Model 7600 Family

Postal Weight Classifiers

Model 7620

Model 7680

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.

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Description

The NCI 7600 models are digital electronic letter and parcel bench scales specifically designed for mail manifest and shipping applications. They are fast, accurate and reliable. All models use the Quartzell® transducers for true digital signal response for increased throughput capabilities for weighing letters, flats and parcels using one scale.

Specifications

Capacity/ Resolution

7620-32 70 lb/30 kg

0-10 lb x 0.05 oz	10-70 lb x 0.2 oz
0-10 lb x 0.002 lb	10-70 lb x 0.02 lb
0-5 kg x 0.001 kg	5-30 kg x 0.005 kg
n_1-5000	n_2-6000

Default for 100 lb scale

7620-50 100 lb/50 kg (100L Mode low res)

0-10 lb x 0.1 oz	10-100 lb x 0.5 oz
0-10 lb x 0.01 lb	10-100 lb x 0.05 lb
0-5 kg x .005 kg	5-50 kg x 0.02 kg
n_1-1600	n_2-5000

Now an approved Weights & Measures resolution

7620-50 100 lb/50 kg (100H Mode high res)

0-10 lb x 0.05 oz	10-100 lb x 0.5 oz
0-10 lb x 0.005 lb	10-100 lb x 0.02 lb
0-5 kg x .002 kg	5-50 kg x 0.01 kg
n_1-3200	n_2-5000

7620-75 150 lb/75 kg

0-10 lb x 0.1 oz	10-150 lb x 0.5 oz
0-10 lb x 0.005 lb	10-150 lb x 0.02 lb
0-5 kg x 0.005 kg	5-75 kg x 0.01 kg
n_1-2000	n_2-7500

7680-75 150 lb/75 kg

0-10 lb x 0.1 oz	10-150 lb x 0.5 oz
0-10 lb x 0.005 lb	10-150 lb x 0.02 lb
0-5 kg x 0.005 kg	5-75 kg x 0.01 kg
n_1-2000	n_2-7500

The 7600 family of bench scales can be used for general weighing applications when configured as a scale, or for postal and shipping applications when configured as a weight classifier.

Agency Certificates of Conformance

Model 7620 is approved as legal for trade:
United States - NTEP COC #95-071
Canada - Ministry of Industry #AM 5074
Europe - EEC (OIML) #UK 2476

For use as a Class III device from +5º to 40ºC

Dimensions

Model 7620:
14" L x 12.5" W x 4.2" H
356 mm L x 318 mm W x 107 mm H

Model 7680:
18" L x 18" W x 4.6" H
457 mm L x 457 mm W x 117 mm H

Power Supply

UL/CSA approved inline power supply with 6' long standard wire line cord with ground

Input: 120 VAC + 10% - 15%
Output: 15 VDC @ .3 Amps

Frequency

60 (±3) Hz Standard

Power Requirements	0.1 amp maximum
Operating Temperature	42º F - 104º F +5º C to + 40º C 10% to 95% RH (non-condensing)
Construction	Model 7620: Die cast aluminum base and load bridge. Plastic ABS or stainless steel weigh platter. Aluminum quartz digital load cell Model 7680: Painted mild steel base with stainless steel weigh platter. Aluminum quartz digital load cell
Overload Protection	Model 7620: Adjustable center stop Fixed corner stops Model 7680: Adjustable center stop Adjustable corner stops 400% static loading 200% dynamic loading
Display	Internally mounted 1/2" high seven-digit LCD Key panel with ZERO and UNITS function keys Optional remote display with 7ft cable
Scale Leveling	Level bubble under weigh platter Adjustable feet in each corner
Zero Window	Automatic zero setting is ±10% of maximum capacity—active at power up. 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 more than 10 division below the initial zero value.

Over Capacity Limits

Over capacity indication will be given with dashes appearing in the upper 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 Resolution

1 part in 2,000,000

Dynamic Response

The time interval of weight applied to scale until a stable weight:

	Transmitted	**Displayed**
0 - 1000d	500 msec	1200 msec
1000d+	750 msec	1400 msec

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 19.2 K baud. Transmits weight and scale status whenever ASCII “W” <CR> is sent by a remote device.

Initial Setup

Unpacking the Scale

1. Check container for any obvious evidence of damage.
2. Remove contents of the shipping container.
3. Inspect the scale for shipping damage. Immediately report any damage to the shipper.

Installing the Scale

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

	Platform Dimensions	Minimum Cutout Dimensions
7620	14" W 12.5" D 4.2" Min Ht.	14.75" W 13.25" D
7680	18" W 18" D 4.6" Min Ht.	18.75" W 18.75" D

3. Loosen the plastic collars (7620) or jam nut (7680) on the leveling feet. Level the scale by using the level bubble under the scale platter as a guide. Be sure all four feet are in firm contact with the counter, then tighten all collars (nuts).

