

Bennett Pacific Series

1000 Series Remote Dispensers

Operator's Manual

Only Trained Personnel May Work on This Equipment

Includes Instructions For:
Sales Operation
Reading Totals
Programming
Diagnostics
Maintenance

For Pacific Dispensers Only

READ THIS BOOK

This book has important information for safe installation and operation of this equipment. Read and understand this book before applying power. Keep this book and tell all service personnel to read this book. If you do not follow the instructions, you can cause bodily injury, death or damage to the equipment.

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Safety Instructions


WARNING ADVERTISSEMENT ADVERTENCIA


For the safe installation of this equipment, read and understand all warning and cautions. Look for these warnings:


-  **“DANGER”** means: If you do not follow the instructions, severe injury or death will occur.
-  **“WARNING”** means: If you do not follow the instructions, severe injury or death can occur.
-  **“CAUTION”** means: If you do not follow the instructions, damage can occur to the equipment.


 **DANGER:** Fire, explosion, injury or death will occur if fuel filters are changed by untrained personnel. Make sure only trained personnel change filters.


 **DANGER:** To prevent injury to you from vehicles and onlookers, always place a barrier around this equipment before performing service or maintenance.


 **DANGER:** Gasoline is flammable.
NO SMOKING OR OPEN FLAME.


 **DANGER:** Disconnect all power to this equipment and associated submerged pump(s) during installation, service or any maintenance, i.e., changing filters.


 **WARNING:** You must have training in the installation, service or maintenance of this equipment (dispenser, pump, console, control box or submerged pump) before working on it. Maintenance repairs must be done by authorized personnel only. Warranty work may only be performed by Bennett certified technicians.


 **WARNING:** To prevent electric shock, keep the electrical parts of the dispenser dry.


 **WARNING:** Electronic components are static sensitive. Use proper static precautions (static straps) before working on the equipment.

 **WARNING:** The emergency shut-off valve (also called the fire valve, shear valve or impact valve) must be closed when service or maintenance is performed on this equipment.

 **WARNING:** You must have training in the operation and programming of this dispenser before using it. READ THE OPERATORS MANUAL.

 **WARNING:** Make sure this equipment is correctly grounded. Failure to do will cause injury or damage equipment or improper operation. Improper grounding voids the warranty.

 **WARNING:** When anchoring the dispenser, always level the dispenser with shims before bolting to the island. DO NOT shim just the middle of the dispenser and bolt down.

 **CAUTION:** Do not drill holes in fuel dispensers. Holes can cause failure of the electronic equipment. The warranty will become void. Use only adhesive backed sign mounting brackets.

READ AND UNDERSTAND ALL WARNING LABELS ATTACHED TO THE DISPENSER

Introduction

All of the dispensers shown in this book can be operated in the “Stand Alone” mode (no control console), or with a control console system such as: Bennett 515 pump controller or certified 3rd party pump controller.

Summary Description

The Bennett Pacific dispenser is an electronic, multi-product capable remote dispenser. A separate submersible turbine pump “pushes” fuel products through the Pacific dispenser where it is accurately measured and safely dispensed into vehicle fuel tanks.

Configurations include:

- Three Product Blenders
- Three Product Blenders plus one primary product (3+1)
- Non-Blenders (one or two primary products dispensed through a hose for each product per side)
- Non-Blender Mixers (three primary products dispensed through a single hose per side)
- Single or two tier price per volume
- One or two sided

Options include:

- Local Preset (Attendant Preset) for money or volume
- Local Preset with receipt printer
- Debit/Credit Payment Terminal
- Vapor return piping connections for balance vapor systems
- Healy Vapor Recovery
- Junction Box
- Second field wiring conduit entry
- Valance kit (field installed)
- Stainless steel lower doors
- Stainless steel lower end panels
- Intercom speaker in end column (one per dispenser)

Features and Capabilities

1. A self-monitoring pulser will prevent product flow in the event of a malfunction.
2. Diagnostic software system built-in to aid in troubleshooting.
3. A Manager’s access code prevents unauthorized changes of the price per volume settings.
4. LCD displays which are lighted from the back with high efficiency, low power LEDs for easier viewing. The Main Display (Money / Volume) is 6 1/4” x 3 1/4” and the PPV Displays are 2” x 1”.
5. An allocation limit can be set from 1 to 999 gallons or 9,999 liters at the dispenser.
6. **Maximum Display values for Menu Code 8 option 0 are:**

	Each Sale	Totals
Dollars	9999.99	9,999,999.99
Gallons	999.999	9,999,999.999
Liters	9999.99	99,999,999.99
Price Per Volume	9.999	

Features and Capabilities (Cont'd)

7. A magnetic switch (Last Sale Recall) is provided for reading totals and recalling the display information during a power failure.
8. A second magnetic switch allows the attendant to read daily totals from the pump face. This switch also gives you access to the Audit Trail.
9. Two battery back-up systems are provided:

A +12 volt DC sealed lead acid battery works in conjunction with the Totals/Display Recall switch to display the last sale data or pump totals when AC power is interrupted. The battery will allow the displays to be viewed in 30-second intervals for a total of up to 20 minutes.

A +3.6 volt DC nickel-cadmium battery retains totals and programmed information in the RAM memory during power failures for up to 10 days.
10. All units have conformal coated electronic boards to help protect them from moisture or foreign material damage. All major electronic board assemblies are environmentally tested and temperature cycled.
11. Dispenser programming is performed from the manager's keypad. The keypad is located Inside the electronics head behind side 1 electronics door.
12. This series is available with 1 product to 4 products (maximum of 4 hoses - 2 per side).

Pump Control Devices

The Manager's Keypad. See Figure 1.

The manager's keypad allows the dispenser to be programmed. When the keypad is plugged into the dispenser receptacle the dispenser automatically enters the attendant mode (sometimes referred to as "manager's mode"). The attendant mode allows access to the dispenser totals, pricing information and programming information. The manager keypad is located in the electronics head behind the side 1 door. See page 18 for instructions on how to connect the manager's keypad.

See the "How To Prepare The Dispenser For Operation" section for a complete description of keypad functions for programming the dispenser. See the "How To Operate The Dispenser" section for an explanation of keypad use to read totals. See the "How To Use Diagnostics" section for complete instructions for using the keypad to read error codes.



Figure 1

Pump Control Devices (Cont'd)

The Error Messages. See Figure 5.

When an error message appears, there is a fault condition in the dispenser. Use the dispenser diagnostics to determine the problem. Please refer to page 53 "How to Use Diagnostics".

NOTE: When an error message appears the dispenser can be reset by turning any pump handle on and back off.

The Power Failure Message. See Figure 6.

The Power Fail message occurs when the power has been interrupted or turned off to the dispenser. If the power is turned off and the P Fail message does not appear, the charge is low on the 12-volt battery. Replace the battery. Failure to replace the battery could result in loss of dispenser electronic totals and stand alone operating data.

Totals Switch. See Figure 7.

The totals switch is a magnetic reed switch. The switch is located directly behind the (Gallons, Liters) screen on the Main Display Area. See Figure 7.

To enter the totals mode hold the black Access Magnet over the "Gallons" (Liters) print beside the Main Display. This will display all Mode 1, Mode 2, and Mode 26 shift totals. Once the totals mode is entered, the next totals are displayed "tapping" the magnet over the "Gallons" (Liters) print beside the Main Display. By successively "tapping" over the "Gallons" (Liters) print, all totals can be displayed. If the magnet is not "tapped" over the "Gallons" (Liters) print for 30 seconds, the display returns to idle. See Menu Code 1 and 26 for more information.

NOTE: If a pump handle is turned on during this operation, the display returns to idle.

The Last Sale Recall Switch. See Figure 7.

