



# DC-788

Counting Scale

Version 1.19

# Operation Manual



**RICE LAKE**  
WEIGHING SYSTEMS  
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# About This Manual

This manual contains operating procedures for the DC-788 counting scale and provides the user with all the information necessary for setup and operation. It is organized based on the procedures you will likely follow when setting up and using your counting scale. This manual applies to Version 1.19 of the DC-788 counting scale series.



*Some procedures described in this manual require work inside the scale base. These procedures are to be performed by qualified service personnel only.*



Authorized distributors and their employees can view or download this manual from the DIGI distributor site at [www.DigiScales.com](http://www.DigiScales.com).

## 1.0 Introduction

The DC-788 is a low cost counting scale that offers practical solutions for a full range of counting applications. Its counting resolution of 1/1,000,000 gives you maximum counting precision and accuracy. Its high-visibility red LCD display enables operators to easily see weights and quantities. With the ability to store an item code, part number, part name, lot number, tare weight, unit weight, inventory quantity and setpoint value for 100 of your pieces, parts, or items, the DC-788 is a self-contained inventory system. The RS-232 output allows you to connect to a printer or PC, while the remote scale channel lets you add another weighing platform. When portability is required, choose the battery operation option of the DC-788 for over 24 hours of continuous use in mobile workstations, outdoor applications, and rental fleets. Its waterproof keyboard and splash-proof housing make the DC-788 rugged enough to operate reliably in many environments and withstand transport from one area of the plant to another or from one business to the next.

### 1.1 Capacities and Resolutions

Table 1-1 lists the scale capacities, minimum graduations, and tare ranges for all models of the DC-788 counting scales. The display resolution is 1/10,000 with an internal or counting resolution of 1/1,000,000. Units are selectable from lb to kg from the keyboard.

#### DC-788 Single Load Cell

DC-788 Capacity	Minimum Graduation	Tare Range
500 g	0.1 g (1e = 200IR)	0-249.9 g
1 kg	0.2 g (1e = 200IR)	0 - 0.4998 kg
2.5 kg	0.5 g (1e = 200IR)	0 - 0.9995 kg
5 kg	1 g (1e = 200IR)	0 - 2.499 kg
10 kg	2 g (1e = 200IR)	0 - 9.998 kg
25 kg	5 g (1e = 200IR)	0 - 9.995 kg
1 lb	0.0001 lb (1e = 100IR)	0 - 0.9998 lb
2 lb	0.0002 lb (1e = 100IR)	0 - 0.0095 lb
5 lb	0.0005 lb (1e = 100IR)	0 - 9.995 lb
10 lb	0.001 lb (1e = 100IR)	0 - 9.999 lb
20 lb	0.002 lb (1e = 100IR)	0 - 9.998 lb
50 lb	0.005 lb (1e = 100IR)	0 - 9.995 lb

*Table 1-1. DC-788 Capacities, Minimum Graduations and Tare Ranges*

## 1.2 Modes of Operation

### 1.2.1 Description of Modes of Operation

The DC-788 has three modes of operation:

- Weighing Mode – where all weighing, counting and printing operations take place.
- Programming Mode – where item and inventory data can be programmed into the memory of the scale. The display will show **PRG** to indicate that you are the Programming Mode.
- Maintenance Mode - where your DIGI dealer can set specifications, perform scale calibration and other maintenance functions.

## 1.3 Keyboard and Display

Figure 1-1 shows the DC-788 console with its indicator lamps, the function keyboard and the numeric keypad. Annunciators are described in Section 1.3.2. Section 1.3.3 describes the DC-788 keyboard and keypad.

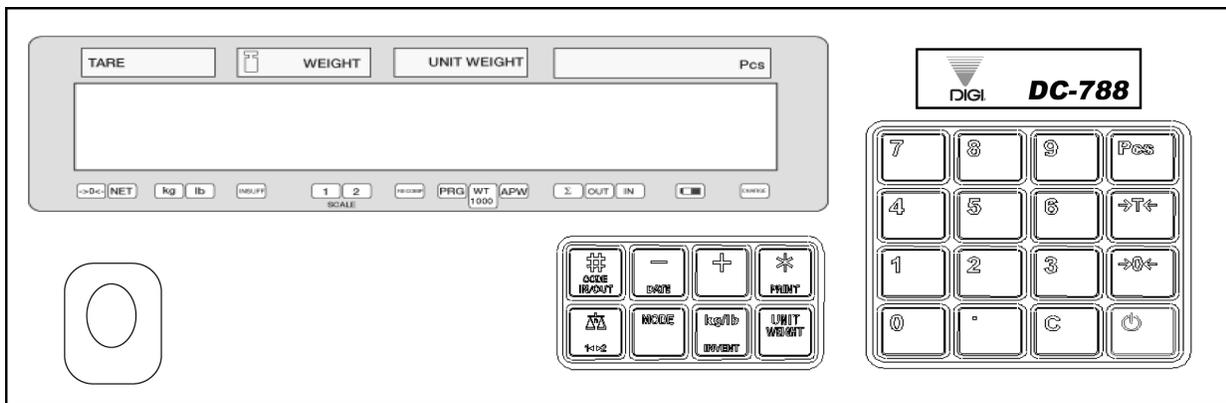


Figure 1-1. DC-788 Display

### 1.3.1 Display Specifications

Tare weight display	5 digits
Weight display	5 digits
Unit weight display	5 digits
Quantity display	7 digits

Table 1-2. DC-788 Display Specifications

### 1.3.2 Indicator Lamps

Table 1-3 shows a list of the indicator lamps that the DC-788 uses to provide additional information about the value being displayed. The indicator lamps are illuminated when the specific function is being performed.

Indicator Lamp	Function or Meaning
<b>0</b>	On when the gross weight is zero and is stable
<b>NET</b>	On when the display shows net weight (when a tare weight is entered or recalled)
<b>KG</b>	On when the item is being weighed in kg units with [kg/lb] key pressed
<b>LB</b>	On when the item is being weighed in lb units with [kg/lb] key pressed
<b>RECOMP</b>	On when unit weight recomputing is possible
<b>INSUFF</b>	On when the net weight is below the specified percentage of scale capacity

Table 1-3. DC-788 Indicator Lamps and Function

Indicator Lamp	Function or Meaning
□□□□1	On when scale 1 is in use (the built-in platform)
□□□□2	On when scale 2 is in use (an external platform)
□□□□	On when the scale is in Programming Mode
□□/1000	On when the unit weight is being displayed per 1000 pcs.
□□□	On when the unit weight is displayed per one piece (average piece weight).
Σ	Quantity is accumulating
□□□	Item out of item inventory (subtracting from inventory)
□□	Item in to item inventory (adding to inventory)
□□□□	Battery warning when weak and needs charging (only for rechargeable battery type)
□□□□□	Battery charging (only for rechargeable battery type)

Table 1-3. DC-788 Indicator Lamps and Function

### 1.3.3 Key Functions

The DC-788 features many functions for managing inventory information and scale operation. Figure 1-2 shows the two key-sheet layouts and Table 1-4 lists the keys and key functions of the DC-788 keyboard and keypad.

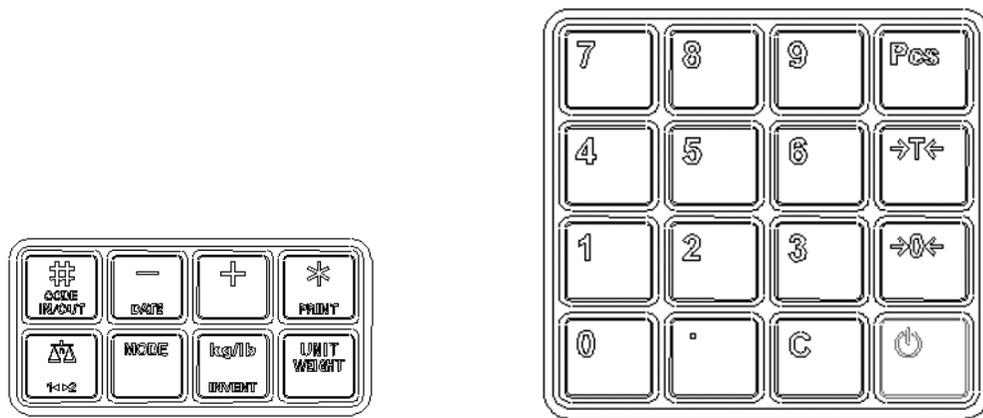


Figure 1-2. Key Sheet Layout

Some keys have different functions depending on what mode or function you are in.

Key	Description
	<b>ON/OFF -</b> Turns the scale display on or off
to	<b>Numeric keys -</b> Used to enter numeric values. When using the scale, first enter a numeric value, then press the appropriate function key.
	<b>DECIMAL key -</b> Used to set the decimal point.

Table 1-4. DC-788 Key Functions

Key	Description
	<p><b>CLEAR</b> key.</p> <p>Weighing Mode - Used to clear the Unit Weight. Used to return to the weighing display when doing accumulation.</p> <p>Programming Mode - Used to delete an Item Code or associated value when programming item codes. Used to Cancel input in programming SPC codes. Used to Reset Sequence Number to zero when programming Sequence Codes.</p>
	<p><b>PCS</b> key - Used for computing unit weight by sampling.</p>
	<p><b>TARE</b> key.</p> <p>Weighing Mode - Used to set or clear the tare value.</p> <p>Programming Mode - Used to store SPC changes and escape to the Weighing Mode when programming specifications.</p> <p>Maintenance Mode - Used to escape to the Weighing Mode from the Maintenance Mode.</p>
	<p><b>REZERO</b> key.</p> <p>Weighing Mode - Used to reset the weight display to zero.</p> <p>Maintenance Mode - Used to enter different parts of the Maintenance Mode when combined with numeric codes.</p>
	<p><b>CODE/IN-OUT</b> key.</p> <p>Weighing Mode - Used to recall Item Codes from memory and to determine inventory IN/OUT status.</p>
	<p><b>- (Minus)</b> key.</p> <p>Weighing Mode - Used to delete a character entered during operations. Used to subtract a quantity during accumulation. Also prompts printing of a label if an external printer is connected.</p> <p>Programming Mode - Used to navigate to the previous specification when programming SPC codes. Used to move between item codes when reviewing already programmed item codes. Used to display the current date and time when programming the date and time.</p>
	<p><b>+ (Plus)</b> key.</p> <p>Weighing Mode - Used to accumulate data. Also prompts printing of a label if an external printer is connected.</p> <p>Programming Mode - Used to navigate to the next specification when programming SPC codes. Used to move between item codes when reviewing already programmed item codes. Used to store set point data when programming item codes.</p>
	<p><b>* PRINT</b> key - Print/Data setting key.</p> <p>Weighing Mode - Used to print a label when an external printer is connected. Used to clear TOTAL data when doing accumulation.</p> <p>Programming Mode - Used to temporarily store changes to specification data when programming SPCs. Used to store data to Item Code memory when programming Item Codes. Used to store changes to item codes when editing Item Code information. Used to store the date and time when programming Date and Time.</p>
	<p><b>SCALE</b> key.</p> <p>Used to select between Scale 1 and Scale 2 if an external scale is connected.</p>
	<p><b>MODE</b> key - Used to enter the programming mode from the weighing mode. Used to enter the command mode when using numeric commands.</p>

Table 1-4. DC-788 Key Functions

Key	Description
	<b>KG/LB/INVENT</b> key - Used to convert the weighing units between kg and lb. Also used to toggle on and off whether inventory stored in memory is being affected by the current transaction.
	<b>UNIT WEIGHT</b> key - Used to set the unit weight and display all digits of the unit weight.

*Table 1-4. DC-788 Key Functions*

## 2.0 Installation

This section describes the procedure for the installation and setup of the DC-788 counting scale.

### 2.1 Unpacking



*Do not turn scale upside down. Always work with scale on its side! Damage to the load cell can occur if the scale is turned upside down.*

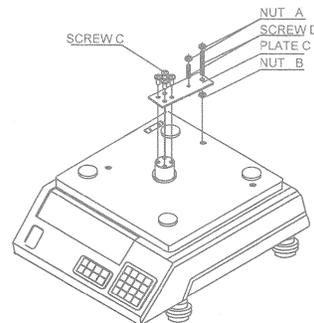
1. Immediately after unpacking, visually inspect the DC-788 counting scale to ensure all components are included and undamaged. If any were damaged in shipment, notify Rice Lake Weighing Systems and the shipper immediately.
2. The DC-788 counting scale is carefully packed for protection during shipping. After opening the box, remove all the components. Check the insides of the box carefully to make sure you have all of the pieces. The package should include the following:

- DC-788 counting scale
- Stainless steel platter
- AC power cord
- Operation Manual

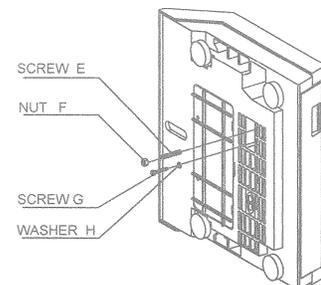


3. Remove the bag protecting the scale and the protective film covering the front panel and platter.
4. Seat the stainless steel platter on the platter supports, with the four corner pins inserted into the corner rubber stops. For DC-788 scales with a 2 lb. capacity, the scale must first be unlocked using the following procedure.

- Take off the two Nuts A and Screw C. Then remove Screws D, Plate C and Nut B. Then turn the scale on its side to complete removal of the locking screw. **REMINDER:** Do not turn the scale upside down as this can damage the load cells.



- Remove Nut F and then Screw E. Then take off Screw G and Washer H.



5. After ensuring that all parts are present, store the DC-788 scale box for possible future use.

## 2.2 Repacking

If the DC-788 counting scale must be returned for modification, calibration or repair, it must be properly packed with sufficient cushioning materials. Whenever possible, use the original carton when shipping the DC-788. Damage caused by improper packaging is not covered by the warranty.

## 2.3 Setting Up

Place the scale on a solid, level surface away from fans, breezes, and sources of electrical interference.

Level the scale by turning the four adjustable legs located on the bottom of the scale while referencing the bubble level located on the front of the scale (see Figure 2-1).

**NOTE:** To ensure a higher degree of scale stability, turn in all four adjustable legs before leveling. Turn out adjustable legs to level as needed.

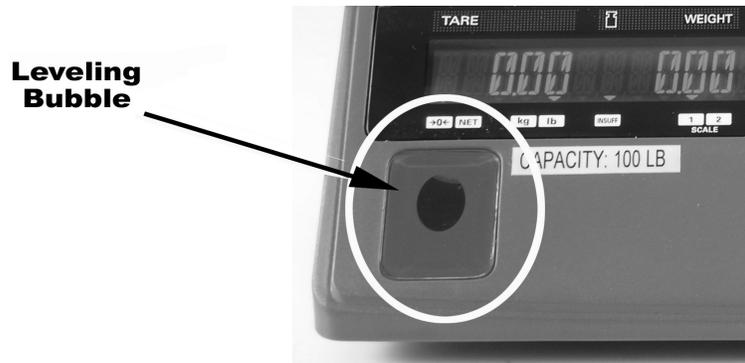


Figure 2-1. Leveling Bubble

## 2.4 Powering Up the DC-788

The DC-788 can be operated either from an AC power source or with a rechargeable battery pack (DC power). The DC power allows the unit to be completely portable. Instructions for DC operation are contained in Section 2.4.2.

### 2.4.1 AC Power Source

To power up the DC-788 using the AC power cord:

1. Connect the AC power cord under the scale base as shown in Figure 2-2.

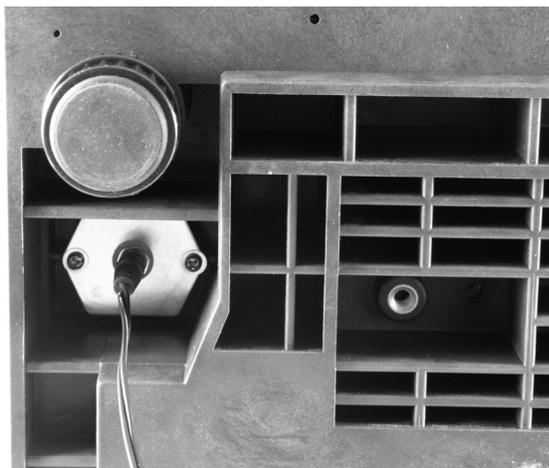


Figure 2-2. AC Plug-in Location on Underside of DC-788

2. Plug the AC power cord into a grounded 115 VAC receptacle.
3. Press the **ON/OFF** key located on the front of the scale. The scale will run through a check of the LCD

display's segments. How thorough the segment check is depends on the setting of SPC 20, Bit 2. The default is 1: Normal (For further instructions on how to set the scale's specifications, see Section 3.1.2):

- If SPC 20, Bit 2 is set to 0: Fast, the scale display's 888's for 1.5 seconds, then blanks for 1.5 seconds. It then displays 888's again followed by a blank display for another 1.5 seconds before going into the normal weighing mode.
  - If SPC 20, Bit 2 is set to 1: Normal, the scale's display will test the LCD segments for each numeral from 0 to 9, asterisks, decimal points and annunciators before going into the normal weighing mode.
4. Once the scale is on, the time interval before the scale will automatically power itself off, if there no key is pressed and no weight is placed on the platter, is determined by SPC 00- Auto Power-Off Function. The default is 0000: Disabled. (For further instructions on how to set the scale's specifications, see Section 3.1.1)

#### 2.4.2 DC Battery Pack Replacement/Installation

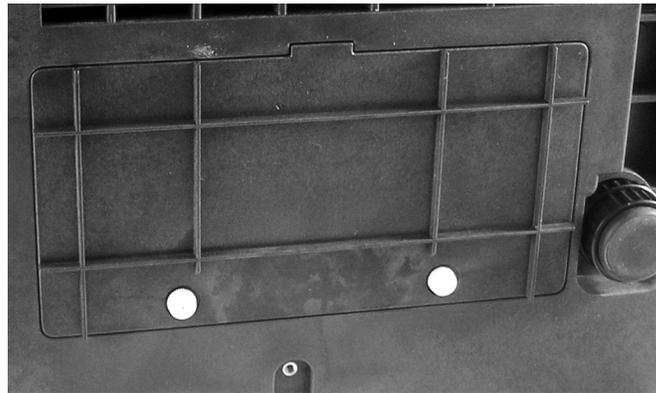
An optional DC battery pack (PN 88933) for the DC-788 is available and can be purchased from RLWS to ship with the scale or retrofit in the field. The rechargeable 6V 5.0 AH battery pack allows for up to 24 hours of scale use without an AC power supply. It is located in the bottom of the scale base. Use the following procedure to install or replace the battery pack.

