500 kgs.

Check for other problems, such as:

- Bent or distorted load cell
- Damaged load-cell mounting
- Bent truck or trailer frame
- Defective load cell

ERROR Ch1 cable shorted. Check all connections
The channel 1 wires are shorted together or shorted to the truck frame.

- Disconnect the channel 1 wires from the back of the indicator. If the error message remains, the indicator is defective. If the message goes away, check the channel 1 wire.
- The channel 1 wires may be damaged between the load cell and the transmitter or between the transmitter and the indicator.
- Check all wires for cuts or for pinched areas.
- Check for worn insulation where the wire could be shorted to the truck or trailer frame.

ERROR Ch2 cable shorted. Check all connections
The channel 2 wires are shorted together or shorted to the truck frame.

- Disconnect the channel 2 wires from the back of the indicator. If the error message remains, the indicator is defective. If the message goes away, check the channel 2 wire.
- The channel 2 wires may be damaged between the load cell and the transmitter or between the transmitter and the indicator.
- Check all wires for cuts or for pinched areas.

Check for worn insulation where the wire could be shorted to the truck or trailer frame.

No signal Ch.1
The signal from the channel 1 transmitter is not being received at the indicator.

- Disconnect the black and white channel 1 wires from the back of the indicator. Assuming channel 2 is working, move the black and white channel 2 wires from channel 2 to the channel 1 terminals. If the error message remains, then the indicator is defective.
- If the error message goes away and channel 1 again works, check for a cut wire between the indicator and the channel 1 transmitter. Check also for a good connection at the channel 1 transmitter.

No signal Ch.2
The signal from the channel 2 transmitter is not being received at the indicator.

- Disconnect the black and white channel 2 wires from the back of the indicator. Assuming channel 1 is working, move the black and white channel 1 wires from channel 1 to the channel 2 terminals. If the error message remains, then the indicator is defective.
- If the error message goes away and channel 2 again works, check for a cut wire between the indicator and the channel 2 transmitter. Check also for a good connection at the channel 2 transmitter.

Bad signal Ch.1
The quality of the signal from the channel 1 transmitter is poor.

- Disconnect the channel 1 wires from the back of the indicator. Assuming channel 2 is working, move the channel 2 wires from the channel 2 terminals to the channel 1 terminals. If the error message remains, then check the voltage at the power cable. If should be between 11.5 and 16 volts.
- If the voltage is good, then make sure the power lead is connected directly to the battery. Power from any other

source may be too "noisy".

- If the error message still remains, then the indicator may be defective.
- If the message is gone when the channel 2 wires are substituted for channel 1, then the channel 1 transmitter is defective or the connector may not be plugged in correctly.

Bad signal Ch.2
The quality of the signal from the channel 2 transmitter is poor.

- Disconnect the channel 2 wires from the back of the indicator. Assuming channel 1 is working, move the channel 1 wires from the channel 1 terminals to the channel 1 terminals. If the error message remains, then check the voltage at the power cable. If should be between 11.5 and 16 volts.
- If the voltage is good, then make sure the power lead is connected directly to the battery. Power from any other source may be too "noisy".
- If the error message still remains, then the indicator may be defective.
- If the message is gone when the channel 1 wires are substituted for channel 2, then the channel 2 transmitter is defective or the connector may not be plugged in correctly.

LOW POWER - Input Power required 11VDC to 16VDC
The power voltage to the indicator from the battery is less than 11 volts or greater than 16 volts.

- Make sure the power cable is adequately connected at the terminal strip on the back of the indicator.
- Measure the voltage at the power cable at the back of the indicator. It should be between 11 volts and 16 volts. If not, measure the voltage where the power cable is connected to the battery. If the voltage is greater than 16 volts, check the charging system of the truck.
- Make sure the power cable connections at the battery are clean and tight. The cable must be connected directly to the batteries and not to an accessory, ignition, or other connection in the dash.

9.0 Test Mode

Test numbers provide a way to verify that the system's load cells are working as they should. Since the test number is related to the actual output of the load cell, it will also give you a warning of impending load cell failure. With a properly working system, the test numbers for all the load cells should be similar. Load cells that are perfectly balanced (meaning no offset) will have test numbers very close to 32,767 when the truck is unloaded. Many load cells are not perfectly balanced, which means the test numbers will be somewhere between 25,000 and 39,000. If you record a test number outside of the 25,000 to 39,000 range, the load cell has an abnormal offset and may be ready to fail.