The Last Sale Recall switch is similar to the Totals Switch except it is placed behind the Total Sale Text (Sale \$). If power to the dispenser is interrupted, the money and volume totals can be accessed, as well as the current sale information. Just hold it over the Total Sale Text (Sale \$) for approximately 2 seconds. The last sale in progress will display for 20 seconds. Holding the magnet over the Total Sale Text (Sale\$) successively will bring up the last sale information every 20 seconds. For complete information, see "How to Retrieve The Last Sale During a Power Failure," Page 16.

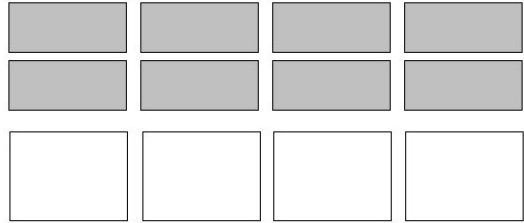


Figure 5

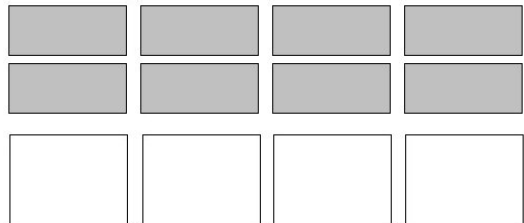
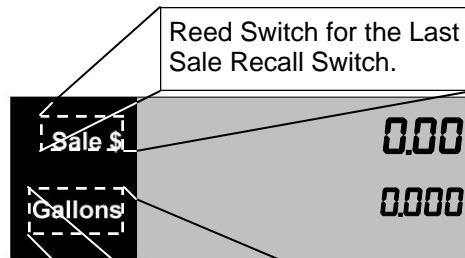


Figure 6



Access Magnet



Reed Switch for gaining access to Totals.

Figure 7

Pump Control Devices (Cont'd)

The Electronic Door Key Locks.

See Figure 8.

The key locks for the electronic door are located on the left edge of the door. The Key locks for the lower door of the Pacific Series are located on the top side of the lower door panel. See Figure 8.

To lock the upper door, insert the key in one of the locks and turn clockwise until it stops. Repeat this step for the other lock. To lock the lower door, turn the key clockwise until it stops in one of the locks. Repeat this step for the other lock. To unlock either door, turn the key counterclockwise until it stops.

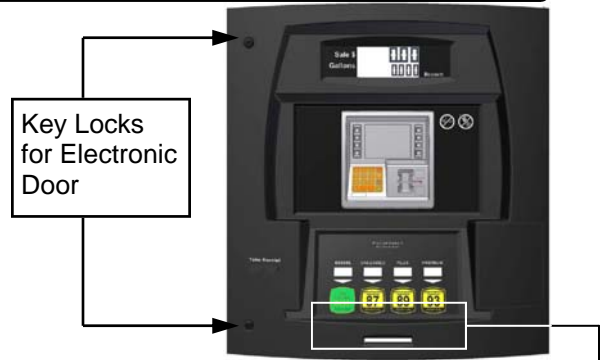


Figure 8

The Electro-Mechanical Totalizers.

The electro-mechanical totalizers are located below the Product Select Buttons. The total is cumulative and reads in whole unit (gallon or liter) increments. See Figure 9.



Figure 9

Electro-mechanical Totalizers

The Pump Handle. See Figure 10.
(Lever Operation)

The pump handles are located on the front of the dispenser. To operate the dispenser, remove the nozzle from the holder and lift the pump handle up for the **ON** position. Push the pump handle down for the **OFF** position. These are referred to as “lift to start nozzle” boots.

The Pump Handle. See Figure 10.
(Push to Start Operation)

The “Push to Start” nozzle boots turn on the dispenser as soon as the nozzle is removed from the nozzle boot (also referred to as Auto-On). With this style of operation the customer is required to select the desired product by pressing the appropriate product select switch.



Figure 10

Note that the same Nozzle Boot can either be a Lever Operated or Push to Start Operated boot.

How to Adjust the Pump Handle for Lever Operation or Push to Start (Auto On) Operation.

Figure 11 shows the back side of a Nozzle Boot set up for the Lift to Start option. Notice that the cross bar is inserted in the first two notches on the black flapper. With this configuration the spring presses against the lever at an angle that forces it to stay closed even with the nozzle removed.

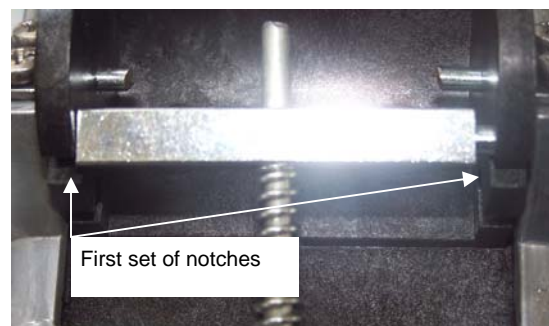


Figure 11

Pump Control Devices (Cont'd)

To convert this into an Auto-On operation you will press down on the cross bar and slide it into the second set of notches. See figure 12. With this configuration the spring presses against the lever at an angle that forces it open as you lift the nozzle.

The Grade Select Buttons. See Figure 13.

The customer must select the grade to be pumped before the dispenser will operate. The grade select buttons are located below the PPV (Price Per Volume) displays.

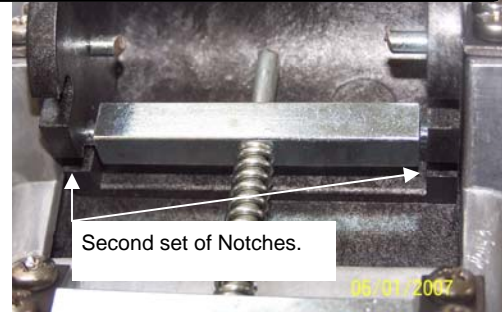


Figure 12



Figure 13 - Grade Select Buttons

How to Operate the Dispenser

The explanations given in the menus listed in this section are intended for use by the operator, manager or service technician.

How to Dispense Fuel

To dispense fuel, follow this procedure:

1. Remove the nozzle from the holder.
2. Lift the handle to the **ON** position. See Figure D-1.
Note: Ensure the pump is authorized by the console or is in stand alone mode. Note that if this is set for Auto-On then the handle will automatically lift up.
3. Wait for the displays to go to all 8's and then all 0's.

NOTE: If the dispenser is a multi-product dispenser, a grade button must be pressed to start a sale.

If a Push to Start button is present, it must be pressed before a sale can start.

4. Squeeze the nozzle trigger to dispense fuel into the vehicle or approved container.
5. Release the nozzle trigger when the desired amount of fuel has been dispensed.
6. Lower the handle to the **OFF** position. If the nozzle boot is set for auto-on then as you replace the nozzle it will lower the lever automatically.
7. Put the nozzle in the holder.

If the dispenser stops during the delivery of fuel, check the display for an error code. If one is present, refer to the section in this manual entitled "How to Use Diagnostics," Page 56.

How to Dispense Fuel With The Local Preset Option

To dispense fuel with the local preset option, follow this procedure:

1. The idle mode on the display appears similar to Figure D -2.

Press the "Money" button to change to Money preset or the "Volume" button to change to Volume preset. See Figure D-4 for an example of Volume preset.