1. Unplug the scale from power source.
2. Place scale its left side.



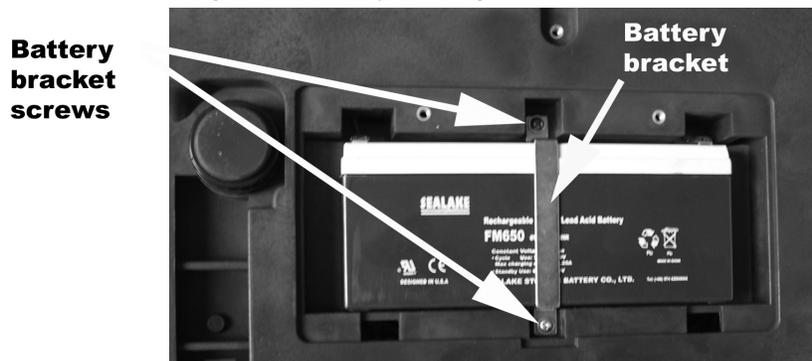
*Do not turn the scale upside down. Always work with the scale on its side. Damage to the load cell can occur if the scale is turned upside down.*

3. Unscrew the two thumb screws holding the battery compartment door closed.



*Figure 2-3. Thumb Screws for Battery Compartment*

4. Unscrew the two screws holding on the battery holding bracket and remove the bracket.



*Figure 2-4. Removing Battery Bracket.*

5. Remove the battery from its compartment, then disconnect the black (-) and red (+) electrical leads from the battery.

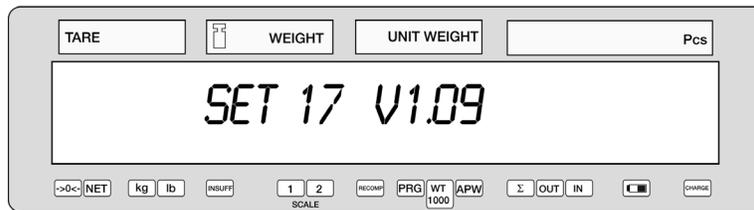
6. Attach the red lead to the positive (+) terminal of the new DC battery pack, and the black lead to the negative (-) terminal. Place new DC battery pack in battery compartment.
7. Replace the battery holding bracket and fasten it with its two screws.
8. Replace the battery compartment door and fasten it with its two thumb screws.
9. Put the scale back upright on its feet.
10. Press the **ON/OFF** key located on the front of the scale. The scale will run through a check of the LCD display's segments. How thorough the segment check is depends on the setting of SPC 20, Bit 2. The default is 1: Normal (For further instructions on how to set the scale's specifications, see Section 3.1.2):
  - If SPC 20, Bit 2 is set to 0: Fast, the scale display's 888's for 1.5 seconds, then blanks for 1.5 seconds. It then displays 888's again followed by a blank display for another 1.5 seconds before going into the normal weighing mode.
  - If SPC 20, Bit 2 is set to 1: Normal, the scale's display will test the LCD segments for each numeral from 0 to 9, asterisks, decimal points and annunciators before going into the normal weighing mode.

### 2.4.3 Battery Charging

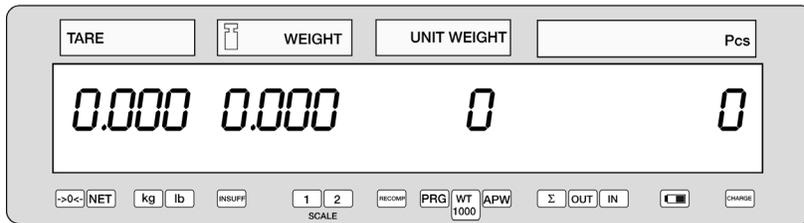
A fully charged battery allows for approximately 24 hours of continuous use. When the battery is low the battery indicator light will light up. It will take approximately 8-10 hours to fully recharge a battery that has been completely dissipated. To charge the battery, plug in the AC power cord.

### 2.4.4 Start-Up Screens

1. If SPC 20, Bit 3 - Version Display When Power On is set to 0: Allow, the scale will display the current version of the firmware it is using as it powers up (For further instructions on how to set the specifications, see Section 3.1.2).



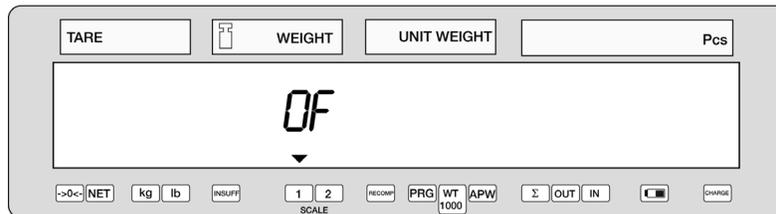
2. After a test of the different elements of the display, the scale takes you to the stand-by screen in the Weighing Mode. SPC 20, Bit 2 - Selection of Segment-Check Style controls whether the startup test of the segments is Fast or Standard. At the stand-by screen the TARE, WEIGHT, UNIT WEIGHT and PCS displays show zeroes.



From this stand-by screen all of the basic weighing, counting and inventory operations can be performed

3. If there is anything on the platform(s) and it exceeds the scale start range, the display will show the error message *OF* indicating "weight overflow".

**Note:** The Initial Start Range settings are controlled by SPC 20, Bit 1. The default setting is 0: ± 10% OF FULL SCALE.

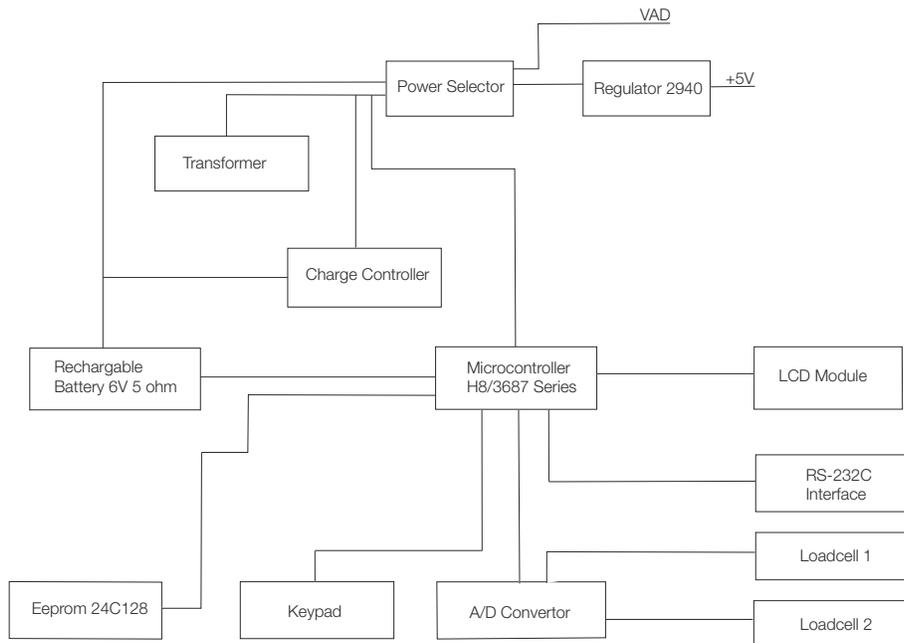


If this error appears, remove the weight from the platform and the scale will continue its startup sequence.



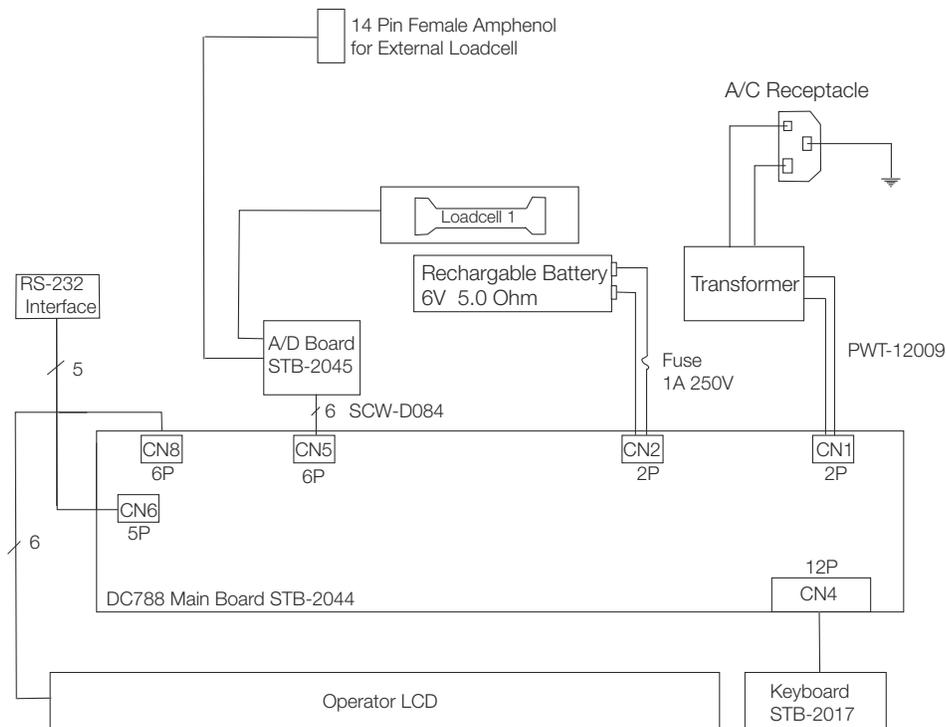
## 2.7 Block Diagram of Electrical Connections

The following block diagram illustrates the electrical connections.



## 2.8 Physical Layout of Electrical Connections

The following diagram illustrates the actual layout of electrical connections.



## 3.0 Configuration Settings

This section presents the setup and configuration of the DC-788 counting scale to be used specifically by distributors and service technicians. Configuring these specifications allow you to tailor the DC-788 to your specific applications.

Setting the specifications allows you to modify the functionality of the DC-788. Use the tables in this section to view the options you can modify.

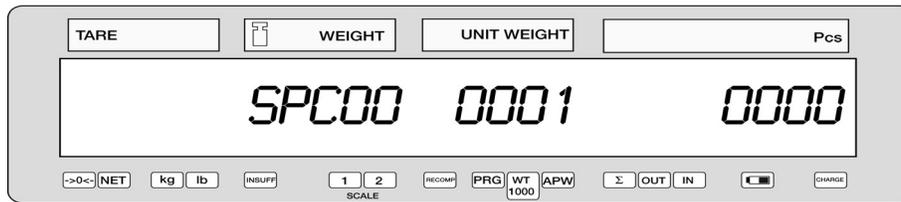
### 3.1 Configuring Specification 141 and 142 Settings from the Scale Keyboard

The following tables list the DC-788 specifications, their corresponding default values, and the other possible values to which they can be programmed. The default values are set at the factory when the scale is shipped. SPC 0 through SPC 19 (Table 3-1) are customer specifications and use the 141 access code, while SPC 20 through SPC 35 (Table 3-2) are weight and measurement specifications, and use the 142 access code

In programming specifications, the **+** (Plus) and **-** (Minus) keys allow you to move to the next or previous specification. The **CLEAR** key cancels any input you have made. The **\* PRINT** key temporarily stores to memory any changes you have made. The **TARE** key saves to memory the changes you have made and returns you to the weighing mode. Note also that when programming specifications, only the 0 and 1 keys on the numeric keypad are enabled, since those are the only valid entries.

#### 3.1.1 Customer Specification (141 Settings)

1. To configure customer specifications, press and hold the **REZERO** key and enter **141** using the numeric keypad. The first SPC code is displayed.



The *Weight* display shows what specification you are in (in this case, SPC00). The *Unit Weight* display shows how this specification is currently programmed (Bit 3 = 0; Bit 2 = 0; Bit 1 = 0, and Bit 0 = 1 in this example, while the *PCS* display will show any changes you enter.

If this is the SPC that you want to modify, enter the new setting from the numeric keypad and press the **\* PRINT** key to enter the change into temporary memory and move to the next SPC code.

2. Use the **+** (plus) and **-** (minus) keys to scroll through the specifications until you find the one you want. Then make your changes per the instructions in Step 1.
3. To change another SPC code before exiting, repeat Steps 1 and 2.
4. To save all the changed SPC settings currently in temporary memory and exit to the Weighing Mode, press the **TARE** key.

SPEC No.	Bit 3	Bit 2	Bit 1	Bit 0
00	<b>Auto Power-off Function (for no key operation and weighing operation)</b> 0000: Auto power-off disable when scale is not in use (DEFAULT) 0001: 3 minutes 0010: 10 minutes 0011: 30 minutes 1011: 1 hour 0101: 3 hours 0110 ~ 1111 - not used (SP1_OFFT)			
01	0: Not used			
02	<b>Buzzer</b> 0: On (DEFAULT) 1: Off (SP1_BUZZ)	<b>Error Alarm</b> 0: On (DEFAULT) 1: Off (SP1_ALARM)	<b>Set Point Alarm</b> 0: On (DEFAULT) 1: Off (SP1_PALARM)	<b>Not Used</b> 0: (DEFAULT)
03	<b>Unit weight base per 1000PCS or 1 PCS display</b> 0: 1000PCS (DEFAULT) 1: 1PCS (SP1_UWID) Note: When SPEC 27 - Gross Mode is set to 0: Allow, the scale remains in UW/1000, regardless of how this SPEC 3 is set. See note under SPEC 27.	<b>Sampling time for unit weight calculation</b> 0: 10 times 1: 5 times (DEFAULT) (SP1_STFUWC)	<b>Negative Counting</b> 0: Allow (DEFAULT) 1: Inhibit (SP1_NCOUNT)	<b>Re-zero Function</b> 0: Allow (DEFAULT) 1: Inhibit (SP_RZF)
04	<b>Order of month, date and year</b> 00: MM/DD/YY (DEFAULT) 01: DD/MM/YY 10: YY/MM/DD 11: Not used (SP1_DATEO)		<b>Set Point Type</b> 00: % quantity (DEFAULT) 01: % weight 10: Quantity 11: Weight (SP1_SPT)	
05	<b>Function of RS-232 Interface</b> 00: PC 01: Printer (DEFAULT) 10: Not used 11: Not used (SP1_RS232IF)		<b>Extrent of insufficient samples</b> 00: 0.1% (DEFAULT) 01: 0.2% 10: 0.0% 11: Not used (SP1_INSUFFRG)	
06	<b>RTS/CTSHandshakingof RS-232C</b> 0: On 1: Off (DEFAULT) (SP1_RTS)	<b>Baud Rate of RS-232C</b> 000: 1200 bps 001: 2400 bps 010: 4800 bps 011: 9600 bps (DEFAULT) (SP1_BAUD) 100: 19200 bps 101: Not used 110: Not used 111: Not used		
07	<b>Stop bit of RS-232C</b> 0: 1 bit (DEFAULT) 1: 2 bit (SP1_STOP)	<b>Data length of RS-232C</b> 0: 7 bit 1: 8 bit (DEFAULT) (SP1_DLEN)	<b>Parity of RS-232C</b> 00: None (DEFAULT) 01: Odd (SP1_PAR) 10: Even 11: Not used	

Table 3-1. DC-788 (141) Settings

SPEC No.	Bit 3	Bit 2	Bit 1	Bit 0
08	<b>RS-232C PC Protocol</b> 0000: Inhibit data transfer (DEFAULT) 0001: Standard stream type (continuous output) 0010: Standard manual type 0011: Stand command type 0100~ 1111: Not used (SP1MODE)			
09	<b>External Printer Type</b> 0000: No Printer (DEFAULT) 0001: DIGI GP460R Label Printer 0010: Zebra LP2844 Bar Code Printer 0011: Epson TMU200 or Star SP2320 Tape Printers 0100: Epson TM295 or Star SP298 Ticket Printers 0101: TVP1000 Bar Code Printer 0110: GP460Pro Bar Code Printer (V1.18) 0111 ~ 1111: Not Used (SP1PRINTER)			
10	<b>Interval of Time Out Error of RS-232</b> 00: 1 Second 01: 3 Seconds (DEFAULT) 10: 5 Seconds 11: 10 Seconds (SP1TIME)		<b>Transmission Condition of RS-232</b> 0: Weight Stable (DEFAULT) 1: Unconditional (SP1_COND)	<b>Additional Parity Code in Text of RS-232</b> 0: No (DEFAULT) 1: Yes (SP1_APAR)
11	<b>Tare Weight in Text of RS-232</b> 0: No 1: Yes (DEFAULT) (SP1_TW)	<b>Unit Weight in Text of RS-232</b> 0: No 1: Yes (DEFAULT) (SP1_UW)	<b>Gross Weight in Text of RS-232</b> 0: No 1: Yes (DEFAULT) (SP1_GW)	<b>Quantity in Text of RS-232</b> 0: No 1: Yes (DEFAULT) (SP1_TP)
12	<b>Date &amp; Time in Text of RS-232</b> 0: No 1: Yes (DEFAULT) (SP1_DTIME)	<b>Parts Information in Text of RS-232:</b> 0: Include Parts Information 1: Include Only ID Code (Output like DC-180. Requires a setpoint value to be entered to work) (V1.13)	<b>Header Code in Text of RS-232</b> 0: No 1: Yes (DEFAULT) (SP1_HEAD)	<b>Weight Range of Data Output</b> 0: Always (DEFAULT) 1: Over 20e (SP1_MINWTL)
13	<b>PrintWhenPressingthe+ or - Key</b> 0: No (DEFAULT) 1: Yes (SP1_PRTK) (*V1.09)	<b>External Printer Print Format</b> 000: Default Format (DEFAULT) 001: Customer Format 1 010: Customer Format 2 ~ 111: Customer Format 7 (SP1PRINTER)		

Table 3-1. DC-788 (141) Settings

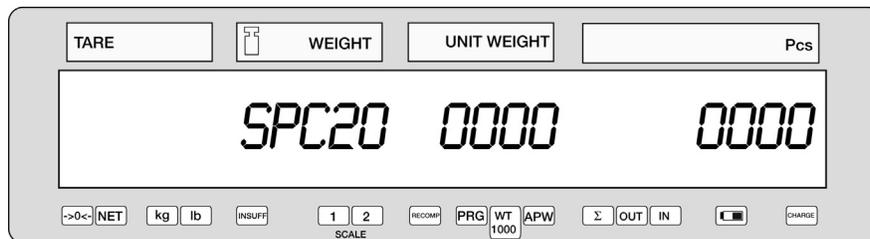
SPEC No.	Bit 3	Bit 2	Bit 1	Bit 0
14	<b>Clear Unit Weight When Swap Scale</b>  0: No (DEFAULT) 1: Yes  (SP1_UC) (*V1.06)	<b>RezeroWhenSwapScale</b>  0: No (DEFAULT) 1: Yes  (SP1_RZ) (*V.106)	<b>Auto Scale Switching</b>  0: No (DEFAULT) 1: Yes  (SP1_ASS) (*V1.07)	<b>Zero Display</b>  0: Display 0 With '/' 1: Display 0 Without '/' (DEFAULT) (SP1_DIS0) (*V1.10)
15	<b>Display "MEM EXIST"</b> message reminding you that there is an accumulation in memory  0: No 1: Yes (DEFAULT)  (SP1_MEXIST) (*V1.10)	<b>ClearTAREWeightWhen Swapping Scales</b>  0: No (DEFAULT) 1: Yes  (*V1.12)	<b>Scale Number in Text of RS-232</b>  0: No 1: Yes (DEFAULT)  (*V1.16)	<b>Number of Setpoints</b>  0: 2 Setpoints (Default) 1: 3 Setpoints  (SP1_SPN) (v1.10)
16 - 19	Not Used			

Table 3-1. DC-788 (141) Settings

### 3.1.2 Weight and Measurement Specifications (142 Settings)

To make changes to the Weight and Measurement Specifications, the span switch must be on. (For instructions on how to turn the span switch on, see Section 4.0.)

1. To configure customer specifications, press and hold the **REZERO** key and enter **142** using the numeric keypad. The first SPC code is displayed.



The *Weight* display shows what specification you are in (in this case, SPC20). The *Unit Weight* display shows how this specification is currently programmed (Bit 3 = 1; Bit 2 = 0; Bit 1 = 0, and Bit 0 = 0), while the *PCS* display will show any changes you enter.

If this is the SPC that you want to modify, enter the new setting from the numeric keypad and press the \* **PRINT** key to enter the change into temporary memory and move to the next SPC code.

2. Use the **+** (Plus) and **-** (Minus) keys to scroll through the specifications until you find the one you want. Then make your changes per the instructions in Step 1.
3. To change another SPC code before exiting, repeat Steps 1 and 2.
4. To save all the changed SPC settings currently in temporary memory and exit to the Weighing Mode, press the **TARE** key.

