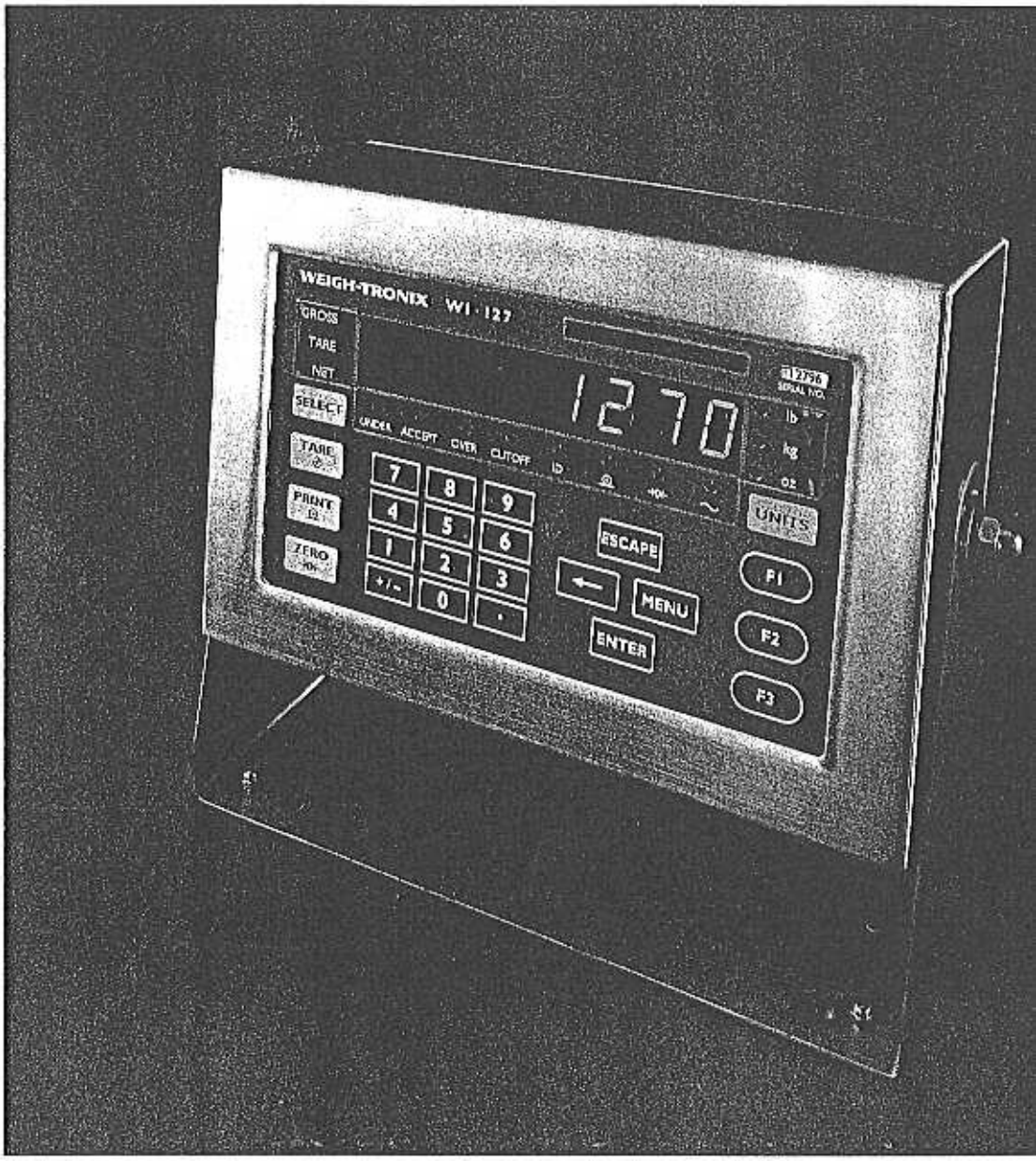
Am. 5167

WEIGH-TRONIX



WI-127 Indicator
Service Manual

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WI-127 Specifications

Power requirements:
115 Volts AC, +10% to -15% @ 0.3Amp maximum
230 Volts AC, +10% to -15% @ 0.15 AMP maximum
50/60 Hz

Excitation: 10 Volts DC
Supports up to twelve 350-ohm weight sensors

Operational keys:
Five yellow standard keys: Zero, Tare, Print, Units, Select
Three function keys: F1, F2, F3
Numeric keys: 0-9

Operational annunciators:
Gross, Tare, Net, Print, Zero, Motion
Under, Accept, Over, Cutoff, ID,
Three units of measure

Display: Eight digit, seven segment, 0. 8-inch high LED

Display rate: Selectable (1, 2, 5, 10)

Analog to digital conversion rate: 60 times per second

Unit of measure:
Three, independently programmable:
Pounds, kilograms, grams, ounces, ton, tonne, custom, Off

Capacity selections:
999,999 with decimal located from zero to five places

Incremental selections:
Multiples and sub-multiples of 1, 2, 5

Programmable selections:
Zero range, motion detection,
automatic zero tracking, five-point linearization.

Time and date/RAM:
Battery backed up real time clock and RAM are standard

Internal resolution: 6,291,456 counts per mV/V per sec.

Harmonizer™ digital filtering:
Fully programmable to ignore noise and vibration

Standard inputs:
Seven logic level inputs for functions such as tare,
print, zero, units, select, gross and net.

Standard outputs:
Three outputs, open collector design
Relay power supply, 24 VDC at 150mA
5 VDC at 200 mA for scanner power source
Bi-directional serial port (RS-232 or RS-422/485 or
20mA current loop)

Self diagnostics:
Display, keys, inputs, outputs, serial port,
A to D converter, loadcell output display, voltages

Circuitry protection: RFI, EMI, and ESD protection

Options:
Two additional serial ports
BCD parallel
10 cutoffs
Analog output
0-5, 0-10 volts
1-5, 4-20, 10-50 mA

Operating temperature:
-40 to 140° F (-40 to 60° C)
100% relative humidity including washdown

Enclosure: NEMA 4X stainless steel enclosure

Dimensions:
12" W x 8" H x 4" D (without mounting bracket)
12.3" W x 11.0" H x 5.3" D (with mounting bracket)

Weight: 12.5 lb, 5.7 kg

Agencies:
NTEP Class III/IIIL:10,000d
Consumer and Corporate Affairs, Canada (pending)
CE (pending)
UL (pending)
FCC Class A

Warranty: 2 year

Introduction

This manual covers the service issues for the WI-127 indicator. The manual is divided into the following sections:

- Introduction
- Service Menu Structure
- Using the Service Menu
- About Menu
- Audit Menu
- Test Menu
- Setup Menu
- Reset Menu
- Calibrating the WI-127
- Customizing the Serial Output
- WI-127 Service Menu
- Technical Illustrations

Main sections of this manual are set apart by the large black bar as seen above. Subsections are labeled in the left column of each page. Notes, cautions and warnings are also listed in the left hand column.

If you find inaccuracies in this manual or have suggestions on how to improve it, please call 507/238-4461 and ask for a technical writer.

Service Menu Structure

Moving Through Menus

You configure, calibrate and do testing of the WI-127 using a menu structure which you move through using directional keys on the front panel. The directional keys are shown below:

Figure 1
Directional keys

Press this key to exit a menu parameter without saving any changes. Use to move "up" in the menus.

Press this key to end digit entry, accept a change made, or select an item from a function list. Use to move "down" in the menus.

Press this key to access menus. Use to move "right" in the menus.

Press this key to backspace (deletes the last digit or punctuation mark entered) while in numeric entry. Use to move "left" in the menus.

Accessing the Service Menu

Caution
Do not break any seal on the indicator unless absolutely necessary. This may cause the need for the indicator to be recertified and resealed.

Entering the service menu disables all outputs and inputs, disables/stops all serial output, B.C.D. output and analog output.

To enter the service menu structure, key in the default password (127) then press and hold the **ESCAPE** key for two seconds. If you do not know the password you may remove the nylon plug on the back of the WI-127 and press the SEAL switch inside. If you do not want to make any changes in the service menu but want to view the items, enter the menu without keying in a password.

If your password has been changed since leaving the factory, enter your current password instead of the default.

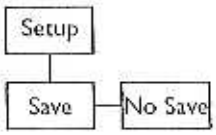
The display should show ***About***. This is the first item in the menu structure. The following section explains the menu items.

Exiting the Service Menu

If you do not press **SELECT** *with* ***Save*** *displayed, none of your configuration changes will be saved.*

You may exit the service menu and return to weight display mode at any time by pressing **SELECT**.

If you made changes to the menu, the indicator will display ***SAVE*** (asking you if you wish to save your changes) before returning directly to weight display mode.



To exit and save menu changes:

1. With ***SAVE*** displayed, press **SELECT**. . .

   The indicator will return to weight display mode and your changes are saved.

To exit without saving changes:

1a. With ***SAVE*** displayed, press **MENU**. . .

   no SAVE is displayed.

OR

1b. With SAVE displayed, press **ESCAPE**. . .

   Indicator returns to weight display mode.

2. Press **SELECT**. . .

   Indicator returns to weight display mode without saving any changes.

Using the Service Menu

The complete service menu structure can be viewed on pages 53-55.

Figures 2 through 19 show the service menu structure in the WI-127. Following each figure are explanations for each of the service menu items.

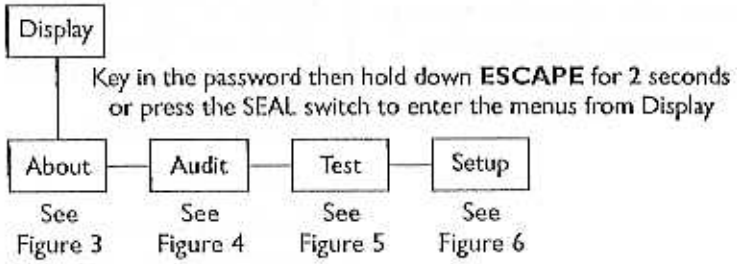


Figure 2
First menu level

About **Menu**	Information about the software
Audit **Menu**	Audit counters for calibration and configuration
Test **Menu**	For testing the hardware of the indicator.
Setup **Menu**	For setup of the indicator as a 127 or a 110 clone

About Menu

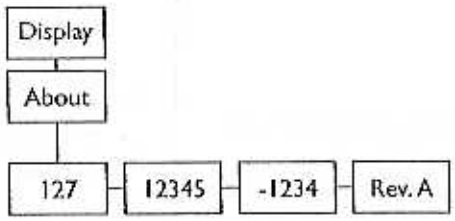


Figure 3
About menu

These are the items listed in the About menu:

127	The unit designation.
12345	Parent part number of the software.
-1234	The dash portion of the software part number.
Rev. A	The revision level of the software.

Audit menu

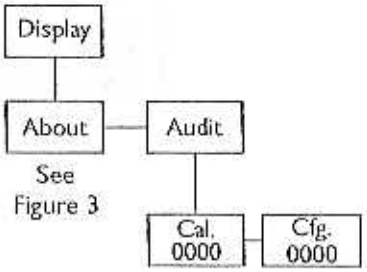


Figure 4
Audit menu

These are the items listed in the Audit menu:

Cal. 0000 This is an example of how the calibration audit trail counter wil appear. The actual value will be between 0000 and 9999. It is nonresettable and may not be edited.

Cfg. 0000 This is an example of how the configuration audit trail counter will appear. The actual value will be between 0000 and 9999. It nonresettable and may not be edited. The counter is incremented each time a metrological item is modified in the setup menus and saved and so may be used as a control audit.

Test Menu

Figure 5 shows the Test menu. Use this menu to check functions of the WI-127. The description of each menu item follows Figure 5.

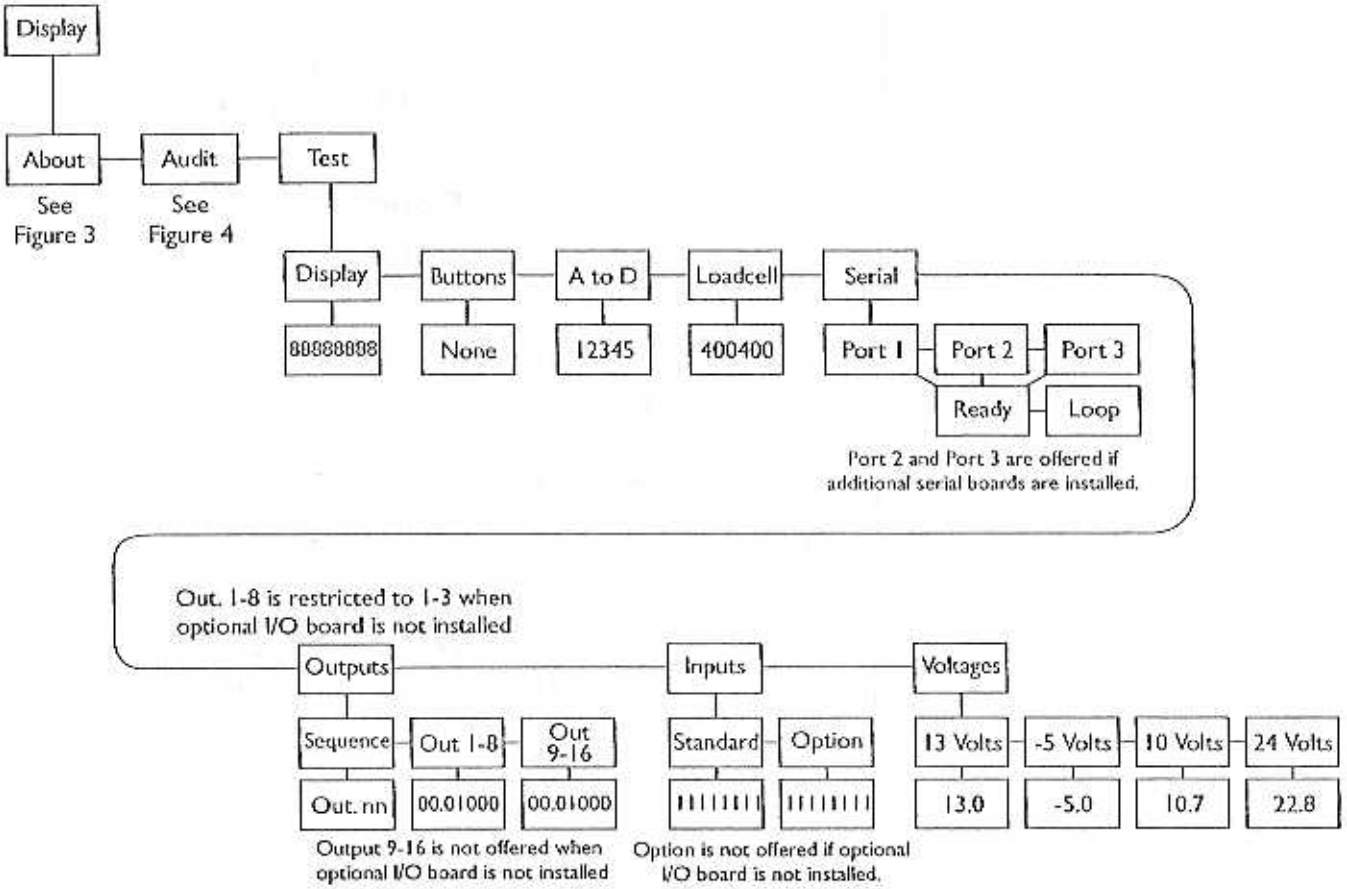


Figure 5
Test menu

These are the items listed in the Test menu from left to right:

Display — Press **ENTER** ▼ to start and stop a continuous display test. With the test stopped press the ◀ or **MENU** ▶ key to move backward or forward one step at a time. Press **ENTER** ▼ again to resume the automatic test or press **ESCAPE** ▲ to stop the test and return to ***diSPLAy***.