Figure D-1

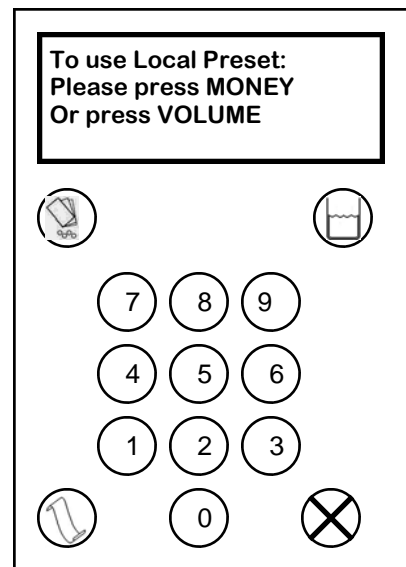


Figure D-2

How to Operate the Dispenser

Using the 0 through 9 buttons on the preset keypad, enter an amount. If an error is made, press the **CANCEL** button and start over.

Example: If you have correctly entered a \$5.00 sale, the display reads as in Figure D-3.

2. Remove the nozzle from the holder.
3. Lift the handle to the **ON** position. Note: Ensure the pump is authorized by the console or is in stand alone mode.

NOTE: If an error is discovered at this point, the preset amount can be changed before the flow of fuel. The preset amount can be canceled once flow begins.

NOTE: If the dispenser is a single hose dispenser, a grade button must be pressed to start a sale.

NOTE: If fueling doesn't begin within 60 seconds of starting the sale then the preset will reset to Full Tank.

4. Squeeze the nozzle trigger to dispense fuel into the vehicle or approved container.
5. Release the nozzle trigger when the dispenser stops the flow of fuel.
6. Lower the handle to the **OFF** position.
7. Put the nozzle in the holder.

If the dispenser stops during delivery of fuel, refer to the section in this manual entitled "How to Use Diagnostics", page 56.

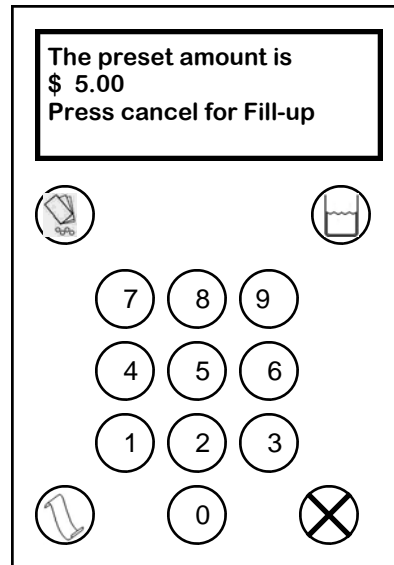


Figure D-3

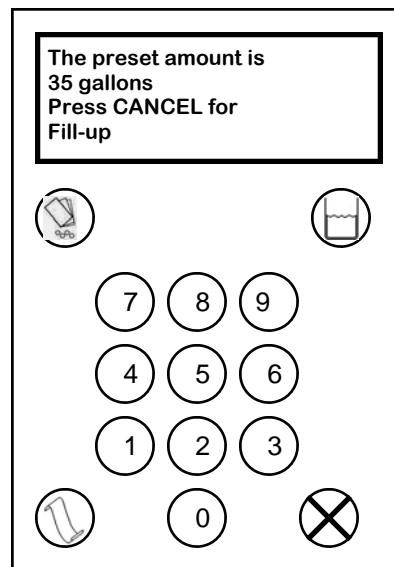


Figure D-4

How to Operate the Dispenser

How to Read the Electro-mechanical Totalizer

The dispenser is equipped with a Electro-mechanical totalizer for each meter which records the volume dispensed for each sale. The volume recorded is an accumulative total that cannot be reset. The total is cumulative and reads in whole unit (gallon or liter) increments. See Figure D-5.

Note: Because of rounding methods used and the nature of electronic totals versus an analog device such as an electro-mechanical totalizer, electronic totals of Menu Code 01 and electro-mechanical totals will rarely match exactly.

Mode 2 totals can be programmed to match the electro-mechanical totalizers, and they will continue to track exactly until a cold start occurs.



Figure D-5

Electro-mechanical
Totalizers

How to Operate the Dispenser

How to Read Electronic Totals Menu Code 1

This menu code allows the manager to read the electronic non-resettable hose totals that accumulate in the dispenser for money, volume, number of sales, and number of price changes.

NOTE: For instructions on operator / attendant access to electronic totals, see "How to Read Electronic Totals with the Magnetic Reed Switch" on the following page.

To read the money totals on the dispenser, follow this procedure:

1. Press the number 1 button and then the **MODE** button on the Manager's Keypad. The main sales display appears similar to Figure T-1.

The main display shows the total money amount. For example: If the total money amount for the dispenser is \$1,234,567.89, the display appears as in Figure T-1.

The price display window reads P 1 1.1 for Product 1, Money Total, Menu Code 1.

2. To read the money totals for Hose 2 and the remaining hoses, press the **ENTER** button or the number button for the hose (1,2,3,4). The display reads P 2 1.1 for Product 2, Money Total, Menu Code 1. See Figure T-2.

To read the volume totals on the dispenser, follow this procedure:

1. Press the ↓ button. (See Figure T-3.) The main display indicates Hose A volume totals. See Figure T-4.

The main display shows the total volume amount. For example: If the total volume amount for the dispenser were 234,567.890 gallons, the display would appear as in Figure T-4. These totals are accumulative and cannot be changed. The dispenser can carry the volume amount to three decimal places for gallons and two decimal places for liters.

2. Press the **ENTER** button or the number button for the hose on the keypad to view remaining hose positions.

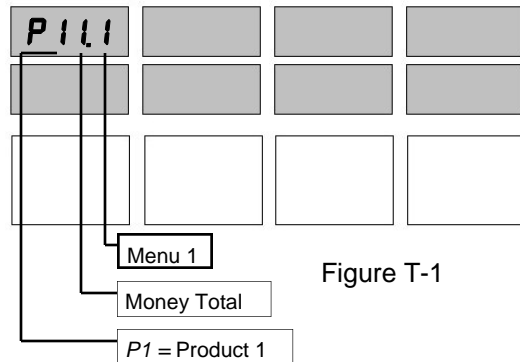


Figure T-1

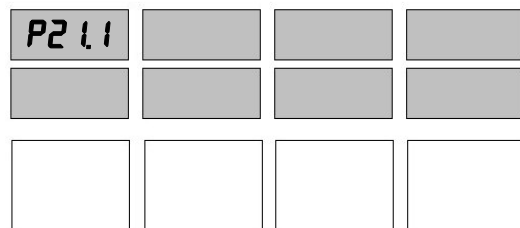
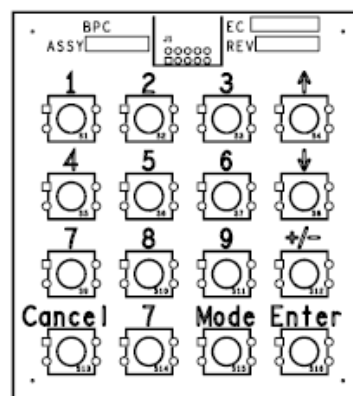


Figure T-2



- ← Money
- ← Volume
- ← Counter

Figure T-3

How to Operate the Dispenser

NOTE: To return to the money totals, press the ↑ button on the keypad. Press the ↓ button to return to the volume totals.

To read the total number of sales and total number of price changes, follow this procedure:

1. Press the +/- button. (See Figure T-3.) The main sales display indicates Product 1 counter totals. See Figure T-5.

The top line of the display shows the number of sales for Product 1. The sales counter is incremented each time a sale is run on that nozzle. The bottom line of the display shows the number of price changes for Product 1. The price change counter is incremented each time a price is changed for that nozzle.

2. To read the counter totals for the remaining hoses, press the ENTER button or the number buttons (1,2,3,4).
3. Press the CANCEL button to exit this menu.

How to Read Electronic Totals with the Magnetic Reed Switch

The operator/attendant can use this method to read daily or weekly electronic totals without opening the electronic head of the dispenser.

