Model 7815
Parcel Bench Scale

User's Manual

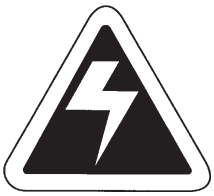
UNITED STATES

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CANADA

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le present appareil numerique n'emet pas de bruits radioelectriques depassant les limites applicables aux appareils numeriques de la Class A prescrites dans le Reglement sur le brouillage radioelectrique que edicte par le ministere des Communications du Canada.



CAUTION

Risk of electrical shock. Do not remove cover.
No user serviceable parts inside. Refer servicing to qualified service personnel.

Weigh-Tronix reserves the right to change specifications at any time.

09/09/05 7815_U.P65 PN 7424-16728E

Table of Contents

Description

The NCI Model 7815 is a digital electronic parcel bench scale specifically designed for shipping applications and is “Legal-for-Trade.”

The NCI Model 7815 has a standard RS-232 serial interface that enables it to be easily connected to a computer or other data-processing device.

Specifications

Capacity/Resolution

Model	Capacity (lb)	Capacity (kg)	n(max)
7815-75	150 x 0.1 lb	75 x 0.05 kg	1500, 1500 (1)
7815-75	150 x 0.05 lb	75 x 0.02 kg	3000, 3750 (2)

(1) Factory Set (Type Approved) (2) Selectable (Not Type Approved)

Agency Approvals

United States: NTEP #00-096. For use as a Class III Device from +5º to +40ºC.

If unit is to be used as a commercial device, all local reporting and registration requirements must be followed.

Dimensions

14"L x 12.5"W x 4.2"H

Power Supply

UL/CSA approved. In-line power supply with 6’ cord.

INPUT: 120 VAC + 10%-15%, Standard 3 wire w/ ground

OUTPUT: 15VDC @ .3 Amps DC

Frequency

60 Hz Standard

Power Requirements

0.1 amp maximum

Operating Temperature

42° to 104°F (+5º to +40ºC)

Construction	Die cast aluminum base with an ABS plastic weight platter. Built-in overload protection. Adjustable center stop, fixed corner stops.
Display	1/2” high, six-digit LCD Key panel with **ZERO** and **TEST** keys. Optional remote display with 7 ft. cable.
Scale Leveling	A level bubble is mounted on the load bridge. Leveling is accomplished by adjusting the four feet on the bottom of the scale.
Zero Window	Initial automatic zero setting is ±10% of maximum capacity—active at power on. Manual zero setting range is ±2% of maximum capacity—active using the **ZERO** key.
Under Capacity Limits	Under capacity indication will be given with dashes appearing on the bottom line of the display whenever the display is below zero.
Over Capacity Limits	Over capacity indication will be given with dashes appearing on the top line of the display whenever the weighed item exceeds 9 divisions over the rated capacity of the unit. The scale will use the initial zero value for reference for over capacity determination.
Sealing	Access to the calibration switch can be secured with a lead-wire or pressure sensitive security seal. The remote and primary indicators have no metrological features that require the use of a security seal.
Internal Counts	The scale has 65,000 internal counts.

Dynamic Response	The time from when weight is applied to the scale to the time when stable weight is displayed: 0-1000d, 1.5 seconds maximum mean average 1000d+, 2 seconds maximum mean average
Communications	Factory default settings: 9600 baud, 7 data bits, even parity, 1 stop bit. Standard 9-pin pass through RS-232 interface cable included. Not a null modem. RS-232 bidirectional, configurable 1200 to 19.K baud. Transmits weight and scale status whenever ASCII “W”<CR> is sent by a remote device

Initial Setup

Unpacking the Scale

Check container for any obvious evidence of damage. Inspect the unit for shipping damage. Immediately report any damage to the shipper.

Installing the Scale

1. Mount the unit on a stable, level surface that is free from air currents and vibration. Be sure the weigh platter does not touch any adjacent surfaces.
2. To install the weigh platter flush with a countertop, use the dimensions below to guide your construction.