SPEC No.	Bit 3	Bit 2	Bit 1	Bit 0
20	<b>Version Display When Power On</b>  0: Allow (DEFAULT) 1: Inhibit  (SP_VER)	<b>Selection of Segment-Check Style</b>  0: Fast (DEFAULT) 1: Standard  (SP_SEGCK)	<b>Start Range</b>  00: $\pm 10\%$ of Full Scale (DEFAULT) 01: $\pm 5\%$ of Full Scale 10: $\pm 3\%$ of Full Scale 11: $\pm 2\%$ of Full Scale (SPSRANGE)	
21	<b>Minimum Display (Scale 1)</b>  00: 1 01: 2 (DEFAULT) 10: 5 11: 10 (SPMINID)		<b>Minimum Display (Scale 2)</b>  00: 1 01: 2 10: 5 (DEFAULT) 11: 10 SPMINID1)	
22	<b>Selection of Resolution (Scale 1)</b>  0000: 1/2500 0001: 1/5000 (NTEP Setting) 0010: 1/10000 (DEFAULT) 0011: 1/15000 0100: 1/20000 0101: 1/25000 0110: 1/30000 0111: 1/12500 (SPRES)			
23	<b>Not Used</b>  0: (DEFAULT)	<b>Weight Decimal Point Position (Scale 1)</b>  000: No Decimal Point 001: 1st Digit (0000.0) 010: 2nd Digit (000.00) 011: 3rd Digit (00.000) 100: 4th Digit (0.0000) (SPWPT)		
24	<b>Selection of Resolution (Scale 2)</b>  0000: 1/2500 0001: 1/5000 (NTEP Setting) 0010: 1/10000 (DEFAULT) 0011: 1/15000 0100: 1/20000 0101: 1/25000 0110: 1/30000 0111: 1/12500 (SPRES1)			
25	<b>Not Used</b>  0: (DEFAULT)	<b>Weight Decimal Point Position (Scale 2)</b>  000: No Decimal Point 001: 1st Digit (0000.0) (DEFAULT) 010: 2nd Digit (000.00) 011: 3rd Digit (00.000) 100: 4th Digit (0.0000) (SPWPT1)		

Table 3-2. DC-788 Weight and Measurement Specifications

SPEC No.	Bit 3	Bit 2	Bit 1	Bit 0
26	<b>Weight Stability Conditions</b>  00: Loose 01: Normal (DEFAULT) 10: Tight 11: Stringent (SPWTATABC)		<b>2nd Scale</b> Please note that the scale switch is not activated until the 2nd scale has been calibrated.  0: Inhibit (DEFAULT) 1: Enable  (SP_SCALET)	<b>IR Mode Protected by Span Switch</b>  0: No (DEFAULT) 1: Yes  (SP_SPSW)
27	<b>Weight Unit Base</b>  0: kg 1: lb (DEFAULT) (SPBASE)	<b>Type of Decimal Point</b>  0: .(Standard) (DEFAULT) 1: ,(Europe) (SP_DPF)	<b>Negative Weight Display Mask</b>  0: Minus Gross > 9e 1: Minus Gross Weight (DEFAULT) (SP_NMASK)	<b>Gross Mode</b>  0: Allow 1: Inhibit (DEFAULT) (SP_GROSSM) Note: When the Gross Mode is enabled, it disables the ability to switch between lb/kg or to switch to APW because the lb/kg key is used for the gross mode. When Gross Mode is enabled, the scale stays in UW/1000 regardless of how SPEC 3 is set.
28	<b>Manual Tare Cancellation</b>  0: Allow (DEFAULT) 1: Inhibit (SP_MTC)	<b>Tare Subtraction</b>  0: Allow (DEFAULT) 1: Inhibit (SP_TS)	<b>Tare Accumulation</b>  0: Allow (DEFAULT) 1: Inhibit (SP_TA)	<b>Auto Tare Clear When Rezero</b>  0: Allow 1: Inhibit (DEFAULT) (SP_AUTOT)
29	<b>Digital Tare</b>  0: Allow 1: Inhibit (DEFAULT) (SP_DT)	<b>Accumulation When Tare</b>  0: Allow 1: Inhibit (DEFAULT) (SP_ACCT)	<b>Zero Tracking When Tare</b>  0: Allow (DEFAULT) 1: Inhibit (SP_ZTT)	<b>Weight Reset When Tare</b>  0: Allow (DEFAULT) 1: Inhibit (SP_WR)
30	<b>Tare Auto Clear</b>  0: Allow 1: Inhibit (DEFAULT)  (SP_TAUTO)	<b>Unit Weight Auto Clear</b>  0: Allow 1: Inhibit (DEFAULT)  (SP_UAUTO)	<b>Auto Clear Condition</b>  0: >=Gross 21e & >=Net 5e 1: >=Net 1e & Quantity Not 0 (DEFAULT) (SP_AUTOCC)	<b>Not Used</b>  0: (DEFAULT)
31	<b>Accumulation</b>  0: 0: Allow (DEFAULT) 1: Inhibit (SP_ACC)	<b>Accumulation Number Display</b>  0: Allow (DEFAULT) 1: Inhibit (SP_ANO)	<b>WT Data Synchronization (+ key only)</b>  0: Allow (DEFAULT) 1: Inhibit (SP_WDS)	<b>Accumulation Display Style</b>  0: "Total" (DEFAULT) 1: "Add" (SP_ADS)

Table 3-2. DC-788 Weight and Measurement Specifications

SPEC No.	Bit 3	Bit 2	Bit 1	Bit 0
32	<b>Exit From Accumulation Mode After 15 Second Time Out</b>  0: Allow (DEFAULT) 1: Inhibit (SP_EA15)	<b>Exit From Accumulation Mode When Weight Change</b>  0: Allow (DEFAULT) 1: Inhibit (SP_EAWC)	<b>Quantity Accumulation Without Removing Weight</b>  0: Allow (DEFAULT) 1: Inhibit (SP_QARW)	<b>Quantity Accumulation Without Changing Weight (for &gt;= ±10e)</b>  0: Allow (DEFAULT) 1: Inhibit (SP_QACW)
33	<b>Loadcell Sensitivity Selection mV/V (1st Scale)</b>  0000: 0.95 ~ 1.09 (Default)    0100: 1.69 ~ 1.95    1000: 0.40 ~ 0.46    1100: 0.71 ~ 0.82 0001: 1.09 ~ 1.27    0101: 1.95 ~ 2.25    1001: 0.46 ~ 0.53    1101: 0.82 ~ 0.95 0010: 1.27 ~ 1.46    0110: 2.25 ~ 2.59    1010: 0.53 ~ 0.61 0011: 1.46 ~ 1.69 (SPSST)    0111: 2.59 ~ 3.00    1011: 0.61 ~ 0.71			
34	<b>Loadcell Sensitivity Selection mV/V (2nd Scale)</b> RLWS recommends a setting of 0000 for bench scales and 0011 for floor scales connected as a second scale.  0000: 0.95 ~ 1.09    0100: 1.69 ~ 1.95    1000: 0.40 ~ 0.46    1100: 0.71 ~ 0.82 0001: 1.09 ~ 1.27    0101: 1.95 ~ 2.25    1001: 0.46 ~ 0.53    1101: 0.82 ~ 0.95 0010: 1.27 ~ 1.46    0110: 2.25 ~ 2.59    1010: 0.53 ~ 0.61 0011: 1.46 ~ 1.69 (Default) (SPSST1)    0111: 2.59 ~ 3.00    1011: 0.61 ~ 0.71			
35	<b>1st Scale Weight Unit</b>  0: kg (DEFAULT) 1: g (SP_GBASE1) NOTE: Units for Scale 1 should be set to be the same as the units on Scale 2 (See SPEC 35, Bit 2)	<b>2nd Scale Weight Unit</b>  0: kg (DEFAULT) 1: g (SP_GBASE2) NOTE: Units for Scale 2 should be set to be the same as the units on Scale 1 (See SPEC 35, Bit 3)	<b>Negative Weight Display Mask Range</b>  0: Minus Gross > 9e 1: Minus Gross >20e (DEFAULT) (SP_NMRG)	<b>Not Used</b>  0: (DEFAULT)

Table 3-2. DC-788 Weight and Measurement Specifications

## 4.0 Calibration

The DC-788 counting scale is a high-precision instrument. Although the scale needs very little maintenance, you may want to check the calibration after every month or so of normal usage. To do this you will need to have a test weight of approximately the total capacity of the scale (i.e. a 10 lb weight if you have a 10 lb capacity scale). After the scale is initially installed, put the weight on the platform and record the weight displayed. Then every month or so put the same weight on the scale and verify that it still reads the same.

Many facilities have a technician come in and check their units with certified test weights four times a year. If you are ISO certified, you will want to check to see if your certification specifies more stringent requirements in order to stay in compliance. Your DIGI scale dealer has the calibrated test weights, expertise and experience to perform this task for you as well as to check other operating parameters of your scale and help you effectively integrate scales into your operations. If you do not know who your local DIGI dealer is, call us at 1-715-736-0002 and we will help you find someone who can provide you with on-site support.

Follow the instructions below to calibrate your DC-788 scale to ensure its continued accuracy.



### Note

You can exit the Maintenance Mode and return to the Weighing Mode at any time by pressing the **TARE** key. If you have a remote scale attached to the DC-788, you must first set the SPECS for that remote scale before beginning the calibration process.

1. Turn the scale on, then press the span switch to reset it. (See Figure 4-1 below.)

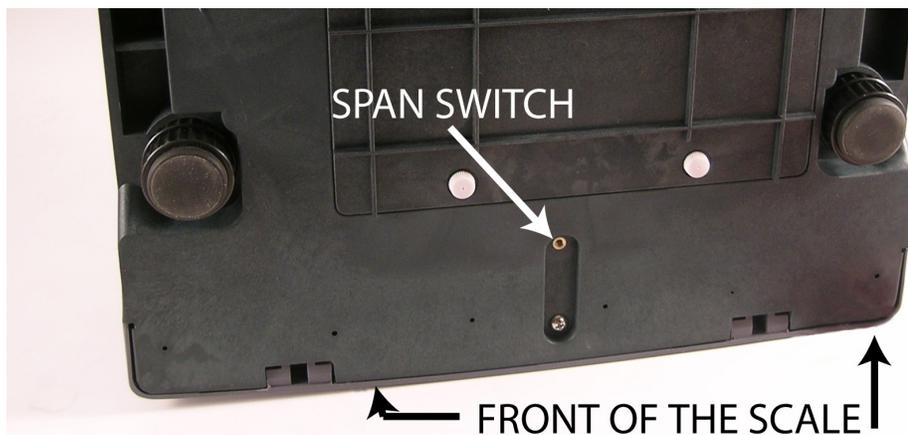
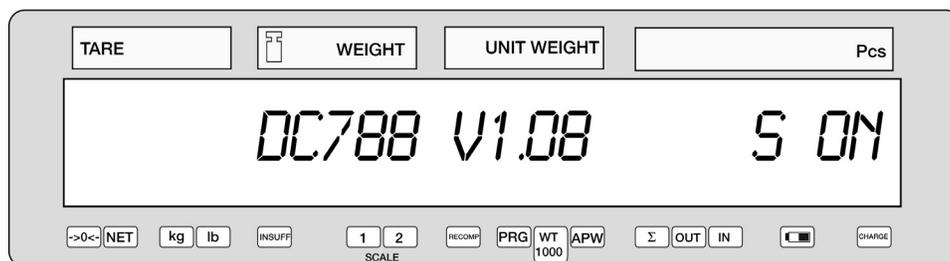


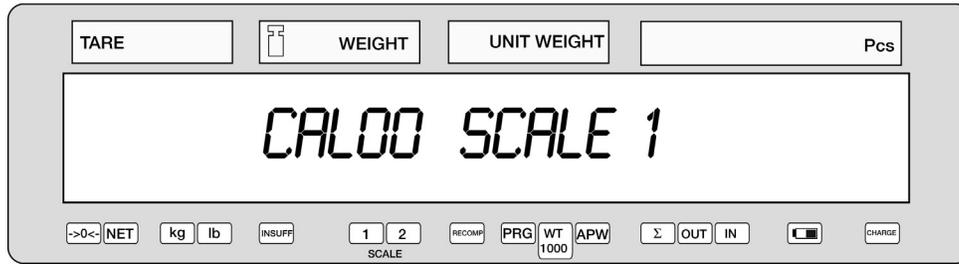
Figure 4-1. Location of Span Switch

2. The scale will display the model number, firmware version number and the message **S ON** indicating that the Span Switch is currently on.

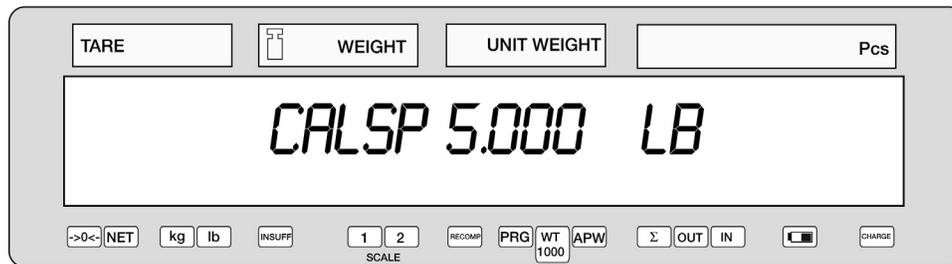


3. While pressing the **REZERO** key, enter **8715** from the numeric keypad to enter the calibration mode.

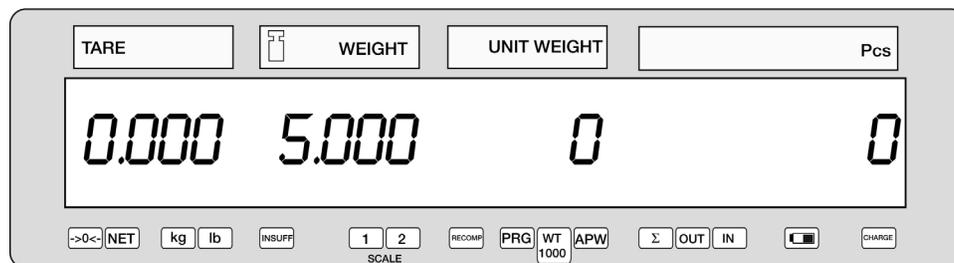
- The scale display will confirm that you are in the Calibration Mode.



- You can select which scale you are calibrating, Scale 1 or Scale 2, by pressing the **SCALE** key. (If a 2nd scale is not installed and set in the specifications, pressing the **SCALE** key has no effect.) If you have not yet set up the remote scale in the specifications, press the **TARE** key to exit the calibration process and set the specifications. Then power down the scale to commit the changes to the scale's memory before returning to calibration. (For information on setting specifications, see "Configuration Settings" on page 12.)
- Make sure that there is no weight on the platform of the scale you are calibrating and press the \* **PRINT** key. The scale will flash briefly as it searches for the zero point and then will display it.



- Place a reference weight on the platform. It is preferable to calibrate the scale using a weight equal to the full capacity of the scale (i.e. a 5 lb weight for 5 lb capacity scale, etc.) If the reference weight is not equal to the full capacity of the scale, it must at least be greater than 10% of the full scale capacity. If the reference weight is equal to the full capacity of the scale, press the \* **PRINT** key. If the reference weight is less than the full capacity of the scale, enter the value of the weight placed on the platter using the numeric keys before pressing the \* **PRINT** key. The weight you enter will appear in the *Weight* display.
- The display will flash briefly again as the span settings for calibration of the scale are being temporarily saved. Then the display will return to the weighing mode with the calibrated weight showing in the *Weight* window..



- To exit the Maintenance Mode and save your calibration, power down your DC-788 scale. To exit the Maintenance Mode and return to the Weighing Mode without saving your calibration, press the **TARE** key.

## 5.0 Scale Operations

---

The following sections contain detailed operator instructions for the DC-788 counting scale (see Figure 5-1). Included are instructions on how to switch between scale platforms, how to enter tare weights, how to enter unit weights, and how to perform counting operations both in the regular Counting Mode and the TEP (Teraoka Error Prediction) Mode.



Figure 5-1. DC-788 Counting Scale

### 5.1 Counting Scale Accuracy and the TEP (Teraoka Error Prediction) Mode

Counting scale accuracy is primarily determined by the following factors:

- Sample size (number of pieces)
- Total sample size as a percentage of full scale capacity
- Piece-to-piece weight variation

As a general rule when determining sample size of fairly uniform pieces, the larger the sample size the greater the total sample weight, therefore, the better the counting accuracy. Selecting the smallest capacity scale that can obtain the highest counting resolution should be considered, but should not sacrifice the capacity required for the heaviest container of parts. For this kind of application, a scale like the DC-788 with an extra scale channel is often the best selection.

There is a direct relationship between piece-to-piece weight variation (non-uniformity) and counting accuracy. Therefore, elimination of the piece-to-piece weight variations can be accomplished by:

1. Isolating the sample used to calculate the unit weight and use the same sample to re-check the scale.
2. Recalculating the unit weight from lot-to-lot of parts. Parts manufactured on one machine may vary slightly from another machine relative to weight.
3. Tightening the manufacturing tolerances on the parts reduces piece weight variations and increases count accuracy.

Parts can vary greatly in their value. With parts of lesser value per piece, the extra sampling and time involved in trying to achieve 100% accuracy as opposed to 99.5% may not be cost-effective. However, with high value items 100% accuracy is vital. To address this need, the DC-788 provides you with two counting modes: Regular Counting Mode and TEP (Teraoka Error Prediction) Mode. Regular Counting Mode offers you the same ultra-high-precision that all DIGI products are noted for. When you have high-value items, TEP Mode walks you through a more extensive sampling process from which the scale calculates and displays the number of parts that can be counted at a time with no counting error.

## 5.2 Weight Unit Switching

The weight units displayed can be changed between kg and lb during weighing operations by pressing the **kg/lb** key. The appropriate annunciator will light. SPC27 - Base Weight Units sets the default weight unit to Kgs or Lbs. If you are using more than one scale, SPC35 sets the weighing units for the 1st and 2nd scales. (For further instructions on how to set the specifications, see Section 3.1.2)

## 5.3 Toggling Between Scales

To toggle between Scales 1 and 2, press the **SCALE** key. The indicator lamp for the appropriate scale lights on the display.

**NOTE:** *This function is available only when SPC26 - 2nd Scale is enabled. (For further instructions on how to set the specifications, see Section 3.1.2)*

You can also configure the DC-788 to switch automatically between Scales 1 and 2 (for example if you are using Scale 1 as a sampling scale and Scale 2 for the actual counting) by setting SPEC 14 - Auto Scale Switching, Bit 1, to 1: Yes. Be sure also that SPEC 15 - Clear Tare Weight When Swapping Scales, Bit 2, is set how you want it, either to clear or keep the tare when switching between scales. For more information on how to set these specifications, see Section 3.1.1.

## 5.4 Setting Tare Weights in Weighing Mode

This section will describe the different tare-related operations you can perform from the weighing mode. Tare weight can be set by one touch tare using the **TARE** key or, if the value is known ahead of time, can be entered digitally using the digital tare function. Tare addition and subtraction can also be done digitally or by using the **TARE** key. Finally, an existing tare stored with an Item Code can be overridden temporarily in the Weighing Mode if needed.

**Note:** *The following SPC codes must be set properly to allow these operations before continuing: SPC 28, Bit 1 - MANUAL TARE CANCELLATION sets whether or not the tare weight can be cancelled from the keyboard. SPC 28 also controls whether TARE SUBTRACTION (Bit 2) and TARE ACCUMULATION (Bit 1) are allowed or inhibited and whether AUTO TARE CLEAR WHEN REZERO (Bit 0) takes place or not. SPC 29 controls whether the scale allows DIGITAL TARE entry (Bit 3), whether the scale can do ACCUMULATION WHEN TARE (Bit 2), if there will be ZERO TRACKING WHEN TARE (Bit 1) and WEIGHT RESET WHEN TARE (Bit 0). SPC 30 sets whether or not TARE AUTO CLEAR is activated (Bit 3). (For further instructions on how to set the specifications, see Section 3.1.2)*

### 5.4.1 One Touch Tare (When the Tare Weight is Unknown)

1. While in the weighing mode, place a bin, box or other weight to be tared out on the platform.
2. Press the **TARE** key to subtract the tare weight. The *Net* annunciator will light up, the *Weight* display should now show 0 and the tare weight will show in the *Tare* display.
3. If you remove the tare weight from the platform, the tare weight will show as a negative weight in the weight window and the *Net* annunciator will remain lit.