As the truck is loaded, the test numbers should increase proportionately. For example, suppose the channel 1 test numbers were 32,546 (black) and 33,275 (red) when the truck was empty. When loaded, the test numbers should increase and the test number for the red load cell should still be slightly larger than the black load cell test number.

If you notice one of the test numbers slowly increasing or decreasing but the load is stable, that load cell output may be drifting and the load cell may be failing. Another sign of impending failure would be if one of the test numbers increase much greater or less than the other for that channel.

The following steps will show you how to get test numbers for each load cell. If the system is working properly, record the empty weight test numbers for future reference. If you change load cells, be sure to change the appropriate test number.

For 2 load cells per channel
Channel 1 Red = _____ Black = _____

Channel 2 Red = _____ Black = _____

For 4, 5, or 6 load cells per channel
Channel 1	Load cell 1 = _____	Load cell 2 = _____
	Load cell 3 = _____	Load cell 4 = _____
	Load cell 5 = _____	Load cell 6 = _____
Channel 2	Load cell 1 = _____	Load cell 2 = _____
	Load cell 3 = _____	Load cell 4 = _____
	Load cell 5 = _____	Load cell 6 = _____

9.1 Recording Test Numbers

Use the following procedure to record test numbers.

1. Press the **Menu** key to get the Function menu.

   If you do not continue with the operating within 15 seconds, the indicator will reset to the normal weighing mode and you will need to start again.

2. The information display will show *Reset Empty weight.*
3. Press the **Menu** key again to show *Select Mode.*
4. Press **Test** softkey to select the test mode.

   The display will briefly show *Select Test Mode*. The weight display will show *Test* during all of the following steps.

5. Press the **CH-1** softkey to display the channel 1 test numbers. Record the test numbers.
6. Press the **CH-2** softkey to display the channel 2 test numbers. Record the test numbers.
7. If one of the channels has more than 2 load cells, the information display will show the test numbers for each load cell with its corresponding number, such as Lc1.
8. Press the **Cancel** softkey to return to the normal weighing mode.

   The display will briefly show *CANCEL - Test Mode*.

10.0 Installation

The *PL9710* indicator system includes the indicator, two transmitters with cables to connect to the load cells, one single-piece cable for the truck (channel 1), a two-piece cable for the trailer (channel 2), and a power cable. Items to be supplied by the operator include a plug and socket for the trailer (channel 2) cable, mounting hardware for the indicator and transmitters, and an inline fuse holder with a 3-amp slow-blow fuse.

Before starting the installation, tape over the ends of the connectors to keep them free of dirt and grease. Small plastic bags, like sandwich bags, could also be used for protection.

Plan the location of the indicator to minimize exposure to direct sunlight on the indicator face. Even though the weight display has super-bright numbers, direct sunlight makes them more difficult to view.

The transmitters should be mounted in a location protected from road debris and sticks and branches. The typical mounting areas are inside the frame rails or on the back-side of a crossmember. Remember to keep cable loops to a minimum to avoid having them snagged on debris or tools.

10.1   Installing the Indicator

1. Find a suitable location where the indicator will be convenient to the operator.
2. Remove the U-bracket from the indicator and use it as a template to mark the drilling locations for the four mounting screws.
3. Use four #10 or #12 screws to mount the U-bracket.
4. Install the indicator back into the U-bracket and verify that the indicator is in a desirable location.
5. Unplug the cable connector from the back of the indicator by pulling straight away from the indicator back. Set next to the indicator for later installation.

10.2   Transmitter location

Once all load cells, transducers or load pins have been installed, select a mounting location for the transmitter. Typically all cable leads from the load cells and load pins measure 30 inches (76 cm) in length. Air and hydraulic pressure sensors have output connectors mounted on the transducer enclosure and do not have leads.