Buttons — This provides a test of the keypad. The name of the key that is pressed appears on the display. If no key is pressed, ***nOnE*** is displayed. Press **MENU** ▶ to return to ***buttonS***.

A to D — Press this key to see the current A to D value. The displayed resolution is 1 part in 20,000 per mV/V. This test exists so that the offset and gain of the electronics can be checked. The offset is initially set to the nominal offset of the electronics, but you can press the **ZERO** key to establish the actual offset, allowing the gain to be evaluated.

Loadcell

With *LOAdCELL* displayed, press the **ENTER** ▾ key to see a live display of the current counts coming from the loadcell. ***400400*** is the example shown in Figure 5. Press the **UNITS** key to toggle between the counts display mode and the mV/V display, which appears in this format: **2.00200.** This stands for 2.002 mV/V. The decimal indicates you are looking at mV/V and not current counts.

Serial

This item accesses the internal port serial tests. With *SEriAL* displayed, press the **ENTER** ▾ key. ***Port 1*** is displayed. This is always the internal serial port. When the optional serial boards are installed in the same stack, port two is always on the bottom. When installed in different stacks (side by side), port two is always closest to the power supply. Press the ◂◀— or **MENU** ▸ key to select the port you wish to test.

Ready/ Busy

With the port you want to test displayed, press the **ENTER** ▾ key. ***rEAdy*** or ***bUSy*** is displayed telling you if the hardware input line is ready or busy. This is useful in tracking down serial output problems.

Loop/ No Loop

Press the **MENU** ▸ key to see the Loop - No Loop test. Connect the transmit line to the receive line at some point in the cabling. The WI-127 checks if it receives the same character that it transmits. If it can, ***LOOP*** is displayed. If it cannot, ***no LOOP*** is displayed. This is useful in isolating serial output problems to the WI-127, cable, or connected device by looping back at the corresponding points.

Outputs

This test allows you to check the operation of the onboard and optional outputs. The onboard outputs are copies of the first three outputs on the optional I/O board when it is installed.

Sequence

This is the first item in the Outputs submenu. Press the **ENTER** ▾ key to test the outputs. Each output is turned on and off sequentially. The display will show **Out. *nn***. The ***nn*** bei the number of the output being tested. The outputs will sequence every half second. Press the **ENTER** ▾ or **ESCAPE** ▴ key to end the test and return to the ***SEqUEnCE*** display.

Out 1-3 or (Out 1-8) (Out 9-16)

This is the second item in the Outputs submenu. This allows yo to enable or disable any of the outputs 1-3 (1-16 if the optional boards are installed). Press the **ENTER** ▾ key to see the display of the outputs status.

The screen has 0s and 1s displayed in this format: ***00.010000***. I this example, output #4 is active. The zeros and ones represen the status of each output. A ***1*** means it is activated and a ***0*** means it is deactivated. The left digit is output #1 or #9.

To change the status of an output, press the ◂◀— or **MENU** ▸ key to move the decimal point to the right of the output you want to change. Press the **ENTER** ▾ key to toggle the output from one status to the other.

Press the **ESCAPE** ▴ key to exit the test. The outputs remai as selected until you exit the Test menu.

Inputs This test allows you to check the operation of the onboard and optional inputs. Press the **ENTER** ▾ key to access the sub-menu.

Standard This submenu item lets you check the status of the onboard inputs. In this example, ***1000100***, inputs #1 and #5 are active. The inputs are ordered 1-8 from left to right. A *1* means activated and a *0* means deactivated.

As you view the inputs, #8 is actually a flag that is dependent on the states of inputs 6 and 7. Input 6 resets flag #8 to a false 0. Input 7 sets flag #8 to a true 1. Input 8 does not terminate at a connector.

Option This menu item is available only if the option board is installed. It works the same way as the **Standard** example above.

Voltages The submenu under ***VoltAgES*** lets you see the power supply voltages. The voltage readings are updated 2 times per second.

13 volts This test displays the unregulated weight sensor excitation power supply voltage. If the voltage drops below 10.5 the display will show ***Lo. Volt***. The error condition will not clear until voltage reaches 11.5.

- 5 volts This test displays the -5 volt excitation voltage.

10 volts This test displays the unregulated 5 volt logic supply voltage.

24 volts This test display shows the relay supply voltage. If this voltage drops too far it may not be possible to activate certain relays. Nominal level for this power supply voltage is 22.8.

Setup Menu

Setup is the next top level menu item. See Figure 6.

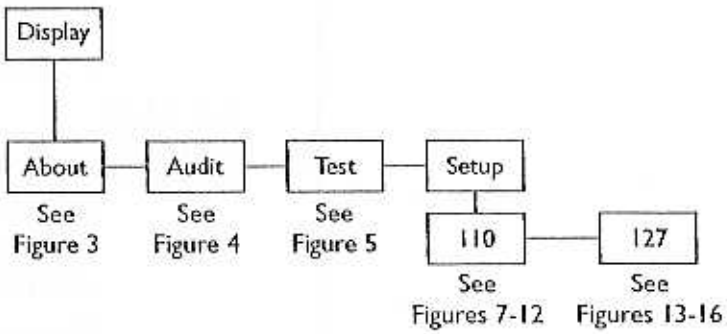


Figure 6
Setup menu

The two top level menu items under Setup are 110 and 127.

110 This selection allows access to the menus necessary to make the WI-127 behave as a clone of the WI-110 indicator.

127 This selection allows all setup menus to be accessed.

Top Level of 110 Menu

The top level menu items of the 110 menu are shown in Figure 7.

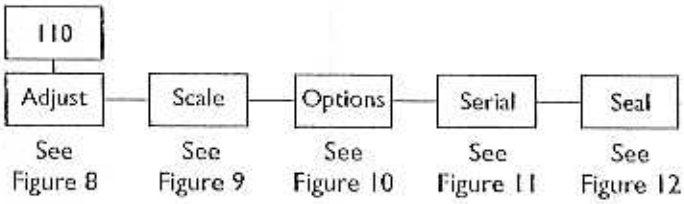


Figure 7
110 Menu

Adjust — Use this submenu for calibration of the scale.

Scale — Use this submenu for configuring units, capacity, divisions, zero, stability, A.Z.T., update rate, averaging and filtering.

Options — Use this submenu to configure the buttons on the front panel.

Serial — Use this submenu to setup the baud rate, data bits, parity and stops of the serial ports.

Seal — Use this submenu to setup a custom password and to set the sealing choices for the unit.

Adjust Menu

Below is the 110 Adjust submenu. If the factory calibration has become corrupt, the word ***AdJUSt*** will flash on and off. You may use the indicator under this condition by calibrating with real weights, not by entering previously recorded count values.

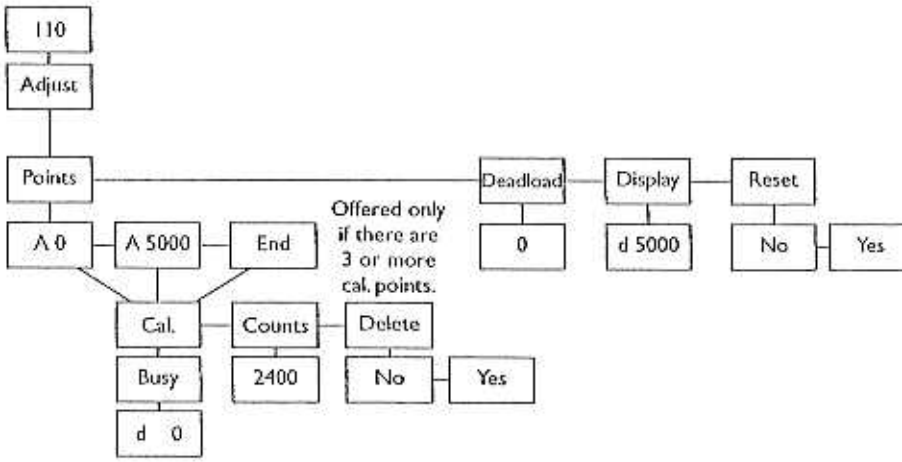


Figure 8
110 Adjust menu

Points

See the section *Calibrating the WI-127* for indepth instructions.

In this submenu you may view, edit, insert or delete calibration points in a list. The WI-127 allows calibration using up to five calibration points.

The WI-127 comes from the factory with two calibration points: 0 and 5000 lbs. (These weight values may differ depending on your unit of measure.)

These points may be calibrated in two ways: 1) by standard weight calibration or 2) by entering count values. Counts are calibrated to a 1 mV/V signal from the factory.

A 0

When you access the Points submenu the first item is ***A 0***. This stands for ***Apply 0*** weight. This is the zero calibration point.

A 5000

The next calibration point in the default list is the calibration point for full capacity. Your indicator is factory calibrated to 5000 lbs (1 mV/V). You may keep this value or key in a new value for full capacity.

Deadload

Lets you view the count value for the current deadload. Press the **UNITS** key to change the display to mV/V.

Display

Shows the weight display without having to exit the menus. An example of what is shown—***d 5000***. The ***d*** indicates a live display of weight and reminds you that the unit is in calibration. The value you see depends on the selected unit of measure, the calibration and the weight applied. The **UNITS** key works in this mode.

Reset

Use this item to reset the calibration points to factory default values. If you choose ***yES*** the values are set to 0 lbs at 0 mV/V and 5000 lbs at 1 mV/V.

110 Scale Menu

The next item in the 110 menu structure is ***Scale***. In this group of submenus you set scale related parameters. Figure 9 shows the Scale menu.

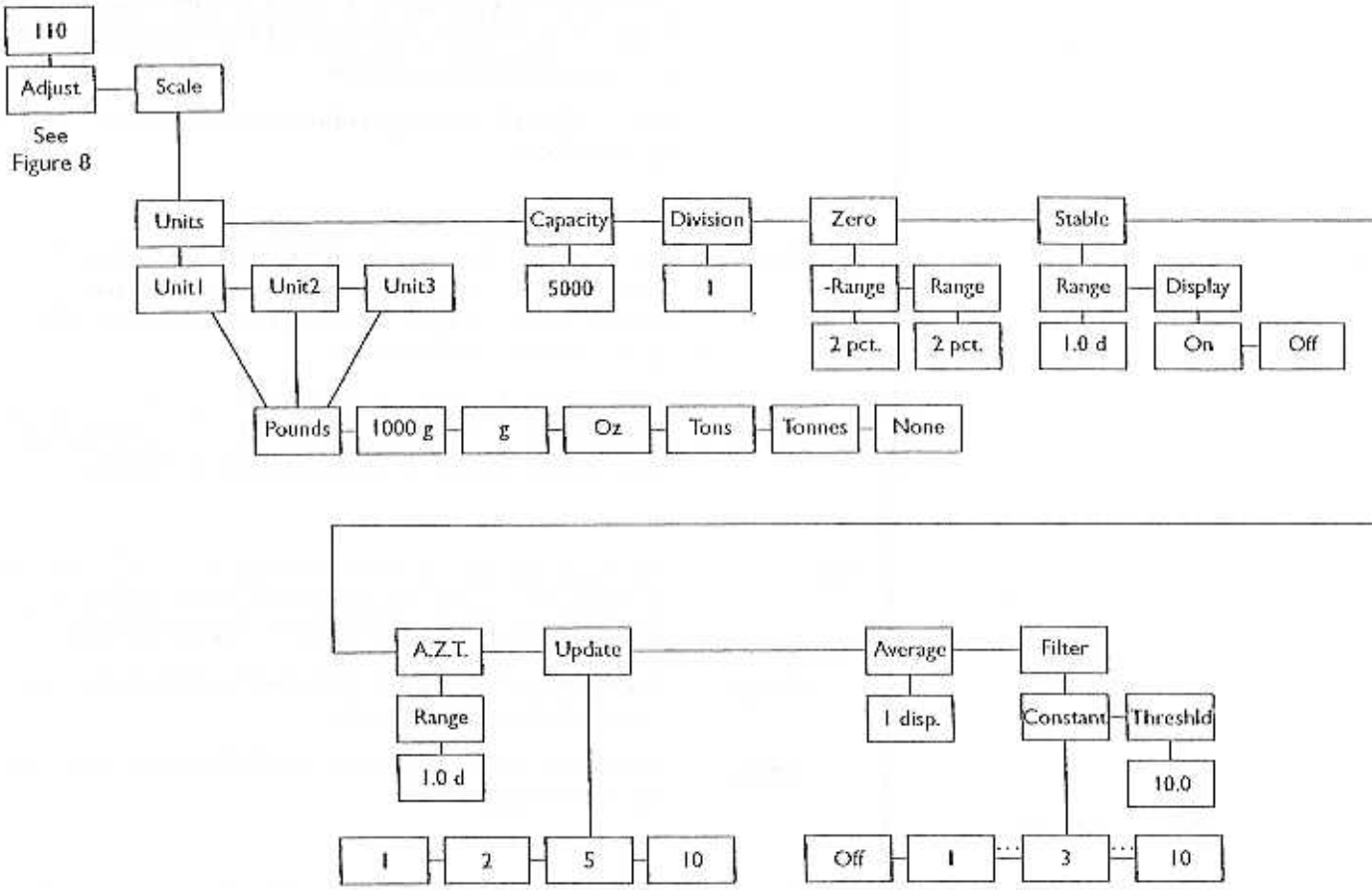


Figure 9
110 Scale menu

Units This submenu lets you select what unit of measure will be assigned to the three annunciators on the front panel.

Unit 1 The unit of measure you choose for this item will be assigned t the annunciator labeled "lb" on the front panel. You can choos from the following list of units of measure:

Pounds = pounds
1000g = kilograms
g = grams
Oz = ounces
Tons = tons
Tonnes = tonnes (metric tons)
None = no unit of measure is assigned.