**Note:** *This tare weight will be overridden by the weight stored with an Item Code when you call up an Item Code.*

4. To clear this tare weight and return to the Weighing Mode, press the **TARE** key again. The net annunciator will not longer be lit.

### 5.4.2 Digital Tare (When Tare Weight is Known in Advance)

1. While at the stand-by screen, enter the known tare weight by using the numeric keypad.
2. Press the **TARE** key to subtract the tare weight. The *Net* annunciator will light up and the tare weight will be displayed in the weight display.

**Note:** *This tare weight will be overridden by the weight stored with an Item Code when you call up an Item Code.*

3. To clear this tare weight and return to the Weighing Mode, press the **TARE** key again. The net annunciator will no longer be lit.

**Note:** *For digital tare entry, the decimal must be in the appropriate place as it would be displayed in the weight display. For example, .250 would be entered as 0.250, not.250. The weight display shows weight entered with a negative sign indicating that it is a tare weight.*

### 5.4.3 Tare Addition or Subtraction

Two tares can be accumulated or subtracted using the **TARE** key as well. Tare weights cannot be accumulated or subtracted by digital entry.

**Note:** SPC 28, Bits 2 and 1 must be set to 00 to enable Tare Accumulation and Tare Subtraction. (For further instructions on how to set the specifications, see Section 3.1.2)

1. Place the container, box or item to be tared on the platform and press the **TARE** key. The weight display should show 0, the *Net* annunciator will illuminate and the tare weight will appear in the Tare display.
2. Place another tare weight on the platform and press the **TARE** key again. This will add the two tare weights together (Tare Addition).
3. Tare weights can be subtracted individually by removing one from the platform and pressing the **TARE** key again. To clear all the tare weights and return to the Weighing Mode, remove all the tare weights and press the **TARE** key. The *Net* annunciator will no longer be lit.

### 5.4.4 Tare Override

For instructions on how to temporarily override a tare that is called up with an Item Code, please see Section 5.9.4.

## 5.5 Entering Unit Weights

Entering unit weights can be done either by sampling, as presented in Section 5.5.1, or by key entry as described in Section 5.5.2.

**NOTES:** SPC 05 - EXTENT OF INSUFFICIENT SAMPLES controls unit weight sampling. The default setting for the SPC is 00: 0.1 percent.

SPC 14, Bit 3 - CLEAR UNIT WEIGHT WHEN SWAP SCALE sets whether the unit weight determined by sampling is automatically transferred from Scale 1 to Scale 2 or is cleared when you transfer scales. SPC 14, Bit 1 - AUTO SCALE SWITCHING, sets . When you have a procedure that involves sampling an item's unit weight on the DC-788's built-in platform and then want to go immediately to weighing and counting boxes or bins on a floor scale or other external scale, set SPC 14 to 1: YES. If the external Scale 2 is not necessarily going to be used for weighing the same item as is being sampled on Scale 1, set SPC 14 to 0: NO.

SPC 03 - UNIT WEIGHT BASE PER 1000PCS OR 1PCS controls whether the unit weight is displayed per 1000 pieces or per 1 piece. The default settings for this SPC is 0: 1000 pieces.

(For further instructions on how to set the specifications, see Section 3.1.1)

#### Unit Weight per 1000 Pieces vs. Unit Weight per 1 Piece

The scale's internal microprocessor calculates unit weights to 7 or 8 decimal places. However, the scale display generally can only show Unit Weight to 5 characters. If this Unit Weight is recorded from the scale display and entered by key entry, this can introduce errors in the Unit Weight and consequently in the counts. This error increases as the Unit Weight of the parts being counted decreases.

Example: A sample of 10 zener diodes is placed on the scale. The Unit Weight is computed by the scale to be 0.0006536 lbs. However, the scale has a 5 character display for Unit Weight so the scale can only display.0065 as the Unit Weight. If this Unit Weight were recorded and keyboard entered in future counting operations, the resulting error would be:

$$\frac{00065}{.0006536} = .55\%$$

On the other hand, with entry of the Unit Weight as "weight per 1000 pieces" the decimal place is, in effect, moved three places to the right, allowing 3 more decimal places of accuracy. In this example, the entry would be made as 0.6536 per 1000 pieces, eliminating the error.

As a practical note, entering unit weights per 1000 pieces also lessens the chances of entering the wrong number of zeros when keying in weights with many leading zeros. Misentry of unit weights is a common cause of inaccurate counting.

When might you want to use unit weight per 1 piece? Generally in one of two cases:

1. If you are working with other existing systems or procedures that are already set up to record unit weight per piece (inventory systems, labeling requirements, etc).
2. If the unit weight or your pieces is more than 100 lbs, as in the case of some castings, engine parts and the like. When the unit weight is over 100 lbs, the number of digits in the scale's Quantity display will

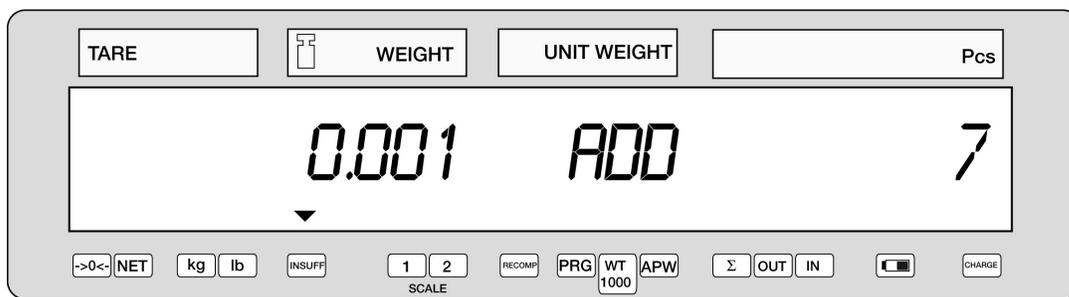
not be able to fully display counts of more than 100 pieces.

### 5.5.1 Unit Weight Operation by Sampling

Unit weight operation by sampling is accomplished by placing a 10 piece sample on the scale and then pressing the **PCS** key. The scale calculates a unit weight based on the capacity of the scale compared to the weight of the sample. If you wish to use a sample of more than 10 pieces, place the sample on the scale, then input the sample size before pressing the **PCS** key.

If the sample size is insufficient to give an accurate unit weight, no unit weight will be displayed, the *INSUFF* lamp will be illuminated and you have the following options:

- You can add pieces to the sample (keeping track of how many you add) until the *INSUFF* lamp goes out. Key in the new total sample quantity and press the **PCS** key. The scale will compute and display the unit weight.
- The scale will prompt you to add enough pieces to bring the sample up a weight that allows calculation of a more accurate unit weight. The weight will appear in the *Weight* display, the word *ADD* in the *Unit Weight* display and the number of pieces to be added in the *PCS* display.



- Add exactly the number of pieces requested (the *PCS* display will go down to 0) and press the **PCS** key. The scale will compute and display the unit weight and the *INSUFF* lamp will go out.

You can ignore or override the *INSUFF* indicator by pressing the **PCS** key again without adding more pieces to the sample. However, it may affect counting accuracy to use a Unit Weight calculated on the basis of an insufficient sample. If you do press the **PCS** key again, the scale will compute and display the unit weight based on the original sample you gave it.

If the *RECOMP* indicator is lit, the accuracy of the unit weight computation can be improved by adding approximately double the number of pieces currently on the scale and pressing the **PCS** key again. The scale will flash as it recomputes the unit weight, after which it will display the new Unit Weight.

### 5.5.2 Unit Weight Operation by Key Entry

Unit weight operation by key entry is accomplished by using the numeric keypad to enter the known value of the unit weight and then pressing the **UNIT WEIGHT** key. An example of unit weight operation by key entry is shown below:

1. With the display in the weighing mode, enter the known unit weight using the keyboard, for example, 200.00.
2. Press **UNIT WEIGHT** key to enter the unit weight.
3. Place a 2 lb. weight on the scale. The scale displays the quantity for the weight placed on the scale, for example, the weight display reads 2000, the unit weight display reads 200.00, and the quantity display reads 10).
4. Press the **CLEAR** key to clear the Unit Weight.

## 5.6 Setting a Lot Number

Lot numbers can be attached to Item Codes when programming item codes into memory. For instructions on how to set a lot number, see Section 6.3.

A Lot Number which is not associated with a specific item code can also be set temporarily in the Weighing Mode. If the DC-788 is connected to an external printer or PC, this Lot Number will appear on labels and receipts or be output to the PC as part of the data string. For instructions on how to set a temporary Lot Number not associated with an Item Code, see Section 5.8.3.7 below.

## 5.7 Setting a Sequence Number

The scale can maintain and print a sequence number to aid in transaction tracking and auditing. If the sequence number is set to “0”, no sequence number will be incremented or tracked. Otherwise the sequence number will automatically increment by 1 each time a label is printed by pressing the **+ (Plus)**, **- (Minus)**, or **\* PRINT** keys.

1. At the stand-by screen, press the **MODE** key twice to enter the Programming Mode.
2. Press and hold the **REZERO** key while entering [.] [.] [7]. The scale will go to the Sequence Number Reset screen.
3. To save the new sequence number and exit, press the **\* PRINT** key. To exit without saving the new sequence number, press the **CLEAR** key twice.

## 5.8 Operations Without Recalling an Item Code

The following sections describe ways to carry out operations without having to recall the Item codes.

### 5.8.1 A Single Counting Operation - Without Recalling an Item Code

At times you may want to perform a weighing and counting operation without recalling an Item Code from memory. This can be done from the keyboard in the Weighing Mode.

1. Place a 10 piece sample on the scale and press the **PIECES** key or enter the unit weight from the numeric keypad and press the **UNIT WEIGHT** key. The display will flash briefly, then return to normal.
2. To set a tare value, enter the tare from the numeric keypad and press the **TARE** key or place the container to be tared on the platter and press the **TARE** key.
3. Place the product to be weighed and counted on the platter. The total weight and pieces count will be displayed. If a printer is connected to the DC-788, you can print a label with the data by pressing the **\* PRINT** key.
4. To perform another weighing and counting operation, remove the product from the scale platter and press the **CLEAR** key.

### 5.8.2 Part Accumulation or Subtraction and Negative Counting - Without Recalling an Item Code

The DC-788 has the capability to acquire the total number of parts using the accumulation or reduction function of the scale (similar to the add/subtract functions of a calculator).

#### 5.8.2.2 Part Accumulation or Subtraction

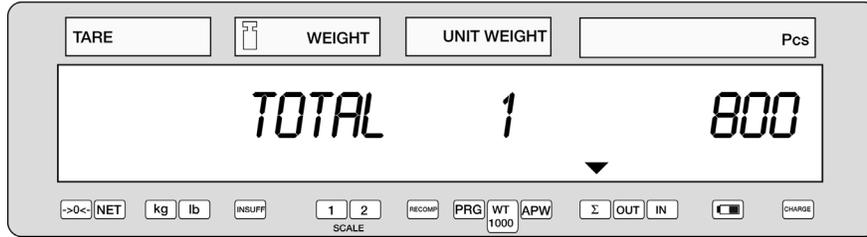
To find the total accumulated quantity of similar containers filled with parts, use the accumulation procedure detailed below. This does not affect the inventory quantity for this item in the scale’s memory. To add or subtract from inventory, see Section 5.9.3.

1. Enter the unit weight of the pieces (if known) or conduct a sampling process (Section 5.5.1) to determine the unit weight of the pieces. Press the **PCS** key.
2. Enter the known tare weight, or place an empty container on the scale to perform tare function (Section 5.4). Press the **TARE** key.

**NOTE:** *If SPC 3, Bit 1 - Negative Counting is set to 0: Allow, a quantity of pieces may be displayed if a tare is entered with no weight on the scale. (For more information on how to set customer specifications, see Section 3.1.1.)*

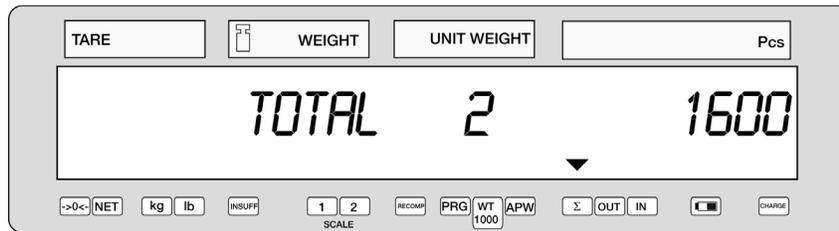
3. Place container 1 (full of parts) on the scale.
4. Press the **+ (Plus)** key to store the total in container 1. The Memory annunciator  $\Sigma$  is now illuminated. The weight display briefly shows  $\square\square RL 1$  and the quantity display shows the total pieces in the first

container.

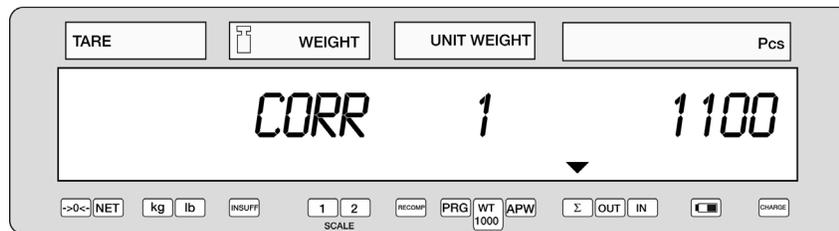


**Note:** If the DC-788 is connected to a printer or PC, the data will be printed or outputted each time the + (plus), - (minus) or \* PRINT keys are pressed. If SPC 32, Bit 3 - Exit From Accumulation Mode After 15 Sec Time Out is set to 0: Allow, the display will return to the weighing mode automatically after 15 seconds. If it is set to 1: Inhibit, you must press the CLEAR key to return to the weight display. (For more information on how to set the Weight and Measurement specifications, see Section 3.1.2.)

5. Remove container 1 and place container 2 (full of parts) on the scale.
6. Press the + (**Plus**) key (Total 2 is equal to container 1 plus container 2) The Memory indicator  $\Sigma$  will be illuminated.



7. Continue with the remainder of the containers to be counted. The total number of parts stored in all the containers will be stored in the accumulation register.
8. To subtract pieces from the accumulation, place the container to be subtracted on the platform and press the - (**Minus**) key. The display will show CORR and the number of pieces being subtracted. The Memory indicator  $\Sigma$  will continue to be illuminated.



Wait for the Total screen to clear and return to the Weighing Mode or press the **CLEAR** key.

9. When done with accumulation and subtraction, remove all products from the platter and press the **CLEAR** key to clear the Unit Weight. (Note: If you try to press the **CLEAR** key while there is data in the accumulation register, you will get an error message which says *MEM EXIST*. You must press the \* **PRINT** key to clear the accumulation register before the **CLEAR** key can be used to clear any unit weight data on the display.
10. Press the + (**Plus**) key to display the accumulated total when the Unit Weight is zero. Wait for the Total screen to clear and return to the Weighing Mode or press the **CLEAR** key.
11. Press the **TARE** key to clear the Tare Weight.
12. Press the + (**Plus**) key to display the total accumulation data. Wait for the Total screen to clear and return to the Weighing Mode or press the **CLEAR** key.
13. Enter [3] [6] from the keyboard and press the - (**Minus**) key to subtract the data. Wait for the Total screen

to clear and return to the Weighing Mode or press the **CLEAR** key.

14. Press the \* **PRINT** key to clear the accumulation register. The Memory indicator  $\Sigma$  will no longer be lit. If the DC-788 is connected to a printer or a PC, the total accumulation data will be printed or output.

### 5.8.2.3 Negative Counting

Just as you can count by adding parts to the scale, you can also count by removing parts from the scale. This is called “negative counting” because a negative weight is displayed while counting. Contrary to what may seem intuitively logical, you do not use the (-) key to do negative counting. The (-) key is only used to delete an entry in accumulation mode that you want to erase. This procedure does not affect the inventory quantity for this item stored in the scale. To reduce inventory, see Section 5.9.3.

**NOTE:** To utilize the negative counting feature, SPC 3, Bit 1 - Negative Counting must be set to “0: ALLOW”. (For information on setting Customer specifications, see Section 3.1.1.)

There are two ways to do this depending on whether at the end you want to see the total amount remaining in the container or the total amount removed from the container.

### 5.8.2.4 Counting Out of a Full Container - See Total Amount Remaining in the Container

To carry out this operation you must know the tare weight ahead of time.

1. Place the full container on the scale. Press the **TARE** key.
2. Remove a 10 piece sample to the container and press the **PIECES** key. After the unit weight has been calculated, return the 10 piece sample to the container.
3. Remove a number of parts from the container. The *QUANTITY* window of the scale display will show the number of pieces you have removed. This process can be repeated as many times as desired.
4. If at the end of the procedure, if you want to see how many remain in the bin or container, you first have to know the tare weight of the bin or container. After removing the parts you want to take out of the bin, simply digitally enter the tare weight of the bin and press the **TARE** key. The scale will display how many parts were left in the bin.

If a printer or PC is connected to the DC-788, pressing the \* **PRINT** key will print a label to put on the bin showing the new, lower, total quantity or output the data to the PC.

### 5.8.2.5 Negative Counting - Total Removed Displayed at the End

With this procedure you can count accurately out of a full container for kiting, shipping, etc. without having to know the tare weight of the container.

1. Place a full container on the scale and press **TARE**.
2. Remove a 10 piece sample from the container and press **PIECES**. After the unit weight has been calculated, return the 10 piece sample to the container.
3. Remove the number of pieces you need for kiting, shipping, etc. The amount removed will be displayed in the *QUANTITY* window. If you need a label for each kit or container and an external printer is connected to the DC-788, press the + (**Plus**) key after removing each batch of pieces. The Memory indicator  $\Sigma$  will be illuminated and the scale displays the accumulated total of pieces removed so far. Then press the **TARE** key.
4. After removing each batch of pieces, press the + (**Plus**) key, then the **TARE** key.
5. When you have removed the last batch of pieces, press the \* **PRINT** key to show the total number of pieces you have counted out of the full container. If a printer or PC is connected to the DC-788, pressing the \* **PRINT** key will print a label to put on the bin showing the number of pieces removed or output the data to the PC. The Memory indicator  $\Sigma$  will no longer be illuminated.

### 5.8.2.6 Clearing Accumulated Data

To clear accumulated data, press the \***PRINT** key. The Memory indicator  $\Sigma$  will no longer be illuminated. If you try to press the **CLEAR** key while there is data in the accumulation register, you will get an error message which says *MEMEXIST*. You must press the \* **PRINT** key to clear the accumulation register before the **CLEAR** key can be used to clear any unit weight data on the display.

## 5.8.3 Setting a Temporary Lot Number, Part Number or Part Name - Without Recalling an Item Code

The Lot Number, Part Number and Part Name of an Item Code can be changed temporarily from the weighing mode without affecting the information stored in memory with that Item Code.

### 5.8.3.7 Change the Lot Number Temporarily

1. In the Weighing Mode, enter a “1” as a command code from the keypad, then press the **MODE** key.
2. Using the ASCII characters in Table 8-2, enter a Lot Number of up to 32 characters to be used temporarily.
3. Store the data by pressing the \* **PRINT** key or press the **MODE** or **TARE** keys to return to the Weighing Mode without saving the change.