Standard transmitters have leads which measure as follows:

• Single lead transmitter: 60 inches (152 cm)
• Dual lead transmitter: 48 inches (122 cm); 60 inches (152 cm)
• Four lead transmitter: 144 inch leads x 4 (366 cm each)
• Six lead transmitters: 144 inch leads x 4; 216 inch leads x 2 (548 cm)

Locate the transmitter(s) in areas protected from handling equipment, exposure to moving parts, road hazards, pivoting parts, tree branches, etc. Cabling should never be taut.

10.3   Mounting the transmitter

Mount the transmitter using the two 0.275 inch (7mm) mounting holes in the case flanges. The installer may drill a 1/4" hole in the chassis or a crossmember, using through bolts and locknuts to mount the transmitter, or the transmitter may be mounted to a separate plate (min 1/4" thick) which picks up existing chassis bolt holes. Use 1/4" diameter mounting bolts. Do not over tighten the mounting bolts.

10.4   Installing the Cables

Plug the transmitter leads into the load cell leads or pressure transducer connectors. Run the two-wire cable from the three-pin transmitter connector to the truck cab or tractor/trailer connector. In routing the two-wire cable, provide protection of the cable from moving parts, road hazards, heat, corrosives, etc. Do not attach the two-wire cable to air lines. Provide for a small service loop in the two-wire cable at each end. Tie all cables down using heavy duty cable ties at no greater than 18 inch (45 cm) intervals.

(!) **Important**   *The stainless steel transmitter is a sealed, encapsulated and riveted unit and is NOT field serviceable. Do not attempt to weld on or open the transmitter, or to remove the unit's connector or cable strain relief parts. Opening or altering the unit will void warranty coverage.*

10.5   Routing the Signal Cables

1. Route the two cables from the truck (channel 1) transmitter to the two truck load cells. Note which load cell (left or right) has the red-banded cable. Secure the cables with nylon cable ties or tape so the cables are

protected and exposed loops are minimized.

2. Similarly route and secure the two cables from the trailer (channel 2) transmitter. As an aid in troubleshooting, connect the red-banded cable to the same side as on the truck.

3. Check the load cell and cable connectors to be sure they are free of dirt, grease, and moisture.

4. Plug the cables into the load cells and tighten the connectors until resistance is felt. Tighten the connectors an additional 1/4 turn using only your fingers; pliers are not necessary. The additional tightening will seat the weather-proofing O-ring that is inside the cable connectors.

5. Route the truck (channel 1) cable from the transmitter to the indicator. Wherever the cable passes through a body panel, such as floor, toe-board, or firewall, provide protection for the cable to prevent chafing. At the indicator, put a tag on the cable to identify it as channel 1.

6. Next, route the cable from the trailer (channel 2) transmitter to the front of the trailer and locate a place for the trailer half of the cable connector. Install the cable on the connector and fasten the connector to the trailer.

7. Install the other half of the connector on the forward portion of the cable and route the cable into the cab for connection to the indicator. Observe the same precautions as in step 5, above. Identify the cable as channel 2.

8. Secure the cables in the cab, next to the indicator, and cut them to the proper length for connection to the indicator. Be sure and maintain the channel identification.

10.6 Routing the Power Cable

⚠ WARNING *The power cable must be connected directly to the batteries. DO NOT connect to an accessory terminal on the ignition switch, fuse panel, or behind the dash. The indicator must have a "clean" source of 12 volts.*

1. Route the power cable from the batteries to the indicator.
DO NOT connect to the batteries yet.

2. Observe the previous precautions about protecting the cable from undo chafing and abrasion.

10.7 Connecting the Cables

1. Carefully cut back 1 inch of the outer insulation on the indicator end of each cable. Do not cut into the white or black insulation of the signal wires or the red or black insulation of the power cable.

2. Strip off 1/4 inch of the individual wire insulation.

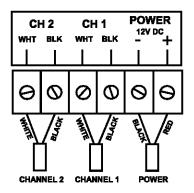3. Install the wires into the green indicator connector and snugly tighten each terminal. See Figure 10-1.

Figure 10-1. Indicator Connections

4. Review all of your installations and cable routings, looking for unnecessary loops, tight bends or kinks in the cables, properly inserted connectors, and connection of the trailer cable.