4. Make sure all power cords, remote display cables, etc. are not touching the live weighing surface.
5. Plug the unit into an appropriate (properly grounded) voltage outlet.

Operation

Power Up Test Sequence

When the unit is first powered on it will perform a test sequence. During this sequence the display will show the following:

- The model number and software revision level
- A numeric counting test of all segments of the display
- A test of Random Access Memory (RAM)
- A test of Read Only Memory (ROM)

If RAM or ROM error is reported, you must press the UNITS key to acknowledge the condition.

Performing a Normal Weighment

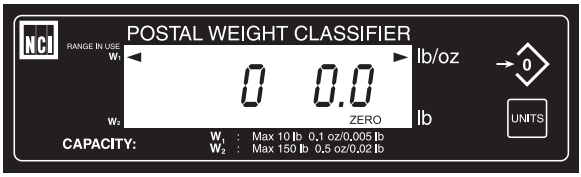
If everything is OK, the display will show zero weight and the scale is ready for use.

1. With the scale powered on, make sure the scale platter is empty and the display is at zero. If it is not, press the **ZERO** key…

   0.000 is displayed.
2. Place an item to be weighed on the scale platter…

   The scale will display the gross weight.
3. Remove the item from the scale platter.

If the scale is outside the ±10% zero window, center dashes are displayed.“– – – –” Reapply power to reset the initial zero setting.

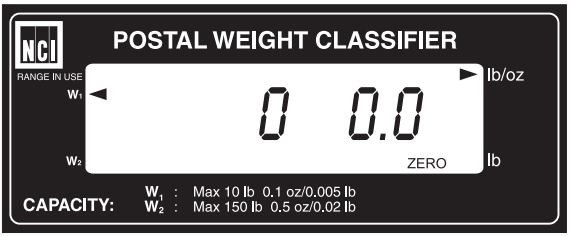


Model 7620 or 7680 Resident Display

Operational Controls

ZERO Key – The **ZERO** key will zero the scale if weight is stable, functions as the **NO** or **SCROLL** key in the Menu mode, and as the **INCREASE** key in the Gravity mode.

UNITS Key – The **UNITS** key can be used to change the scale unit of measure or to recall the scale configuration information during the initial power-up test sequence. This key also functions as **YES** or **ACCEPT** in the Menu mode, and as the **DECREASE** key in the Gravity mode.



Remote Display

All NCI 7600 bench scales can have an optional remote display (shown above with no keyboard function). If a remote display with keyboard is used, then Switch 3 (shown in Figure 1) determines which display keyboard is functional.

Switch 3 Settings
Closed= internal display keys operational
Open = external display keys operational

The remote display must be connected to the RJ45 port (“DISPLAY”) on power up to operate properly.

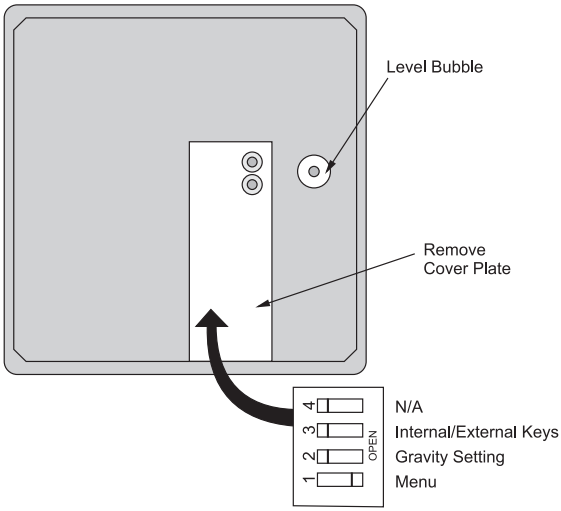
Accessing the Menu Mode

The 7600 family powers up in normal weighing mode ready for weighing operations. You can access the Menu mode by setting Switch 1 shown in Figure 1 to the OPEN or Menu mode position.

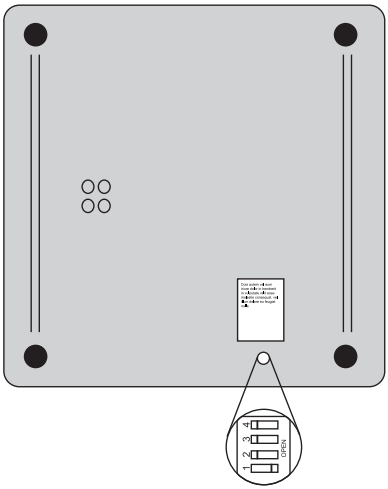
Accessing the Gravity Setting Mode

Access the Gravity setting mode by setting Switch 2 shown in Figure 1 to the OPEN or Gravity mode position.