Unit 2 The unit of measure you choose for this item will be assigned the annunciator labeled "kg" on the front panel. You can choo a unit of measure from the same list as above.

Unit 3 The unit of measure you choose for this item will be assigned the annunciator labeled "oz" on the front panel. You can choo a unit of measure from the same list as above.

Capacity

The next scale menu item is capacity. Use this item to view or edit the capacity of the unit in any unit of measure configured under **Units**. With ***CAPACity*** displayed, press the **ENTER** ▾ key. The current capacity is displayed. Use the numeric keypad to key in a new value and press **ENTER** ▾ to accept it and return to the ***CAPACity*** display.

You can view the capacity in other units of measure by pressing the **UNITS** key.

Division

This selection allows you to view and edit the division size of the enabled units of measure. You can enter any division size. The indicator will use the closest division size for each enabled unit of measure (1, 2 or 5 divisions).

You can view the division in other units of measure by pressing the **UNITS** key. The number is stored in the resolution you enter but is displayed in the closest valid division size.

Zero

Use this menu item to set zero related options. Zero range is specified as a percent of capacity referenced from the deadload. There are two items in the submenu: ***-Range*** and ***Range***.

-Range Use this to set the negative range within which the unit may be zeroed. 2 % is the default value.

Range Use this to set the range within which the unit may be zeroed. 2 % is the default value.

Stable

Use this menu item to set the motion detection parameters. There are two items in the submenu: ***Range*** and ***Display***.

Range Specifies the number of ±divisions for the motion window. Use the numeric keypad to enter appropriate value. Most common settings are 0.5, 1, or 3 divisions.

Display Choose ON to if you want the display on while the indicator senses scale motion. Choose OFF to blank the display while there is scale motion.

A.Z.T.

This stands for Automatic Zero Tracking. ***Range*** is the only item in this submenu.

Range Use this item to set the range within which the indicator will automatically adjust the zero balance towards zero. Use the numeric keypad to enter appropriate value. Most common settings are 0.5, 1, or 3 divisions.

Update

Use this to set the display update rate from these choices:

1 One update per second.
2 Two updates per second
5 Five updates per second
10 Ten updates per second.

Changing the update rate changes the x disp. or x a-ds value based on the new update rate.

Average

The next menu item is ***Average***. This can be entered in one of two methods: ***x disp.*** or ***x a-ds***. Press the **UNITS** key to switch back and forth between the two choices.

The suggested method of setting the average is by picking a value for ***x disp.*** Doing this insures that a multiple of the display rate is always being averaged. This results in a steadier weight display.

Use ***x a-ds*** if you need an exact number of A-D conversions for your particular situation.

x disp.

1 disp. is the default display when you access this item. x is the number of display interval(s) over which the data is internally averaged prior to being displayed. The number of A-Ds averaged is based on the display update rate you set under the ***Update*** menu item. Default is ***1 disp.***

x a-ds

x is the number of a-d conversions to average for each display.

The A-D weight conversion happens 60 times per second in this indicator. ***Average*** is the number of conversions you want to average for the weight that is displayed. Default is ***12 a-ds*** when ***Update*** is at default of 5 and ***x disp.*** is at default value of 1.

Filter

Use this menu item to configure the Harmonizer filter settings. ***Constant*** and ***Threshld*** are the two items you can configure in this submenu.

Constant

This number represents the amount of filtering. Choose a setting between 1 and 10. Choose 1 for the least amount of filtering but the fastest response. Choose 10 for the most filtering but the slowest response. Choose Off to disable the Harmonizer functions and default to the lowest filtering.

Threshld

This is the window, in the current unit of measure, within which weight changes are altered according to the constant. ***10.0*** is the default value shown in Figure 9. You should set the threshold value between 130 and 150% of the weight swings that need to be suppressed.

110 Options Menu

The third item in the 110 menu structure is Options. Figure 10 shows the Options Menu. Use this menu to enable/disable and configure the buttons on the front panel.

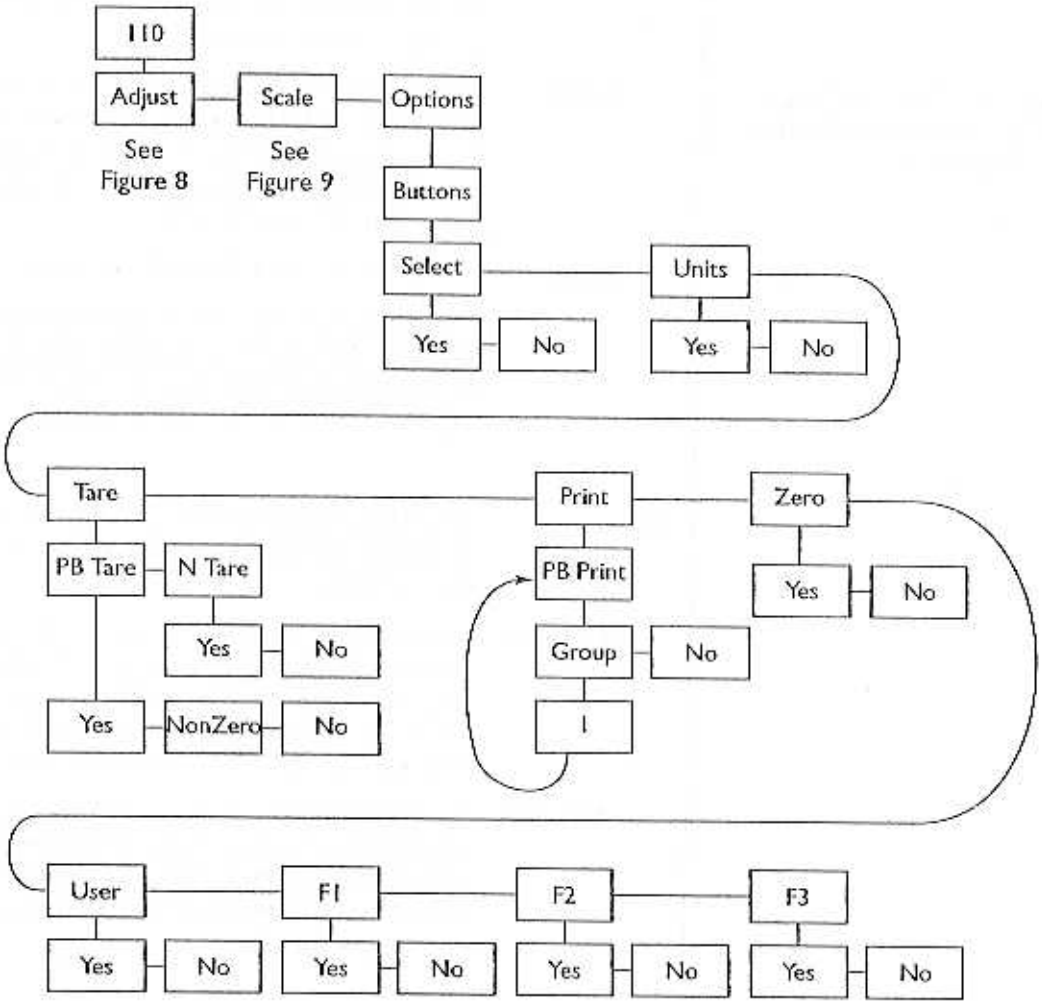


Figure 10
110 Options menu

Select Enables or disabled the **SELECT** key.

Units Enables or disables the **UNITS** key.

Tare This parameter enables or disables the push-button tare and numeric tare entry.

PB Tare Options under this item are **Yes** (allows push-button tare for all nonnegative values), **Non-Zero** (enables push-button tare for all nonnegative values excluding zero), and **No** (disables push-button tare).

n Tare Enables and disables numeric tare entry.

Print

PB Print This item determines which layouts are sent to which ports for push-button print. Press **ENTER** ▼ and ***Group*** is displayed. From this item you may either disable the push-button print option, or select a group to print. To select a group, press **ENTER** ▼ again. Using the keypad, enter the number of the group you wish to print. To disable, press **MENU** ▶, then **ENTER** ▼. The four default print groups are as follows:

1 = Displayed weight
2 = Gross, Tare, Net (default)
3 = Gross and Net
4 = Net and Tare.

Zero Enables or disables the **ZERO** key.

User Enables or disables the **MENU** key.

F1 Enables or disables the **F1** key. The default setting for this key accesses the tare registers.

F2 Enables or disables the **F2** key. The default setting for this key accesses the identification number entry.

F3 Enables or disables the **F3** key. The default setting for this key accesses the over, under, and target values/tolerances.

110 Serial Menu

The fourth item in the 110 menu structure is Serial. This submenu sets up the baud rate, data bits, parity, and stops of the serial port(s). Figure 11 below outlines the Serial Menu.

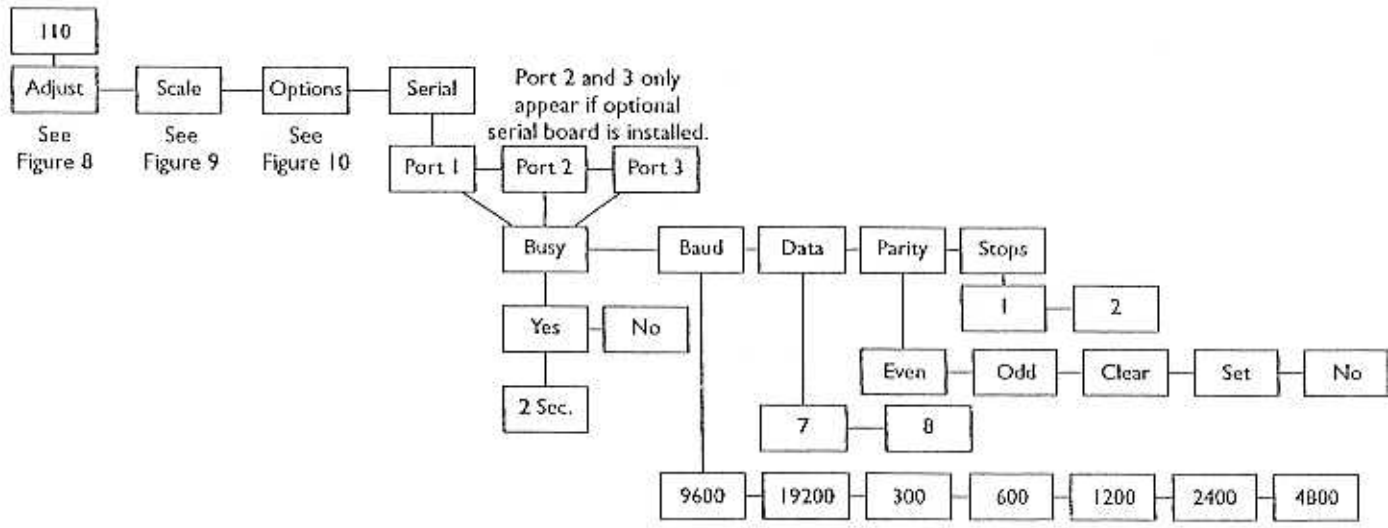


Figure 11
110 Serial menu

Ports 2 and 3 present if optional hardware is installed.

Port 1, 2 & 3

Port 1 is the onboard serial port. Any additional boards installed are configured under Ports 2 & 3. Ports 2 & 3 show up in the Serial Menu only if additional boards are installed.

Busy Enables or disables the ready/busy input. If the ready/busy input is enabled, you may enter a timeout period. This value determines how long a port can be busy before the indicator displays a port busy message.

Baud Select a baud rate. Choices are: 9600 (default), 19200, 300, 600, 1200, 2400, 4800.

Data Choose between 7 (default) & 8 data bits.

Parity Choices are:

- **No** - Specifies that no parity bit is to be included.
- **Even** - Specifies that a parity bit which insures an even number of logic one bits is transmitted. (default)
- **Odd** - Specified that a parity bit which insures an odd number of logic one bits is transmitted.
- **Clear** - Specified that a logic zero bit is always transmitted after the data bits (space parity).
- **Set** - Specifies that a logic one bit is always transmitted after the data bits (mark parity).

Stops Select the number of stop bits. Choices are 1 or 2.

110 Seal Menu

The last item in the 110 Setup menu is Seal. Use this submenu to set up a custom password and to set the sealing choices for the unit. Items in the Setup menu (Figure 6) can be protected from unrecorded changes.

Two internal counters record changes to items in the Setup menu. View these counters under ***AUDIT*** in the Service menu (Figure 4). These counters cannot be reset and thus can be used by auditors or inspectors to check if changes have been made. One counter is for scale calibration items and the other for configuration items. The level of protection is set in the Seal menu. The Seal menu is shown in Figure 12.

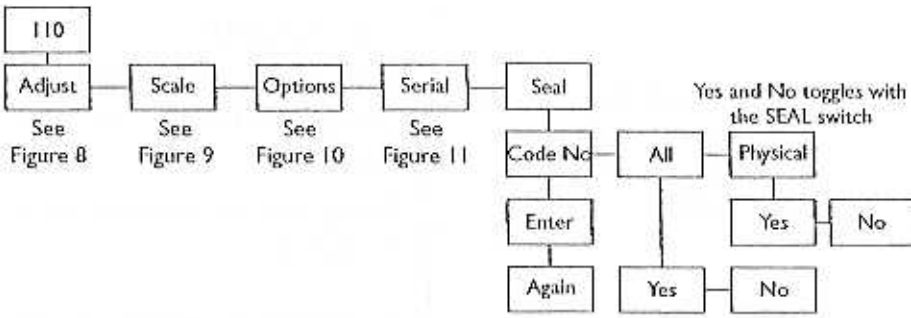


Figure 12
110 Seal Menu

Code No. This item allows you to enter a personalized security code number. Digits are not shown on the display as you key them in, so the display prompts you to enter the code number twice.

All* & *Phys. The two parameters in the ***SEAL*** menu are ***All*** and ***Phys***. Below are explanations of the choices you can make.

ALL set to ***YES***

Any time you access the setup menu and change any item in Table 1, the appropriate counter increments one count. Changing multiple items on one visit to the menu increments the counter only one count. It's the number of visits with changes that are counted, not the number of changes per visit.

ALL set to ***NO***

With this setting the calibration internal counter will increment when you access the setup menu and change any calibration item in Table 1. The internal configuration counter will increment only if you change one of the configuration items in **bold** print from Table 1.

Phys. set to *Yes*

If ***Phys.*** is set to ***Yes***, you must remove the physical seal (rear sealing plug) of the WI-127 to access an internal switch. When you press this switch you have full editing privileges and the display shows the first item in the Service menu, ***About***, without the need to enter the password.

If you enter the Service menu using the password and not the internal switch, you can change only the configuration items in Table 1 that are in normal, not **bold**, print.