5. Connect the battery end of the power cable to the batteries. Use an inline fuse holder with a 3-amp slow-blow fuse. Put the fuse holder and fuse in the red wire and next to the positive battery terminal.

6. Make sure you are connecting to 12 volts and not 24 volts.

10.8   Final Step

1. Position the indicator plug for insertion into the back of the indicator. Insure that the screws for the connector terminals are visible on the top side. That will position the red battery wire next to the edge of the indicator case. Verify by looking at the label on the back of the indicator.

2. Insert the connector into the indicator by gently pushing straight in.

3. At the front of the indicator, press the **Power** key in the lower right hand corner of the indicator front panel. The information display, above the softkeys, will first show POWER ON and then show the indicator model and the software version. During this time, the indicator is also performing an internal self-test which includes briefly lighting all of the small red indicator lights. If the information display shows any error messages, see "Troubleshooting" on page 9.

11.0 Maintenance

Proper maintenance of your on-board weighing system, including preventive maintenance, is necessary to insure accurate and consistent weight readings. The best practice is to develop both daily and a weekly inspection procedures.

11.1 Daily Inspections

Look at both the truck, trailer, and load cell cables to see if they are:

- kinked
- torn
- cut or frayed
- properly secured away from debris

Be sure the plug and socket in the trailer cable are free of dirt and grease.

Ensure that the indicator is still securely fastened at its mounting location and the connector is pushed all the way into the back of the indicator.

Inspect the load cells and clean out any buildup of mud, snow and ice, rocks, or other debris from between the load cells and the truck or trailer frame.

11.2 Weekly Inspections

While looking at the truck, trailer, and load cell cables, run you hand along the cables to help detect any cuts or abrasions.

Verify that the connectors at the load cells and transmitters are still screwed in tight and the transmitters are still securely mounted.

Inspect the connector at the back of the indicator, looking for loose or frayed wires.

Be sure the power cable is still securely connected at the battery, the connection is not showing signs of corrosion, and the insulation is not being worn through where it could cause a short to the truck frame.

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12.0   Advanced Setup

The Advanced Setup menu includes sub-menus for:

- Enabling the filter
- Selecting the channel mode (1 or 2 channels)
- Setting the number of load cells connected to the indicator
- Enabling the load/delivery (LD) feature for incremental weighing
- Enabling the lift-to-weigh feature for tipping operations
- Enabling the cal
- Enabling the accumulator to store up to 100 weighing events

The sections for the sub-menus in this chapter are written to be independent of each other. If you wish to use more than one of the sub-menus, press the **Cancel** softkey only once at the end of the selection sequence. Then use the **Up** or **Down** key to select another sub-menu. Pressing the **Cancel** softkey twice will return the indicator to normal operation.

12.1   Enabling the Filter

When the filter is enabled, the indicator will average 2, 4, or 8 data samples before displaying the weight. Using the filter will stabilize the display (numbers will not bounce around as much) but the display will be slower to update.

1. Press the **Menu** key for about 12 seconds until the information display shows *Advanced Setup Menu*.

   After releasing the **Menu** key, the information display will show *Setup selection* and the weight display will show *Setup*.
2. To select the Filter submenu, press the **Up** key until the information display shows *Filter: None*.
3. Press the **More** softkey or **Less** softkey to decrease filtering.
4. Press the **Cancel** softkey to return to the submenu selection.
5. Press the **Cancel** softkey again to exit *Advanced Setup* and return to normal operation.

12.2   Selecting the Number of Load Cells Per Channel

1. Press the **Menu** key for about 12 seconds until the information display shows *Advanced Setup Menu*.
2. After releasing the **Menu** key, the information display will show *Setup selection* and the weight display will show *Setup*.
3. To select the *Number of Load Cells* submenu, press the **Up** key until the information display shows *Number of Load Cell Ch1=2*.
4. Press the appropriate key to select the number of load cells that are connected to Channel 1.
5. Press the **Cancel** softkey and then the **Up** key for Channel 2.

   The information display will show *Number of Load Cell Ch2=2*
6. Repeat Step 4 to select the number of load cells that are connected to Channel 2.
7. Press the **Cancel** softkey to return to the submenu selection.
8. Press the **Cancel** softkey again to exit *Advanced Setup* and return to normal operation.