To read the Menu Code 1 totals with the Magnetic Reed Switch, follow this procedure:

1. To enter the totals mode hold the black Access Magnet over the (Gallons, Liters) print beside the Main Display. See Figure T-6 for location. When the first Money totals appear remove the magnet. The display appear as in Figure T-1 with P11.1 showing in the price per gallon window to indicate the first Money total for Product 1.

NOTE: If the magnet does not get tapped over the (Gallons, Liters) print for 30 seconds, the display returns to the idle mode and the sequence must be started over.

2. Tap the magnet over the (Gallons, Liters) print again to read the Volume totals for Product 1. The displays appear as in Figure T-4 with P12.1 showing in the price per gallon window to indicate the first Volume total for Product 1.
3. Tap the magnet over the (Gallons, Liters) print again to read the Counters Totals (Number of Sales and Number of Price Changes) for Product 1. The displays will appear as in Figure T-5 with P13.1 showing in the price per gallon window to indicate the first Counter totals for Product 1.

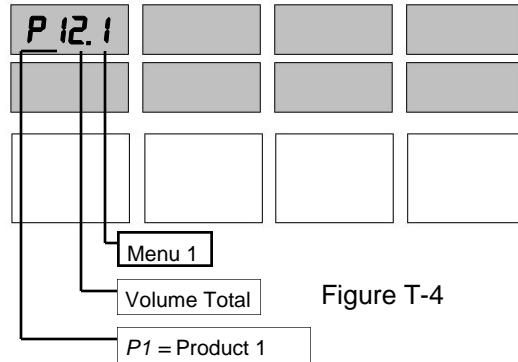


Figure T-4

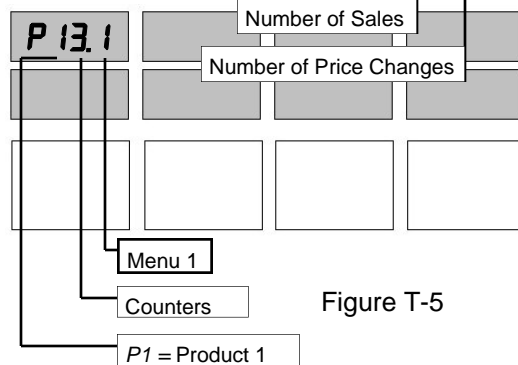


Figure T-5

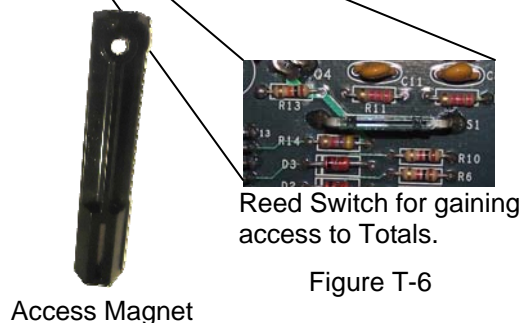
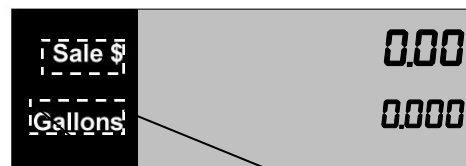


Figure T-6

How to Operate the Dispenser

NOTE: If the dispenser is programmed as a blender:

- The first Product represents an unblended Product
- The middle Product represents the blended total of the first unblended Product and the last unblended Product.
- The last Product represents the other unblended Product.

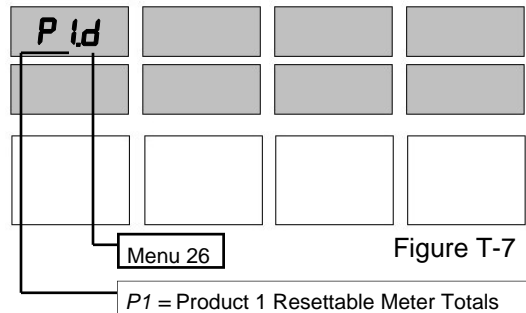
NOTE: If Menu Code 2 totals are being read or the re-settable meter totals, continue with Step 5. If not, wait 30 seconds for the displays to return to the idle mode, or lift a pump handle to the ON position to return to the idle mode.

4. Tap the magnet over the (Gallons, Liters) print again and the Money totals for Product 2 appear as in Figure T-1. Repeat steps 2 and 3 for the Product 2 totals and the remaining hoses on this side of the dispenser.



5. If all Menu Code 1 totals have been displayed, tap the magnet over the (Gallons, Liters) print again to view the Menu Code 2 Meter Totals for Product 1. The display appears as in Figure T-7 when the display is in Menu Code 2.

By successively tapping the magnet over the (Gallons, Liters) print, the dispenser moves through the meter totals for each hose.



6. If all Menu Code 2 totals have been displayed, tap the magnet over the (Gallons, Liters) print again to view Menu Code 26 Re-settable Meter Totals for Product 1. The display appears as in Figure T-6.

NOTE: These menu codes can be matched up in Menu Code 05 for the Electro-mechanical totals.

How to Operate the Dispenser

How to Read Electro-Mechanical Totals Menu Code 2

This menu code allows the operator or manager to read the electro-mechanical totals. If the Manager did not enter a different value in Menu Code 5, this total should be the same as the electro-mechanical totalizers.

To read the non-blender meter totals, follow this procedure:

1. Press the 2 button and then the **MODE** button on the keypad. The main display appears similar to Figure T-7.

The main display shows the electro-mechanical total. The total number is carried to three decimal places. The price display reads P 1.2 for Product 1 Electro-Mechanical Totalizer, Menu Code 2.

2. To read the totals for the remaining meters, press **ENTER**.

NOTE: See page 13 for instructions for reading Menu Code 2 totals with the Magnetic Reed Switch.

If the dispenser is a blender, follow this procedure:

1. Press the 2 button and then the **MODE** button on the keypad. The main sales display appears similar to Figure T-8.

NOTE: The number displayed is a grand electro-mechanical total for Product 1. Grand electro-mechanical total = Product 1 from Hose A and blended Product 1 from Hose B. The grades are numbered starting with one.

2. Press the **ENTER** button to see the grand electro-mechanical total for Product 3. Pressing the **ENTER** button again displays the grand electro-mechanical total for Product 1 again.

3. To read the electro-mechanical totals for the hoses, press the **ENTER** key.

NOTE: If you are viewing the Electro-Mechanical Total for a Non-Blender, the PPV Display will show a "P1" (without a 0 preceding the product number). If you are viewing the Electro-Mechanical Total for a Blender, the PPV Display will show a "P01" (with a 0 preceding the product number).

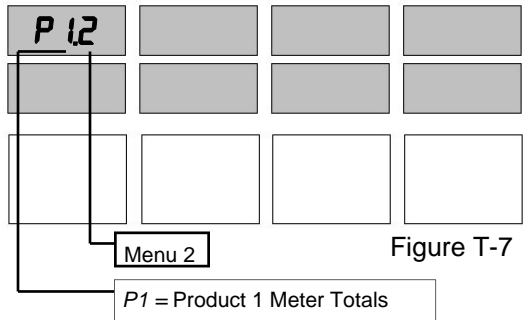
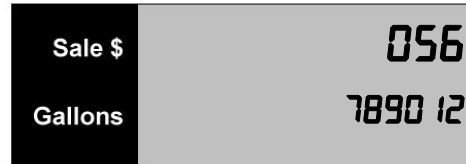


Figure T-7

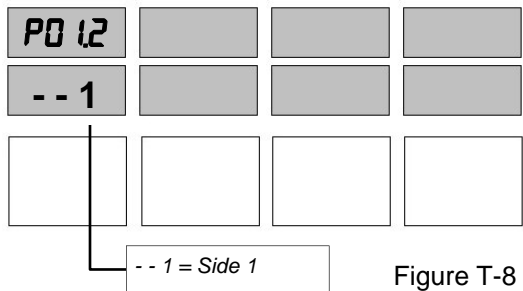


Figure T-8

How to Operate the Dispenser

How to Retrieve the Last Sale During a Power Failure:

If an A.C. power failure occurs, the dispenser can display the last sale in progress at the time of the failure as well as money and volume totals.