PHYS set to ***NO***

*If **PHYS.** is set to **NO**, you can still press the internal switch and have instant setup menu access and editing privileges.*

If ***PHYS.*** is set to ***NO***, correct password entry is the only way to have editing privileges of all the items in Table 1 without breaking the physical seal. See note to left.

If the password is not entered correctly, the setup menu items can be viewed but not edited.

Calibration Items	Configuration Items
Any item in the Adjust menu	**Any item in the Scale menu**
	Any item in the Options menu
	Any item in the Seal menu
	Any item in the Serial menu
	Any item in the Analog menu
	Any item in the B.C.D. Out menu

Table 1
Calibration and Configuration list

This is the end of the 110 section. The next section covers the 127 section of the Setup menu.

Top Level of 127 Menu

The top level menu items of the 127 menu are shown in Figure 13.

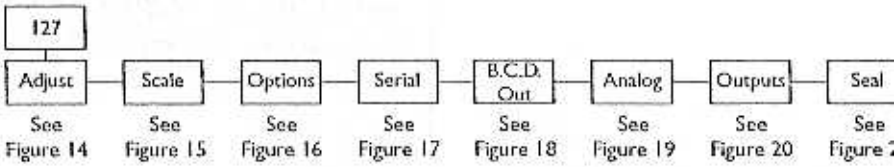


Figure 13
127 Menu

Adjust	Use this submenu for calibration of the scale.
Scale	Use this submenu for configuring units, capacity, divisions, zero, stability, A.Z.T., update rate, averaging, filtering, and overload.
Options	Use this submenu to configure the buttons on the front panel.
Serial	Use this submenu to setup the baud rate, data bits, parity and stops of the serial ports.
B.C.D. Out	Use this submenu to configure the output of an optional B.C.D. board. This menu will not appear if the optional board is not installed.
Analog	Use this to configure the analog output option board.
Outputs	Use this to configure the WI-127's outputs.
Seal	Use this submenu to setup a custom password and to set the sealing choices for the unit.

127 Adjust Menu

A step-by-step description of calibrating the WI-127 and using the Adjust menu can be found in the section titled ***Calibrating the WI-127.***

Below is the Adjust submenu for the 127. If the factory calibration has become corrupt, the word ***AdJUSt*** will flash on and off. To correct this you must send it to the factory. You may use the indicator under this condition by calibrating with real weights, not by entering previously recorded count values.

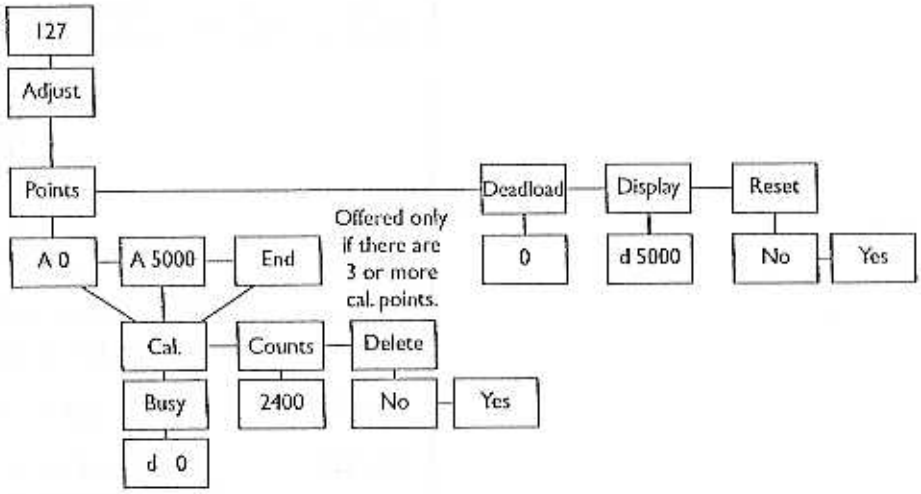


Figure 14
127 Adjust menu

Points — See the section *Calibrating the WI-127* for indepth instructions.

In this submenu you may view, edit, insert or delete calibration points in a list. The WI-127 allows calibration using up to five calibration points.

The WI-127 comes from the factory with two calibration points: 0 and 5000 lbs. (These weight values may differ depending on your unit of measure.)

These points may be calibrated in two ways: 1) by standard weight calibration or 2) by entering count values. Counts are calibrated to a 1 mV/V signal from the factory.

A 0 — When you access the Points submenu the first item is ***A 0***. This stands for ***Apply 0*** weight. This is the zero calibration point.

A 5000 — The next calibration point in the default list is the calibration point for full capacity. Your indicator is factory calibrated to 5000 lbs (1 mV/V). You may keep this value or key in a new value for full capacity.

Deadload — Lets you view the count value for the current deadload. Press the **UNITS** key to change the display to mV/V.

Display — Shows the weight display without having to exit the menus. An example of what is shown—***d 5000***. The ***d*** indicates a live display of weight and reminds you that the unit is in calibration. The value you see depends on the selected unit of measure, the calibration and the weight applied. The **UNITS** key works in this mode.

Reset — Use this item to reset the calibration points to factory default values. If you choose ***yES*** the values are set to 0 lbs at 0 mV/V and 5000 lbs at 1 mV/V.

127 Scale Menu

The next item in the 127 menu structure is Scale. In this group of submenus you set scale related parameters. Figure 15 shows the Scale menu.

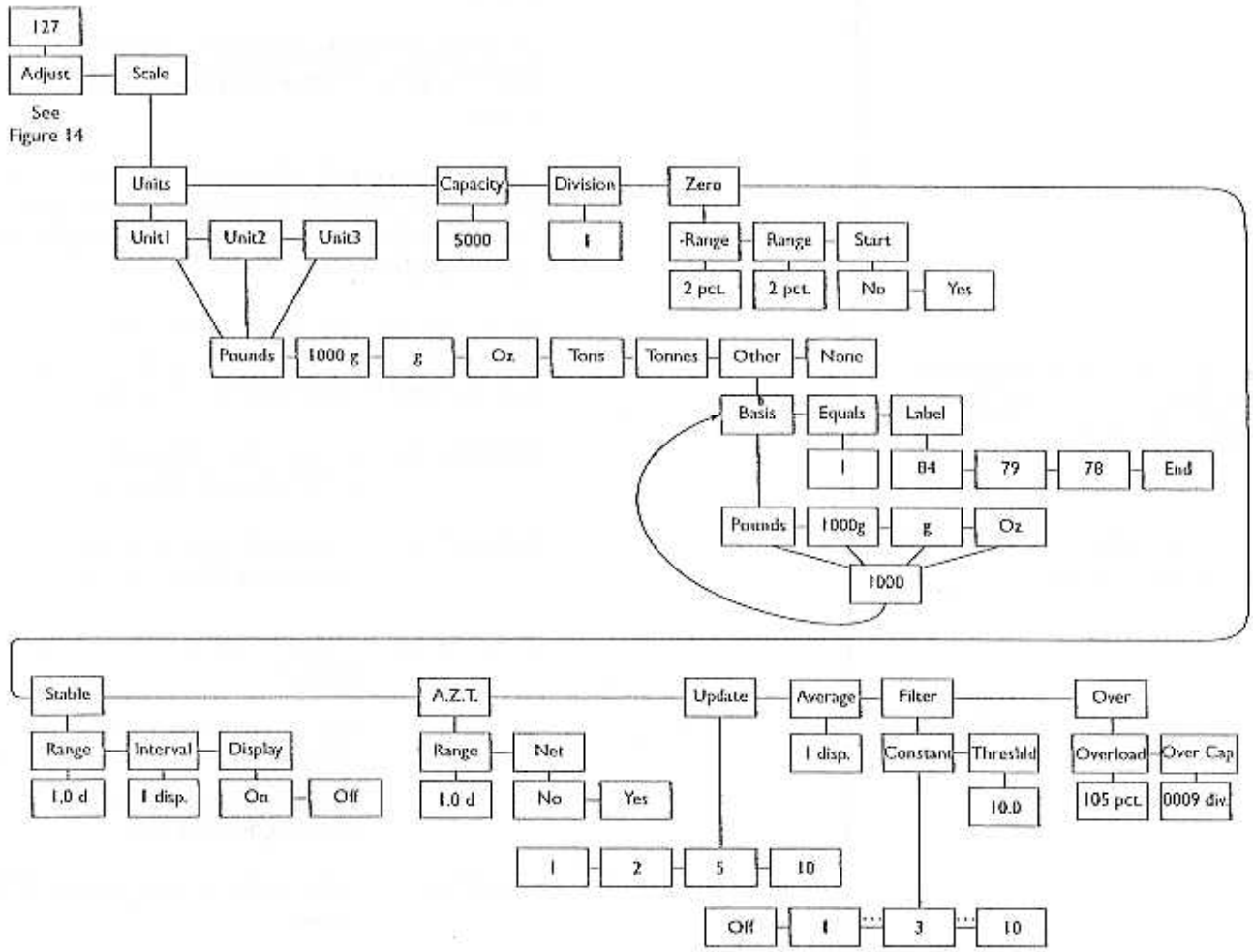


Figure 15
127 Scale menu

Units This submenu lets you select what unit of measure will be assigned to the three annunciators on the front panel.

Unit 1 The unit of measure you choose for this item will be assigned to the annunciator labeled "lb" on the front panel. You can choose from the following list of units of measure:

Pounds = pounds
1000g = kilograms
g = grams
Oz = ounces
Tons = tons
Tonnes = tonnes (metric tons)
Other = This allows you to enter the information to create a custom unit of measure. You need to enter the ratio values for the custom unit based upon another unit of measure and a string of text to use in serial output.

Under ***Basis*** choose the unit and amount upon which the custom unit is based. Under ***Equals*** enter the equivalent custom unit value.

Example 1: To create a 'stone' unit of measure, the ***Basis*** would be 14 pounds and ***Equals*** should be 1 stone.

Example 2: To create an ounce unit of measure, the ***Basis*** would be 1 pound and ***Equals*** should be 16 ounces.

Example 3: To create a kg unit of measure, the ***Basis*** would be 10 pounds and ***Equals*** should be 4.5359237 kilograms. Ten pounds is used so all eight digits can be entered as the ***Equals*** value.

Under ***Label*** you create the serial label for the custom unit of measure. With the first ASCII value displayed you can use the keys to do the following:

Refer to the ASCII character chart located in the section ***Customizing the Serial Output.***

Custom label can be a maximum of 16 characters in length.

ENTER key- accepts the displayed value and returns to ***Label*** display.

MENU key - accepts the displayed value and moves to the next ASCII character value.

ESCAPE key - exits the display without making a change.

+/- key - Inserts a new ASCII value before the currently displayed ASCII value. Key in the ASCII value and continue by pressing another key.

ZERO key - deletes the currently displayed ASCII value.

Continue editing, inserting, and deleting until you are done. Press **ESCAPE** ▲ to exit the label entry.

None = no unit of measure is assigned.

Unit 2 The unit of measure you choose for this item will be assigned to the annunciator labeled "kg" on the front panel. You can choose a unit of measure from the same list as above.

Unit 3 The unit of measure you choose for this item will be assigned to the annunciator labeled "oz" on the front panel. You can choose a unit of measure from the same list as above.

Capacity The next scale menu item is capacity. Use this item to view or edit the capacity of the unit in any unit of measure configured under **Units**. With ***CAPACity*** displayed, press the **ENTER** ▼ key. The current capacity is displayed. Use the numeric keypad to key in a new value and press **ENTER** ▼ to accept it and return to the ***CAPACity*** display.

You can view the capacity in other units of measure by pressing the **UNITS** key. The number is stored in the resolution you enter but is displayed in the division size stored in **Division.**

Division This selection allows you to view and edit the division size of the enabled units of measure. You can enter any division size. The indicator will use the closest division size for each enabled unit of measure.

You can view the division in other units of measure by pressing the **UNITS** key. The number is stored in the resolution you enter but is displayed in the closest valid division size. Any additional resolution is used in calculating division size in the other units of measure.

Zero Use this menu item to set zero related options. Zero range is specified as a percent of capacity referenced from the deadload. There are three items in the submenu: ***-Range***, ***Range*** and ***Start***.

-Range Use this to set the negative range within which the unit may be zeroed. 2 % is the default value.

Range Use this to set the positive range within which the unit may be zeroed. 2 % is the default value.

Start Use this parameter to determine whether or not the indicator must reach a stable reading within the above range before it will exit the start-up sequence, automatically zero the scale and begin weighing. While trying to acquire a stable zero the unit displays ***Auto. 0***. Select ***No*** if you want no start-up zero restrictions. Choose ***Yes*** if you want the start-up zero restriction.

This feature keeps the indicator from functioning at power up in an unstable environment.

Stable Use this menu item to set the motion detection parameters. There are three items in the submenu: ***Range***, ***Delay*** and ***Display***.

Range Use this to specify the number of ±divisions for the motion window. Default is 1.0 division.

Delay Use this to specify the number of seconds during which the weight must be within range (described above) before a no-motion condition is displayed. Default value is 0.4 seconds.

Display Choose ON to if you want the display on while the indicator senses scale motion. Choose OFF to blank the display while there is scale motion. Default is ON.

A.Z.T. This stands for Automatic Zero Tracking. There are two items in this submenu; ***Range*** and ***Net***.

Range A.Z.T. adjusts the zero balance towards zero at the rate of .1 divisions per second after being within the range given for at least 2 seconds.

Net You may also enable or disable automatic zero tracking of net weight.

Update Use this to set the display update rate from these choices:

1 One update per second.
2 Two updates per second
5 Five updates per second
10 Ten updates per second.

Changing the update rate changes the x disp. or x a-ds value based on the new update rate.

Average The next menu item is ***Average***. This can be entered in one of two methods: ***x disp.*** or ***x a-ds***. Press the **UNITS** key to switch back and forth between the two choices.

The suggested method of setting the average is by picking a value for ***x disp***. Doing this insures that a multiple of the display rate is always being averaged. This results in a steadier weight display.

Use ***x a-ds*** if you need an exact number of A-D conversions for your particular situation.

x disp. ***1 disp.*** is the default display when you access this item. ***x*** is the number of display interval(s) over which the data is internally averaged prior to being displayed. The number of A-Ds averaged is based on the display update rate you set under the ***Update*** menu item. Default is ***1 disp.***

x a-ds ***x*** is the number of a-d conversions to average for each display.

The A-D weight conversion happens 60 times per second in this indicator. ***Average*** is the number of conversions you want to average for the weight that is displayed. Default is ***12 a-ds*** when ***Update*** is at default of 5 and ***x disp.*** is at default value of 1.

Filter Use this menu item to configure the Harmonizer filter settings. ***Constant*** and ***Threshld*** are the two items you can configure in this submenu.