12.3   Enabling Load/Delivery

1. Press the **Menu** key for about 12 seconds until the information display shows *Advanced Setup Menu*.
2. After releasing the **Menu** key, the information display will show *Setup selection* and the weight display will show *Setup*.
3. To select the *Load/Delivery* submenu, press the **Up** key until the information display shows *Enable Load/ Delivery YES*.
4. Press the appropriate softkey for **Yes** or **No**.
5. Press the **Cancel** softkey to return to the submenu selection.
6. Press the **Cancel** softkey again to exit *Advanced Setup* and return to normal operation.

12.4   Enabling Lift-to-Weigh

1. Press the **Menu** key for about 12 seconds until the information display shows *Advanced Setup Menu*.
2. After releasing the **Menu** key, the information display will show *Setup selection* and the weight display will

show *Setup.*

3. To select the *Lift to Weigh* submenu, press the **Up** softkey until the information display shows *Enable Lift to Weigh: Yes.*
4. Press the appropriate softkey for **Yes** or **No**.
5. Press the **Cancel** softkey to return to the submenu selection.
6. Press the **Cancel** softkey again to exit *Advanced Setup* and return to normal operation.

12.5   Enabling Sensor Output

This feature is available only with two-channel systems that use two load cells per channel.

1. Press the **Menu** key for about 12 seconds until the information display shows *Advanced Setup Menu.*
2. After releasing the **Menu** key, the information display will show *Setup selection* and the weight display will show *Setup.*
3. To select the *Sensor Output* submenu, press the **Up** key until the information display shows *Enable Sensor Output: YES.*
4. Press the appropriate softkey for **Yes** or **No**.
5. Press the **Cancel** softkey to return to the submenu selection.
6. Press the **Cancel** softkey again to exit *Advanced Setup* and return to normal operation.

12.6   Enabling Cal

This feature is available only with two-channel systems and with load cells that have the same output.

1. Press the **Menu** key for about 12 seconds until the information display shows *Advanced Setup Menu*.
2. After releasing the **Menu** key, the information display will show *Setup selection* and the weight display will show *Setup.*
3. To select the *CAL* submenu, press the **Up** key until the information display shows *Enable Cal NET TOTAL: YES.*
4. Press the appropriate softkey for **Yes** or **No**.
5. Press the **Cancel** softkey to return to the submenu selection.
6. Press the **Cancel** softkey again to exit *Advanced Setup* and return to normal operation.

12.7   Enabling the Accumulator

1. Press the **Menu** key for about 12 seconds until the information display shows *Advanced Setup Menu.*
2. After releasing the **Menu** key, the information display will show *Setup selection* and the weight display will show *Setup.*
3. To select the *Accumulator* submenu, press the **Up** key until the information display shows *Enable Accumulator: YES.*
4. Press the appropriate softkey for **Yes** or **No**.
5. Press the **Cancel** softkey to return to the submenu selection.
6. Press the **Cancel** key again to exit *Advanced Setup* and return to normal operation.

12.8   Selecting the Channel Mode

1. Press the **Menu** key for about 12 seconds until the information display shows *Advanced Setup Menu*.
   After releasing the **Menu** key, the information display will show *Setup selection* and the weight display will show *Setup*.
2. To select the Channel Mode submenu, press the **Up** key until the information display shows *Channel mode: 2 Channels*.
3. Press the appropriate softkey.
4. Press the **Cancel** softkey to return to the submenu selection.
5. Press the **Cancel** softkey again to exit *Advanced setup* and return to normal operation.
   The display will show *Transmitter Ch-2= 9100*.
6. When finished, press the **Cancel** softkey to exit the Advanced Setup menu.
   The information display will show *Setup selection*.

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WEIGHING SYSTEMS

Hardware Warranty Statement

Rice Lake Weighing Systems (RLWS) warrants that all RLWS brand 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 (2) years, unless otherwise stated.

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 non-conformity, 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 non-conformity 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.

Installer is completely responsible for the design and fitting of the installation, and any changes which might result in voidance of the warranty of the manufacturer of equipment to which the products are installed.

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.

RICE LAKE
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