Figure 1
7620 Switch Location



Bottom View of Model 7680



Menu Mode

There are four modes available to you with Switch 1 in the Menu mode or OPEN position. They are as follows:

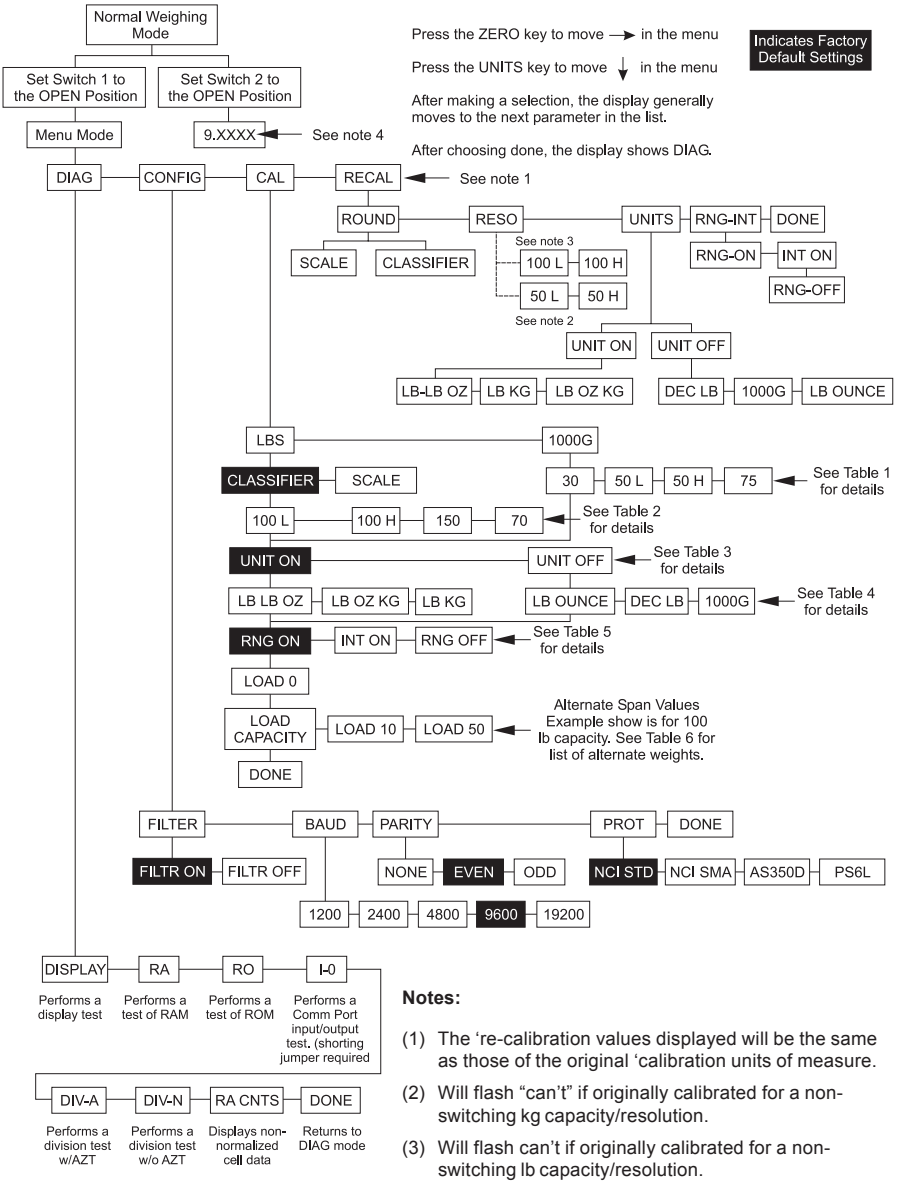
1. **DIAG Mode** – To test areas of the scale's function
2. **CONFIG Mode** – To configure your scale for your application
3. **CAL Mode** – To calibrate the scale
4. **Re-CAL Mode** – To change specific calibration parameters without having to re-calibrate the scale.

Gravity Mode

With Switch 2 in the Gravity mode or OPEN position, you may increase the "Local" gravity value by pressing the **ZERO** key or decrease the value by pressing the **UNITS** key.

The structure for these menus is shown in Figure 2. Specific information about each mode and step-by-step instructions for accessing them follow.

Figure 2
7600 Menu Structure



Notes:

(1) The ‘re-calibration values displayed will be the same as those of the original ‘calibration units of measure.

(2) Will flash “can’t” if originally calibrated for a non-switching kg capacity/resolution.

(3) Will flash can’t if originally calibrated for a non-switching lb capacity/resolution.

(4) To change the ‘Local’ gravity setting, press (and hold) the ZERO key to increase the value, or press (and hold) the TEST key to decrease the value. When done, set Switch 2 back to the CLOSED position.