Constant This number represents the amount of filtering. Choose a setting between 1 and 10. Choose 1 for the least amount of filtering but the fastest response. Choose 10 for the most filtering but the slowest response. Choose Off to disable the Harmonizer functions and default to the lowest filtering.

Threshld This is the window, in the current unit of measure, within which weight changes are altered according to the constant. ***10.0*** is the default value shown in Figure 9. You should set the threshold value between 130 and 150% of the total weight oscillations that need to be suppressed. If weight changes are +20 lbs and -10 lbs, set this value to 130 to 150% of 30 lbs.

Over This submenu lets you setup the overload and capacity setting which cause the **O. *load*** error message.

When using overload or over capacity alone, set the other menu item to its maximum value to disable any conflicts.

Overload This value is expressed as a percent of capacity referenced from the deadload determined by calibration. Overload is restricted to 200% or lower. 105% is the default value.

Over Cap. This value expressed as a number of divisions over the capacity referenced from the zero value. A value of 9 satisfies UK requirements. Configurable from 0 to 999999 divisions. Default is 9 divisions.

127 Options Menu

The third item in the 127 menu structure is Options. Figure 16 below shows the Options Menu. Use this menu to configure the keys on the front panel as well as define print layouts.

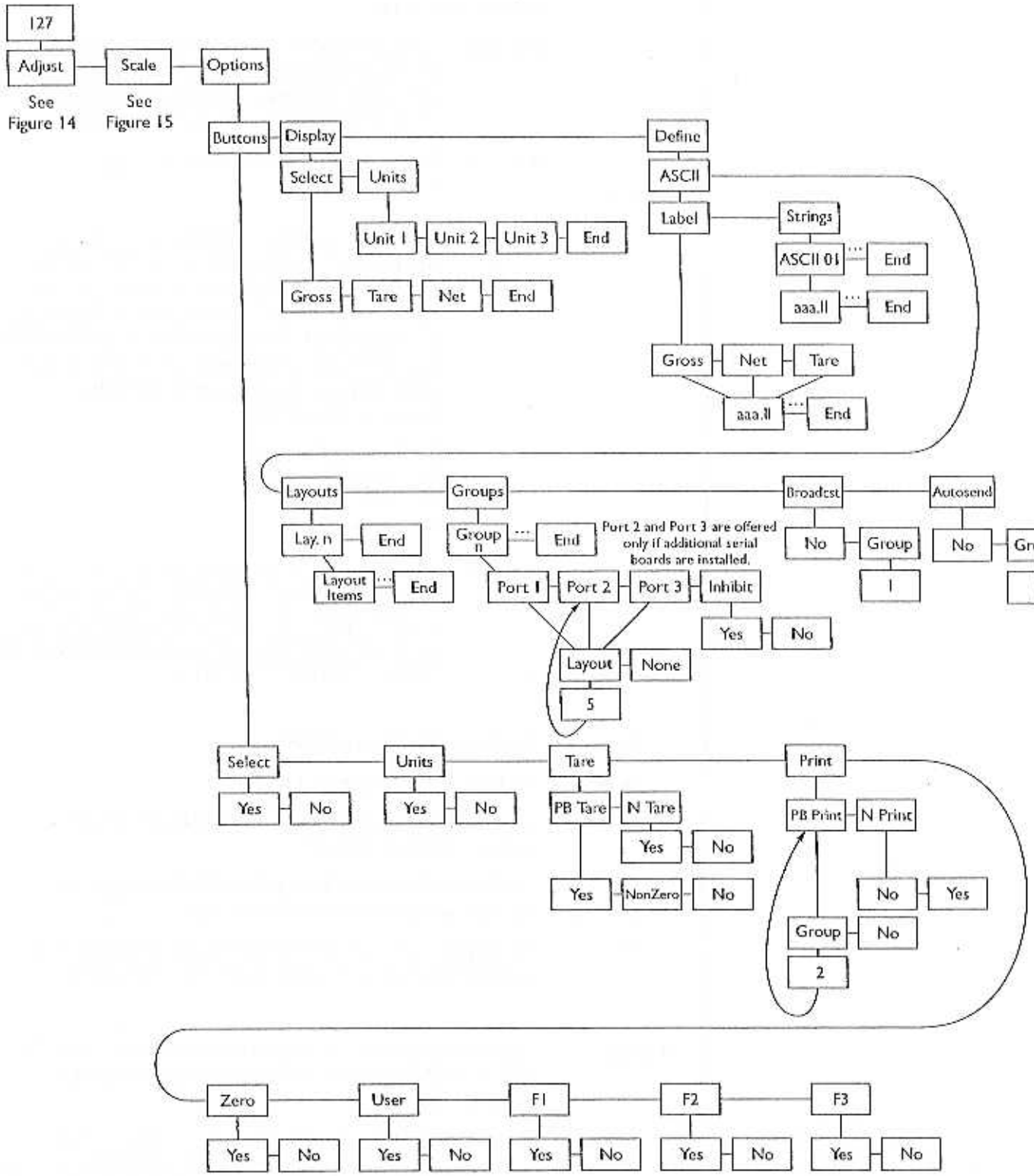


Figure 16
127 Options Menu

Buttons

Select Enables or disabled the **SELECT** key.

Units Enables or disables the **UNITS** key.

Tare This parameter enables or disables the push-button tare and numeric tare entry.

PB Tare Options under this item are **Yes** (allows push-button tare for all nonnegative values), **Non-Zero** (enables push-button tare for all nonnegative values excluding zero), and **No** (disables push-button tare).

n Tare Enables and disables numeric tare entry.

Print

PB Print This item determines which layouts are sent to which ports for push-button print. Press **ENTER** ▾ and **Group** is displayed. From this item you may either disable the push-button print option, or select a group to print. To select a group, press **ENTER** ▾ again. Using the keypad, enter the number of the group you wish to print. The four default print groups are as follows:

1 = Displayed weight
2 = Gross, Tare, Net
3 = Gross and Net
4 = Net and Tare.

n Print This item enables or disables group print entry. If enabled, you may print any group from the front panel. To use this feature during normal weighing operations, key in the number of the group you wish to print, then press **PRINT**.

Zero Enables or disables the **ZERO** key.

User Enables or disables the **MENU** key.

F1 Enables or disables the **F1** key. The default setting for this key accesses the tare registers.

F2 Enables or disables the **F2** key. The default setting for this key accesses the identification number entry.

F3 Enables or disables the **F3** key. The default setting for this key accesses the over, under, and target values/tolerances.

Display The Display submenu allows you to customize the order in which the WI-127 cycles through its weight display modes and units of measure.

Select Customize the list of weight display modes here. The default list is: Gross→Tare→Net. Repeatedly pressing **SELECT** while in the weight display mode will cycle through the list in that order. You may customize the list by inserting and/or deleting items in the list. The list can contain a maximum of four items.

*If Net is removed from Select mode, the **SELECT** key cannot enable net mode, but taring a nonzero value will put the indicator temporarily into the net mode.*

To add an item: Determine where in the list you wish to insert an item. Display the item which will immediately follow the one you are inserting. Press +/-. The ACCEPT annunciator illuminates. Cycle through the options by pressing the ◀ and **MENU** ▶ keys until the item you wish to insert is displayed, then press **ENTER** ▼. That item is now included in the list.

To delete an item: With that item displayed, press **ZERO**. That item is deleted from the list.

Units Customize the list of units of measure here. The default list is: Unit 1→Unit 2→Unit 3. Repeatedly pressing **UNITS** while displaying a weight in the weight display mode will cycle through the list in that order. You may customize the list by inserting and/or deleting items in the list. The list can contain a maximum of four items.

To add an item: Determine where in the list you wish to insert an item. Display the item which will immediately follow the one you are inserting. Press +/-. The ACCEPT annunciator illuminates. Cycle through the options by pressing the ◀ and **MENU** ▶ keys until the item you wish to insert is displayed, then press **ENTER** ▼. That item is now included in the list.

To delete an item: With that item displayed, press **ZERO**. That item is deleted from the list.

Define **Refer to the section "Customizing your Serial Output" for detailed instructions about this submenu.**

The Define submenu allows you to customize printouts, build ASCII strings, create groups and enable continuous send.

ASCII The WI-127 can store up to sixteen ASCII strings, each containing up to 32 individual ASCII characters. The WI-127 contains one default ASCII string. You may customize this string as well as build fifteen additional ones.

Layouts The WI-127 has sixteen available print layouts (of which eight have default settings) which may include a combination of sixteen items. Build your custom layouts by choosing among nineteen print items, including ASCII strings, weight values, tim and date, and other layouts.

Groups Here is where you specify which ports will print which layouts A total of nine groups is available. Within each group, up to three ports can output layouts. Port 1 is standard; ports 2 & 3 are offered only if additional serial boards are installed. Each port is then assigned a layout to print.

Broadcast Enables or disables continuous send. To enable continuous ser a group number must be entered under ***GrouP***. This number defines the group to be activated at each display update.

Autosend Enables or disables autosend. To enable auto send, a group number must be entered under **GrouP**. This number defines t group to be printed each time weight stabilizes above 1% capacity. The weight must fall below 1% capacity for the indicator to initiate another print.

127 Serial Menu

The fourth item in the 127 menu structure is Serial. Figure 17 below shows the Serial Menu. Use this menu to configure serial ports and communications protocols.

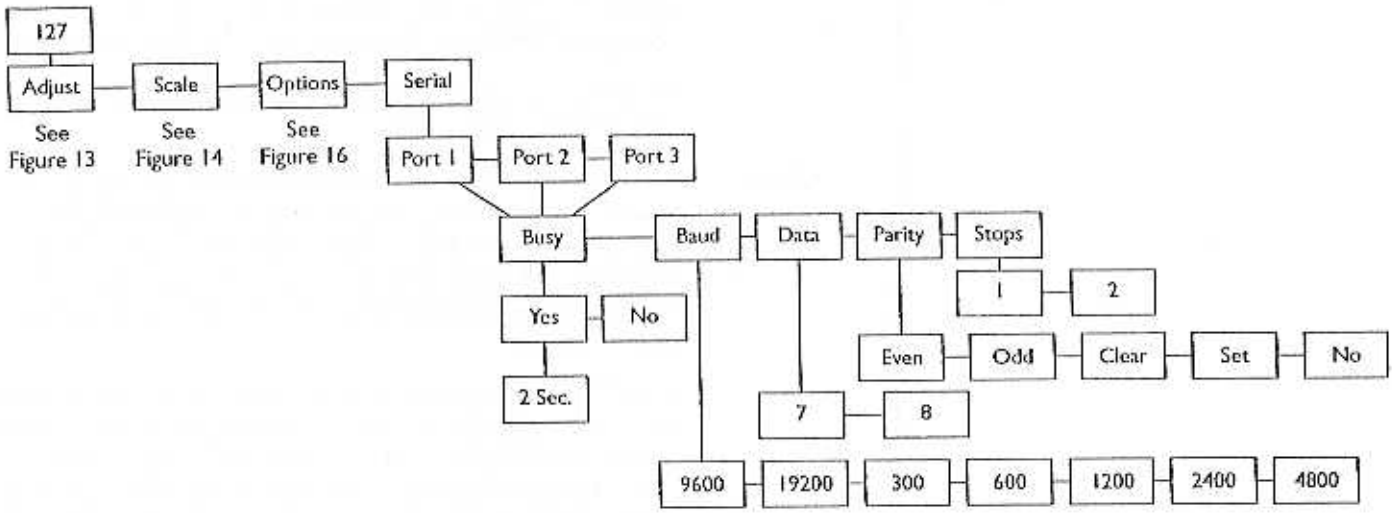


Figure 17
127 Serial Menu

Ports 2 and 3 present if optional hardware is installed.

Port 1, 2 & 3 Port 1 is the onboard serial port. Any additional boards installed are configured under Ports 2 & 3. Ports 2 & 3 show up in the Serial Menu only if additional boards are installed.

Busy Enables or disables the ready/busy input. If the ready/busy input is enabled, you may enter a timeout period. This value determines how long a port can be busy before the indicator displays a port busy message.

The WI-127 ports accept an enquire (ENQ) character. If an ENQ character is received, the group selected for the pushbutton print will be output.

Baud Select a baud rate. Choices are: 9600 (default), 19200, 300, 600, 1200, 2400, 4800.

Data Choose between 7 (default) & 8 data bits.

Parity Choices are:

- **No -** Specifies that no parity bit is to be included.
- **Even -** Specifies that a parity bit which insures an even number of logic one bits is transmitted. (default)
- **Odd -** Specified that a parity bit which insures an odd number of logic one bits is transmitted.
- **Clear -** Specified that a logic zero bit is always transmitted after the data bits (space parity).
- **Set -** Specifies that a logic one bit is always transmitted after the data bits (mark parity).

Stops Select the number of stop bits. Choices are 1 (default) or 2.

127 BCD Out Menu

The next item in the 127 menu structure is B.C.D. Out. Figure 19 below shows this menu. This submenu configures what the BCD output board will print. It is offered only if the BCD board is installed. Choices are: off, displayed weight, gross weight, and net weight.

If you choose displayed weight, BCD will output gross weight or net weight depending on what you are using at the time. If you access the user menu, the BCD output will be whatever was last displayed. If you use the **SELECT** key to access the tare display mode, BCD output will be Gross if tare = 0, Net if tare ≠ 0.

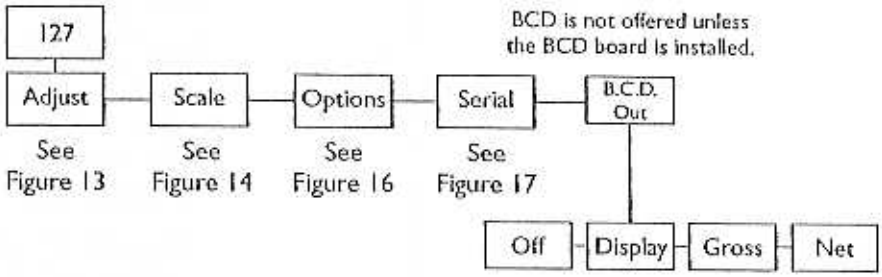


Figure 18
127 B.C.D. Out menu

127 Analog Menu

The Analog submenu is next. This submenu configures the analog output option board. Choices are: off, displayed weight, gross weight, and net weight.

If you choose displayed weight, the analog board will output gross weight or net weight depending on what you are using at the time. If you access the user menu, the analog output will be whatever was last displayed. If you use the **SELECT** key to access the tare display mode, analog output will be Gross if tare = 0, Net if tare ≠ 0.