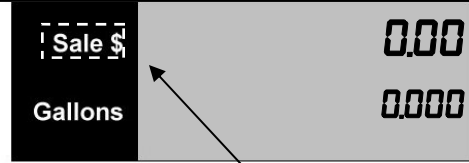
To read the last sale in progress, follow this procedure:

1. Hold the black Access Magnet over the "Sale \$" print beside the Main Display. See Figure T-10

The last sale in progress is displayed for 30 seconds. Record the last sale information.

2. To redisplay the last sale information after the timer has turned the display off, hold the black Access Magnet over the "Sale \$" print again.

NOTE: The battery will display data for thirty seconds. To restart the timer after the dispenser has turned off, hold the black Access Magnet over the "Sale\$" print.



Access Magnet



Reed Switch for the Last Sale Recall

Figure T-10

How to Prepare the Dispenser for Programming

Connecting the Manager's keypad for dispenser programming.

Programming is done from the manager's keypad located inside the electronics compartment behind the side 1 electronics door. (See Figure P1).

To enable the dispenser for programming:

1. Remove the keyboard from the plastic bag located on the inside of the electronic enclosure.
2. Locate the keyboard receptacle located on the product select keyboard, which is located on the backside of side 1 electronic door. The plug receptacle is labeled "Keyboard" and is located on the right side of the product select keyboard. (See Figure P2)
3. Plug the manager's keypad into the receptacle observing the plug polarity.
4. When the Manager's keypad is properly connected the dispenser will automatically enter the managers programming mode. The dispenser's display will read "Enter side 1".
5. When the programming session is complete, remove the keypad from the receptacle and restore the keypad to its holder for future programming sessions. When the manager's keypad is removed from the receptacle the dispenser will automatically enter the operating mode.

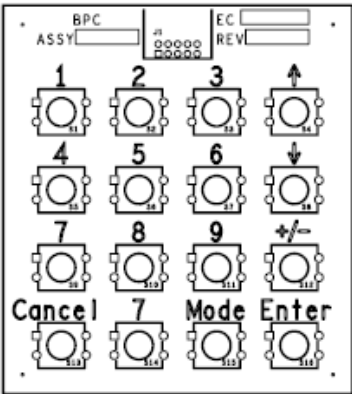


Figure P1

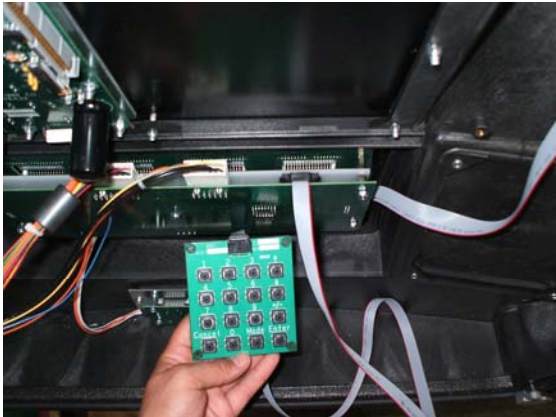


Figure P2

General Programming Instructions

1. Make sure the dispenser is powered on and all pump handles are in the off position for proper programming. Enter 1 for side 1 and 2 for side 2 at the top menu. Once you enter a 1 or 2 and press the enter button the display will prompt for a menu code. Menu codes are presented in this section in numerical order. Enter the desired menu code and press the "Mode" key to enter the programming menu desired.

How to Prepare the Dispenser for Programming

The dispenser has a variety of Menu Codes that are accessed by using the manager's keypad. Menu Codes 0, 1, and 2 are accessed by the attendant or the manager to read diagnostic error codes or totals. The remaining Menu Codes are used by first entering an access code in Menu Code 3. Without the correct access code, the remaining Menu Codes are hidden. A description of each Menu Code is given below:

<u>Menu Code</u>	<u>Name</u>	<u>Description</u>
0	Diagnostics	Diagnostic tests
1	Hose Totals	Reading Money, Volume, Number of Sales, Number of Price Changes
2	View Totalizer Value	Reading Electro-Mechanical Totals Only
3	Manager Access	Entering a four digit code to access remaining Menu Codes
4	Pricing	Program to set price per volume for each hose & one or two tier pricing
5	Edit Totalizer Value	Entering a value for each Electro-Mechanical Totalizer on the dispenser
6	Programming	Reviewing programming selections or speed programming dispenser
7	Pump Type	Program to set the - Number of Sides, how many Grades, how many Hoses, Blender present or not, Blend Ratio, Blended Octane Error Range
8	Decimal Location	Program to change decimal placement for other than U.S. standard
9	No Flow Time Out	Program to set a time for the dispenser to turn off after flow stops
10	Slow Flow Amt	Program to control the slow down limit on a prepay sale
11	Volume Allocation	Program to control maximum volume of a single sale at one pump
12	Pre-charge Time	Program to set the submerged pump pre-charge time
13	Beeper Tone	Program to set beeper tone options
14	Price Display	Program to set the way Price displays operate
15	Fleet Option	Program to set Fleet system interface compatibility
18	Money Totals	Program to set the money totals calculation method
21	Communication Type	Program to set the dispenser in stand alone or console modes
22	Dispenser Address	Program to set the dispenser address
23	Push to Start	Program to set automatic-on nozzles to work with a button requirement
26	Shift Totals	Program to reset shift totals
28	Rounding	Program to set either rounding or truncating the sale amount.
29	Resettable Totals	Entering a value for each meter on the dispenser (volume total)
49	RAM Clear	Perform a RAM Clear on the equipment
99	Unit of Measure	Program to set the dispenser at gallon, liter or centiliter operation, Viewing E-CAL Values.

Please read the explanation for each menu code for complete information on these options.



How to Prepare the Dispenser for Programming

DEFAULT SETTINGS

The software program for each new dispenser shipped from the factory is preprogrammed with default settings in some of the Menu Codes. Some menu codes must be changed immediately to make the dispenser operational in your situation. See Initial Setup Sequence below. For your convenience, the default listings are noted below:

<u>Menu Code</u>	<u>Description</u>	<u>Default</u>
3	Manager Access	2218
7	Pump Type	2 = Sides, 4 = Grades, 2 = Hoses, ON = Blender, 050 = Blend Ratio, Blend Error = 10, 2 = Tier
8	Decimal Location	0 = U.S.A.
9	No Flow Time Out	- - - = Infinite Time
10	Slow Flow Amount	0.200 Volume Unit
11	Volume Allocation	0999 Volume Units
12	Prestart Time	2 seconds
13	Beeper Tone	3 = Combination of option 1 and 2 (Audio Tones)
14	Price Display	1 = Flashing, 0 = Blanks
15	Fleet Option	1 = Enabled
18	Money Totals	0 = Cash Drawer method
21	Stand Alone	1 = Stand Alone
22	Dispenser Address	0 = only one dispenser on the communications loop
23	Push to Start	1 = Requires button to be pressed for flow
28	Rounding or Truncating Sale Amount	1 = Rounding the Sale Amount
99	Unit of Measure / Viewing E-CAL Value	1 = Gallons, 1 = 1000th

SUGGESTED SETUP SEQUENCE

To program the dispenser's memory for the first time or following a RAM memory clear, follow the menu codes in order as they are listed in the Initial Setup sequence below. Each Menu Code can be programmed individually. However, in order for the dispenser to operate properly, the initial setup programming sequence must be followed. If not, the dispenser may not operate properly because of default settings or no data programmed. However, the Menu Codes are explained in the operator's manual in numerical order. Make sure the initial setup menu codes are programmed before testing dispenser operations. Failure to do so may result in equipment malfunction.