7600 Menu Structure - Glossary

Table 1	**30**	Calibrates your scale for 30 kilogram capacity.
	50L	Calibrates your scale for 50 kilogram capacity, low resolution.
	50H	Calibrates your scale for 50 kilogram capacity, high resolution.
	75	Calibrates your scale for 75 kilogram capacity.
Table 2	**70**	Calibrates your scale for 70 pound capacity.
	100L	Calibrates your scale for 100 pound capacity, low resolution.
	100H	Calibrates your scale for 100 pound capacity, high resolution.
	150	Calibrates your scale for 150 pound capacity.
Table 3	**Unit on**	Choosing this option enables the units key. The units key allows you to switch between the chosen modes of measurement during calibration.
	Unit Off	Choosing this option disables the units key.

Table 4

lb kg	With "unit on" option enabled, pressing the **UNITS** key switches between decimal pounds and kilograms.
lb-oz kg	With "unit on" option enabled, pressing the **UNITS** key switches between pounds- ounces and kilograms.
lb-oz lb	With "unit on" option enabled, pressing the **UNITS** key switches between pounds- ounces and decimal pounds.
1000 g	With "unit off" option enabled, the scale displays weight in kilograms when calibrated for Kg.
lb ounce	With "unit off" option enabled, the scale displays weight as pound/ ounce when calibrated as a scale or classifier. Example: (1 lb .05 oz)
Dec lb	With "unit off" option enabled, the scale displays weight in decimal pounds when calibrated as a scale or classifier.

Table 5

RNG ON Choosing this function activates the multi-ranging function of the scale. Display returns to higher resolution mode only after returning to a stable zero (0.00). For TYPE APPROVED applications.

RNG OFF Choosing this function places the scale in the high resolution through capacity of the scale. For NON-TYPE APPROVED applications only.

INT ON Choosing this function activates the multi-interval function of the scale. Display returns to higher resolution mode immediately at multi-ranging weight value. For TYPE APPROVED applications.

Alternate Span Calibration Points

The NCI 7600 bench scales allow calibration using less than full capacity weights. Below are the alternative weights that can be used to calibrate your scale for its designated capacity.

Table 6

Capacity	Alternative Span Calibration Weights
lbs	
70	10/50/70
100	10/50/100
150	10/50/150
kgs	
30	10/20/30
50	10/25/50
75	10/50/75

Diagnostics Mode

Diagnostics (DIAG) Mode

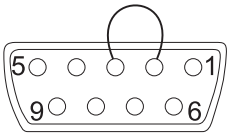
The Diagnostic (Diag) mode menu lets you test specific areas of the scale's function.

These areas are:

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

RAM (RA) – Performs a nondestructive test of RAM in the processor. Displays *PASS* or *FAIL*.

ROM (RO) – Performs a checksum of all locations in ROM in the processor. Displays *PASS* or *FAIL*.



Input/Output (I-O) – Data is output by the scale and through the use of a loopback connector the data is immediately read back into the receive channel and verified against what was sent. *PASS* or *FAIL* is displayed. Requires a jumper (short) between transmit (Pin 2) and receive (Pin 3) data lines.

Division, test w/AZT (DIV-A) – Weight data is normalized to 1,000,000 counts of displayed resolution. AZT is enabled (Auto Zero Tracking).

Division, test w/o / AZT (DIV-N) – Weight data is normalized to 1,000,000 counts of displayed resolution. AZT is disabled.

Raw Counts (RA CNTS) – Non-normalized QDT cell data (no zero tracking).

Step-by-Step Instructions for DIAG Mode

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

1. From normal weighing mode, move Switch 1 to the Menu mode or OPEN position.

   DIAG is displayed.

2. Press the **UNITS** key…

   DISPLAY is displayed.

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

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

4. Press the **ZERO** key…

   RA is displayed. This stands for the RAM test.

5. Press the **UNITS** key to perform the RAM test…

   PASS or *FAIL* is displayed briefly. If the test fails, the unit may have a RAM memory failure. Try the test a second time and if *FAIL* is displayed, contact your local Weigh-Tronix dealer for service.

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

Press the **UNITS** *key to make a selection*

6. Press the **ZERO** key…

   RO is displayed. This stands for the ROM test.

7. Press the **UNITS** key to perform the ROM test…

   PASS or *FAIL* is displayed briefly. If the test fails, the unit may have a program memory failure. Try the test second time, and if *FAIL* is displayed, contact your local Weigh-Tronix dealer for service.

8. Press the **ZERO** key…

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

9. With a loopback connector in place, press the **UNITS** key to perform the I/O test…

   PASS or *FAIL* is displayed. If the test fails, the unit may have a serial interface failure. Check your connections and/or contact your local Weigh-Tronix dealer for service.

10. Press the **ZERO** key…

    DIV-A is displayed. This stands for the high resolution test with AZT enabled.

11. Press the **UNITS** key to perform this test…

    The display shows the weight on the scale at a resolution of 1,000,000 counts.

DIAG will flash every 10 seconds during the high resolution test to remind you that you are doing a test and not seeing normal weight readings.