7815 Platform Dimensions	Minimum Cutout Dimensions
14" W	14.75" W
12.5" D	13.25" D
4.2" Min. Ht.	

3. Loosen the collars on the leveling feet. Level the unit by using the level bubble under the platter as a guide. Be sure all four feet are in firm contact with the counter, then tighten all collars.
4. Make sure all power cords, remote display cables, etc. are not touching the live weighing surface.
5. Plug the unit into an appropriate voltage outlet, properly grounded.

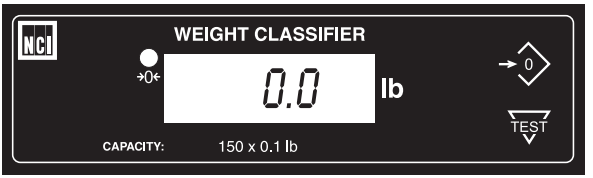
Operation

Operating Instructions

After the NCI Model 7815 is properly installed and power is applied, the display will perform a countdown test to insure all display segments are functional.

After this test is completed, the display should show zero (0.0).

NCI Model 7815 Resident Display



If the display indicates a slightly “off” zero condition (either a number in the display or dashes at the bottom of the display), press the **ZERO** key. When the display shows *0.0*, it is ready to weigh.

Place item or parcel on the weigh platter and the weight will be displayed. This information can be transmitted when requested by the computer.

Remote Displays

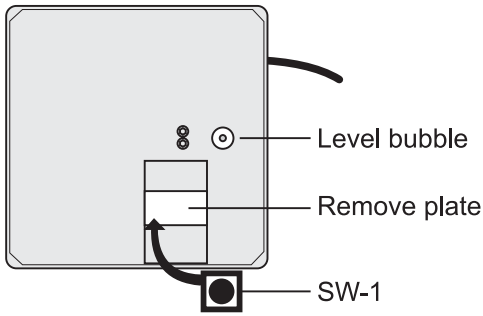
Model 7815 scales can have an optional remote display (shown above). The remote display has a keyboard and can be used in place of the resident display. To activate the remote display, power down the scale, plug the remote display cable end into the marked socket on the back of the unit. Reapply power and weight data will appear on both the resident and remote displays. The control keys (i.e., **ZERO** and **TEST**) are active on both displays in the Model 7815.

Entering Setup Mode

Accessing the Menu Mode

You can access the MENU Mode by pressing switch 1 shown in Figure 1.

Figure 1
Switch Diagram



In the Menu Mode, there are four modes available. They are as follows:

Diagnostic Mode (DIAG) – Used to test areas of the scale's function.

Configuration Mode (CONF) – Used to configure the scale for your application.

Calibration Mode (CAL) – Used when calibrating the scale.

Recalibration Mode (RE-CAL) – Used to change resolution and rounding-type.

The structure for these menus is shown in Figure 2. Following that are the step-by-step instructions for accessing the items within each menu.