### 5.8.3.8 Change the Part Number Temporarily

1. In the Weighing Mode, enter a “2” as a command code from the keypad, then press the **MODE** key.
2. Using the ASCII characters in Table 8-2, enter a Part Number of up to 16 characters to be used temporarily.
3. Store the data by pressing the \* **PRINT** key or press the **MODE** or **TARE** keys to return to the Weighing Mode without saving the change.

### 5.8.3.9 Change the Part Name Temporarily

1. In the Weighing Mode, enter a “3” as a command code from the keypad, then press the **MODE** key.
2. Using the ASCII characters in Table 8-2, enter a Part Name of up to 32 characters to be used temporarily.
3. Store the data by pressing the \* **PRINT** key or press the **MODE** or **TARE** keys to return to the Weighing Mode without saving the change.

## 5.9 Using Item Codes in Weighing Mode

The following paragraphs describe the procedure to recall item codes, view the information stored in memory with an Item Code, carry out inventory operations related to the item code quantity, and delete an item code.

### 5.9.1 Recalling Item Codes using Item Code Number

The following procedure allows you recall item codes stored in memory.

1. To enter a numeric Item Code, enter the item code number using the numeric keypad. To enter an alphanumeric item code, press the **[.] (Decimal)** key to enter the ASCII mode. Enter item code number using the ASCII codes in Table 8-2.
2. Press the **CODE/IN-OUT** key.

If an Item Code not stored in memory is entered, the scale will display the error message *NOT F* (indicating NOT FOUND) next to the code entered. Press the **CLEAR** key to return to the weighing mode and enter a correct Item Code. (See Section 6.2 on how to display the item codes currently programmed in memory.)

If an Item Code existing in memory is entered, the stored Unit Weight will be displayed after the **CODE/IN-OUT** key is pressed. Weighing operations can now be carried out utilizing the Tare Weight, Unit Weight, Inventory Quantity, and Set Point stored with that Item Code.

If you do not want the weighing and counting operations to affect the Inventory Quantity for a recalled Item Code, press the **CODE/IN-OUT** key until the the In/Out indicator is no longer illuminated. (The Inventory indicator will cycle from Out to In to not present as you press the **CODE/IN-OUT** key.

Press the **CLEAR** key to clear the item information and return to stand-by status.

### 5.9.2 View Item Information

The following procedure shows how to call up on the display a specific data field stored with an Item Code (Item Code, Part Number, Part Name, Lot Number, and Inventory Quantity). The data associated with the item in memory cannot be changed in this mode.

1. Recall the item from memory by entering the Item Code and pressing the **CODE/IN-OUT** key. Numeric item codes can be entered from the numeric keypad. To enter an alphanumeric item code, press the **[.] (Decimal)** key to enter the ASCII mode. Enter item code number using the ASCII codes in Table 8-2.
2. Press the **SCALE** key repeatedly to scroll between the Item Code, Part Number, Part Name, Lot Number, and Inventory Quantity currently stored in memory. You can exit to the Weighing Mode at any time by pressing the **TARE** key.
3. Once all the fields have been scrolled through the scale will return you to the Weighing Mode, with the Unit Weight for the Item Code you entered being displayed.

### 5.9.3 Adding Parts To and Subtracting Parts From Inventory

The DC-788 is a self-contained inventory control system, capable of tracking movement of up to 100 items. In order to track the inventory of an item, it must first have been programmed into the DC-788's memory. The following procedure is used to add inventory to and remove inventory from an Item Code's memory using the In and Out functions.

**Note:** *The Inventory IN and OUT functions are enabled by pressing the # **CODE/IN-OUT** key. When adding inventory quantities to an item code in memory you can add or subtract a single quantity or multiple quantities one after the other (if, for example, you are receiving, sending or counting several bins or boxes of the same part).*

#### To Add or Subtract a Single Quantity to the Inventory of an Item Code in Memory

1. Recall the item from memory by entering the Item Code and pressing the **CODE/IN-OUT** key. Numeric item codes can be entered from the numeric keypad. To enter an alphanumeric item code, press the **[.] (Decimal)** key to enter the ASCII mode. Enter item code number using the ASCII codes in Table 8-2.
2. When an Item Code is recalled from memory, the Inventory indicator will start out pointing to *OUT*, meaning that inventory quantities will be subtracted. To add a quantity to inventory, press the **CODE/IN-OUT** key once. The Inventory indicator will move from *OUT* to *IN*, indicating that inventory will be added.
3. If the tare weight and unit weight have already been associated with the Item Code in memory, you can go to Step 5. Otherwise key in the known tare weight or put the empty bin on the scale and press the **TARE** key.
4. If the unit weight has already been associated with the Item Code in memory, you can go to Step 5. Otherwise place a sample of 10 pieces in the bin on the scale. For accuracy it is best to put the pieces in the same bin used to find the tare weight in Step 3. Press the **PCS** key.
5. Either pour into the bin the remaining pieces to be added or subtracted to inventory or, if the tare weight and the unit weight of the item were already programmed into the scale, put the full container on the scale. The DC-788 will display the Tare Weight, Total Weight, Unit Weight, and Quantity of the pieces of the container.
6. Press the **\* PRINT** key to add or subtract the quantity shown on the display to the amount already stored under the item code memory. The Memory indicator  $\Sigma$  will no longer be illuminated. If an external printer or PC are connected to the DC-788, pressing the **\* PRINT** key will print or output the data.
7. To view the updated inventory total, press the **SCALE** key until the scale displays *INVENT*. To exit the inventory display, press the **TARE** key to exit to the Weighing Mode or continue to press the **SCALE** key until you cycle back to the Weighing Mode.
8. Remove the parts from the platter and press the **CLEAR** key to exit this item code. The In or Out indicators will no longer be illuminated.

#### To Add or Subtract Multiple Quantities to the Inventory of an Item Code in Memory

1. Recall the item from memory by entering the Item Code and pressing the **CODE/IN-OUT** key. Numeric item codes can be entered from the numeric keypad. To enter an alphanumeric item code, press the **[.] (Decimal)** key to enter the ASCII mode. Enter item code number using the ASCII codes in Table 8-2.
2. When an Item Code is recalled from memory, the inventory indicator will start out pointing to *Out*, meaning that inventory quantities will be subtracted. To add a quantity to inventory, press the **CODE/IN-OUT** key once. The inventory indicator will move from *Out* to *In*, indicating that inventory will be added.
3. If the tare weight and unit weight have already been associated with the Item Code in memory, you can go the Step 5. Otherwise key in the known tare weight or put the empty bin on the scale and press the **TARE** key.
4. If the unit weight has already been associated with the Item Code in memory, you can go to Step 5. Otherwise place a sample of 10 pieces in the bin on the scale. For accuracy it is best to put the pieces in the same bin used to find the tare weight in Step 3. Press the **PCS** key.
5. Either pour into the bin the remaining pieces to be added or subtracted to inventory or, if the tare weight and the unit weight of the item were already programmed into the scale, put the full container on the scale. The DC-788 will display the Tare Weight, Total Weight, Unit Weight, and Quantity of the pieces of the container.

6. Press the **+** (**Plus**) key. The Memory annunciator The Memory indicator  $\Sigma$  will light up and the scale will display the Total accumulated so far.
7. Remove the first container of parts from the platter and place the second container on the platter. Press the **+** (**Plus**) key to add or subtract these parts to/from inventory. Each time you press the **+** (**Plus**) key, the scale will display the Total accumulated so far.
8. Repeat Step 7 above until you are done adding or subtracting all the bins or boxes of this item.
9. Press the **\* PRINT** key to add or subtract the quantity shown on the display to the amount already stored under the item code memory. The Memory indicator  $\Sigma$  will no longer be illuminated. If an external printer or PC are connected to the DC-788, pressing the **\* PRINT** key will print or output the data.
10. To view the updated inventory total, press the **SCALE** key until the scale displays *INVENT*. To exit the inventory display, press the **TARE** key to exit to the Weighing Mode or continue to press the **SCALE** key until you cycle back to the Weighing Mode.
11. Remove the parts from the platter and press the **CLEAR** key to exit this item code. The In or Out indicators will no longer be illuminated. (Note: If you try to press the **CLEAR** key while there is data in the accumulation register, you will get an error message which says *MEM EXIST*. You must press the **\* PRINT** key to clear the accumulation register before the **CLEAR** key can be used to clear any unit weight data on the display.)

#### 5.9.4 Tare Override

This function allows you to temporarily override the tare weight called up with an Item Code. The change does not affect the tare weight programmed in memory with the Item Code.

1. Remove any bin or container from the scale.
2. Recall the Item Code information from memory by entering a numeric Item Code from the numeric keypad or enter an alphanumeric item code by pressing the **[.]** (**Decimal**) key to enter the ASCII mode and using the ASCII codes listed in Table 8-2. Then press the **CODE/IN-OUT** key.
3. The scale will display the information programmed in memory for that Item Code, including the Tare Weight (if one was programmed).
4. If the new tare weight value is known, use the numeric keypad to key in the value and then press **TARE**. The weight display will now show the new tare as a negative number and the *Net* indicator will illuminate.

If the new tare weight value is not known, put the container to be tared out on the platter and press the **TARE** key. The new tare will be entered, the weight display will show *0.000* and the *Net* indicator will illuminate.

5. You may now either place the product on the platter for weighing and counting or press the **CLEAR** key to return to the stand-by screen. If an external printer is connected to the DC-788, you can print a receipt or a label for the product by pressing the **\* PRINT** key while the product is still on the platter. To clear the tare weight just entered when you return to the weighing screen, press the **TARE** key again.

#### 5.9.5 Delete Item Memory

Deletion of an Item Code with all of its associated information (Part Name, Part Number, Lot Number, Tare Weight, Unit Weight, Inventory Quantity, and Setpoints) can only be done from the item programming mode. See Section 6.8 for procedures on deleting item codes or specific items associated with item codes.

## 6.0 Scale Programming

The DC-788 can store information for the parts you count most frequently, eliminating the need for re-entering data during parts counting. With each Item Code you can specify a Tare Weight, Unit Weight, Part Number, Part Name, Lot Number, Inventory Quantity and Setpoint Value. With up to 100 item code numbers able to be programmed into your DC-788 counting scale, the unit can act as a stand-alone inventory system.

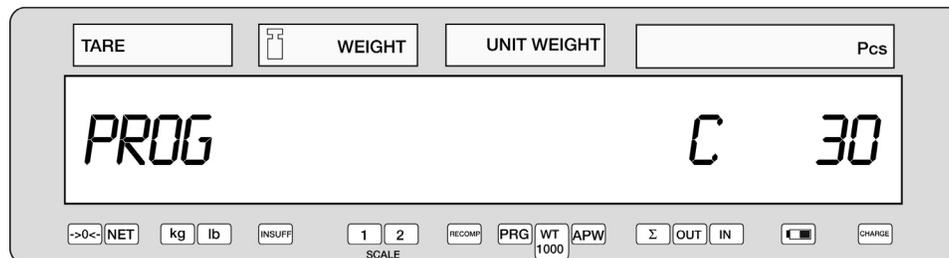
In any entering of data on the DC-788, you can use the following functions of the keyboard:

Key	Description
	To move the cursor to the right
	To move the cursor to the left
	To delete a character

Table 6-1. Item Storage Function Code Keys

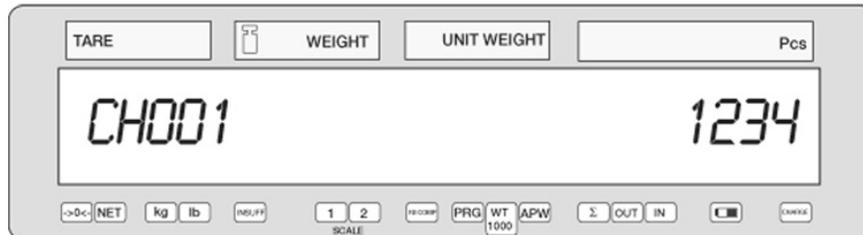
### 6.1 Checking Memory Status

To see how many items of the 100 capacity have already been programmed, press the **MODE** key twice to enter the Programming Mode. The display will show *PROG* and the scale will display the *PRG* indicator, indicating the that you are in the programming mode, will illuminate. The total number of Item Codes currently in memory will appear in the **PCS** column on the display.



## 6.2 Review the Item Code Numbers Programmed in Memory

To see what Item Codes are currently programmed in the DC-788's memory, press the **MODE** key twice to enter the Programming Mode. Then press the **CODE/IN-OUT** key to show the first Item Code number in memory. The left-hand side of the display will show the memory position starting with 001, while the right-hand side of the display will show the Item Code number you programmed in. (memory position 001 and Item Code 1234 in the example below)



You can scroll through the item codes in memory by pressing the **+** (**Plus**) and **-** (**Minus**) keys.

## 6.3 Program Item Code, Tare Weight, Unit Weight, Inventory, Part Number, Part Name, Lot Number, Setpoint 1 and Setpoint 2

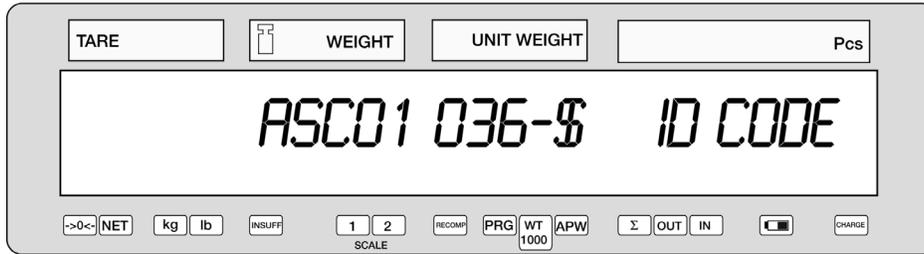
The DC-788 has the capacity to store information on up to 100 items, making it a self-contained inventory system. This section details the procedure for storing the item code, tare weight, unit weight, inventory level, part number, part name, lot number and set points to be associated with an item code. You can enter all of this information for each item code or only the data pertinent to your application. To exit at any time without saving your data press the **TARE** key. The memory fields associated with item codes can be programmed subject to the following parameters:

Parameters	Format and Maximum Length
Item Code	10 digits numeric or alphanumeric data
Part No	10 digits alphanumeric data
Part Name	10 digits alphanumeric data
Lot Number	10 digits alphanumeric data
Tare Weight	5 digits plus the decimal point
Unit Weight	5 digits plus the decimal point
Inventory	8 digits numeric
Setpoint Value	2 points

Table 6-2. Format and Length of Item Code Memory Fields

1. Press **MODE** key twice to enter the Programming Mode. The display will show *PRG*. The *PRG* indicator, indicating that you are in the programming mode, will illuminate. The number of items currently programmed into memory will appear in the *QTY* column on the scale display.
2. Enter the Item Code number. The maximum length of the field is 10 characters. To enter an alphanumeric character, press the **[DECIMAL]** key and use the ASCII characters listed in Table 8-2. When entering alphanumeric characters using the ASCII codes, the *Unit Weight* display will briefly show the code you enter from the ASCII table, followed by the character that will be stored. The *PCS*

display will show the field that the data is being entered for.



Once the display of this character clears, the scale is ready to accept your next ASCII code.

**NOTE:** If you enter an Item Code that has already been stored in memory, the scale will ask you if you want to clear the stored data associated with that Item Code. You can press the **CLEAR** key to erase the existing data and reprogram that Item Code, or press the **MODE** key to return to the Programming screen and enter a new Item Code.

To store the Item Code and go on to program the tare weight, press the **CODE/IN-OUT** key.

3. Enter the tare weight value (refer to Section 5.4). The tare weight is limited to 5 digits plus the decimal symbol. This can be done by placing the bin, box or container on the platform and pressing the **TARE** key or by digital entry. Note that if you enter a tare weight here to be associated in memory with this Item Code, when you recall an Item Code this stored Tare Weight will override any Tare Weight you have digitally entered into the scale or entered using the **TARE** key.
4. Enter Unit Weight (refer to Section 5.5). The unit weight is limited to 5 digits plus the decimal symbol. This can be done by sampling if the unit weight is unknown or by digital entry if known. Press the **\* PRINT** key to store the unit weight.
5. To store an Inventory level, press the **INVENT** key. Then enter an inventory quantity of up to 8 digits. Press the **\* PRINT** key to store the Inventory level and move to the Part Number field.
6. In the Part Number field, the scale will automatically be in alphanumeric mode. Using the ASCII characters in Table 8-2, enter a Part Number of up to 16 characters, Then press the **\* PRINT** key to store the Part Number and move to the Part Name.
7. In the Part Name field the scale will again be automatically in alphanumeric mode. Using the ASCII characters in Table 8-2, enter a Part Name of up to 32 characters. Then press the **\* PRINT** key to store the Part Name and move to the Lot Number.
8. Lot Numbers can also be alphanumeric, up to 32 characters. Using the ASCII characters in Table 8-2, enter a Lot Number. Then press the **\* PRINT** key to store the Lot Number and move to Setpoint 1.
9. SPC 04, Bits 1 and 0 - Setpoint Type determines what type of setpoint you are programming: 00: % Quantity, 01: % Weight, 10: Quantity, or 11: Weight. The setpoints are programmed by entering and storing a value (Setpoint 1) and then entering and storing a percentage or amount (Setpoint 2). Enter the value for Setpoint 1 (Ex. 100 pcs) and press the **+ (Plus)** key to advance to Setpoint 2. (For instructions on how to program Customer specifications, see Table 3.1.1.)
10. Enter a value for Setpoint 2 (Ex. 85%) and press the **\* PRINT** key to store the value.

**NOTE:**

- There are four types of setpoints which can be selected by setting SPC 04, Bits 1 and 0: % of Quantity (%QTY), % of Weight (%WT), Over/Under Quantity (QTY), or Over/Under Weight (WT).
- When entering weight setpoints, be sure that you enter in the weight values with decimal point and all leading and trailing zeros.
- All percentage values must be rounded to the nearest whole number, fractional percentages are not allowed.
- Setpoints involving % of quantity or weight are limited by the decimal places available on the display. For example: if Set Point value 1 specifies a Quantity of 9999999, then a Set Point value 2 of % of Quantity cannot be set for more than 100% because all 7 digits of the display are already in use.

Table 6-3 below shows what to enter in each of the two set point values to program each type of set point. The alarm sounds with a rhythmic beeping at setpoint one and with a rapid beeping at setpoint two. For the Setpoint Alarm to be activated, SPC 02:

SET POINT ALARM must be set to "0: ON". See Section 3.1.1 for instructions on how to set Customer specifications.).

	% QTY	QTY	% WEIGHT	WT
Program Set Point 1 value with . . .	target quantity	low value	target weight	low value
Program Set Point 2 value with . . .	% of quantity	target value	% of weight	target value

Table 6-3. Setpoint Configuration

Here are some examples of how the setpoints can be programmed. These examples can be adjusted to fit your application.

Setpoint Types	% QTY	QTY	% WEIGHT	WT
Setpoint 1	80 pieces (target)	50 pieces	2.0 lb (target)	1.2 lb
Setpoint 2	80%	75 pieces (target)	50%	1.5 lb (target)
Equation	80 x 80% = 64	N/A	2.0 x 50% = 1.0	N/A
Slow Beeping Occurs At	64 pieces	50 pieces	1.0 lb	1.2 lb
Rapid Beeping Occurs At	80 pieces	75 pieces	2.0 lb	1.5 lb

Table 6-4. Setpoint Examples

11. Press the **+** (**Plus**) key to finish the programming cycle for this Item Code. If you wish to program another Item Code's information, enter a new Item Code and press the **CODE/IN-OUT** key.
12. When you are finished programming item codes, press the **MODE** key to exit the Programming Mode and return to the Weighing Mode.

## 6.4 View Item Code Programming in Memory

The following procedure allows you to view the information (tare weight, unit weight, inventory quantity, part number, part name, lot number and setpoint) stored in memory with an Item Code but will not change any of the information these codes.