12. Press the **UNITS** key to stop the test…

13. Press the **ZERO** key…

    DIV-N is displayed. This stands for the high resolution test without AZT enabled.

14. Press the **UNITS** key to perform this test…

    The display shows the weight on the scale at a resolution of 1,000,000 counts.

15. Press the **UNITS** key to stop the test…

16. Press the **ZERO** key…

    RA CNTS is displayed. This stands for raw counts.

17. Press the **UNITS** key to perform this test…

    The display shows non normalized cell data.

18. Press the **UNITS** key to stop the test.

19. When you are finished with the test, press the **ZERO** key, until *DONE* is displayed. Press the **UNITS** key, or place Switch 1 back to normal mode to return to normal weighing mode.

Configuration Mode

Configuration (CONFIG) Mode

The Configuration (CONFIG) mode menu lets you configure your scale to your specific application needs. The items you can configure are as follows:

Filter (FILTER) – Choose from *FLTR ON* OR *FLTR OFF***.** Default is *FLTR ON***.** In a stable, vibration free location, the *FLTR OFF* setting could be used if quicker display response is desired.

Baud (BAUD) – Choose one of the following baud rates: *1200, 2400, 4800, 9600,* and *19200.* Default is *9600*.

Parity (PARITY) – Choose from: *NONE, EVEN,* or *ODD.* Default is *EVEN.*

Protocol (Prot) – Choose communication protocol: *NCI STD* for standard NCI protocol, *NCI SMA* for Scale Manufacturers' Association Standard for Scale Serial Communications, *AS350d* for Detecto emulation, or *PS6L* for Mettler emulation. Default is *NCI STD.*

Step-by-Step Instructions for CONFIG Mode

Follow these steps to access and configure the items in the **CONFIG** menu. Refer to Figure 2.

1. From the *DIAG* display press the **ZERO** key, or from normal weighing mode, move Switch 1 to Menu mode or OPEN position, then press the **ZERO** key…

   CONFIG is displayed.

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

Press the **UNITS** *key to make a selection*

Tip: Quickly and easily view current scale configuration directly from the front panel without opening the scale or setting switches as follows:

During the display segment test on power-up, press the **UNITS** *key. The display will prompt* ABORT *followed by* BAUD*. Press the* **ZERO** *key to scroll through the choices, or press the* **UNITS** *key to view a current scale configuration.*

When you are done, press the **ZERO** *key until* DONE *is displayed. Press the* **UNITS** *key to return to the normal weighing mode.*

2. Press the **UNITS** key…

   FILTER is displayed.

3. Press the **UNITS** key…

   The current setting is displayed. Use the **ZERO** key to toggle between *FLTR ON* and *FLTR OFF*

4. Press the **UNITS** key…

   Filter selection is stored.

5. Press the **ZERO** key…

   BAUD is displayed.

6. Press the **UNITS** key…

   The current setting is displayed. Use the **ZERO** key to toggle between the five choices: *1200, 2400, 4800, 9600*, or *19200* baud

7. Press the **UNITS** key…

   Baud rate selection is stored.

8. Press the **ZERO** key…

   PARITY is displayed.

9. Press the **UNITS** key…

   The current setting is displayed. Use the **ZERO** key to toggle between the three choices: *EVEN, ODD, NONE.*

10. Press the **UNITS** key.

    Parity selection is stored.

11. Press the **ZERO** key…

    PROT is displayed.

12. Press the **UNITS** key…

    The current setting is displayed. Use the **ZERO** key to toggle between the four choices: *NCI STD, NCI SMA, AS350D, PS6L.*

13. Press the **UNITS** key…

    Protocol selection is stored.

14. When finished configuring your scale, press the **ZERO** key until the display shows *DONE,* then press the **UNITS** key.

    Or, move Switch 1 to CLOSED position for normal weighing mode.

Calibration Mode

Calibration (CAL) Mode

Warning! Entering into this mode can erase the calibration already saved. You need approved calibration weights to use calibration mode.

Note: If this procedure is attempted without proper calibration weights applied, the scale will abort the process and retain the original calibration data.

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

Pounds/Kilograms (LB or 1000g)

Selects the unit of measure of your calibration test weights.

Scale or Classifier

When calibrating the scale for LB, you are able to calibrate the unit as a scale or as a classifier (weight classifier).

Unit On or Unit Off

When configured for *UNIT ON*, the scale will allow you to switch between the selected units of measure using the **UNITS** key.

Capacity (100, etc.)

Select the capacity of your scale.

Step -by-Step Instructions for CAL Mode

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

1. From normal weighing mode, move Switch 1 to the Menu Mode or OPEN position…

   DIAG is displayed. Press the **ZERO** key until *CAL* is displayed. This stands for calibration.

2. Press the UNITS key to start calibration…

   LBS or *1000g* (kg) is displayed.