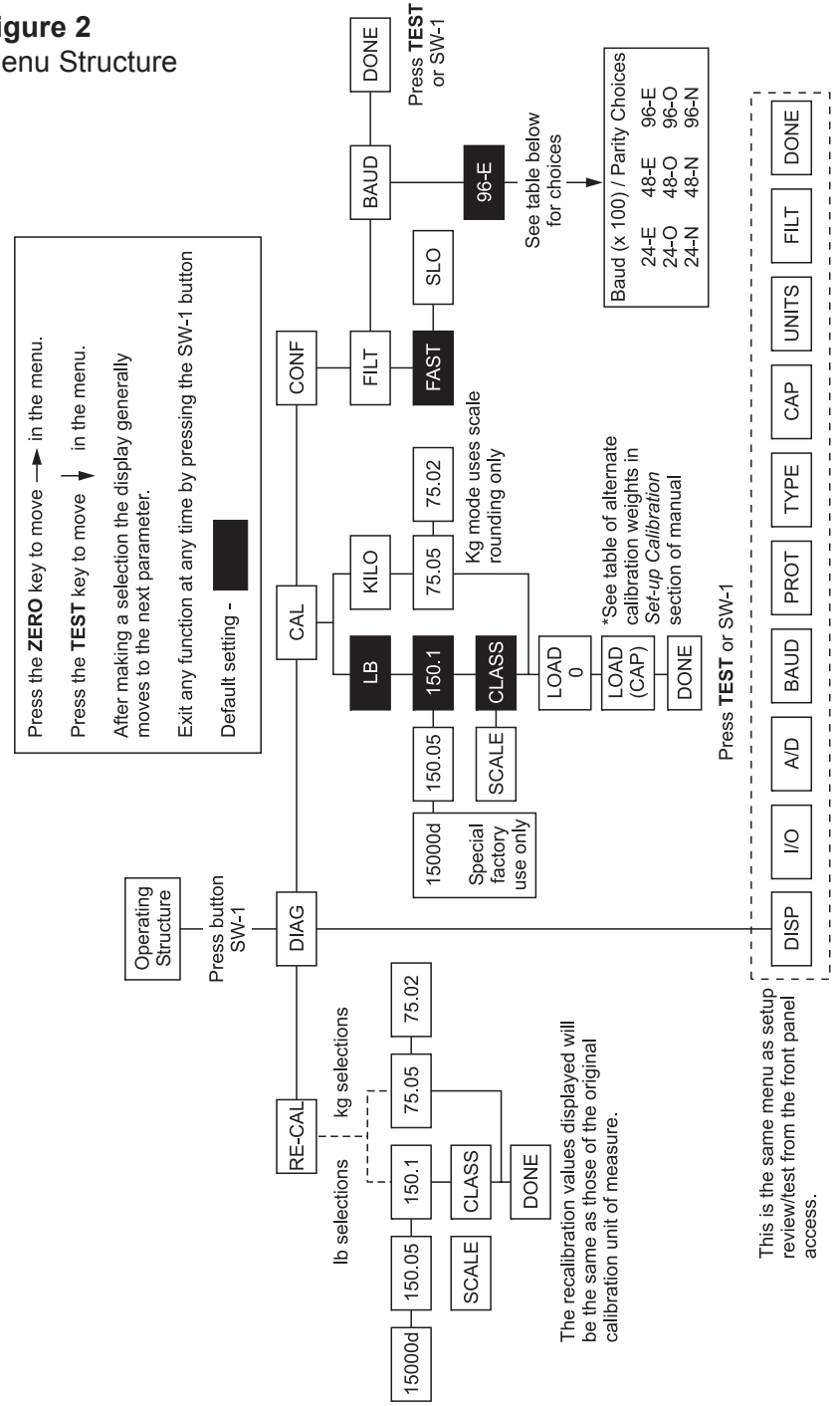
Diagnostics Mode

Diagnostic DIAG Mode

The diagnostic (DIAG) mode menu lets you test specific areas of the unit's function. These areas are:

Display (DISP) – Shows the version and revision of the software, followed by a display segment test.

Figure 2
Menu Structure



Input/Output (I-O) – To test the data I/O port, install a loopback connector and press the test button. The message *PASS* or *FAIL* is displayed. This test requires a jumper (short) between transmit and receive data lines.

Internal Counts (A/D) – Displays A/D data internal counts (factory use only).

Step-by-Step Instructions for Diag Mode

Follow these steps to access the tests in the DIAG menu. Refer to Figure 2.

1. Press SW-1…

   Display shows *DIAG*.

2. Press the **TEST** key. . .

   DISP is displayed.

3. Press the **TEST** key to perform the display test described earlier…

   Display test is performed and shows *DISP* after the test is completed.

4. Press the **ZERO** key to scroll to the I/O test...

   I-O is displayed. This stands for the Input/Output test.

5. With a loopback connector in place, press the **TEST** key to perform the I/O test . . .

   PASS or *FAIL* is displayed. If the test fails, the unit may have a serial interface failure.

6. Press the **ZERO** key to scroll to the internal count test . . .

   A/D is displayed. Tests A/D count data.

Return to normal operating mode by pressing the SW-1 switch.

