Chapter 5
Weighing Mode and Keypad Operations (Key Disabling and Tare Operations)

5.1 About The Weighing Mode

The Weighing Mode is the primary operating mode of any 450 Series indicators when it is connected to a scale platform or load cell. (There are other modes, as well, such as the parameter setup and calibration modes.)

Depending on which operating mode you have selected, the standard keypad keys can assume different functions. This chapter defines the functions of the keys when the controller is in the Weigh Mode, plus how to disable keys and use them in tare operations.

The standard keypad used on the Model 450 indicator is different from the keypad used on the Model 455 indicator.

> **NOTE :**
>
> When motion exists, the units designation will go out and any Zero, Tare and Accumulate operations are postponed until motion ceases. Print operations are also motion inhibited if selected (Parameter 212).

There is a built-in auto-detection capability for the keypad selection. This is executed during power on and the keypad type is detected and saved to EEPROM.

> ***NOTE:***
>
> ***When in the weigh mode, the indicator is ready to accept a structured ASCII file setups. The custom setup is received through one of the bi-directional communications ports (J6) on the main board of the instrument.***

5.1.1 Weighing Mode Key Functions for Model 450

The keypad for the Model 450 indicator is shown in Figure 5-1.

Press **[ZERO]** to zero the current weight reading. When the meter is at Center Zero the international center-of-zero indication will appear on the upper line of the dot matrix display. This indication is a right and left arrow pointing to a circle. If a Custom Units name is greater than 2 characters, the Center Zero indication is not displayed. Pressing **[ZERO]** sets the current mode to Gross Weight. Refer to figure 5-1, Model 450 Keyboard.

[PRINT] is pressed to send a RS-232 transmission to a printer or other device (refer to the section on

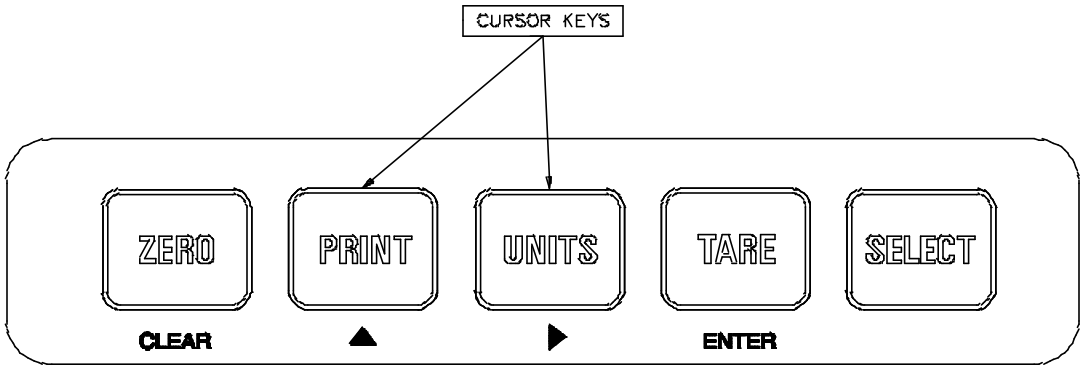

Figure 5-1 Model 450 Keyboard

Printing).

Pressing **[UNITS]** a few times will toggle the displayed units through the available selections. Converted units are automatically rounded to the appropriate increment. If the "lb/oz" units selection is used, the first digits of the numeric display will read the value for pounds, the last digits will read ounces, and since the upper line of the dot matrix display is used to show the units, there is no center zero indication. As with other units designations, the characters showing units will blank out when motion is present.

Pressing **[TARE]** by itself will perform an auto-tare. A Net Zero is then displayed. You can enter a known Tare Weight into the indicator by keying in the number and pressing **[TARE]**. In either case, the indicator will be placed in the Net Mode, unless you are in the Tare Mode. Auto-Tare and / or Keyboard Tare may be disabled in the Setup Mode (P166, P167).

Pressing **[SELECT]** will toggle you through the Net Weight, Tare Weight and Gross Weight, or other enabled operating modes. Refer to the Mode Selection parameters, **P300 - P309**.