Menu Code No.	INITIAL SETUP	Menu Code No.	REMAINING DISPENSER SETUP
3	Manager Access Code	5	Totalizer Value - a volume amt for each totalizer
7	Pump type	6	Programming selections viewer / editor
99	Unit of Measurement	10	Slow Flow Amount - control for prepay sales
8	Decimal Location - for other than U.S. standard	12	Pre-charge Time - for submerged pump
4	Pricing – for each hose & one or two tier pricing	13	Beeper Tone - options for sound
9	No Flow Time out	14	Price Display - control operation
11	Volume Allocation for a sale at a pump	15	Fleet System - Interface compatibility
21	Stand Alone or Console Mode	18	Money Totals - calculation method
23	Push to Start - Requires button to be pressed for flow	22	Dispenser Address
28	Rounding or Truncating the Sale Amount	26	Resettable Shift Totals

Menu Codes 3 through 99 are presented in numerical order on the following pages.

How to Program the Dispenser for Operation

HOW TO PROGRAM THE DISPENSER FOR OPERATION Manager's Access Code Entry - Menu 3

NOTE: Manager's Mode access is canceled when the Manager's keypad is un-plugged from the dispenser. If the Manager's keypad is removed you must re-enter the Menu Code 3 manager's access code to re-gain programming access.

NOTE: Some menu codes must be programmed on both Side 1 and Side 2. When programming is completed for Side 1, be sure to program Side 2.

Access to Menu Codes 4 through 99 is gained by entering a four digit access code. The software is set with an access code at the factory of 2218. All dispensers covered in this manual are shipped with this code. Menu Code 3 must be used each time the Manager accesses programming for Menu Codes 4 through 99.

To access the Manager's Mode, follow this procedure:

1. Press the 3 button and then the **MODE** button on the Manager's keypad. The display shown in Figure 3.1 appears.
2. Enter the default number **2218**. Four dashes appear in the display.
3. Press the **ENTER** button. When access is gained, the dashes disappear and the price display appears as in Figure 3.2. If the dashes do not appear, the access code entered did not match the code stored in memory. Press the **CANCEL** button and repeat steps 1, 2, and 3.
4. When access is gained, press the **CANCEL** button to exit. It is necessary to exit Menu Code 3 before the remaining protected menus can be accessed. The display shown in Figure 3.3 appears when the cancel button is pressed.

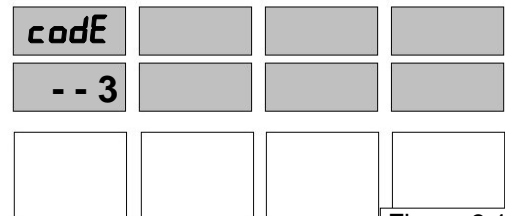
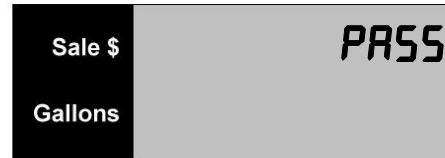


Figure 3.1

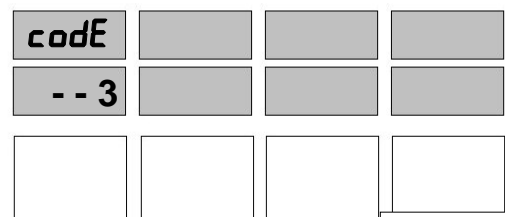


Figure 3.2

How to Change the 4-digit Manager's Access Code.

A new access code can also be assigned in Menu Code 3.

To assign a new access code, follow this procedure



CAUTION: To avoid having to zero the memory on the CPU, make sure you record the new access code exactly as it is programmed into the dispenser.

1. Press the 3 button and then the **MODE** button on the keypad.
2. Press the default number **2218** or the previously stored access code. Four dashes appear in the volume display.

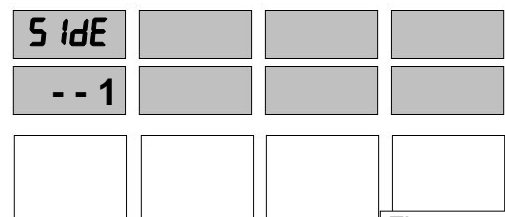


Figure 3.3

How to Program the Dispenser for Operation

- Press the **ENTER** button. If access is gained, the four dashes disappear and the PPV display appears as in Figure 3.2. If the dashes do not move, an error was made entering the access code. Repeat steps 2, 3, and 4.

DO NOT PRESS ENTER. IF ENTER IS PRESSED, THE NEW ACCESS CODE WILL BE 0000.

- Press the ↑ button (see Figure 3.4). The display show all zeros. See Figure 3.5.
- Enter a new four digit number on the keypad. The number appears in the volume display. Make sure the number displayed is correct. Record the number chosen as the access code.
- Press the **ENTER** button to save the new access code.
- Test the new access code.

To test the access code, follow this procedure:

- Put the dispenser in the “**OPERATE**” mode by unplugging the manager’s keypad from the dispenser. Then re-enter the “**ATTENDANT**” mode by plugging the keyboard back in.
- Press **ENTER** for Side 1.
- Press the 3 button and then the **MODE** button on the keypad.
- Press the new four digit access number. Four dashes appear in the volume display.
- Press the **ENTER** button. If access is gained, the four dashes disappear and the main price display appears as in Figure 3.2. If the dashes do not appear, an error was made. Repeat Steps 1 through 4.

Note: If you make a mistake or lose you new pass code the pumps main memory will have to be zeroed to regain access to totals information and programming menus. Please call you Bennett authorized service technician to zero the dispenser’s main menu and return the pass code to 2218. This is not a warranty paid service call.

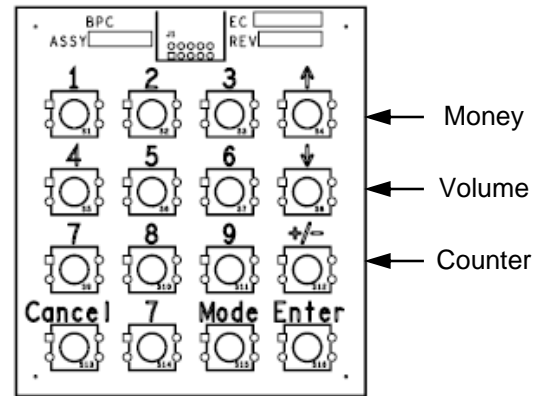


Figure 3.4

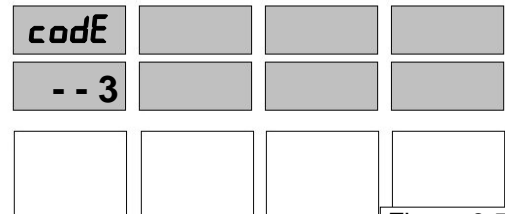


Figure 3.5

How to Program the Dispenser for Operation

How To Program Price Per Volume Menu Code 4

NOTE: The information programmed in Menu Code 7 affects how Menu Code 4 operates. If Menu Code 7 was not changed from the default, the dispenser will accept a price for 4 grades and 2 tiers. If this is not correct, press the **CANCEL** button and enter Menu Code 7 to set the correct number of hoses and pricing tiers before proceeding.

NOTE: The PPVs reflected in these figures represent a setup with 2 Tier Pricing.

To program price per volume data, follow this procedure:

NOTE: Access code (Menu 3) must be entered into the pump and the PPV display must indicate dashes before this mode may be entered.