Press the **ZERO** *key to scroll through the lists of selections.*

Press the **TEST** *Key to make a selection.*

If you want to skip a test, press the **ZERO** *key to scroll to the next test.*

If you press the **ZERO** *key to advance the display message to DONE, you can press* **TEST** *to return to the DIAG menu.*

If you encounter any failure in these tests, contact your local Weigh-Tronix dealer.

7. Press the **TEST** key to perform this test…

   Indicates internal A/D raw count. When weight is applied, the count value should increase proportionately.

8. Press the **TEST** key to stop the test . . .

   The remaining selections are for viewing current settings only. You can scroll through the menu to verify the settings, but to make changes, you must enter configuration or calibration.

Configuration Mode

The configuration (CONF) mode menu lets you configure the scale to your specific application. The items you can configure are as follows:

FILT (FILTER) – Adjusts the scale's response to fit environment. Factory default setting is *FAST*.

BAUD (BAUD) – Allows selection of appropriate baud rate and parity for computer interface. Factory default setting is *96-E*.

Step-by-Step Instructions for CONF Mode

Return to normal operating mode by pressing the SW-1 switch.

1. Press SW-1. . .

   DIAG is displayed.

2. Press the **ZERO** key. . .

   CONF is displayed.

3. Press the **TEST** key. . .

   FILT is displayed.

4. Press the **TEST** key. . .

   The present filter setting is displayed. The two choices are FAST and SLO. When the proper selection

is displayed, press the **TEST** key and *FILT* will again be displayed.

5. Press the **ZERO** key. . .

   BAUD is displayed.

6. Press the **TEST** key. . .

   The present baud rate and parity are displayed.

7. Press the **ZERO** key to scroll through the nine choices. When the proper selection is displayed, press the **TEST** key and the baud rate and parity will be set as selected…

   FILT will again be displayed.

8. Press SW-1. . .

   The unit returns to normal weighing mode.

Calibration Mode

Calibration (CAL) Mode

Calibrating your scale requires a certified test weight to ensure accurate weighing.

The calibration (CAL) mode menu lets you calibrate your scale. The items in the calibration menu are as follows:

POUNDS/KILOGRAMS – Select the unit of measure (lb or kg).

SCALE or CLASS – Select the scale rounding factor as a *SCALE* or as a *CLASS* (Weight Classifer) rounding device.

SCALE = .5 division rounding.

CLASS = .9 division rounding.

Factory default setting is *CLASS*.

CAPACITY – Select the capacity / resolution of the scale (150.05 or 150.1).

Step-by-Step Instructions for CAL Mode

To abort the CAL Mode at any time, press the SW-1 switch.

Follow these steps to calibrate your scale. Refer to Figure 2.

1. From the normal weighing mode, press SW-1…

   DIAG is displayed.

2. Press the **ZERO** key until…

   CAL is displayed.

3. Press the **TEST** key to start calibration…

   LB is displayed.

4. If you want to change the unit of measure, press the **ZERO** key to toggle between *LB* and *KILO*. When the choice you want is displayed, press the **TEST** key…

   The current capacity selection is displayed (*150.1*).

5. Press the **ZERO** key to scroll through the available capacity selections. When the choice you want is displayed, press the **TEST** key.

6. If *LB* was selected, the unit will display *CLASS*. Press the **ZERO** key to toggle between *SCALE* and *CLASS*. When the choice you want is displayed, press the **TEST** key. . .

   LOAD 0 is displayed.

Make sure the weigh platter and access plate are on the scale to establish proper zero load.

7. Clear all weight from the weigh platter and press the **TEST** key. After a brief wait…

   LOAD 150 is displayed (or the current capacity selected in Step 5). Alternate calibration points can be chosen using the **ZERO** key to scroll choices.

   The NCI 7815 allows calibration using less than full capacity weights. Below are the alternative weights that can be used to calibrate your scale for its designed capacity.

Table 1
Alternative
Calibration Points

Capacity	Alternative Calibration Weights
150 lb	10 lb, 50 lb
75 kg	10 kg, 50 kg

The calibration weight should be removed from the weigh platter before countdown completes.

8. Place chosen calibration weight on the weigh platter and press the **TEST** key…

   After a brief wait, *DONE* is displayed.

9. Press SW-1…

   The unit returns to normal weighing mode.