Starting in the weighing mode, item codes can be recalled by entering the Item Code and pressing the **CODE/IN-OUT** key. Numeric item codes can be entered from the numeric keypad. To enter an alphanumeric item code, press the **[.]** (**Decimal**) key to enter the ASCII mode. Enter item code number using the ASCII codes in Table 8-2.

If an Item Code not stored in memory is entered, the scale will display the error message *NOTF* indicating "Not Found". Press the **CLEAR** key to clear the item information and return to the weighing mode to enter another Item Code.

If an Item Code existing in memory is entered, the unit weight will be displayed after the **CODE/IN-OUT** key is pressed. Press the **SCALE** key to scroll, in order, through the *ICODE* (Item Code), *P* (Part Number), *P* (Part Name), *L* (Lot Number), and *INVENT* (Inventory Quantity) programmed with this item code. After Inventory Quantity, the display will return to the Unit Weight display.

Press the **CLEAR** key to escape from the review mode and return to the weighing mode.

## 6.5 Program a General Setpoint

You can program the DC-788 with a setpoint that will be enabled either when no Item Code is called up or when an Item Code is called up from memory that has no setpoint already associated with it in programming.

1. Press the **MODE** key twice to enter the Programming Mode. The scale display will show *P**G*.
2. SPC 04, Bits 1 and 0 - Setpoint Type determines what type of setpoint you are programming: 00: % Quantity, 01: % Weight, 10: Quantity, or 11: Weight. (For instructions on how to program Customer specifications, see Section 3.1.1.) The setpoints are programmed by entering and storing a value (Setpoint 1) and then entering and storing a percentage or amount (Setpoint 2). Enter the value for Setpoint 1 (Ex. 100 pcs) and press the **+** (**Plus**) key to save the change and advance to Setpoint 2.
3. Enter a value for Setpoint 2 and press the **+** (**Plus**) key to store the value and return to the Programming Mode Screen

**NOTE:**

- There are four types of setpoints which can be selected by setting SPC 04, Bits 1 and 0: % of Quantity (%QTY), % of Weight (%WT), Over/Under Quantity (QTY), or Over/Under Weight (WT).
- When entering weight setpoints, be sure that you enter in the weight values with decimal point and all leading and trailing zeros.
- All percentage values must be rounded to the nearest whole number, fractional percentages are not allowed.
- Setpoints involving % of quantity or weight are limited by the decimal places available on the display. For example: if Set Point value 1 specifies a Quantity of 9999999, then a Set Point value 2 of % of Quantity cannot be set for more than 100% because all 7 digits of the display are already in use.

Table 6-5 below shows what to enter in each of the two set point values to program each type of set point. The alarm sounds with a rhythmic beeping at setpoint one and with a rapid beeping at setpoint two. For the Setpoint Alarm to be activated, SPC 02: SET POINT ALARM must be set to "0: ON". See Section 3.1.1 for instructions on how to set Customer specifications.

	% QTY	QTY	% WEIGHT	WT
Program Set Point 1 value with . . .	target quantity	low value	target weight	low value
Program Set Point 2 value with . . .	% of quantity	target value	% of weight	target value

Table 6-5. Setpoint Configuration

Here are some examples of how the setpoints can be programmed. These examples can be adjusted to fit your application.

Setpoint Types	% QTY	QTY	% WEIGHT	WT
Setpoint 1	80 pieces (target)	50 pieces	2.0 lb (target)	1.2 lb
Setpoint 2	80%	75 pieces (target)	50%	1.5 lb (target)
Equation	$80 \times 80\% = 64$	N/A	$2.0 \times 50\% = 1.0$	N/A
Slow Beeping Occurs At	64 pieces	50 pieces	1.0 lb	1.2 lb
Rapid Beeping Occurs At	80 pieces	75 pieces	2.0 lb	1.5 lb

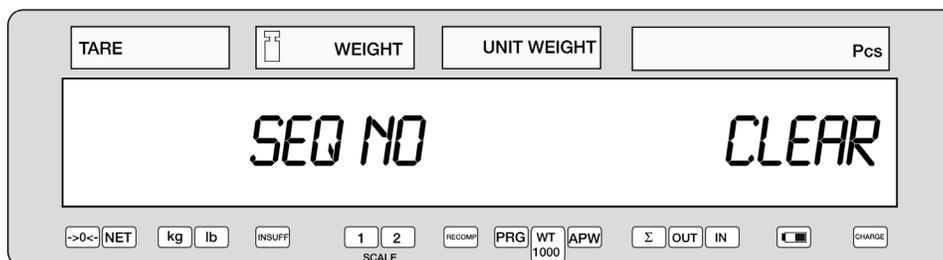
Table 6-6. Setpoint Examples

4. Press the **MODE** key to quit the Programming Mode and return to the Weighing Mode.

## 6.6 Resetting the Sequence Number to Zero

The DC-788 has the ability to increment a sequence number every time a transaction is printed by pressing the **+** (Plus), **-** (Minus), or **\* PRINT** keys. The sequence number can be reset to zero by carrying out the following procedure:

1. From the Weighing Mode, press the **MODE** key twice to enter the Programming Mode.
2. While holding down the **REZERO** key, enter [.] [.] [7]. The display will read:



3. To reset the Sequence Number to zero, press the **CLEAR** key, or press the **MODE** key to exit without resetting the Sequence Number.
4. Press the **MODE** key to return to the Weighing Mode.

## 6.7 Programming a Temporary Lot Number, Part Number or Part Name

The Lot Number, Part Number and Part Name of an Item Code can be changed temporarily from the weighing mode without affecting the information stored in memory with that Item Code.

### 6.7.1 Change the Lot Number Temporarily

1. In the Weighing Mode, enter a “1” as a command code from the keypad, then press the **MODE** key.
2. Using the ASCII characters in Table 8-2, enter a Lot Number of up to 32 characters to be used temporarily.
3. Store the data by pressing the \* **PRINT** key or press the **MODE** or **TARE** keys to return to the Weighing Mode without saving the change.

### 6.7.2 Change the Part Number Temporarily

1. In the Weighing Mode, enter a “2” as a command code from the keypad, then press the **MODE** key.
2. Using the ASCII characters in Table 8-2, enter a Part Number of up to 16 characters to be used temporarily.
3. Store the data by pressing the \* **PRINT** key or press the **MODE** or **TARE** keys to return to the Weighing Mode without saving the change.

### 6.7.3 Change the Part Name Temporarily

1. In the Weighing Mode, enter a “3” as a command code from the keypad, then press the **MODE** key.
2. Using the ASCII characters in Table 8-2, enter a Part Name of up to 32 characters to be used temporarily.
3. Store the data by pressing the \* **PRINT** key or press the **MODE** or **TARE** keys to return to the Weighing Mode without saving the change.

## 6.8 Delete Item Memory

The DC-788 offers you options to delete all items in memory, the values in one field across all items, or individual fields associated with a specific Item Code.

### 6.8.1 Delete All Item Codes in Memory

The following procedure describes the steps used to delete *ALL* information stored within each Item Code (tare weight, unit weight, inventory quantity, part number, part name, lot number and setpoints).

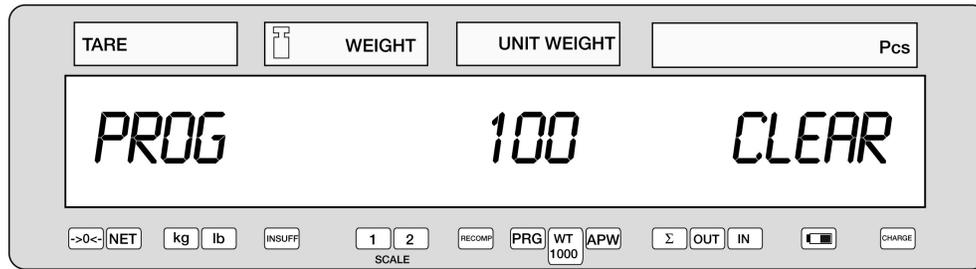
1. Press **MODE** key twice to enter the Programming Mode. The scale display will show *PRG*.
2. Press the **REZERO** key once. The display will show all 8's, then return to the Programming display.
3. Hold the **REZERO** key while entering [.] [.] [0]
4. To delete all item codes in memory, press the **CLEAR** key. or press the **MODE** key to exit to the Programming screen without deleting the item codes. If you pressed the **CLEAR** key, all the item codes in memory will be deleted.
5. To exit to the weighing mode without clearing the memory, press the **MODE** key.

### 6.8.2 Delete a Specific Item Code

The following procedure describes the steps used to delete a single specific Item Code together with all of its associated information (tare weight, unit weight, inventory quantity, part number, part name, lot number and set point).

1. Press **MODE** key twice to enter the Programming Mode. The scale display will show *PRG*.
2. Enter the Item Code you wish to delete (the Item Code will appear in the *Unit Weight* display) and press the **CODE/IN-OUT** key. Numeric item codes can be entered from the numeric keypad. To enter an alphanumeric item code, press the **[.] (Decimal)** key to enter the ASCII mode. Enter item code number using the ASCII codes in Table 8-2.
3. If the Item Code you entered does not exist in memory, the scale simply returns to the Weighing Mode.

If you have entered an existing Item Code, the display will ask you to confirm that you want to delete.



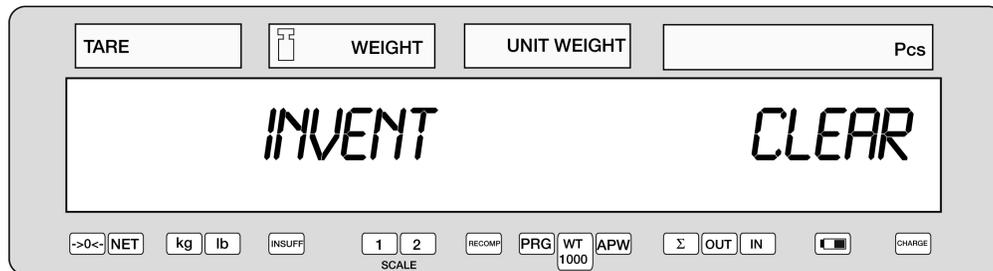
Press the **CLEAR** key to delete this Item Code and all of its data, or press the **MODE** key to cancel the deletion. If you pressed the **CLEAR** key, the Item Code will be deleted and the scale will return to the Programming Mode screen.

4. To return to the Weighing Mode, press the **MODE** key once.

### 6.8.3 Delete All Inventory Values from Memory

To clear all the inventory quantities associated with Item Codes in memory, perform the following steps.

1. Press **MODE** key twice to enter the Programming Mode. The scale display will show *PROG*.
2. Press the **REZERO** key once. The display will show all 8's briefly, then return to the Programming screen.
3. Hold the **REZERO** key while entering [.] [.] [1] The display will ask you to confirm that you want to delete.



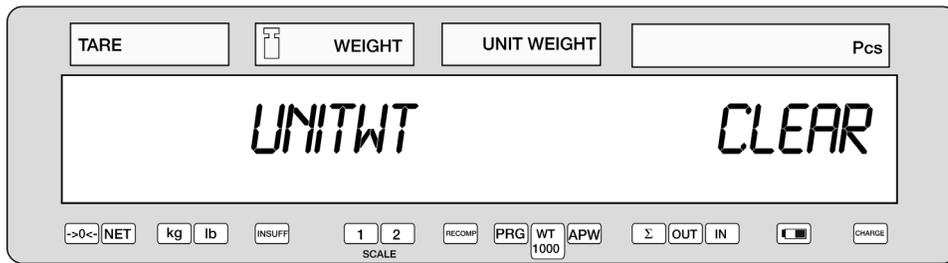
4. Press the **CLEAR** key to delete all inventory values in memory, or press the **MODE** key to cancel the deletion. If you pressed the **CLEAR** key, the inventory values will be deleted and the scale will return to the Programming Mode screen.
5. To return to the Weighing Mode, press the **MODE** key once.

### 6.8.4 Delete All Unit Weight Values from Memory

To clear all the unit weights associated with Item Codes in memory, perform the following steps.

1. Press **MODE** key twice to enter the Programming Mode. The scale display will show *PROG*.
2. Press the **REZERO** key once. The display will show all 8's briefly, then return to the Programming screen.
3. Hold the **REZERO** key while entering [.] [.] [2] The display will ask you to confirm that you want to

delete.

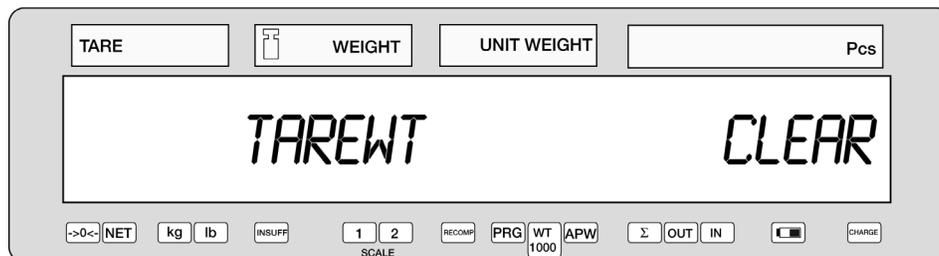


4. Press the **CLEAR** key to delete all unit weights in memory, or press the **MODE** key to cancel the deletion. If you pressed the **CLEAR** key, the unit weights will be deleted and the scale will return to the Programming Mode screen.
5. To return to the Weighing Mode, press the **MODE** key once.

### 6.8.5 Delete All Tare Weight Values From Memory

To clear all the tare weights associated with Item Codes in memory, perform the following steps.

1. Press **MODE** key twice to enter the Programming Mode. The scale display will show *PRG*.
2. Press the **REZERO** key once. The display will show all 8's briefly, then return to the Programming screen.
3. Hold the **REZERO** key while entering [.] [.] [3] The display will ask you to confirm that you want to delete.



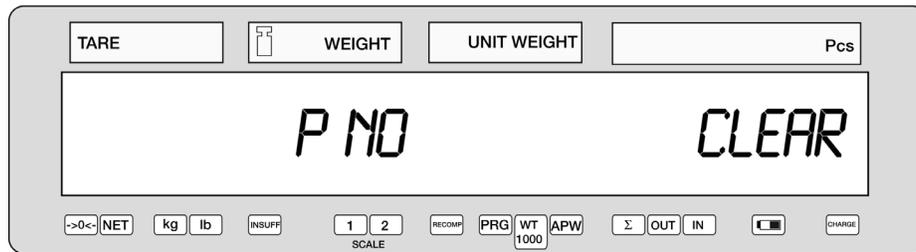
4. Press the **CLEAR** key to delete all tare weights in memory, or press the **MODE** key to cancel the deletion. If you pressed the **CLEAR** key, the tare weights will be deleted and the scale will return to the Programming Mode screen.
5. To return to the Weighing Mode, press the **MODE** key once.

### 6.8.6 Delete all Part Numbers From Memory

To clear all the part numbers associated with Item Codes in memory, perform the following steps.

1. Press **MODE** key twice to enter the Programming Mode. The scale display will show *PRG*.
2. Press the **REZERO** key once. The display will show all 8's briefly, then return to the Programming screen.
3. Hold the **REZERO** key while entering [.] [.] [4] The display will ask you to confirm that you want to

delete.

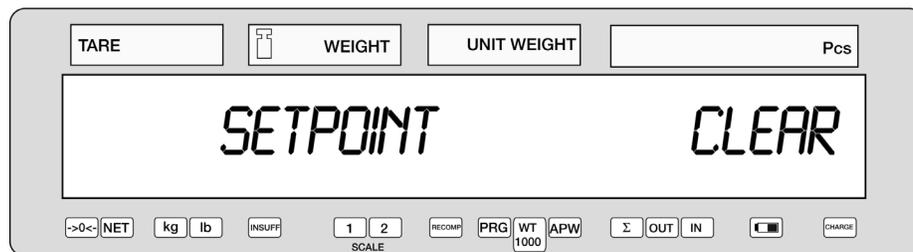


4. Press the **CLEAR** key to delete all part numbers in memory, or press the **MODE** key to cancel the deletion. If you pressed the **CLEAR** key, the part numbers will be deleted and the scale will return to the Programming Mode screen.
5. To return to the Weighing Mode, press the **MODE** key once.

### 6.8.7 Delete All Setpoint Data in Memory

To clear all the setpoint data associated with Item Codes in memory, perform the following steps.

1. Press **MODE** key twice to enter the Programming Mode. The scale display will show *PROG*.
2. Press the **REZERO** key once. The display will show all 8's briefly, then return to the Programming screen.
3. Hold the **REZERO** key while entering [.] [.] [5] The display will ask you to confirm that you want to delete.



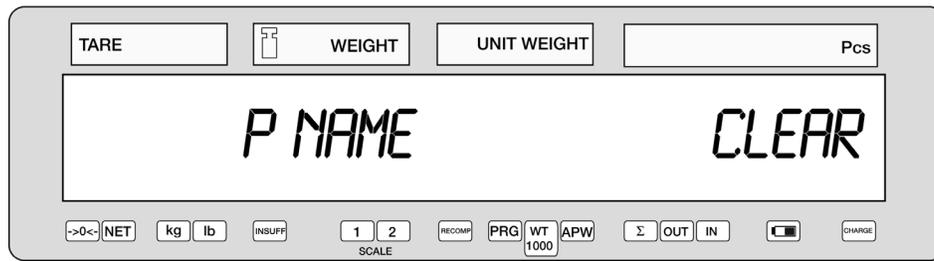
4. Press the **CLEAR** key to delete all setpoint data in memory, or press the **MODE** key to cancel the deletion. If you pressed the **CLEAR** key, the setpoint data will be deleted and the scale will return to the Programming Mode screen.
5. To return to the Weighing Mode, press the **MODE** key once.

### 6.8.8 Delete All Part Names in Memory

To clear all the part names associated with Item Codes in memory, perform the following steps.

1. Press **MODE** key twice to enter the Programming Mode. The scale display will show *PROG*.
2. Press the **REZERO** key once. The display will show all 8's briefly, then return to the Programming screen.
3. Hold the **REZERO** key while entering [.] [.] [6] The display will ask you to confirm that you want to

delete.



4. Press the **CLEAR** key to delete all part names in memory, or press the **MODE** key to cancel the deletion. If you pressed the **CLEAR** key, the part names will be deleted and the scale will return to the Programming Mode screen.
5. To return to the Weighing Mode, press the **MODE** key once.

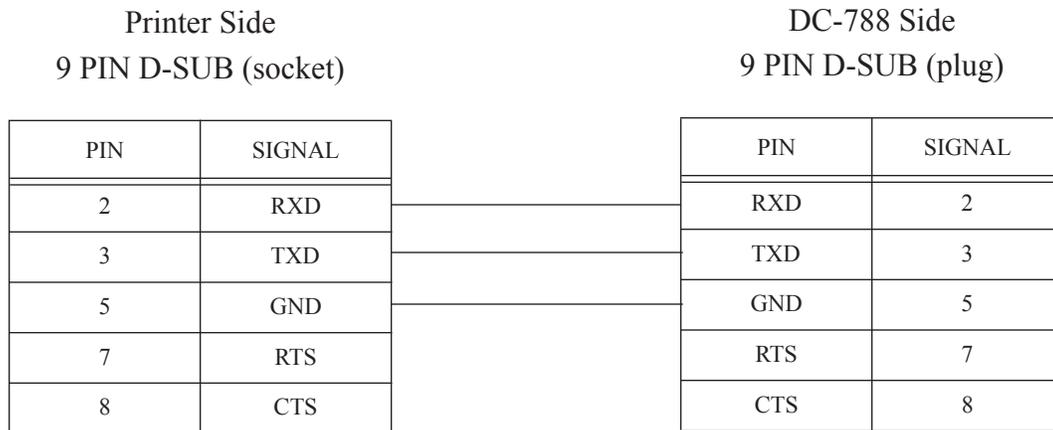
## 7.0 External Devices: Printers, PCs and Scales

The DC-788 Counting Scale is equipped with an RS-232C port that allows the scale to communicate with either an external printer or a PC. SPC 05, Bit 3 and Bit 2-Function of RS-232C Interface must be set to 00: PC or 01: Printer for communication to take place (For instructions on how to program Customer specifications, see Section 3.1.1.). It also comes standard with a remote scale channel that enables you to add a second channel (See Section 7.4 for instructions on how to program the remote scale channel.)