1. Press the 4 button and then the **MODE** button on the keypad. The individual Price display for Product 1, Tier 1 flashes. See Figure 4.1 for the location of Product 1 Price on the CPU side of the dispenser. The main display shows that Product 1, Tier 1 in Code 4 is active.
2. Use the 0 through 9 buttons on the keypad to enter the price for Product 1, Tier 1.

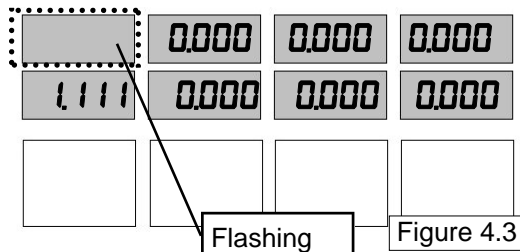
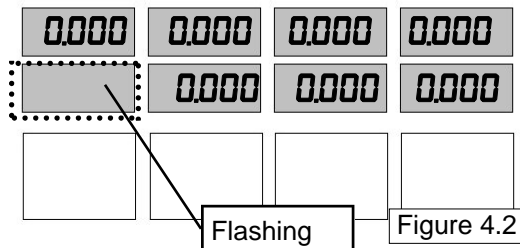
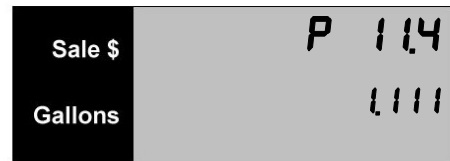
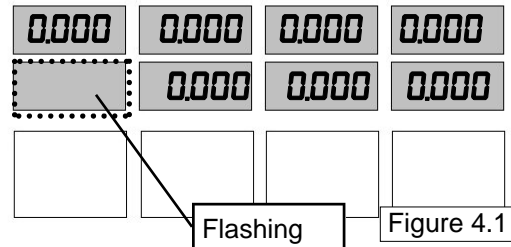
When the first digit of the new price is entered the Main Display zeros and indicates the new digit in the right most digit. (The Price display continues to flash the old price.) See Figure 4.2. When the correct price appears in Main Display, press the **ENTER** button. The Price display now contains the new price. See Figure 4.3

NOTE: If an error is made, press the buttons on the keypad until the correct price appears in the main Price Per Volume display window.

3. The main display appears as in Figure 4.3 and the next tier price displays a flashing price.

Repeat Steps 2 and 3 for the remaining prices to be set. The dispenser only displays the number of hoses and tiers selected in Menu 7.

4. Press the **CANCEL** button to exit this menu code.
5. If initial programming of a dispenser with two fueling positions is being performed, be sure to program side 2.



How to Program the Dispenser for Operation

How to Enter a New Electro-Mechanical Total Value Menu Code 5

The dispenser can accumulate and store a value for the volume passing through the mechanical totalizer. A beginning value for the electronic totalizer is required for a starting point (from the mechanical totalizers). Use this menu code to enter a new value. This value can be reset at any time.

If monthly, weekly, or daily totals are required, enter this menu code and zero the total by pressing the "0" button until all meter totals are zero. At the end of the period you have selected for gathering totals, record the total value and zero the totals again. Another use for this menu code is to verify totals on the mechanical totalizer. If the mechanical totalizer is disconnected for any reason or becomes inoperable, Menu Code 5 will still record meter volume totals.

To enter a new value for the Electro-mechanical totals, follow this procedure:

1. After the Manager's Mode has been accessed, press the 5 button and then the **MODE** button on the keypad.

A volume amount appears in the sales/volume display. (New dispensers show a volume amount as the result of factory testing.) The price display appears as in Figure 5.1. The P1 stands for the Product 1 electro-mechanical total. The .5 means the dispenser is in Menu Code 5. The - - 1 stands for Side 1.

2. Use the 0 through 9 buttons on the keypad to enter the new meter volume value from the mechanical totalizers. When the first new number is pressed the volume display zeros and begins rotating the new total into the display.

If the dispenser is a *blender*, the number that appears in the main display is the electro-mechanical total for Product A. Electro-mechanical total = Product A dispensed through Hose A and the amount of blended Product A for Hose B.

3. Press the **ENTER** button to save the new value. The main display moves to the next electro-mechanical total (Product 2). The price display moves to Product 2 totals. See Figure 5.2. Repeat this sequence for remaining products. Use the **ENTER** button to advance or review the electro-mechanical totals.

If the dispenser is a *blender*, the display sequences to the grand total for Product C.

4. Press the **CANCEL** button to exit this menu code.
5. If initial programming of a dispenser with two fueling positions is being performed, be sure to program the side 2.

NOTE: Mode 5 resettable volume totals are not the same as mode 29 resettable totalizers. Mode 5 totals are updated every time the mode 1 volume totals are updated. Mode 29 totalizers are incremented every time a pulse is sent to an electromechanical totalizer.



Figure 5.1

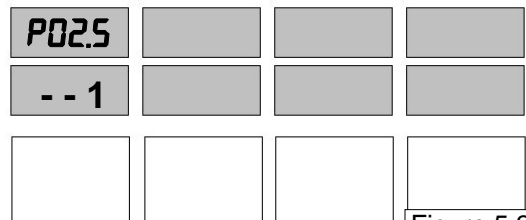


Figure 5.2

How to Program the Dispenser for Operation

How to Read Settings or Speed Program the Dispenser Menu Code 6

When all programming for the dispenser is completed, a quick way to review the settings is available in Menu Code 6. After you become familiar with programming the dispenser, this Menu Code can also be used to program all the settings for the dispenser without having to enter each menu.

To review or speed program the Menu Code settings, follow this procedure:

1. Press the 6 button and then the **MODE** button on the keypad. The main display shows the first setting which is how many Sides in Code 7. See Figure 6.1. Press **ENTER** and the display shows the number of grades that were set in Code 7. See Figure 6.2.

Press **ENTER** a few more times and the display moves to Code 8, decimal settings.

The remaining codes are displayed by continuing to press **ENTER**. Code 7 through Code 26 can be displayed or programmed in this Menu Code.

2. Press the **CANCEL** button to exit this menu code.

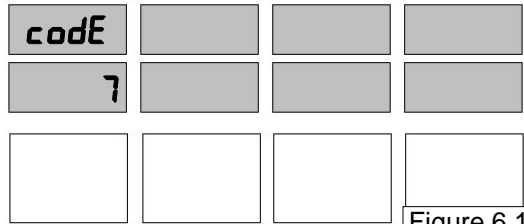


Figure 6.1

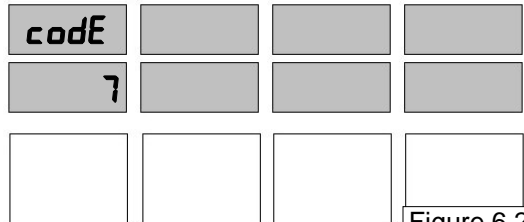


Figure 6.2

How to Program the Dispenser for Operation

How to Enter the Type of Dispenser - Number of Sides, Number of Grades, Number of Hoses, Valve Configuration, Blend Ratio, Blended Octane Err Range for the Dispenser

Menu Code 7

NOTE: This Menu Code MUST BE PROGRAMMED FOR ALL DISPENSERS.