The **[ZERO]** key doubles as a ***clear*** key when entries are made. Pressing the **[ZERO]** key will clear unwanted numeric entries keyed in onto the 10 character auxiliary display prior to pressing any of the other keys. The subheading of the "zero" key is defined as "clear" and is presented under the "zero" key in gray lettering.

The **[PRINT]** and **[UNITS]** keys double as Up and RIGHT arrow keys respectively. While having accessed any mode or parameter which requires a character entry, the **[PRINT]** key will scroll through a set of ASCII characters. The **[UNITS]** key when pressed will move over to the next character position.

The **[TARE]** key doubles as the **[ENTER]** key. As entries are keyed into the entry buffer, the **[TARE]** key will complete the entry.

Specialized applications are covered in their respective sections.

When in the weigh mode the unit is ready to accept a structured ASCII file for custom setups. The custom setup is received through the units bi-directional communications port (J6).

5.1.2 Weighing Mode Key Functions for Model 455

The keypad for the Model 455 indicator is shown in Figure 5-2.

Press **[ZERO]** to zero the current quantity/weight reading. When the controller is at *Center Zero*, the international center-of-zero symbol 0 appears on the top line of the dot matrix display. If the name of a Custom Unit is greater than two characters, the Center Zero symbol does not display.

If it is in the weigh mode, pressing **[ZERO]** sets the current mode to Gross Weight.

NOTE:

When motion exists, the units designation goes out and any Zero, Tare, and Accumulate operations are postponed until motion ceases (scale specific P114 and P115). Print operations (Parameters P212) also are motion inhibited if selected.

See Figure 5-2 to locate the **[ZERO]** key on the Model 455 keypad.

Press **[PRINT]** to send custom specified data to a printer, computer, or other device. If the Custom Transmit does not exist (for example, has not been set up yet) or is set for “off”, the print operation is aborted. (Refer to the Custom Transmit section in Chapter 8, *Communications*).

NOTE:
When motion exists, the units designation goes out and any Zero, Tare, and Accumulate operations are postponed until motion ceases (scale specific P114 and P115). Print operations (Parameters P212) also are motion inhibited if selected.

See Figure 5-2 to locate the **[PRINT]** key on the

Model 455 keypad.

Pressing **[UNITS]** in the weigh mode toggles the display through the available units selections.

Converted units are rounded to the appropriate increment automatically. If the “lb/oz” units selection is used, the first digits of the numeric display shows the value for pounds and the last digits show ounces. Since the upper line of the dot matrix display is used to show the units, there is no center zero symbol. As with other units designations, characters that show units turn to blanks when motion is present.

The **[UNITS]** key doubles as a **SAMPLE** key from within the quantity mode.

See Figure 5-2 to locate the **[UNITS]** key on the Model 455 keypad.

Press **[TARE]** alone to perform an auto-tare. (A Net Zero is then displayed.) To enter a known Tare Weight, key in the value and press **[TARE]**. In either case, the controller is placed in the Net Mode, unless it is already in the Tare Mode.

Auto-Tare and / or Keyboard Tare can be disabled in the Setup Mode (P166-P167). This parameter enables the standard auto-tare key operations. Refer to the following parameters.

P161.XX TrSAV

This parameter determines whether or not you want to save the tare weight value upon power-down.

This feature will prove valuable in applications such as Tank Weighing. If power is removed from the controller while the tank contains material, the net value will not be lost if the unit is set for “Tare Saved.”

P162.XX TrNEG

This parameter enables bi-directional operation by permitting a negative tare. This should be used only if required for a specific application.