3. Press the **ZERO** key to toggle between the choices of units of measure (lb or kg). When the choice you want is displayed, press the **UNITS** key to accept…

   If *LBS* was chosen for calibration, the scale will display the current setting. Press the **ZERO** key to toggle between *SCALE* and *CLASSIFIER*. Calibrating as *SCALE* = .5 division rounding. Calibrating as *CLASSIFIER* = .9 division rounding. Press **UNITS** key to accept.

4. The current capacity is displayed. Press the **ZERO** key to toggle between scale capacity selections. Press the **UNITS** key to accept…

   That choice is accepted and *UNIT ON* or *UNIT OFF* is displayed.

5. Press the **ZERO** key to toggle between the choices *UNIT ON* or *UNIT OFF.* Once your choice is displayed, press the **UNITS** key…

   See above for the definitions of calibrating the scale using *UNIT ON* or *UNIT OFF.*

6. Press the **ZERO** key to toggle between the choices. When the choice you want is displayed, press the **UNITS** key…

   The scale prompts *RNG ON, INT ON,* or *RNG OFF*. See Table 5 in *7600 Menu Structure - Glossary,* for definitions of multi-range functions.

7. Press the **ZERO** key to toggle between choices.

8. Press the **UNITS** key to accept…

   The scale then prompts *LOAD O*.

Warning

*Close **Switch 1** or unplug scale NOW if you don't have correct calibration weights.*

9. Clear all weight from the scale platter and press the **UNITS** key…

   After a brief wait *LOAD 100* (span weight) is displayed. Alternate calibration points can be chosen using the **ZERO** key to toggle between choices. See Table 6 in *7600 Menu Structure - Glossary,*

10. Place chosen (alternate) calibration weight on the scale and press the **UNITS** key…

    After a brief wait, *DONE* is displayed. The scale then displays *CAL*.

11. Remove the calibration weight and return Switch 1 to the closed position…

    The scale returns to normal weighing mode.

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

Re-Calibration

Re-Calibration (RE-CAL) Mode

The re-calibration RE-CAL mode menu lets you change the scale resolution, rounding method, units and range or interval method without using any calibration weights.

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

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

Step-by-Step Instructions for RE-CAL mode

1. From the normal weighing mode, move Switch 1 to the Menu mode or Open position…

   DIAG is displayed.

2. Press the **ZERO** key until…

   RE-CAL is displayed.

3. Press the **UNITS** key…

   ROUND is displayed.

   To change the weight rounding method, press the **UNITS** key. The current rounding method is displayed.

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

Can't *will be displayed if originally calibrated for a non-switching capacity/resolution.*

5. When the choice you want is displayed, press the **UNITS** key.

6. To change the capacity/resolution, press the **ZERO** key until *RESO* is displayed.

7. Press the **UNITS** key. The current capacity/ resolution setting is displayed.
8. Press the **ZERO** key until desired capacity/ resolution is displayed.
9. Press the **UNITS** key to select a new capacity/resolution.
10. Press the **ZERO** key…

    UNITS is displayed. To change the **UNITS** key status or the current unit of measure, press the **UNITS** key, the current choice is displayed.

11. Press the **ZERO** key to toggle between *UNIT ON* and *UNIT OFF*.
12. Press the **UNITS** key to select the *UNITS* key status and to display unit selections. To change units, press the **ZERO** key to toggle between the choices.
13. When the choice you want is displayed, press the **UNITS** key.
14. Press the **ZERO** key…

    RNG-INT is displayed. To change *RANGE* operation, press the **UNITS** key. The current setting is displayed.

15. Press the **ZERO** key to toggle between *RNG ON* and *RNG OFF* or *INT ON*.

16. When the choice you want is displayed, press the **UNITS** key.

17. Press the **ZERO** key.. .

    DONE is displayed.

18. Close Switch 1 to return to normal weighing mode.

Gravity Mode

The CAL-GR and LOC-GR values may be viewed anytime. See Review Scale Setting section.

Warning

Using this feature in sealed applications may be subject to approval by the appropriate governing agency at the end-users site.

Gravity value roles 'over' at 9.8400 and rolls 'under' at 9.7700.

The Gravity mode feature provides a means of adjusting the scale's internal calibration factors to compensate for variations in acceleration due to gravity at different geographic locations. These differences can cause a given mass to indicate a slightly different weight at an end-user's (local) site than it did at the Calibration (CAL) site.

To make the adjustment, you must know the value of the gravity constant for the local site. This value is expressed in meters per second, per second (i.e., m/s^2). It is not necessary to calibrate the scale, therefore, no calibration weights are needed to make this adjustment.

The scale maintains two gravity setting values. The first is the "calibration-site" value known as *CAL-GR*. The second is the end-user or "local-site" value and is known as *LOC-Gr*. When the scale was originally calibrated at the factory, the *CAL-GR* and *LOC-GR* values were both set to 9.8040 which is the gravity constant for the manufacturing site.