The unit is now tested, configured and calibrated. It is ready for use in your application.

Re-Calibration Mode

The re-calibration (RE-CAL) mode menu lets you change the scale resolution or rounding method without using any calibration weights. If you want to change the unit of measure operation, you must perform a full calibration using test weights.

For a scale originally calibrated in the lb. mode, you may also change rounding methods (i.e., scale or classifier).

Step-by-step Instructions for RE-CAL Mode

Follow these steps to re-configure your scale (without weights). Refer to Figure 2.

1. From the normal weighing mode, press SW-1…

   DIAG is displayed.

2. Press the **ZERO** key until…

   RE-CAL is displayed.

3. Press the **TEST** key…

   150.1 is displayed. (Displays the current capacity/resolution setting)

4. Press the **ZERO** key until desired capacity/ resolution is displayed.

5. Press the **TEST** key to select a new capacity/ resolution. If the scale is operating in LB mode…

   The unit will display *CLASS*.

6. Press the **ZERO** key to toggle between *SCALE* and *CLASS*.

7. When the choice you want is displayed, press the **TEST** key…

   DONE is displayed.

8. Press the **TEST** key or SW-1 to return to normal weighing mode.

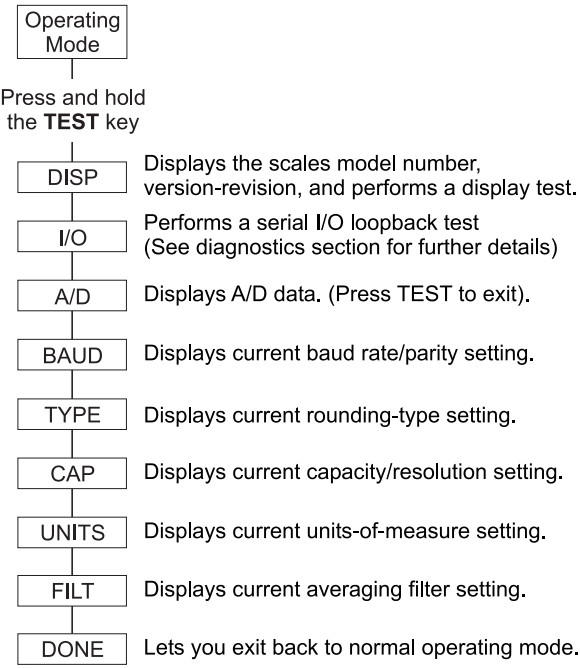
Review/Test Scale Settings

If you press and release the TEST key, the display will show the scales model number, version-revision, and performs a display test. To review the current system settings, press and hold the TEST until the display prompts DISP***.***

Press the **ZERO** *key to move to the next item in the menu.*

Press the **TEST** *key to select the displayed item to run or view.*

The **TEST** key located on the front panel lets you perform some basic system diagnostics, as well as review the current system settings without having to access SW-1 switch inside the scale.



When finished running tests or viewing the settings, press the **ZERO** key until *DONE* is displayed. Then press the **TEST** key to return to normal (i.e., weighing) mode of operation.

Error Codes

Any system errors detected by the scale will be displayed as the letter *E* followed by a one-digit error code. Press the **TEST** key to continue operation. If a calibration error occurs, the only way to clear the error is by recalibrating the unit.

The error codes are defined as follows:

Err-1 Calibration Error
Err-2 Configuration Error
Err-3 Initial Zero Error
Err-4 Zero Error

See the troubleshooting section at the end of this manual.

Communication

The NCI 7815 comes factory configured as a serial RS-232 interface device. There is one 9-pin DE type female connector accessible at the rear of the unit. The functional pinout of this cable provided with your scale is that of a standard PC, which is as follows:

DE-9 Female Scale			DE-9 Male Host		
Pin	Name	Direction	Pin	Name	Direction
1.	JMP1	-	1.	DCD	IN
2.	TXD	OUT	2.	RXD	IN
3.	RXD	IN	3.	TXD	OUT
4.	JMP 1	-	4.	DTR	OUT
5.	GND	REF	5.	GND	-
6.	JMP 1	-	6.	DSR	IN
7.	JMP 2	-	7.	RTS	OUT
8.	JMP 2	-	8.	CTS	IN
9.	NC	-	9.	RI	IN

NOTE: JMP1 PINS 1, 4 and 6, and **JMP 2** Pins 7 and 8 are internally jumpered inside the scale.