P163.XX TrRND

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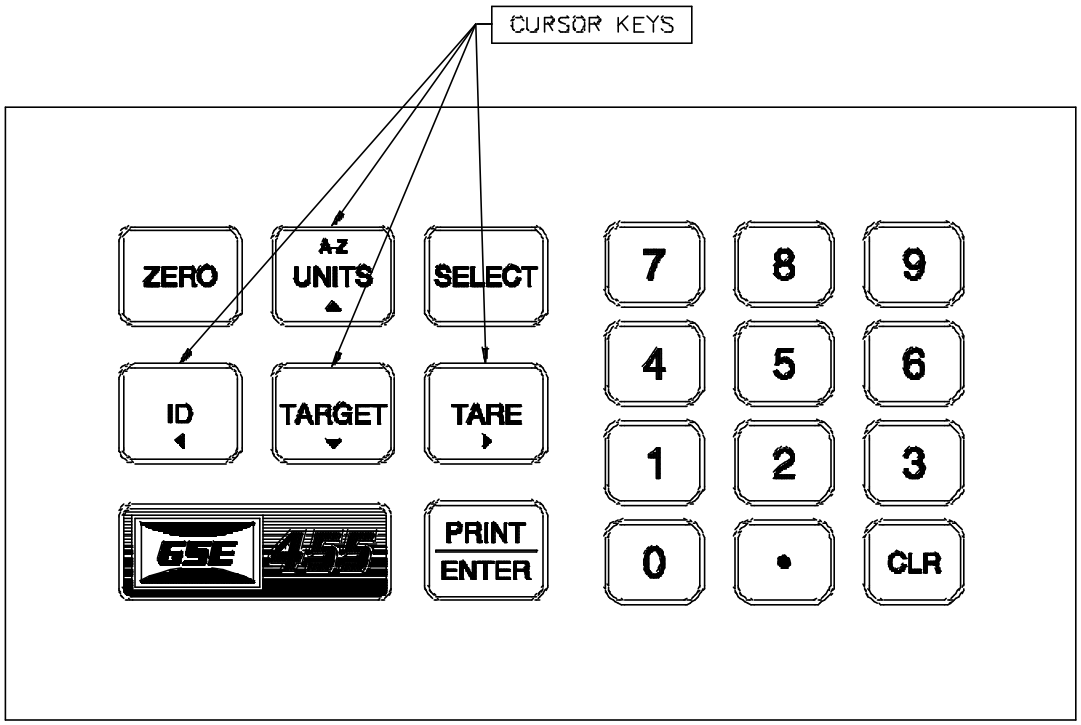

Figure 5-2 Model 455 Keyboard

This parameter selects whether or not the Tare Weight will be rounded off for calculations. If the application must be NIST approved, this must be set to P163.00 which guarantees that Net + Tare = Gross.

See Figure 5-2 to locate the **[TARE]** key on the Model 455 keypad.

Press **[SELECT]** to toggle through the Net Weight, Tare Weight, and Gross Weight, or other enabled operating modes. Refer to the Mode Selection parameters, **P300 - P309**.

The **[ID]** key has two functions. You can use it to:

- Call up a truck menu (455 only)
- Call up a APW menu
- (future) recall target information (contact GSE)

The exact function of this key depends on the selectable internal setup at P720.

See Figure 5-2 to locate the **[ID]** key on the Model 455.

Press **[PRINT/ENTER]** to confirm certain numeric entries. As entries are keyed into the entry buffer, the **[PRINT/ENTER]** key completes the entry for the Model 455.

See Figure 5-2 to locate the **[PRINT/ENTER]** key on the Model 455 keypad.

Pressing the **[TARGET]** key will provide a one-key method of invoking the target entry process used by the M455 when P5100 is set for *Fill, Batch, Empty* or *Both*.

When P5100 is set for *Ckwgh* or *CkAbs*, then the **[TARGET]** key will function as follows:

Pressing **[TARGET]** with an applied weight (exceeding 5 graduations from zero) will display ***Sure? ???*** to prompt you to confirm your intention to accept that weight as the new target. Press **[ENTER]** to confirm or any other key to abort. Proceed to enter *HI* and *LOW* limits as with the M455.

Pressing **[TARGET]** without an applied weight (5 graduations or less from zero) will result in a ***Enter Targt*** prompt and display the current target value on the main display. Press **[ENTER]** alone to retain the displayed target and return to the previous weight display or key in a new target value and press **[ENTER]** to change the target. Proceed to enter *HI* and *LOW* limits as with the M455.