To adjust the displayed weight value, you must enter the local gravity value.

To enter the Gravity mode, set Switch 2 to the OPEN position. The display will indicate the current “local” gravity value. Press the **ZERO** key to increment the value or the **UNITS** key to decrement the value. The gravity value will change in steps of .0001. When the correct value is displayed, simply return Switch 2 to the CLOSED position. The scale will now use this new relationship between calibration and local gravity for its weight calculations.

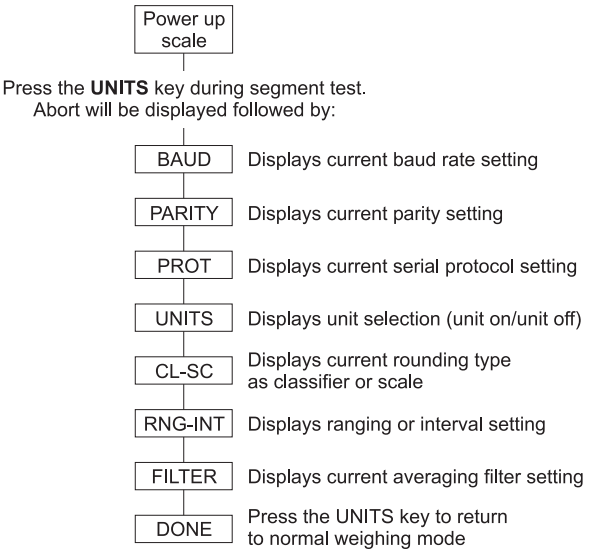
When the scale is calibrated using calibration weights, the *CAL-GR* value is automatically set equal to the *LOC-GR* setting. Therefore, it is recommended that you verify the local gravity setting is accurate before doing a full calibration.

Review Scale Settings

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

Press the **UNITS** *key to select the display item to view.*

Pushing the **UNITS** key during the segment test on power-up, will allow you to view current scale setup.



When finished viewing the settings, press the **ZERO** key until *DONE* is displayed. Then press the **UNITS** key to return to normal weighing mode of operation.

Communications

The NCI 7600 family scales come 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 connector is compatible with a standard PC pass-through cable.

Interface Cable

DE-9 Female Scale			DE-9 Male Host		
Pin	**Name**	**Direction**	**Pin**	**Name**	**Direction**
1.	JMP 1	-	1.	DCD	IN
2.	TXD	OUT	2.	RXD	IN
3.	RXD	IN	3.	TXD	OUT
4.	JMP 1	-	4.	DTR	OUT
5.	SGND	-	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

** Jmp1 and Jmp2 pins are connected internally on the scale PCB connector.*

The scale uses a DE-9 connector.
This standard is used by all NCI bench scale products.

NCI STD Communications Protocol

Symbol key:

<ETX>	End of Text character (03 hexadecimal).
<LF>	Line Feed character (0A hex).
<CR>	Carriage Return character (0D hex).
<SP>	Space (20 hex).
x	Character from display including minus sign.
hhh	Three status bytes.
uu	Unit of measure using ANSI standard abbreviations

Standard Commands

Weight	W<CR> Scale Response <LF>xxxx.xxuu<CR> <LF>hhh <CR><ETX>	Returns decimal lb or kg weight, units and scale status
	or	
	<LF>xx lb<sp>xx.x oz<CR> <LF> hhh <CR> <ETX>	Returns lb-oz weight, units and scale status
Status	S<CR> Scale Response <LF>hhh <CR><ETX>	Returns scale status
Zero	Z<CR> Scale Response <LF>hhh <CR><ETX>	Scale is zeroed, returns status

Optional Commands

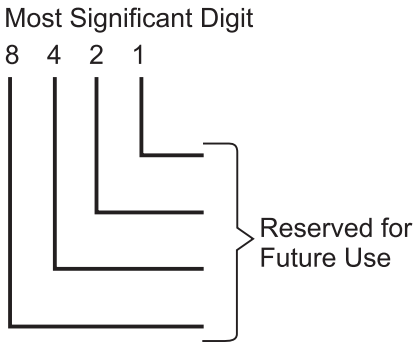
Hi Resolution	H<CR> Scale Response <LF>xxxx.xxxuu<CR> <LF>hhh <CR><ETX>	Returns decimal lb or kg weight in 10X format with units and scale status
	or	
	<LF>xx lb<sp>xx.xx oz<CR> <LF>hhh<CR><ETX>	Returns lb-oz weight in 10X format with units and scale status
Units	U <CR> Scale Response <LF> uu <CR> <LF> hhh<CR><ETX>	Changes unit of measure and returns new unit and status