Communication Setting

Factory default settings: 9600 baud, 7 data bits, even parity, 1 stop bit. Protocol is NCI standard only.

Standard 9-pin pass through RS-232 interface cable included. Not a null modem.

Symbol Key:

<ETX>	End of Text Character (03 hex)
<LF>	Line Feed Character (0A hex)
<CR>	Carriage Return Character (0D hex)
<SP>	Space (20 hex)
X	Character from display including minus sign
hh	Two status bytes
uu	Unit of measure (lb, kg) using ANSI standard abbreviations)

Command	Scale Response	Results
W<CR>	<LF>xxxx.xxuu<CR> <LF>hh<CR><ETX> or <LFxxxxxx<CR> <LF>hh<CR><ETX>	Returns decimal weight with units and scale status. Returns contents of display (other than wt) and scale status
S<CR>	<LF>hh<CR><ETX>	Returns scale status
Z<CR>	<LF>hh<CR><ETX>	Scale is zeroed, then status returns
All else	<LF>?<CR><ETX>	Unrecognized command

Troubleshooting

Symptom and Recommended Action

Perform each step in sequence to correct the error condition. If the problem cannot be corrected, contact your local Weigh-Tronix dealer.

No power (display is blank)

1. Check that the primary side of the cord is plugged into the AC outlet, and the secondary side is properly connected to the power jack on the back of the scale.
2. Replace power supply.
3. Replace the display board.
4. Replace the main board.

Missing or extra segments on display

1. Replace display board.
2. Replace the main board.

Scale will not return to zero, or incorrect weight is displayed

1. Press the **ZERO** key.
2. Check for interference of weighing platform.
3. Power down, then power up the scale.
4. Recalibrate the scale.
5. Replace the load cell.
6. Replace the main board.

Display shows unrecognized characters

1. Check software PROM for proper insertion.
2. Check display cables for the proper connection.
3. Replace PROM
4. Replace the display board.
5. Replace the main board.

Display shows under "_ _ _" dashes

(Indicates that the scale is below zero or under capacity.)

1. Verify that the weigh platter is on the scale.
2. Press the **ZERO** key.
3. Power down, remove any items from the platter, and then power up the scale.
4. Recalibrate the scale.
5. Replace the load cell.

6. Replace the main board.

Display shows center " – – – " dashes
(Indicates the scale is outside zero capacity of ±2%.)
1. Verify that the weigh platter is on the scale.
2. Press the **ZERO** key.
3. Power down, remove any items from the platter, and then power up the scale.
4. Recalibrate the scale.
5. Replace the load cell.
6. Replace the main board.

Display shows upper " $\overline{\text{– – –}}$ " dashes
(Indicates the scale is over capacity.)
1. Remove all items from the scale.
2. Press the **ZERO** key.
3. Power down, then power up the scale.
4. Recalibrate the scale.
5. Replace the load cell.
6. Replace the main board.

Scale is not transmitting data to the host device
1. Check cable connection at both the rear of the scale and the host device.
2. Check communication setting and baud rate on both scale and software.
3. Perform I/O loopback test.
4. Replace the cable.
6. Replace the main board.

The ZERO key and TEST key do not function
1. Open display enclosure and verify that the keypad cable is still installed correctly.
2. Replace display panel.
3. Replace display PCB.
4. Replace the display cable.
5. Replace main PCB.

Spare Parts Listing

DESCRIPTION	PART NUMBER
Keyboard Panel	1163-13204
Display PCB	7405-15465
Loadcell (75 kg)	7154-16321-75
Main PCB	7405-16315
Power Supply	1148-15536
RS-232 Cable	1140-13842
Remote Display Kit	7300-16577-01
Leveling Feet	7075-15475-02

Call factory for pricing.

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