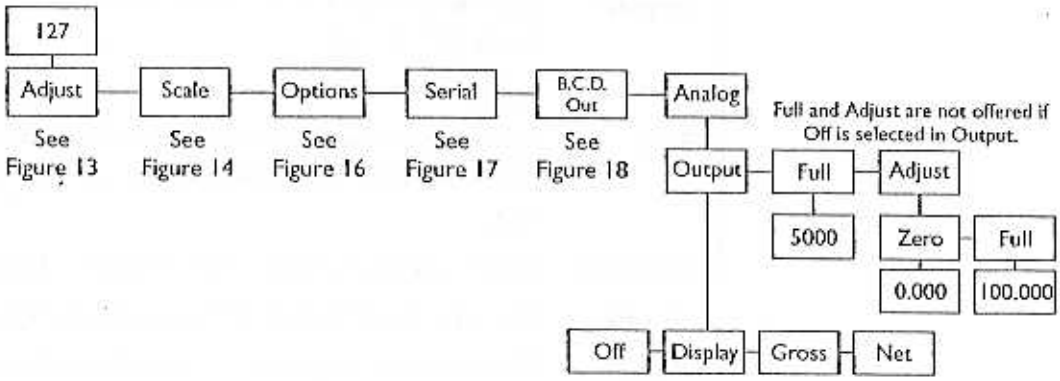


Figure 19
127 Analog menu

Output This item specifies which weight the analog output will follow. Choices are: off, displayed weight, gross weight, or net weight.

Full When selected, the indicator will display the last value used or the default value. You enter the full capacity of the analog output which may be less than or greater than the capacity of the scale. For example, the capacity of the indicator might be 5000 lb, but it may be desirable to have 3000 lbs as the full

capacity of the analog output. In any case, the analog output has nominal under and over range limits of 20%. After entering this value, press **UNITS** to select the unit of measure for the value. (This selection is not offered if off is selected under Output.)

Adjust These choices—Zero and Full—allow the zero and the span of the analog outputs to be adjusted without actually putting weights on and off the scale.

Selecting Zero lets you adjust the zero of the analog output for a zero weight reading. Adjust the zero by entering a percent value or by pressing ◄— and **MENU**► to make incremental adjustments. The number on the display gives a visual representation of the zero setting with 00.000 being the nominal value The zero adjustment has a +/- 10% range, -10.000 to +10.000 on the display.

Selecting Full lets you adjust the span of the analog output for the full capacity weight reading. Adjust the span by entering a percent value or by pressing ◄— and **MENU**► to make incremental adjustments. Holding these keys will cause the values to change faster and faster. The number on the display gives a visual representation of the zero setting with 100.000 being the nominal value The zero adjustment has a +/- 10% range, 90.000 to 110.000 on the display. Weight does not have to be on the scale to perform this task.

127 Outputs Menu

* *denotes default settings*

This submenu, shown in Figure 20, is where you configure the WI-127's outputs.

Update Choose an update display rate for the cutoffs.

Display* This selection updates the cutoffs at the indicator's configured display update rate:

1, 2, 5 or 10 times per second.

Fast This selection updates the cutoffs at 20 times per second. The indicator will continue to update at its configured display update rate.

Onboard Choose the configuration of the onboard outputs.

Cutoff* This selection configures the onboard outputs as cutoffs.

Bounds This selection configures the onboard outputs as over, under and accept outputs.

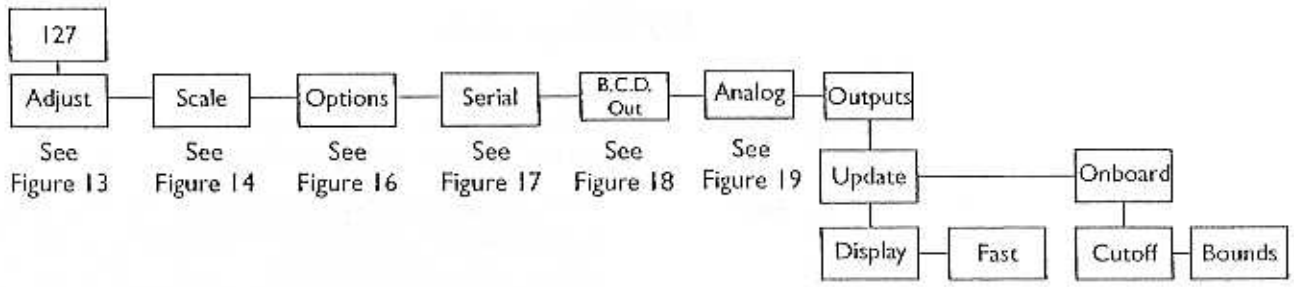


Figure 20
Outputs menu

127 Seal Menu

The last item in the 127 Setup menu is Seal. Use this submenu to set up a custom password and to set the sealing choices for the unit. The Seal Menu is shown in Figure 21.

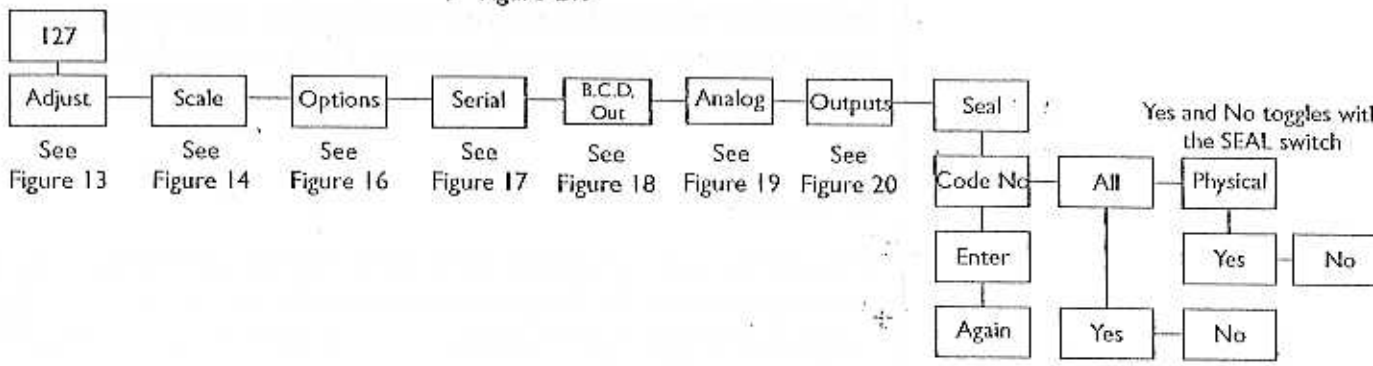


Figure 21
127 Seal Menu

The last item in the 127 Setup menu is Seal. Use this submenu to set up a custom password and to set the sealing choices for the unit. Items in the Setup menu (Figure 6) can be protected from unrecorded changes.

Two internal counters record changes to items in the Setup menu. View these counters under ***AUDIT*** in the Service menu (Figure 4). These counters cannot be reset and thus can be used by auditors or inspectors to check if changes have been made. One counter is for scale calibration items and the other for configuration items. The level of protection is set in the Seal menu. The Seal menu is shown in Figure 22.

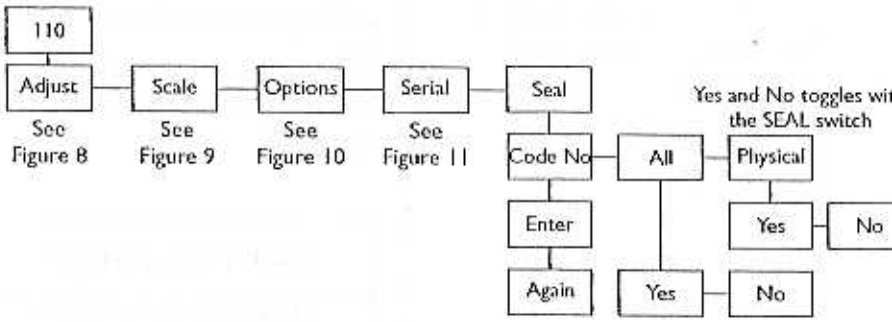


Figure 22
110 Seal Menu

Code No. This item allows you to enter a personalized security code number. Digits are not shown on the display as you key them in so the display prompts you to enter the code number twice.

All* & *Phys. The two parameters in the ***SEAL*** menu are ***All*** and ***Phys***. Below are explanations of the choices you can make.

All set to ***Yes***

Any time you access the setup menu and change any item in Table 2, the appropriate counter increments one count. Changing multiple items on one visit to the menu increments the counter only one count. It's the number of visits with changes that are counted, not the number of changes per visit.

All set to ***No***

With this setting the calibration internal counter will increment when you access the setup menu and change any calibration item in Table 2. The internal configuration counter will increment only if you change one of the configuration items in **bold** print from Table 2.

Phys. set to ***Yes***

If ***Phys.*** is set to **Yes**, you must remove the physical seal (rear sealing plug) of the WI-127 to access an internal switch. When you press this switch you have full editing privileges and the display shows the first item in the Service menu, ***About***, without the need to enter the password.

If you enter the Service menu using the password and not the internal switch, you can change only the configuration items in Table 2 that are in normal, not **bold**, print.

Phys. set to ***No***

*If **Phys.** is set to **No**, you can still press the internal switch and have instant setup menu access and editing privileges.*

If ***Phys.*** is set to **no** correct password entry is the only way to have editing privileges of all the items in Table 2 without breaking the physical seal. See note to left.

If the password is not entered correctly, the setup menu items can be viewed but not edited.

Calibration Items	Configuration Items
Any item in the Adjust menu	**Any item in the Scale menu**
	Any item in the Options menu
	Any item in the Seal menu
	Any item in the Serial menu
	Any item in the Analog menu
	Any item in the B.C.D. Out menu

Table 2
Calibration and Configuration list

This is the end of the 127 section.

Reset Menu

* MASTER CLEAR.

The reset menu shown in Figure 23 appears in two cases.

1. If you do a Master Clear (powering up the unit with both the **MENU** an **F2** keys pressed).
2. If setup, calibration, or data becomes corrupted.

In case 1, you will need to enter the password the same way as explained in the Service menu. After correctly entering, the reset menu will be displayed.

1. With **Reset** displayed, press the **ENTER ▼** key. . .

   The first menu item will be displayed. See note at left.

2. Press the **ENTER ▼** key. . .

   No is displayed.

3. Choose **Yes*** to reset to default values or **No** to leave the values as they are. Toggle between the choices with the **◀ or MENU ▶** key. When the choice you want is displayed, press the **ENTER ▼** key. . .

   ** If the unit is physically sealed, you must press the internal switch to select **YES**.*

   If you reset the item, the display will show the next item. When you reset an item to defaults it disappears from the menu.

4. Repeat steps 2 and 3 for each item in the menu. . .

   When all items are either accepted or reset the indicator reboots automatically.

You must press the Seal switch if the unit is physically sealed.

The reset menu may not contain all three items shown in Figure 23. If an item is at default and not corrupted it will not appear in the menu.

Corrupted items will flash. Items not at default and not corrupted will appear but will be solid (not flashing). These items are not required to be reset.

*If the **SEAL PHYS.** selection is corrupted, the unit assumes that the selection is **YES**.*

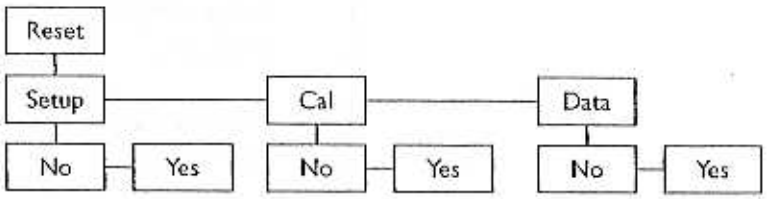


Figure 23
Reset menu

In case 2, the display bypasses the password and goes right to **Reset**. Repeat step 1 through 4 above.

Calibrating the WI-127

Any changes you make within the calibration menu will be immediately implemented, so take care when recalibrating your system.

The WI-127 allows calibration using up to five calibration points. These points can be any weight value in any unit of measure. Standard calibration generally uses two calibration points; for linearization, more than two may be used.

The WI-127 comes from the factory with two calibration points: 0 and 5000 lbs. (These weight values may differ depending on your unit of measure.) To perform linearization, you can insert more calibration points (up to a total of five points). These points appear in a list and may be inserted and deleted. The unit will order the points based on increasing count values.

These points may be calibrated in two ways: 1) by standard weight calibration or 2) by entering count values. Counts are calibrated to a 1 mV/V signal from the factory. This allows you to view the deadload, calibration point counts, and loadcell test in our standard count value (200,000 counts per mV/V) or press **UNITS** to view and edit the real mV/V. There are benefits to this feature:

- You can enter these values into a new indicator hooked up to the same scale. This is useful if the old indicator needs servicing and a quick turnaround is needed.
- Another benefit is the ability to enter the profile of a weight sensor without having to calibrate the indicator conventionally. This profile is used mostly in batching bars and force measurement devices, which have a standard or known output and are more difficult to calibrate in the field.

Entering the calibration menu

To calibrate your indicator you must enter the calibration menu. Follow these instructions:

1. From weight display mode, key in the security code (default code is 1 2 7). . .	The code number is displayed.
2a. Press and hold **ESCAPE** ▲ for two seconds. . .	***About*** is displayed.
OR	
2b. Press the SEAL switch inside the WI-127. . .	***About*** is displayed.
3. Press ◀◀—. . .	***SEtUP*** is displayed.
4. Press **ENTER** ▼. . .	***110*** or ***127*** is displayed.
5. Press **ENTER** ▼. . .	***AdJuSt*** is displayed.
6. Press **ENTER** ▼. . .	***PointS*** is displayed. You are now in the calibration menu.

Weight Calibration

To view or edit the weight in another configured unit of measure, press the UNITS key at any time during calibration.

To calibrate your scale using live weight calibration, follow these steps:

1. With ***PointS*** displayed, press **ENTER** ▼. . .
   A 0 is displayed. This is the zero calibration point.
2. To calibrate your scale's zero point, press **ENTER** ▼. . .
   CAL. is displayed.
3. Remove all weight from the scale and press **ENTER** ▼. . .
   bUSy is displayed for at least ½ secon while the unit obtains a stable value, then ***d 0*** is displayed. Note: Pressin **ESCAPE** ▲ while ***bUSy*** is displayed will abort the calibration and the indicator will return to the previous display.
4. Press **ENTER** ▼. . .
   A 0 is displayed.
5. Press **MENU** ▶. . .
   A 5000 is displayed. This is the full capacity calibration point. Full capacity is factory calibrated at 1 mV/V input..
6. You may use 5000 lbs to calibrate this point, or you may change the value for this calibration point. To change this calibration point, key in the new value now and press **ENTER** ▼ or to use the current value, press **ENTER** ▼. . .
   CAL. is displayed.
7. Put the appropriate weight calibration value on the scale and press **ENTER** ▼. . .
   bUSy is displayed for at least ½ secor while the unit obtains a stable value, then ***d XXXX*** is displayed. Note: Pressing **ESCAPE** ▲ while ***bUSy*** is displayed will abort the calibration and the indicator will retur to the previous display.
8. Press **ENTER** ▼. . .
   A XXXX is displayed. You have now calibrated the two standard calibratio points using live weight.