Keying in a number followed by a **[TARGET]** keypress will accept the keyed in value as the new target value regardless of any weight on the scale. Proceed to enter *HI* and *LOW* limits as with the M455.

Press the **[0]**, **[1]**, **[2]**, **[3]**, **[4]**, **[5]**, **[6]**, **[7]**, **[8]**, and **[9]** keys to enter numeric values 0 through 9. Press **[.]** to establish a decimal point.

Press **[CLR]** clear keyed in data before it is entered into memory.

See Figure 5-2 to locate the number, **[.]**, and **[CLR]** keys on the Model 455 keypad.

UNITS, TARGET, TARE and ID
(CHARACTER ENTRY keys)

The **[UNITS]** and **[TARGET]** keys double as **Up** and **Down** arrow keys respectively. While having accessed any mode or parameter which requires a character entry, the **[UNITS]** key will scroll through a set of ASCII characters. The **[TARGET]** key will scroll through the set in reverse. The **[TARE]** key or Right Arrow when pressed will move over to the next character position. The **[ID]** key or Left Arrow will backup to the previous character.

As entries are keyed into the entry buffer, the **[PRINT/ ENTER]** key will complete the entry for the 455.

See Figure 5-2 to locate the ***character entry*** keys on the Model 455 keypad.

5.2 Tare Operations Parameter Setup

P161.XX TrSAV

Determine whether or not you want to save the tare weight value upon power-down. Press **[ENTER]** to toggle between selections.

This feature will prove to be valuable in applications such as Tank Weighing. If power is removed from the

meter while the tank contains material, the net value will not be lost if the unit is set for "Tare Saved".

P162.XX TrNEG

Enables bi-directional operation by permitting a negative tare. This should be used only if required for a specific application. Press **[ENTER]** to toggle between selections.

P163.XX TrRND

This parameter will select whether or not the Tare Weight will be rounded off for calculations. If the application must be NIST approved, this must be set to P163.00 which guarantees that Net + Tare = Gross. Press **[ENTER]** to toggle between selections.

P169.XX ATClr

This parameter will select whether or not the Tare Weight will be cleared to 0 under certain conditions. The net weight must fall less than 0 by minus four graduations or the gross weight must be less than or equal to 0. Press **[ENTER]** to toggle between selections.

5.2.1 Auto Tare
(not in firmware releases before 072095)

A Tare Clr'd message is now briefly displayed when a tare is cleared as the result of an auto-tare. This message only appears when viewing a net or tare weight. An auto-tare can only be performed if P169 is enabled.

5.3 Key Disabling Parameter Setup

For reasons of simplicity, security or conformance to local "**legal for trade regulations**", certain applications may require the disabling of some keyboard functions.

P166.XX AutoT

This parameter will enable or disable use of the auto-tare operation. If disabled, only keyboard-entered tare weights are allowed. Press **[ENTER]** to toggle between selections.

P167.XX KybdT

This will permit an Auto-Tare but if enabled, prevent keyboard entry of tare weights. Press **[ENTER]** to toggle between selections.

P168.XX KybdS

This parameter will disable or enable the **[SELECT]** key following a numeric entry while in the Weigh Modes. Press **[ENTER]** to toggle between selections. Enabling this parameter will let you access operational modes which have not been selected as a mode at P300-P309 (Refer to Chapter 12 Selectable Operating Modes.

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Figure 5-3 Tare Key

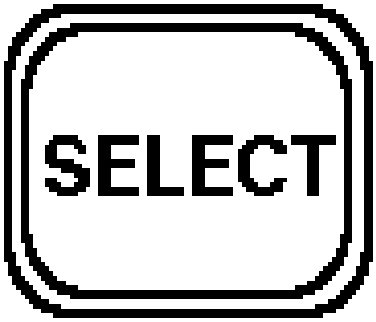

Figure 5-3 Select Key

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