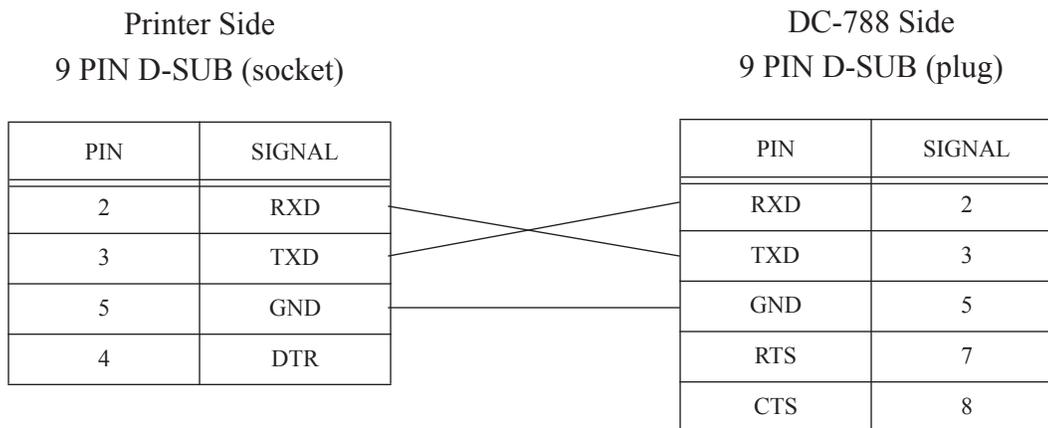
### 7.1 Printer Connection

Because the DC-788 downloads label formats to external printers in some circumstances (see Section 7.2 below) external printers should be connected to the DC-788 and powered on before powering up the DC-788. The type and configuration of the printer cable needed will vary by printer. Below are the pin assignments for the connectors to the external printers that can be specified in SPC 09 - External Printer Type.

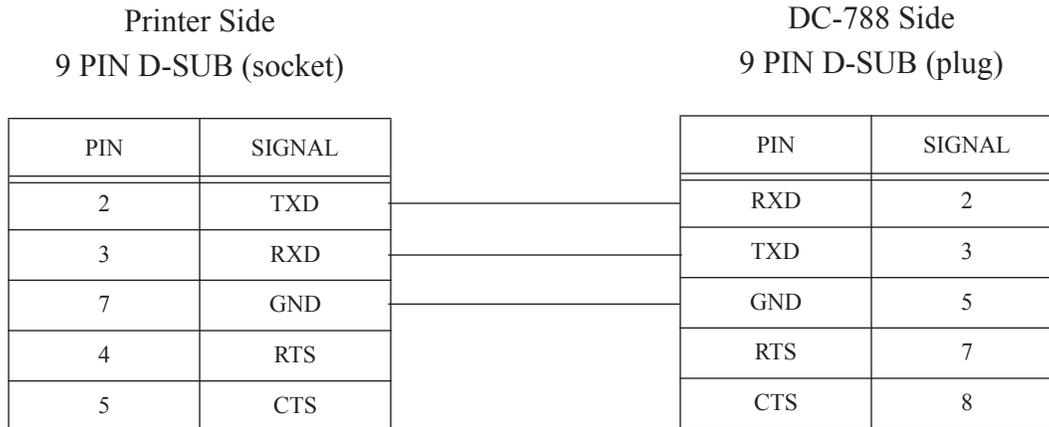
#### 7.1.1 Zebra LP2844



#### 7.1.2 DIGI GP460R



### 7.1.3 Epson TM-U210 and TM-U290, Star SP2320 and SP298



## 7.2 Printer Label Formats

SPC09 - External Printer Type sets the type of printer that is connected to the scale. This determines the format and content of the data that is transmitted to the printer. You have the following options:

### 7.2.1 No Printer

Set SPC09 to 0000, meaning that no printer is connected. No data will be output.

### 7.2.2 DIGI GP460R Label Printer

Set SPC09 to 0001. The DIGI GP460R Label Printer uses a label format native to the printer itself.

### 7.2.3 ZEBRA LP2844 Barcode Printer

Set SPC09 to 0010. The Zebra LP2844 Barcode Printer offers the maximum flexibility in label formatting, including a pre programmed or default format and seven user-programmable formats. Which format will be printed is set by SPC13, Bits 2, 1, and 0 - External Printer Print Format. When SPC13 is set to 000: Default Format, the DC-788 downloads the default format to the printer during power up. This default label format is named "L0". When SPC13 is set to 001 ~ 111 Customer Formats 1-7, label formats are programmed on a PC using the printer's application software, saved with the names "L1" to "L7", and then downloaded to the printer.

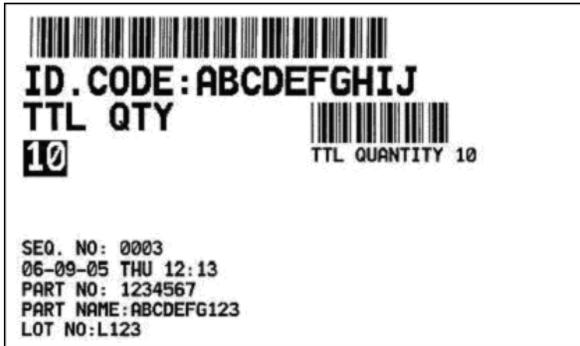
The default label format is for a 60 x 100 mm label with Code 39 standard barcodes. Its content will vary depending on whether you are recalling an Item Code from memory or not and whether you are printing a Total or Item Label. The default formats look like the following:



*Zebra LP2844 Default Item Label While Recalling an Item Code*

Prints when recalling an Item Code from memory and accumulating, then printing by pressing the **+** (Plus) or **-** (Minus) key.

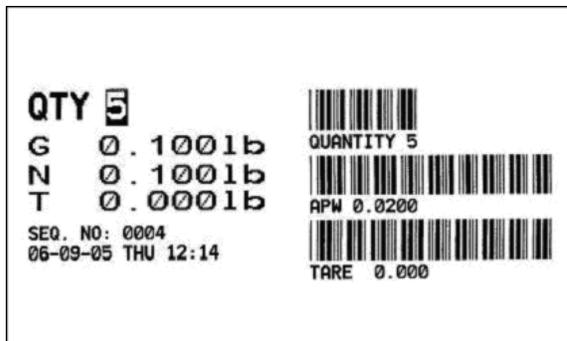
Figure 7-1. Zebra Default Item Label Sample



*Zebra LP2844 Default Total Label While Recalling an Item Code*

Prints when recalling an Item Code from memory and accumulating, then printing by pressing the \* **PRINT** key.

*Figure 7-2. Zebra Default Total Label Sample*



*Zebra LP2844 Default Label When Not Recalling an Item Code*

Prints when accumulating without recalling an Item Code from memory, then pressing the **+** (**Plus**) or **-** (**Minus**) key.

*Figure 7-3. Zebra Default Label When Not Recalling Item Code Sample*

To program the user-programmable free formats you will need to know the order in which the data is output from the scale when SPC09 is set to this option:

V00	ID Code
V01	Gross Weight
V02	Net Weight
V03	Unit Weight
V04	Tare Weight
V05	Quantity
V06	Part Number
V07	Part Name
V08	Date and Time
V09	Sequence Number
V10	Unit Symbol
V11	Inventory
V12	IN/OUT Status
V13	Unit Weight Base Symbol
V14	Reserved
V15	Reserved

*Table 7-1. Output Data Order*

## 7.2.4 Epson TMU200 or Star SP2320 Tape Printer

Set SPC09 to 0011. These two tape printers use a default format which is downloaded to the printer when powering up. The default format looks like the following:



*Figure 7-4. Epson TMU200 or Star SP2320 Tape Printer Sample Default Label Format*

## 7.2.5 Epson TM-U295 or Star SP298 Ticket Printers

Set SPC09 to 0100. These two ticket printers use the same default format as the Epson and Star tape printers in Section 7.2.4. See Figure 7-4 for a sample of the format.

## 7.2.6 DIGI TVP1000 Barcode Printer

Set SPC09 to 0101. This barcode printer has the same options and label formats as the Zebra LP2844. See Figure 7.2.3 above for the label format examples.

## 7.3 Connecting to a PC

### 7.3.1 Setting the Scale Specifications for Communication to a PC

The DC-788's RS-232C port can be used to connect the scale to a PC and output the data string to the computer. The following specifications must be set for the data transfer to take place: (for more information on setting specifications, see Figure 3.1.1)

- SPC05, Bits 3 and 2-Function of RS-232C Interface, must be set to 00: PC.
- SPC06, Bits 3 and 2-RTS/CTS Handshaking of RS-232C must be set to 0: On or 1: Off depending on the application receiving the data.
- SPC06, Bits 1 and 0-Baud Rate of RS-232C must be set for the proper Baud Rate for your application.
- SPC07, Bit 3-Stop Bit of RS-232C must be set to the proper Stop Bit for your application.
- SPC07, Bit 2-Data Length of RS-232C must be set to the proper Data Length for your application.
- SPC07, Bits 1 and 0-Parity of RS-232C must be set to the proper Parity for your application.
- SPC10, Bits 3 and 2 - Interval of Time Out Error of RS-232C must be set to the proper Time Out Interval for your application.
- SPC10, Bit 1 - Transmission Condition of RS-232C sets whether you want the data output only when the weight is stable or to be output unconditionally.

### 7.3.2 Communication Method

SPC08-RS232C PC Protocol configures whether the data transfer to the computer is inhibited (0000: Inhibit Data Transfer); is transmitted continuously to the computer (0001: Standard Stream Type (continuous output)); is transmitted when pressing the **+** (**Plus**), **-** (**Minus**), or **\* PRINT** keys (0010: Standard Manual Type); or is transmitted only when a command is received from the PC (0011: Standard Command Type).

#### 7.3.2.5 Standard Stream Data Transmission (Continuous)

Set SPC08-RS232C PC Protocol to 0001: Standard Stream Type (continuous output). The communication between the DC-788 and the computer flows as follows:

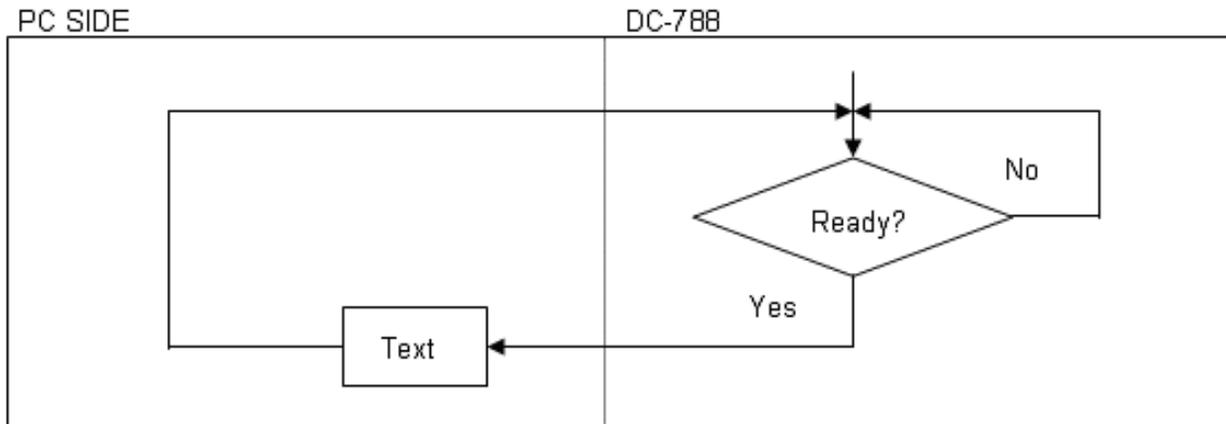


Figure 7-6. Continuous Stream Data Transmission Flowchart

### 7.3.2.7 Standard Manual Data Transmission

Set SPC08-RS232C PC Protocol to 0010: Standard Manual Type. The communication between the DC-788 and the computer flows as follows:

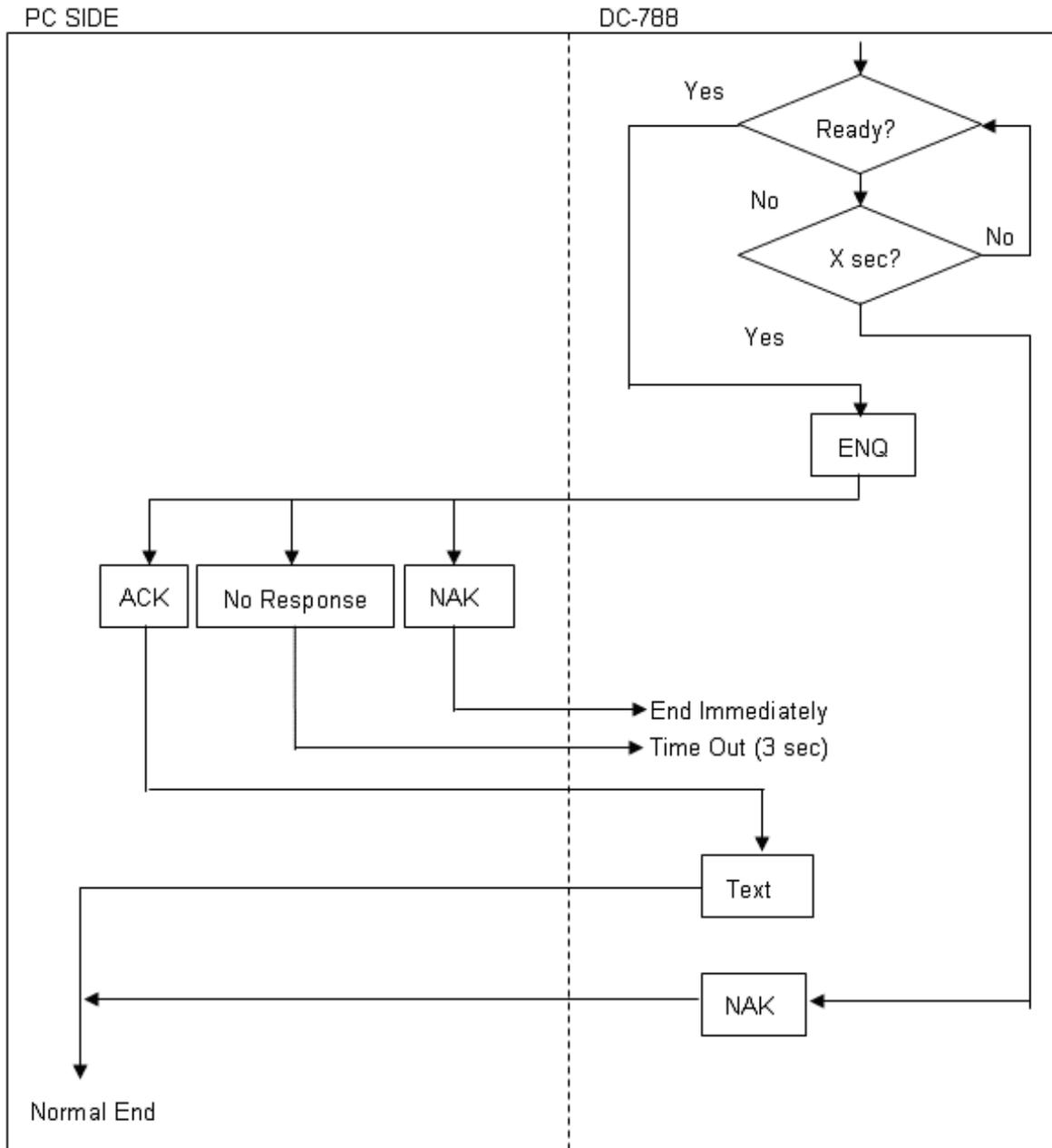


Figure 7-8. Standard Manual Data Transmission Flowchart

### 7.3.2.9 Standard Command Data Transmission

Set SPC08-RS232C PC Protocol to 0011: Standard Command Type. The communication between the DC-788 and the computer flows as follows:

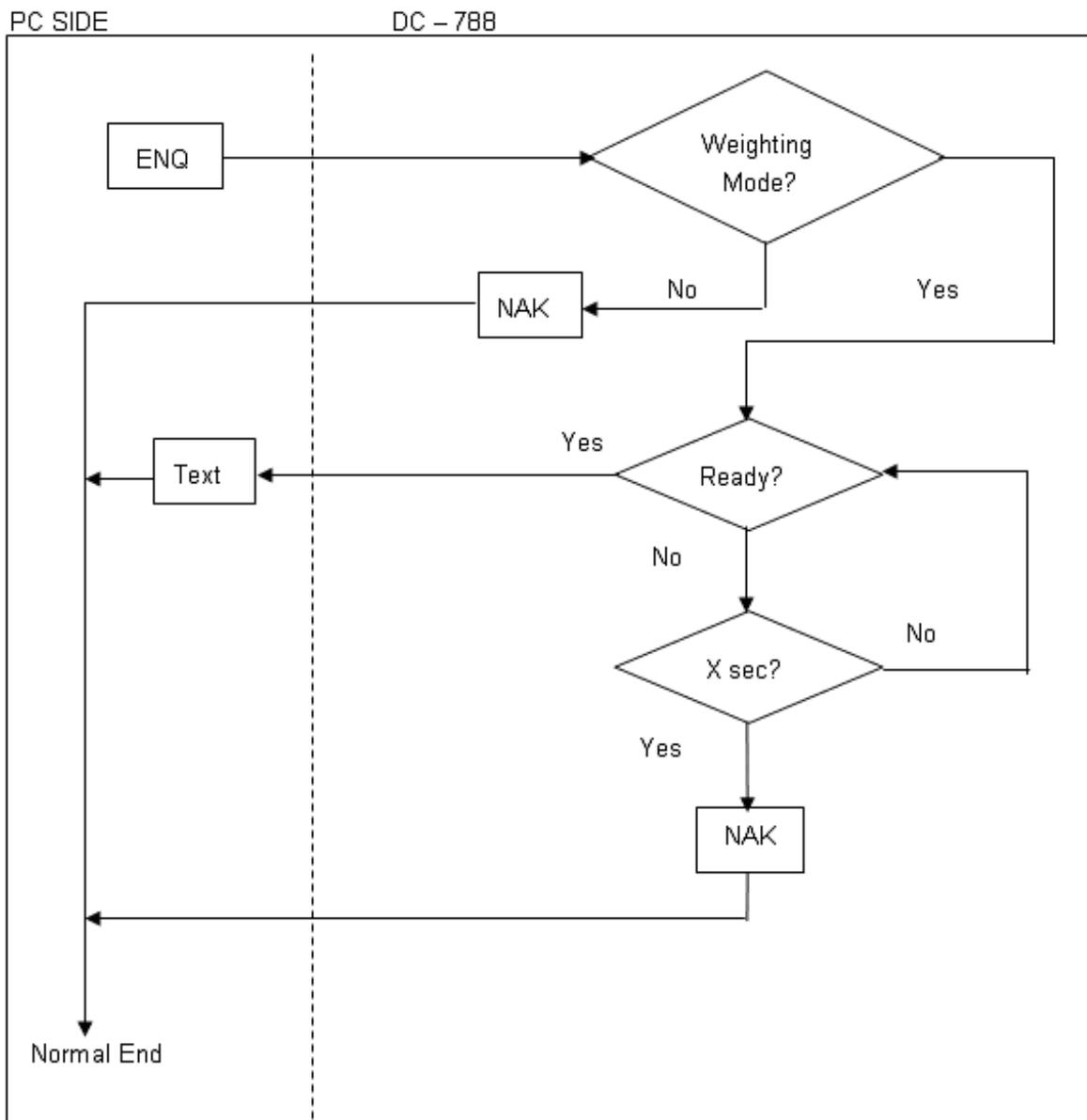
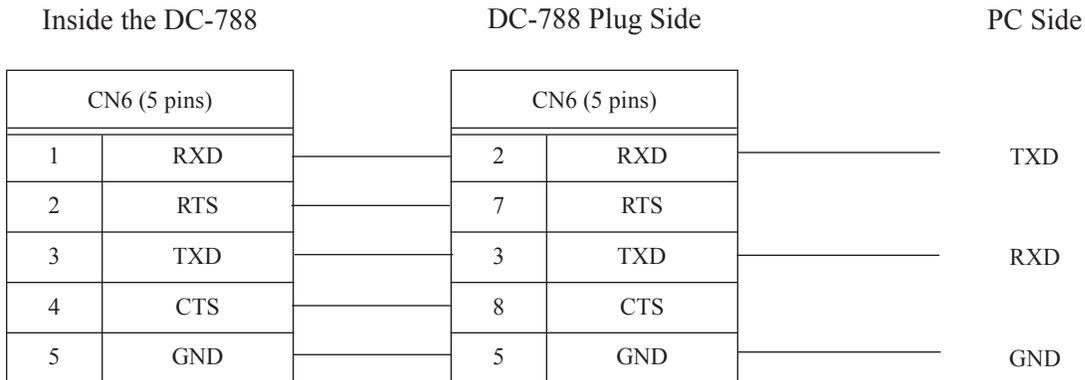


Figure 7-10. Standard Command Data Transmission Flowchart

### 7.3.3 Pin Assignments

The DC-788 counting scale is connected to a PC using a 9 pin D-SUB connectors configured as follows:



If handshaking is not required for your RS-232 communication with the computer, the RTS and CTS do not need to be connected in the cable and SPC06, Bit 3 - RTS/CTS Handshaking of RS-232C can be set to 1: Off.