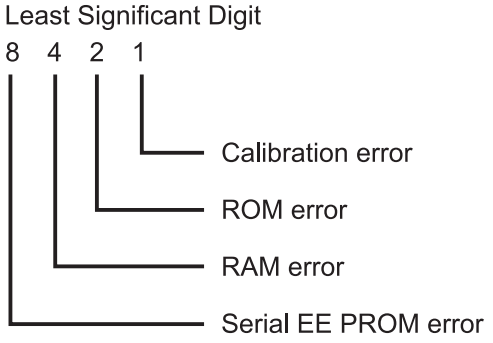
Raw Counts	M<CR> Scale Response <LF>xxxxxxxMM<CR> <LF>hhh <CR><ETX>	Returns normalized raw counts and status
	All other commands Scale Response <LF>?<CR><ETX>	Unrecognized command
NCI SMA, AS350D or PS6L Communications Protocol	Contact your Weigh-Tronix service provider or the Weigh-Tronix customer service department for protocol.	

Error Codes

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

The error codes are broken down into two hexadecimal numbers, with each bit defining a single error condition. The error codes are defined as follows:





Troubleshooting

Perform the following steps in the order presented until the described problem is corrected. If the problem cannot be corrected, contact an authorized Weigh-Tronix service provider.

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 the power supply.
3. Replace the display board.
4. Replace the I/O board.
5. Replace the QDT load cell.

Missing or extra segments on display

1. Replace the display board.
2. Replace the QDT load cell.

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 off, remove all items from the platter, and then power on the scale.
4. Recalibrate the scale.
5. Replace the QDT load cell.

Display shows unrecognized characters

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

Display shows under "_ _ _ _" dashes

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

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

Display shows center "– – – –" dashes

(Indicates that the scale is outside zero capacity of ±2%.)

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

Display shows upper " – – – – " dashes

(Indicates the scale is over capacity.)

1. Remove all items from the scale.
2. Press the **ZERO** key.
3. Power off, and then power on the scale.
4. Recalibrate the scale.
5. Replace the QDT load cell.

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 the scale and host device.
3. Perform I/O loopback test.
4. Replace the cable.
5. Replace the I/O board.
6. Replace the QDT load cell.

The ZERO key and the UNITS key do no function

1. Check the position of Switch 3. Closed for internal display keypad active. Open for external display keypad active.
2. Open display enclosure and verify that the keypad cable is still installed correctly.
3. Replace the display panel.
4. Replace the display PCB.
5. Replace the display cable.
6. Replace the I/O PCB.
7. Replace the QDT load cell.

Spare Parts Listing

DESCRIPTION	PART NUMBER
Keyboard Panel	1163-13198
Display PCB	7405-15990-01
I/O PCB	7405-15550-02
Power Supply -115 VAC	1148-15536
Power Supply - 230 VAC	1148-15833
RS-232 Cable	1140-13842
Load Cell 70 lb	7153-15694-23
Load Cell 100 lb	7153-15694-50
Load Cell 150 lb 7620	7153-15694-80
7620 Feet	7075-15475-02
Shroud ABS Plastic 7620	1076-15256
Shroud SS 7620	1076-15767
Shroud Ball-top (BTS) 7620	7200-15145
Load Cell 150 lb 7680	7153-15694-110
Shroud SS 7680	1076-15050
Shroud BTS Kit 7680	7200-15196
7680 Feet	7075-13082

Installing USB Software

This installation procedure is for 7600 scales with the USB option installed. This procedure installs the USB drivers onto the computer which is attached to the 7600 scale.

- Plug USB cable into computer USB port.
- Plug other end of USB cable into NCI USB Scale.
- If this is the first time for installation, the computer will recognize the USB device and prompt for a driver for the 'Weigh-Tronix USB Serial Adapter'.
- Press NEXT and follow instructions on the screen.
- Insert the W-T install CD and select CD-DRIVE for driver location.
- Select NEXT. The driver (KLSIWDM.INF) should be found and installed on your computer.
- The W-T USB will now be set as a virtual communications port as COM5 (Win9x/ME) or COM3 (Win2000). You can verify this by selecting: SETTINGS-CONTROL PANEL-SYSTEM-DEVICE MANAGER-PORTS.
- Enumeration is now complete and the W-T Scale display should countdown and show weight.

Notes:

- If the W-T USB Scale has already been installed, the computer will automatically recognize the device and no prompts will be shown.
- Up to five USB devices can be connected to a computer drawing no more than 100ma each for a maximum of 500ma before a USB repeater is required. The W-T USB 7600 series scale draws approximately 150ma and is therefore defined as two USB devices. The W-T USB 3600 series scale with backlite option draws approximately 220ma and is defined as three USB devices.
- To uninstall the W-T USB Scale, insert the W-T Install CD and select 'WT-SCRUB'. The W-T USB Scale will be uninstalled.
- During the enumeration procedure, The W-T USB device draws less than the required 100ma.
- Cable required for the W-T USB Scale is a Type A-B cable of up to 5 meters in length.
- USB data transmission is 12mbs.

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