After your system is fully calibrated, write down and save the COUNT values for each calibration point. If your indicator ever needs replacing you can key these values into your new indicator and be assured the calibration will be correct.

Count calibration

To view or edit the weight in another configured unit of measure, press the UNITS key at any time during calibration.

To calibrate your scale using count calibration, follow these steps:

1. With ***PointS*** displayed, press **ENTER** ▼. . .	***A 0*** is displayed. This is the zero calibration point.
2. Press **ENTER** ▼. . .	***CAL.*** is displayed.
3. Press **MENU** ▶. . .	***CountS*** is displayed.
4. Press **ENTER** ▼. . .	Current count value is displayed. Press **UNITS** to view and edit the count in mV/V.
5. Key in the count value for the zero calibration point. . .	Value is displayed.
6. Press **ENTER** ▼. . .	Value is accepted and ***CountS*** is displayed.
7. Press **ESCAPE** ▲. . .	***A 0*** is displayed.
8. Press **ENTER** ▼. . .	***A 5000*** is displayed. This is the full capacity calibration point. Full capacity is factory calibrated at 1 mV/V input..
9.a You may leave this point at 5000 lbs, or you may change the value for this calibration point. To change this calibration point, key in the new value now and press **ENTER** ▼. . .	***CAL.*** is displayed.
9.b To leave the point at 5000 lbs, press **ENTER** ▼. . .	***CAL.*** is displayed.
10. Press **MENU** ▶. . .	***CountS*** is displayed.
11. Press **ENTER** ▼. . .	Current count value is displayed. Press **UNITS** to view and edit the count in mV/V.
12. Key in the count value for the ***A XXXXX*** calibration point. . .	Value is displayed.
13. Press **ENTER** ▼. . .	Value is accepted and ***CountS*** is displayed.
14. Press **ESCAPE** ▲. . .	***A XXXX*** is displayed. You have now calibrated the standard two calibration points using count calibration.

After your system is fully calibrated, write down and save the COUNT values for each calibration point. If your indicator ever needs replacing you can key these values into your new indicator and be assured the calibration will be correct.

Adding calibration points

"SELECT" KEY TO GO TO WEIGHING MODE AFTER CAL.

You have the option of adding one, two or three additional calibration points for linearization. You may add these points at the same time you are calibrating the zero load and full capacity points. Points do not have to be inserted in the correct order. The WI-127 will automatically order the points based on count values. To add linearization points:

1. With *A XXXX* displayed, press +/- . . .	*A* __ is displayed.
2. Key in the calibration value for the new point. . .	*A XXXX* is displayed.
3. Press **ENTER** ▼. . .	*CAL.* is displayed.

To perform a live weight calibration:

4a. 1. Put the correct weight on the scale and press **ENTER** ▼. . .	*bUSy* is displayed for at least ½ second while the unit obtains a stable value, then *d XXXX* is displayed.
2. Press **ENTER** ▼. . .	*A XXXX* is displayed.

To perform a count calibration:

4b. 1. Press **MENU** ▶. . .	*CountS* is displayed. Press **UNITS** to view and edit the count in mV/V.
2. Key in the correct count and press **ENTER** ▼. . .	*CountS* is displayed.
3. Press **ESCAPE** ▲. . .	*A XXXX* is displayed.
5. To add more calibration points, repeat steps 1-4 above.	

Deleting calibration points

There are two methods of deleting calibration points. NOTE: You may not have less than two calibration points.

Method A

1. With the point you wish to delete displayed. . .	*A XXXX*
2. Press **ZERO**. . .	Point is deleted.

Method B:

1. With the point you wish to delete displayed. . .	*A XXXXX*

2.	Press **ENTER** ▼. . .	***CAL.*** is displayed.
3.	Press **MENU** ▶. . .	***CountS*** is displayed.
4.	Press **MENU** ▶ again. . .	***dELEtE*** is displayed.
5.	Press **ENTER** ▼. . .	***no*** is displayed.
6.	Press **MENU** ▶. . .	***yES*** is displayed.
7.	Press **ENTER** ▼. . .	The point is deleted and ***A XXXX*** (next calibration point) is displayed.

Predefined Print Layouts

The WI-127 has sixteen available print layouts. Nine have default settings. Examples of the nine default layouts are shown below in printout form. Their actual layout codes are shown on the following pages.

Pressing the **PRINT** key on a new indicator will automatically print Layout #6.

Layout 1 Prints the weight label, gross weight, and unit of measure.

```
G 4000 lb
```

Layout 2 Prints the tare register number, weight label, tare weight, and unit of measure.

```
2 T 1500 lb
```

Layout 3 Prints the tare register number, weight label, net weight, and unit of measure.

```
N 2500 lb
```

Layout 4 Prints the weight label, displayed weight, and unit of measure.

```
G 4000 lb
```

Layout 5 Prints Layout 4 (weight label, displayed weight, and unit of measure) plus a form feed.

```
G 4000 lb
```

Layout 6 This is the default printout when the **PRINT** key is pressed. Prints Layouts 1, 2 & 3 (tare register numbers, weight labels, gross, tare and net weights, and units of measure) plus a form feed.

```
  G 4000 lb
2 T 1500 lb
  N 2500 lb
```

Layout 7 Prints Layouts 1 & 3 (tare register numbers, weight labels, gro and net weights, units of measure) plus a form feed.

```
G 4000 lb
N 2500 lb
```

Layout 8 Prints Layouts 3 & 2 (tare register numbers, weight labels, net and tare weights, units of measure) plus a form feed.

```
  N 2500 lb
2 T 1500 lb
```

Layout 9 Prints weight label, displayed weight, unit of measure, time and date.

```
G 4000 lb 09:13:06 11-22-9
```

Just as in other Weigh-Tronix indicators (WI-125, WI-150, etc.) the layouts within the WI-127 may be customized. If the nine default layouts do not fit your specific applications, or if you wish to include, for example, custom wording, you may easily customize a print layout. This is done within the "Options" menu of the service menu. Detailed instructions are on page 44. But please read the following section in order to understand what items are available for customization.

The WI-127's layouts can be a maximum of sixteen items long. Any combination of the following nineteen items (up to sixteen maximum) may be used to form a layout. These printable items, along with their descriptions, are listed below.

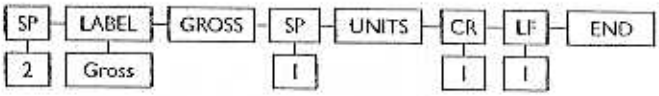
Table 3: Layout Print Items

Print Items	Description
* ASCII	A configurable ASCII string can be inserted and transmitted.
* Ch.	A character (ASCII value) can be entered to be transmitted.
* SPACES	A configurable number of spaces is transmitted.
* CRS	A configurable number of carriage returns is transmitted.
* LFS	A configurable number of line feeds is transmitted.
FF	A form feed is transmitted.
GROSS	Gross weight is transmitted.
NET	Net weight is transmitted.
DISPLAY	Current displayed live weight is transmitted (gross or net), depending on the current display mode.
TARE	Current tare (general or numbered register) is transmitted.
T. REG	Current tare register number is transmitted (a space is transmitted for the general tare register).
SELECTED	Currently selected item from the select list is transmitted (gross, tare or net).
ID	Identification number is transmitted.
HOUR	Current time is transmitted.
DAY	Current date is transmitted.
STATUS	Current status is transmitted.
* LABEL	Weight label is transmitted. Five choices are available: • gross-outputs the gross label • net-outputs the net label • display-outputs gross or net depending on the displayed live weight • tare-outputs the tare label • selected-outputs the label gross, tare or net following SELECTED item
UNITS	Unit of measure label is transmitted
* LAYOUT	A predefined layout may be included within another layout. For example, Layout 6 includes Layouts 1, 2, & 3. Note: A "layout error" will occur if a layout uses its own layout within itself or if a "loop" of layouts is used (for example, Layout 1 cannot use Layout 2 if Layout 2 includes Layout 1)

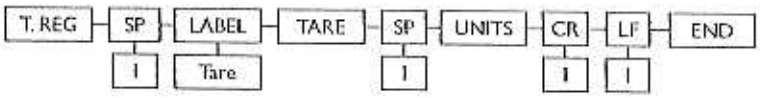
* denotes items that require detailed information. For example: if "LABEL" is inserted within a layout, you must specify the label to be printed; if "SP" is inserted, you must specify the number of spaces to be transmitted.

Listed below are the default layouts which correspond to the printouts on page 39. You may customize these, or create up to seven new layouts.

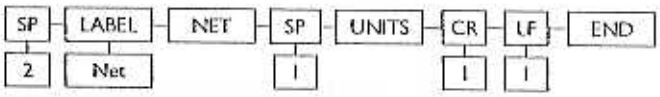
Layout 1



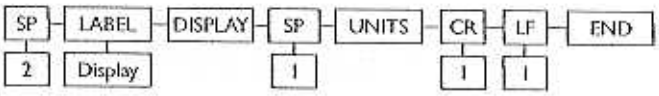
Layout 2



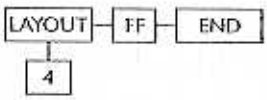
Layout 3



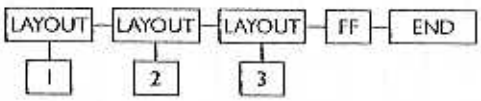
Layout 4



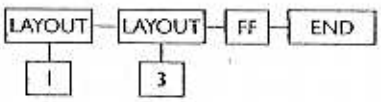
Layout 5



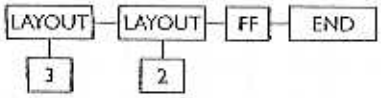
Layout 6



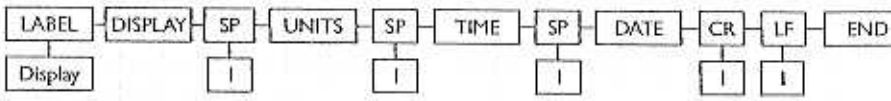
Layout 7



Layout 8



Layout 9



ASCII Strings

As mentioned in the previous section, the layouts may include a number of items, one of which is ASCII strings. These ASCII strings allow you to customize your printouts with custom wording.

ASCII is an acronym for **A**merican **S**tandard **C**ode for **I**nformation **I**nterchange. ASCII codes are simply numbers (code values) a computer can translate into letters, numbers and actions.

The WI-127 can store up to sixteen ASCII strings, each containing up to 32 individual characters. These strings are numbered 1-16. Below is a worksheet to help define several ASCII strings. Write in your custom wording in the white boxes, then convert the characters to ASCII code values using the table on the next page. Write these values in the gray boxes. If a letter or action is repeated several times, place a decimal point after the code value, then insert the number of times it is to be repeated. For example, 13.3 means three successive carriage returns.

The WI-127 contains one default ASCII string. String #1 will spell out "WEIGH-TRONIX WI-127" when added to a customized layout. Feel free to fill in the worksheet below to keep track of your custom defined ASCII strings.

Complete instructions for programming these ASCII strings into the WI-127 can be found in the section *Step by Step Instructions* on page 44.

32 LONG.

Table 4: ASCII String Worksheet

1	87	69	73	71	72	45	84	82	79	78	73	88	32	87	73	45	49	50	55	end
	W	E	I	G	H	-	T	R	O	N	I	X	sp	W	I	-	1	2	7	
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				

Table 5 ASCII Control Code Values

Code #	Control Character	Code #	Control Character	Code #	Control Character	Code #	Control Character
0	NUL	33	!	66	B	99	c
1	SOH	34	"	67	C	100	d
2	STX	35	#	68	D	101	e
3	ETX	36	$	69	E	102	f
4	EOT	37	%	70	F	103	g
5	ENQ	38	&	71	G	104	h
6	ACK	39	'	72	H	105	i
7	BEL	40	(	73	I	106	j
8	BS	41	)	74	J	107	k
9	HT	42	*	75	K	108	l
10	Line Feed	43	+	76	L	109	m
11	VT	44	,	77	M	110	n
12	Form Feed	45	-	78	N	111	o
13	Carriage Return	46	.	79	O	112	p
14	S0	47	/	80	P	113	q
15	S1	48	0	81	Q	114	r
16	DLE	49	1	82	R	115	s
17	DC1	50	2	83	S	116	t
18	DC2	51	3	84	T	117	u
19	DC3	52	4	85	U	118	v
20	DC4	53	5	86	V	119	w
21	NAK	54	6	87	W	120	x
22	SYN	55	7	88	X	121	y
23	ETB	56	8	89	Y	122	z
24	CAN	57	9	90	Z	123	{
25	EM	58	:	91	[	124	|
26	SUB	59	;	92	\	125	}
27	ESC	60	<	93	]	126	~
28	FS	61	=	94	^	127	Delete
29	GS	62	>	95	_		
30	RS	63	?	96	`		
31	US	64	@	97	a		
32	Space	65	A	98	b		

NOTE: To repeat a control code a number of times, enter the control code #, a decimal, then the number of times you want it repeated. Spaces, letters, or carriage returns can easily be repeated this way.

Table 5 ASCII Control Code Values

Code #	Control Character	(
0	NUL	
1	SOH	
2	STX	
3	ETX	
4	EOT	
5	ENQ	
6	ACK	
7	BEL	
8	BS	

NOTE: To repeat a control code a number of times, enter the control code #, a decimal, then the number of times you want it repeated. Spaces, letters, or carriage returns can easily be repeated this way.

Step by Step Instructions

Entering the Define submenu

To customize layouts and ASCII strings you must enter the Define submenu of the Service Menu, then follow the flowchart pictured below.

Follow these instructions:

1. From weight display mode, key in the security code (default code is 1 2 7). . .	The code number is displayed.
2a. Press and hold **ESCAPE** ▲ for two seconds. . .	***About*** is displayed.
OR	
2b. Press the SEAL switch inside the WI-127. . .	***About*** is displayed.
3. Press ◀ ⟵ . . .	***SEtUP*** is displayed.
4. Press **ENTER** ▼. . .	***110*** or ***127*** is displayed.
If 110 is displayed, press **MENU** ▶. . .	***127*** is displayed.
5. Press **ENTER** ▼. . .	***AdJuSt*** is displayed.
6. Press **MENU** ▶. . .	***SCALE*** is displayed.
7. Press **MENU** ▶. . .	***OPtionS*** is displayed.
8. Press **ENTER** ▼. . .	***buttonS*** is displayed.
9. Press **MENU** ▶. . .	***diSPLAy*** is displayed.
10. Press **MENU** ▶. . .	***dEFINE*** is displayed. You are now in the Define submenu shown below.