### 7.3.4 Characters That Can Be Transmitted by RS-232C

Table 7-2 shows the codes, headers, fields, and commands that can be transmitted from the RS-232C port.

Termination Code	CR	The end of the data	0DH
	LF	The end of a line of text	0AH
Data	0 - 9	Numeric data	30H - 39H
	- (Minus)	Minus sign	2DH
	. (Decimal)	Decimal point	2EH
	Space	Data error or empty	20H
	OF	Overflow	4FH46H
	UF	Underflow	55H46H
Header Codes	0	Net Weight	30H
	1	Unit Weight	31H
	2	Quantity	32H
	3	ID Code	33H
	4	Tare Weight	34H
	A	Gross Weight	41H
	B	Status	42H
	C	Date and Time	43H
	I	Total Quantity	49H
	K	Inventory	4BH
	M	Parts No	4DH
	N	Parts Name	4EH
	V	Scale Number	56H
W	Lot Number	57H	

Table 7-2. RS-232C Codes, Headers, Fields and Commands

Command	ENQ	Enquiry	05H
	ACK	Acknowledge	06H
	NAK	Unacknowledge	15H

Table 7-2. RS-232C Codes, Headers, Fields and Commands

### 7.3.5 RS-232C Data Transmission Formats

The basic data transmission string format output by the DC-788 is as follows (with a more detailed discussion of each element below):

Status Flag	Weight Condition Flag	CR	Header Code	ID Code	CR	.....	CR	Additional Parity	LF
-------------	-----------------------	----	-------------	---------	----	-------	----	-------------------	----



#### Status Flag:

Not Used	Fixed to 1	Not Used	Weight Base	Unit Weight Base	Quantity Overflow	Net	Additional Parity
----------	------------	----------	-------------	------------------	-------------------	-----	-------------------

Bit 7: Not used; always set to zero.

Bit 6: Fixed to one.

Bit 5: Not used.

Bit 4: Weight Base - 0: kg, 1: lb.

Bit 3: Unit Weight Base - 0: /1000 pcs, 1: /1 pc

Bit 2: Quantity Overflow - 0: when no overflow, 1: when overflow

Bit 1: Net - 0: when tare subtraction not performed, 1: when tare subtraction performed

Bit 0: Additional Parity Flag - 0: when additional parity flag not added in text, 1: when flag is added

#### Weight Condition Flag:

Not Used	Fixed to 1	Not Used	Weight UF	Weight OF	Negative Net Weight	Weight Stable	Zero Sign
----------	------------	----------	-----------	-----------	---------------------	---------------	-----------

Bit 7: Not used; always set to zero

Bit 6: Fixed to one

Bit 5: Not used

Bit 4: Weight UF - 0: when no weight underflow; 1: when weight underflow

Bit 3: Weight OF - 0: when no weight overflow; 1: when weight overflow

Bit 2: Negative Net Weight - 0: when net weight is not negative; 1: when net weight is negative

Bit 1: Weight Stable - 0: when weight is stable; 1: when weight is not stable

Bit 0: Zero Sign - 0: when zero sign is not set; 1: when zero sign is set.

#### CR:

A carriage return "CR" must appear at the end of the data for each ID Code.

#### Header Code:

Header codes in the RS-232C data output can be turned on and off using SPC12, Bit 1 - Header Code in Text of RS-232C (0: No; 1: Yes). For a list of the possible header codes, please see Table 7-2.

#### ID Code Data:

Data about an ID Code is only transmitted if an ID Code has been recalled from the scale's memory. The data transmitted (if present in memory and unless modified by the specifications discussed below) is as follows:

- 1) ID Code
- 2) Set Point
- 3) Gross Weight
- 4) Net Weight
- 5) Unit Weight
- 6) Tare Weight
- 7) Quantity
- 8) Total Quantity
- 9) Status
- 10) Part Number
- 11) Part Name
- 12) Inventory
- 13) Scale Number
- 14) Date and Time

Specifications can be set to turn on and off the transmission of certain data fields in different combinations:

- SPC11, Bit 3 - Tare Weight in the Text of RS-232C
- SPC11, Bit 2 - Unit Weight in the Text of RS-232C
- SPC11, Bit 1 - Gross Weight in the Text of RS-232C
- SPC11, Bit 0 - Quantity in the Text of RS-232C
- SPC12, Bit 3 - Date & Time in the Text of RS-232C

#### Additional Parity:

If needed, additional parity can be added to the RS-232C data string. It is set in SPC10, Bit 0 - Additional Parity Code in Text of RS-232C (0: No; 1: Yes). Note that if the additional parity is equal to 0DH, 0AH, or 00H, it will be automatically changed to 1DH, 1AH, or 10H.

#### LF:

A Line Feed ("LF") must be added at the end as a transmission termination code.

#### Data Transmission Examples

Example 1:

If the following are true:      Net Weight = 3.456  
    Tare Weight = 1.200  
    Unit Weight = 1.5000 (kg/1000 pcs)  
    Quantity = 2304  
    Weight Status = Stable  
    (with header codes and without additional parity)

The data transmission will be as follows:

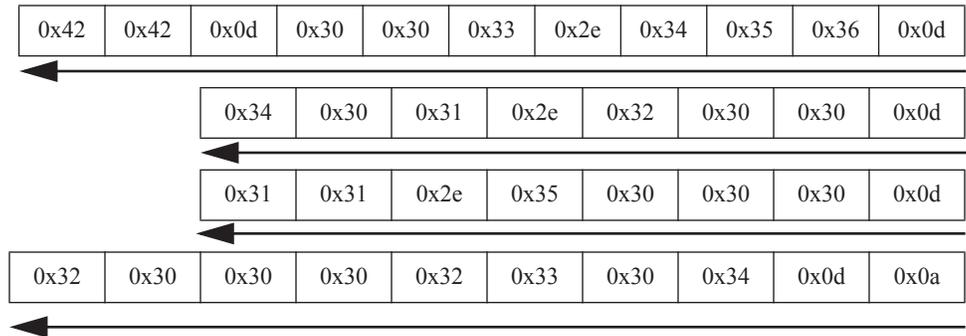
Status Flag: 0x42

0	1	0	0	0	0	1	0
---	---	---	---	---	---	---	---

Weight Condition Flag: 0x42

0	1	0	0	0	0	1	0
---	---	---	---	---	---	---	---

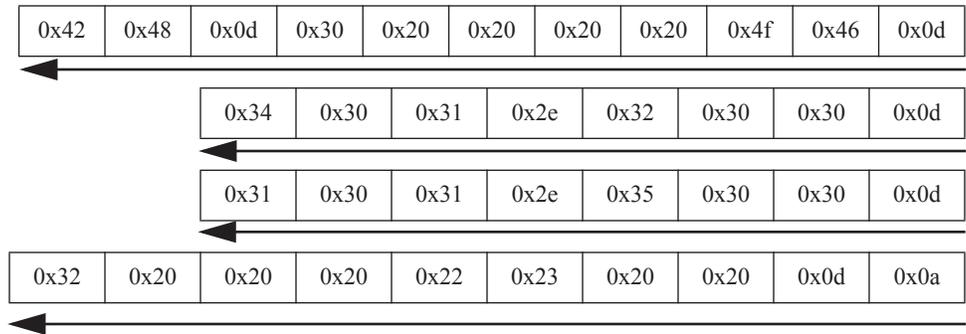
By ASCII Code:



Example 2:

If the same parameters are true as above but with a weight overflow

The data transmission will be as follows:



## 7.4 Remote Scale Channel

The Remote Scale Channel connector is on the back of the DC-788 housing.



Figure 7-11. Remote Scale Channel Connector

Pin #	Function	Polarity	Color
1	Sense	(+)	Orange
2	Sense	(-)	Blue
3	Excitation	(+)	Red
4	Excitation	(-)	White
5	Shield		
6	Signal	(+)	Green
7	Signal	(-)	Yellow
8	Ground		Black

Table 7-3. Remote Scale Channel Pin Configuration

### 7.4.1 Setting the Specifications for Scale 2

A scale connected to the Remote Scale Channel will be recognized by the DC-788 as Scale 2. The specifications that need to be set to configure the communication with the second scale are as follows:

- SPC 26, Bit 1 - 2nd Scale sets whether or not the Remote Scale Channel is enabled. Please note that the scale switch is not activated until the 2nd scale has been calibrated.
- SPC 35, Bit 2 - 2nd Scale Weight Unit sets whether the basic weight units for Scale 2 will be lbs or kgs.
- SPC 21, Bits 1 and 0 - Minimum Display (Scale 2) sets the display divisions displayed for Scale 2.
- SPC 24 - Selection of Resolution of 2nd Scale (Scale 2) sets the display resolution for Scale 2.
- SPC 25, Bits 2 through 0 - Weight Decimal Point Position of 2nd Scale (Scale 2) sets which digit the decimal point appears after in the Weight display.
- SPC 34 - Loadcell Sensitivities Selection mV/V (2nd Scale) sets the loadcell sensitivity range for Scale 2.
- SPC 30 - Set the Tare and Unit Weight Auto Clear conditions.
- SPC 14, Bit 3 - Clear Unit Weight When Swap Scale sets whether the Unit Weight is cleared automatically when the **SCALE** key is pressed to move from weighing on one scale to weighing on the other.
- SPC 14, Bit 2 - Rezero When Swap Scale sets whether the scale is rezeroed automatically when the SCALE key is pressed to move from weighing on one scale to weighing on the other
- SPC 14, Bit 1 - Auto Scale Switching sets whether or not a Unit Weight established on the built-in platform is automatically transferred to Scale 2. When Auto Scale Switching is enabled, the scale also automatically switches to Scale 2 once a stable unit weight is calculated.

For information on how to set the above Customer and Weight and Measurement specifications, see Section 3.1.

### 7.4.2 Remote Platforms Available

Platform Capacity	Platform Dimensions
100.00 lbs	13" x 17" (DIGI S-SL Platform)
250.00 lbs	17" x 21" (DIGI S-TL Platform)
500.00 lbs	17" x 21" (DIGI S-TL Platform)
1500.0 lbs	24" x 28" (DIGI S-UL Platform)

**NOTE:** Other platform sizes are available; consult the factory or your dealer for more information. Units are selectable between lb and kg from the keyboard.

Table 7-4. DC-788 External Platform Capacities

## 8.0 Appendix

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### 8.1 DC-788 Specifications

#### Operating Conditions

- Power Source - AC117/100V
- Operating Temperature-  $-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$  (OIML)
- Operating Humidity - 15 ~ 85% RH
- Power Consumption - 18W when using AC power  
1W when using rechargeable battery

#### Charging Conditions (for rechargeable battery only)

- Power Source - AC117/100V
- Charge Current - 800 mA
- Charge Time - 8-10 hours

#### Analog Specification

- Input Sensitivity - 1mV/V
- Zero Adjust Range -  $0 \pm 5\text{mV}$
- Zero Balance Range -  $0 \pm 0.5\text{mV}$
- L/C Applied Voltage - DC 5V
- Speed of A/D Conversion - 30 times/second
- Internal Resolution - 1,000,000

#### External Connectors

- AC Receptacle
- RS-232C Interface
- 14 pin female amphenol for external loadcell

#### Main Components

- Microcomputer - Hitachi HD64F73687 (56K Flash) / HD64F3684 (32K Flash) / HD6433687 (56k ROM) / HD6433686 (48K ROM) / HD6433685 (40K ROM) / HD6433684 (32K ROM) / HD6433683 (23K ROM)
- Crystal Oscillator - 10 MHz
- Display Device - Back-Lit LCD
- Loadcell Sensitivity - 1~3mV/V

#### Approvals



•NTEP

CoC Number 07-015

Accuracy Class III       $n_{Max}$ : 5000

## 8.2 DC-788 Error Message List

The DC-788's alphanumeric display allows for detailed error messages. Use Table 8-1 below to find the error message, possible causes for the error and ways to correct the problem. If these suggestions fail to correct the situation, please contact your DIGI dealer for assistance.

Error Message	Possible Causes	Corrective Action
O F	When the displayed weight exceeded capacity+9d, or something is on the platter when the power is on.	Remove the item on the platter.
U F	When the displayed minus weight > = 9d.	Rezero the scale or power the on/off button again.
Error0	When the communication between the main board and the A/D board is not complete.	Turn the power off and check the connections.
Error1	When the calibration operation is not correct.	Repeat the calibration operation.
8 8 8 8 8	Happens when the scale is not stable when the power is on. If a second scale is enabling, it must also be stable. If the second scale has not been calibrated, this will not apply.	Place the scale on a firm, flat surface. You can press [C] to ignore the second scale if it is not stable.
Total FULL	When the current total overflows the register	Clear the current total.
APW	When the unit weight is insufficient to display.	Set the DC-788 to WT/1000 mode in SPEC 141 or press any key to continue.

Table 8-1. DC-788 Error Message List

Also note that if you have two scales connected to the DC-788, and the scale is not switching automatically to the 2nd scale after sampling on the first scale, you need to set SPEC 14 - Auto Scale Switching, Bit 1, to 1: Yes. Similarly, if you are getting an error indicating that a second scale is not connected when the unit searches for the second scale, set SPEC 14 - Auto Scale Switching, Bit 1, to 0: No. For more information on setting the DC-788 Customer Specifications, please see Section 3.1.1 on page 12.

## 8.3 ASCII Code Table

Code	Char												
		64	@	96	'					192	À	224	à
33	!	65	A	97	a			161	ı	193	Á	225	á
34	"	66	B	98	b	130	,	162	ç	194	Â	226	â
35	#	67	C	99	c	131	f	163	£	195	Ã	227	ã
36	\$	68	D	100	d	132	„	164	¤	196	Ä	228	ä
37	%	69	E	101	e	133	...	165	¥	197	Å	229	å
38	&	70	F	102	f	134	†	166	ı	198	Æ	230	æ
39	'	71	G	103	g	135	‡	167	§	199	Ç	231	ç
40	(	72	H	104	h	136	^	168	¨	200	È	232	è
41	)	73	I	105	i	137	‰	169	©	201	É	233	é
42	*	74	J	106	j	138	Š	170	ª	202	Ê	234	ê

Table 8-2. ASCII Code Table for Data Entry of Item Code Data

Code	Char												
43	+	75	K	107	k	139	‹	171	«	203	Ě	235	ě
44	,	76	L	108	l	140	Œ	172	¬	204	ì	236	ì
45	-	77	M	109	m					205	í	237	í
46	.	78	N	110	n	142	Ž	174	®	206	î	238	î
47	/	79	O	111	o			175	—	207	ï	239	ï
48	0	80	P	112	p			176	°	208	Đ	240	đ
49	1	81	Q	113	q	145	‘	177	±	209	Ñ	241	ñ
50	2	82	R	114	r	146	‘	178	²	210	Ò	242	ò
51	3	83	S	115	s	147	“	179	³	211	Ó	243	ó
52	4	84	T	116	t	148	”	180	´	212	Ô	244	ô
53	5	85	U	117	u	149	•	181	μ	213	Õ	245	õ
54	6	86	V	118	v	150	–	182	¶	214	Ö	246	ö
55	7	87	W	119	w	151	—	183	·	215	×	247	÷
56	8	88	X	120	x	152	~	184	¸	216	Ø	248	ø
57	9	89	Y	121	y	153	™	185	¹	217	Ù	249	ù
58	:	90	Z	122	z	154	š	186	º	218	Ú	250	ú
59	;	91	[	123	{	155	›	187	»	219	Û	251	û
60	<	92	\	124		156	œ	188	¼	220	Ü	252	ü
61	=	93	]	125	}			189	½	221	Ý	253	ý
62	>	94	^	126	~	158	ž	190	¾	222	Þ	254	þ
63	?	95	_	127		159	ÿ	191	¿	223	ß	255	ÿ

Table 8-2. ASCII Code Table for Data Entry of Item Code Data

## DC-788 Limited Warranty

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Rice Lake Weighing Systems (RLWS) warrants that all RLWS equipment and systems properly installed by a Distributor or Original Equipment Manufacturer (OEM) will operate per written specifications as confirmed by the Distributor/OEM and accepted by RLWS. All systems and components are warranted against defects in materials and workmanship for two years.

RLWS warrants that the equipment sold hereunder will conform to the current written specifications authorized by RLWS. RLWS warrants the equipment against faulty workmanship and defective materials. If any equipment fails to conform to these warranties, RLWS will, at its option, repair or replace such goods returned within the warranty period subject to the following conditions:

- Upon discovery by Buyer of such nonconformity, RLWS will be given prompt written notice with a detailed explanation of the alleged deficiencies.
- Individual electronic components returned to RLWS for warranty purposes must be packaged to prevent electrostatic discharge (ESD) damage in shipment. Packaging requirements are listed in a publication, *Protecting Your Components From Static Damage in Shipment*, available from RLWS Equipment Return Department.
- Examination of such equipment by RLWS confirms that the nonconformity actually exists, and was not caused by accident, misuse, neglect, alteration, improper installation, improper repair or improper testing; RLWS shall be the sole judge of all alleged non-conformities.
- Such equipment has not been modified, altered, or changed by any person other than RLWS or its duly authorized repair agents.
- RLWS will have a reasonable time to repair or replace the defective equipment. Buyer is responsible for shipping charges both ways.
- In no event will RLWS be responsible for travel time or on-location repairs, including assembly or disassembly of equipment, nor will RLWS be liable for the cost of any repairs made by others.

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**SHOULD THE SELLER BE OTHER THAN RLWS, THE BUYER AGREES TO LOOK ONLY TO THE SELLER FOR WARRANTY CLAIMS.**

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