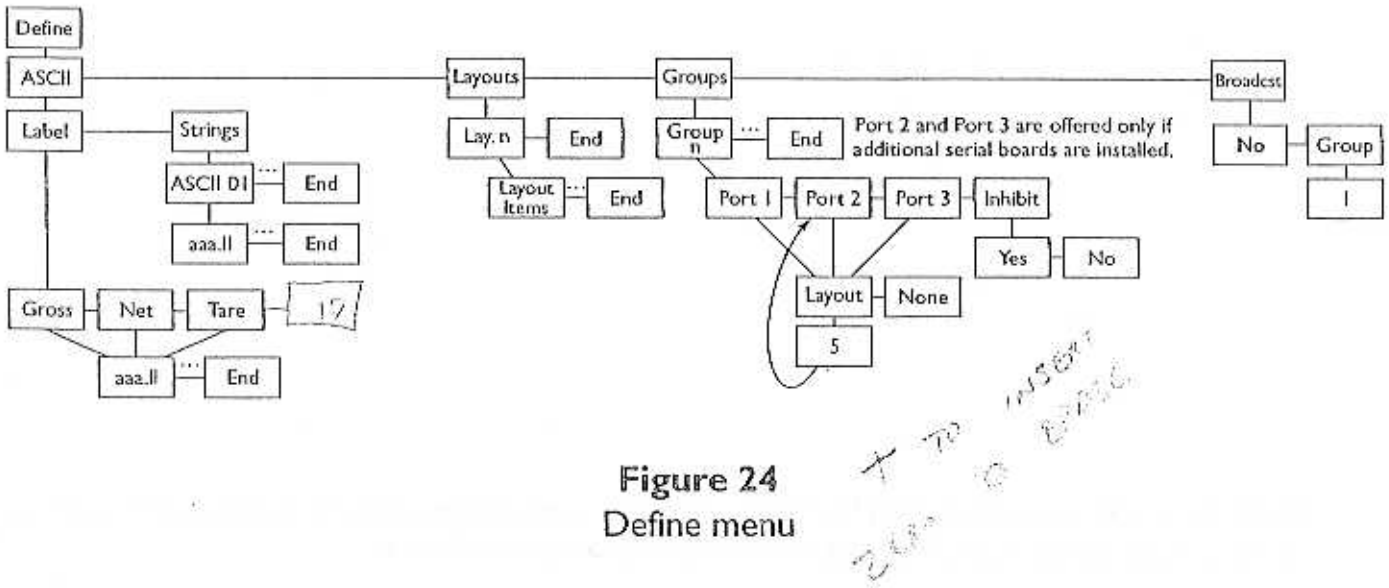


Figure 24
Define menu

Creating ASCII strings

It is within the ASCII submenu that you create/customize the ASCII strings to be used in your layouts.

Label

This item allows you to edit the gross, net and tare labels.

The default labels are only one character long: "G" for gross, "N" for net, "T" for tare. However, you can customize the labels to use up to 16 characters.

1. With ***LAbEL*** displayed, press **ENTER ▼**. . .	***GroSS*** is displayed.
2. Press **ENTER ▼** again. . .	***71*** (the ASCII value for the letter "G") is displayed.
3. To change this label, key in a different ASCII value(s) and press **ENTER ▼**. Or simply press **ENTER ▼** if you don't wish to make a change.	***GroSS*** is displayed.
4. Press **MENU ▶**. . .	***NEt*** is displayed.
5. To change this label, key in a different ASCII value(s) and press **ENTER ▼**. Or simply press **ENTER ▼** if you don't wish to make a change.	***NEt*** is displayed.
6. Press **MENU ▶**. . .	***tARE*** is displayed.
7. To change this label, key in a different ASCII value(s) and press **ENTER ▼**. Or simply press **ENTER ▼** if you don't wish to make a change.	***tARE*** is displayed.
8. Press **ESCAPE ▲**. . .	***LAbEL*** is displayed.

Strings

This item allows the creation of up to sixteen different ASCII strings. On a new indicator, there is one default ASCII string. You may edit the existing string as well as create up to fifteen more.

Viewing strings

1. With ***StringS*** displayed, press **ENTER** ▼. . .	***ASCII 01*** (default string) is displayed.
2. Press **ENTER** ▼. . .	The first ASCII value in the string is displayed.
3. Press ◀◀— and **MENU**▶ to scroll through the entire string of ASCII values.	
4. When you are finished viewing the values, press **ESCAPE** ▲. . .	***ASCII 01*** is displayed.
5. Press **MENU**▶. . .	On a new indicator, ***End*** is displayed. This means that there is only one ASCII string (ASCII 01) defined so far. You may create up to fifteen more.

Creating new strings

1. With ***StringS*** displayed, press **ENTER** ▼. . .	***ASCII 01*** (string #1) is displayed.
2. Press **MENU**▶ until . . .	***End*** is displayed.
3. Press +/- . . .	The next ASCII string in the list will be added. On a new indicator, this will be ASCII 02.
4. With the new ASCII string displayed, press **ENTER** ▼. . .	***End*** is displayed. This means that there are no ASCII values entered for this string.
5. Press +/- . . .	— is displayed.
6. Key in your first ASCII value, then press **MENU**▶. . .	The value is stored and ***End*** is displayed.
7. Continue repeating steps 5 & 6 until you have entered all your ASCII values. If you make an error, refer to the next section: *Editing strings*.	
8. To view your newly entered ASCII values, press **MENU**▶ repeatedly. . .	The indicator scrolls through all the values.

Editing strings

There are two keys to remember when inserting or deleting ASCII values in a string: **+/-** will insert and **ZERO** will delete. We will use the following example to illustrate how to edit strings: remove and then replace the hyphen from the default string ASCII 01: WEIGH-TRONIX WI-127.

1. With ***StringS*** displayed, press **ENTER** ▾. . .	***ASCII 01*** is displayed.
2. Press **ENTER** ▾. . .	***87***, the first ASCII value in the string, is displayed.
3. Press ◂◀— and **MENU** ▸ to scroll through the entire string of ASCII values. Stop when the ASCII value you want to delete (in this case, *45*-hyphen) is displayed. . .	***45*** is displayed.
4. With ***45*** displayed, press **ZERO**. . .	The hyphen character is deleted and the next value--***84***--is displayed.
5. To insert a character, scroll through the ASCII string until the value that the character will precede is displayed. . .	***84*** is displayed.
6. Press **+/-** . . .	_ is displayed.
7. Key in your ASCII value, then press **ENTER** ▾ . . .	The character is inserted in the string and the string name (ASCII 01) is displayed.

Creating Layouts

It is within the Layouts submenu that you create/customize the layouts which will be transmitted to a printer.

This item allows the creation of up to sixteen different layouts. A new indicator contains eight default layouts. You may edit any or all of these eight, or create eight new layouts.

Viewing layouts

1. With ***LAYOutS*** displayed, press **ENTER** ▾. . .	***LAY. 01*** (the first default layout) is displayed.
2. Press **ENTER** ▾. . .	The first item in the layout is displayed
3. Press ◂◀— and **MENU** ▸ to scroll through the entire layout.	
4. When you are finished viewing the items, press **ESCAPE** ▴. . .	***LAY. 01*** is displayed.

5. Press **MENU** ▸. . .

LAY. 02 is displayed. On a new indicator, the eight default layouts are present. You may create up to eight more.

6. Repeat steps 1-5 above to view all the layouts.

Creating new layouts

1. With ***LAYOutS*** displayed, press **ENTER** ▾. . .

LAY. 01 (string #1) is displayed.

2. Press **MENU** ▸ until . . .

End is displayed.

3. Press **+/-** . . .

The next layout in the list will be added. On a new indicator, this will be LAY. 10.

4. With the new layout displayed, press **ENTER** ▾. . .

End is displayed. This means that there are no items entered for this layout.

5. Press **+/-**. . .

GroSS is displayed and the ACCEPT annunciator illuminates indicating that you are selecting items.

6. Scroll through the list of available layout items (see table 3 on page 40) by pressing the **MENU** ▸ key. When the item you wish to insert in the layout is displayed, press **ENTER** ▾. . .

The ACCEPT annunciator goes off and that item is displayed. Some items (the ones with asterisks on page 40) require that additional information be entered after selecting the item. For example, if you choose ***LF***, you must next enter a value for the number of line feeds you want, then press **ENTER** ▾ once again.

7. Continue repeating steps 5 & 6 until you have entered all your layout items. If you make an error, refer to the next section: *Editing Layouts*.

8. To view your newly entered layout, press **MENU** ▸ repeatedly. . .

The indicator scrolls through all the layout items.

There are two keys to remember when inserting or deleting items in a layout: **+/-** will insert and **ZERO** will delete. We will use the following example to illustrate how to edit layouts: remove and then replace the line feed from default layout 01.

1. With ***LAYoutS*** displayed, press **ENTER** ▼. . .	***LAY. 01*** is displayed.
2. Press **ENTER** ▼. . .	***1 SP***, the first item in the layout is displayed.
3. Press **MENU** ▶ to scroll through the layout. Stop when the item you want to delete--***1 LF*** (one line feed)--is displayed. . .	***1 LF*** is displayed.
4. With ***1 LF*** displayed, press **ZERO**. . .	The item is deleted and the next item-in this case, ***End***--is displayed.
5. To insert an item in a layout, you must display the item it will precede. In this example, we will insert a line feed in front of ***End***. . .	***End*** is displayed.
6. Press **+/-** . . .	***GroSS*** is displayed and the ACCEPT annunciator illuminates indicating that you are selecting items.
7. Scroll through the list of available layout items by pressing the **MENU** ▶ key until ***LFS*** is displayed. . .	***LFS*** is displayed.
8. Press **ENTER** ▼. . .	***0*** is displayed.
9. Key in the number of line feeds you want, **1** for this example, and press **ENTER** ▼. . .	***1 LF*** is displayed.
10. Press **ESCAPE** ▲ to return to. . .	***LAY. 01***

Creating Groups

*The default for the **PRINT** key is Group 2.*

*You may print other groups by keying in the correct group number, then pressing **PRINT**. Note: This option must be enabled in the service menu first.*

The Groups submenu is where you specify which ports will print which layouts.

A total of nine groups is available. Within each group, up to three ports can output layouts. Port one is standard; **ports 2 & 3 are offered only if additional serial boards are installed.** Each port is then assigned a layout to print. Here are two examples of how the groups might be set up:

Group 1:	Port 1 prints Layout 1	Group 2: Port 1 prints Layout 5
	Port 2 prints Layout 2	Port 2 prints nothing
	Port 3 prints Layout 3	Port 3 prints Layout 2

The default group settings are:

Group 1: Port 1 prints Layout 5
Group 2: Port 1 prints Layout 6
Group 3: Port 1 prints Layout 7
Group 4: Port 1 prints Layout 8

Follow the instructions below to set up your groups.

1.	With ***GrouPS*** displayed, press **ENTER ▼**. . .	***GrouP 1*** is displayed.
2.	Press **MENU ▶** to scroll through the list of available groups. To insert a new group, with ***End*** displayed, press **+/-**. A total of nine groups is available. When the group you wish to define is displayed, press **ENTER ▼**. . .	***Port 1*** is displayed.
3.	Press **ENTER ▼**. . .	***LAYOut*** is displayed.
4.	a. If you **do not** want to print from this port, press **MENU ▶** . . .	***NONE*** is displayed.
	b. If you **do** want to print from this port, press **ENTER ▼**, then key in the correct layout number. . .	***XX*** (layout number) is displayed.
5.	Press **ENTER ▼**. . .	***Port 1*** is displayed. (If you are only setting up this one port, go to step 8.)
6.	You may now select a layout for Port 2 (if available). With ***Port 1*** displayed, press **MENU ▶** . . .	***Port 2*** is displayed.
7.	Repeat steps 3-5 to set up Port 2. Press **MENU ▶** to set up Port 3 (if available). . .	***Port 3*** is displayed.
8.	Repeat steps 3-5 to set up Port 3. Press **MENU ▶**. . .	***Inhibit*** is displayed.

9. Press **ENTER** ▼ . . .	***YES*** is displayed.
10. a. If you wish to inhibit the printout when motion is detected, press **ENTER** ▼. . .	Yes is selected and ***Inhibit*** is displayed
b. If you do not wish to inhibit the printout when motion is detected, press **MENU** ▶, then press **ENTER** ▼. . .	No is selected and ***Inhibit*** is displayed
11. Press . . .	***GrouP 1*** is displayed.
12. Press **MENU** ▶. . .	***GrouP 2*** is displayed.
13. Press **ENTER** ▼ . . .	***Port 1*** is displayed.
14. Repeat steps 3-13 above to set up all the remaining groups.	

Broadcast

This item enables or disables continuous send. If you enable this feature, a group number must be defined.

1. With ***broAdcSt*** displayed, press **ENTER** ▼ . . .	**no** is displayed. If you do not wish to enable continuous send, STOP HERE.
2. To enable, press **MENU** ▶. . .	***GrouP*** is displayed.
3. Press **ENTER** ▼. . .	***1*** is displayed.
4. Key in the group number you want continuously sent, then press **ENTER** ▼. . .	The new group is selected and ***broAdcSt*** is displayed.

Using Inputs and Outputs on the WI-127

Standard Inputs

Input	Connection	Action
#1	TB15-2	Remote Zero Key
#2	TB15-3	Remote Print Key
#3	TB15-4	Go to Net Mode
#4	TB15-5	Go to Gross Mode
#5	TB15-6	Remote (pushbutton) Tare Key
#6	TB15-7	Remote Select Key
#7	TB15-8	Remote Unit Key

To activate an input, wire them through a normally open switch to ground on TB15.

To cause the related action to occur, activate the input. If the action is not able to be performed (i.e. because of motion), the indicator will keep trying while the input is activated. Individually, an input must be deactivated before it can perform the action again.

Standard Outputs

Output	Connection	Cutoff	Bounds
#1	TB14-3	Cutoff 1	Follows Under Annunciator
#2	TB14-4	Cutoff 2	Follows Accept Annunciator
#3	TB14-5	Cutoff 3	Follows Over Annunciator

Optional Cutoff Card

Output	Action	Connection
#1	Cutoff 1	TB22-1
#2	Cutoff 2	TB22-2
#3	Cutoff 3	TB22-3
#4	Cutoff 4	TB22-4
#5	Cutoff 5	TB22-5
#6	Cutoff 6	TB22-6
#7	Cutoff 7	TB22-7
#8	Cutoff 8	TB22-8
#9	Cutoff 9	TB23-1
#10	Cutoff 10	TB23-2
#11	Gross	TB23-3
#12	Motion	TB23-4
#13	Spare	
#14	Spare	
#15	Spare	
#16	Fault	TB23-8
	+22.8 VDC output	TB25-2