To prepare the dispenser for operation, the following information must be programmed:

1. The number of sides (up to a maximum of 2).
2. The number of Grades (up to a maximum of 4 on each side of the dispenser).
3. The number of Hoses (up to a maximum of 2 on each side of the dispenser).
4. If the Dispenser is a Blender, Mixer, or Neither.
 - 0 = Straight
 - 1 = Blender
 - 2 = Mixer

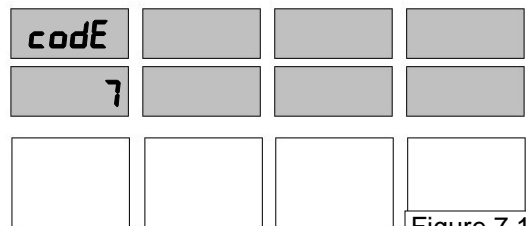


Figure 7.1

To enter new information, follow this procedure:

NOTE: Access code (Menu 3) must be entered into the pump and the PPV display must indicate dashes before this mode may be entered.

1. Press the 7 button and then the **MODE** button on the keypad. The number 7 appears in the price display and the number of Sides appear in the main display. The default setting is for 2 Sides. See Figure 7.1.

To change from a 2 sided dispenser to a one sided dispenser press the 1 button on the keypad. This option will only except a 1 or a 2.



Figure 7.2

2. Press the **ENTER** button to save the new setting.
3. Once **ENTER** has been pressed the number of grades appears in the main display. The default setting is for 4 grades per side of the dispenser. See Figure 7.2. To change the setting from 1-4 grades, press either 1, 2, 3 or 4 button on the keypad.
4. Press the **ENTER** button to save the new setting.

How to Program the Dispenser for Operation

5. Once the **ENTER** button has been pressed, the number of Hoses appears in the main display. The default setting is for 2 hoses per side of the dispenser. See Figure 7.3.

NOTE: When setting the number of hoses, remember, this number represents only one side of the dispenser.

NOTE: If the dispenser only has one hose per side then it will be acknowledged in the electronics as Hose B. If it has two hoses per side then the electronics will see hoses A and B.

To change the setting from 1-2 hoses press either the 1 or 2 button on the keypad. Press the **ENTER** button to save the setting.

6. Once the **ENTER** button has been pressed, the Blender option appears in the main display. The default setting is for a Blender. See Figure 7.4.


7. To turn OFF the Blender option, press the 0 button and the main display now appears like Figure 7.5.

8. To turn set it for the Mixer option, press the 2 button and the main display now appears like Figure 7.6 (on next page).

Note : there are three options for this setting :

- 0 = OFF (Straight Grade)
- 1 = ON (Blender)
- 2 = Other (Mixer)

- A Straight Grade is used when you offer non-blended products and each product has its own designated hose.
- A Blender is used when you offer three products and the middle product is blended. This includes a 3 + 1 dispenser.
- A Mixer is used when you offer two or three non-blended products but only one hose is used for all products.

 **WARNING** - If this setting is not correct then the dispenser will not operate. If you exit out of programming and notice that the ppv displays are blank then check this setting again.

9. Press the **ENTER** button to save the setting.

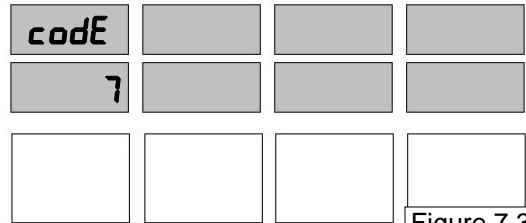


Figure 7.3

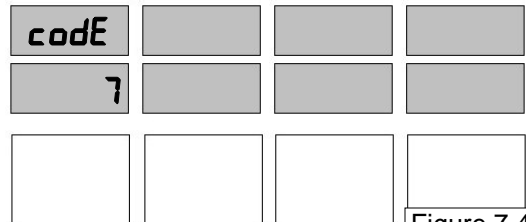


Figure 7.4

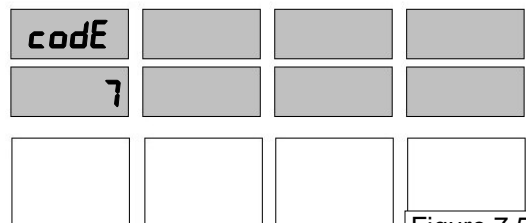


Figure 7.5

How to Program the Dispenser for Operation

If the blender was turned ON Figure 7.7 appears next. This allows the Manager to program the blend ratio of the center product position. The "A" product ratio is entered for the percentage of Product A to be blended. The dispenser calculates the percentage of product C to be blended but is not displayed.



If the dispenser has not been programmed since it came from the factory, the number 50 appears in the main display. This is the default setting. See Figure 7.7.

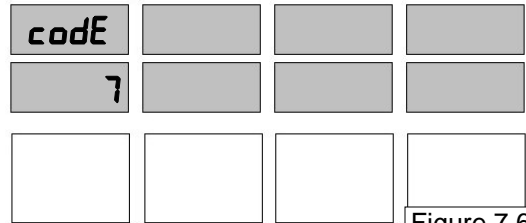


Figure 7.6

In addition to the standard 50:50 blend ratio, other blend ratios are programmable by qualified Bennett Service contractors from 0:100 to 100:0. Note: 1-4%, and 96-99% are not programmable values.

- To change the setting, use the 0 through 9 buttons on the keypad to enter a new blend ratio. For example:

To set a 40:60 blend ratio, enter 40
To set a 30:70 blend ratio, enter 30

NOTE: If an error is made, press the correct number. The new number replaces the error.



Figure 7.7

- When the correct option number appears in the main display, press the **ENTER** button to save the selection and Figure 7.8 appears.

If the dispenser has not been programmed since it came from the factory, the number 10 appears in the main display. This is the default setting. See Figure 7.8.



This allows the Manager to select an allowable range of octane rating for the blended product. Normal tolerance* requirements allow the blended product to be within half an octane rating of the posted blended octane. For instance, if the posted octane is 89 for the blended Product B, a test as low as 88.5 or as high as 89.5 could be within the tolerance

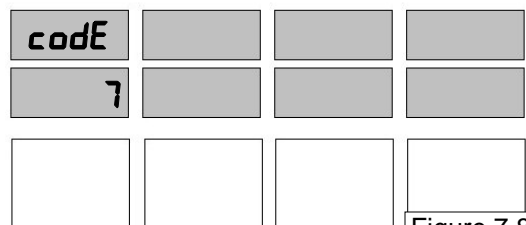


Figure 7.8

How to Program the Dispenser for Operation

If Product A is 87 octane and Product C is 92 octane, subtract Product A from Product C to find the range. In this case, the range is 5. Take .5 (the normal tolerance requirement) and divide it by 5. Multiply the result (.1) by 100 to find the percentage of error the dispenser must maintain to achieve the octane rating required for the blended product. See the calculations in Figure 7.9 to arrive at this number.

12. Use the information in the "How to Calculate Error Range" illustration to calculate a new blend error range percentage.
13. To change the setting, use the 0 through 9 buttons on the keypad to enter a new blend error range.

NOTE: If an error is made, press the correct number. The new number replaces the error.

14. When the correct number appears in the main display, press the **ENTER** button to save the selection.
15. When the correct option number appears in the main display, press the **ENTER** button to save the selection and figure 7.10 appears.

At this point you must enter either 1 or 2 for the number of tiers that will be used.

16. When the correct option number appears in the main display, press the **ENTER** button to save the selection.

NOTE: To review or change the settings in Menu Code 7, press the ENTER button on the keypad. Each time you press the ENTER button the display moves through the displays in Menu Code 7.

17. Press the **CANCEL** button to exit this menu code.
18. If this is a two sided dispenser, changing one side will automatically change the second side to the same value as the first.

How to Calculate Error Range

Product C Product A	92 Octane 87 Octane 05 =range	Use the high and low octane ratings being used on the blender you are programming.
Normal tolerance of 1/2 an octane rating of the posted blend octane rating.	Divide .5 by 5 = .1 Multiply .1 x 100% = 10%	
	Blend Error Range	

Figure 7.9

**Check with local jurisdiction for acceptable tolerance level.*

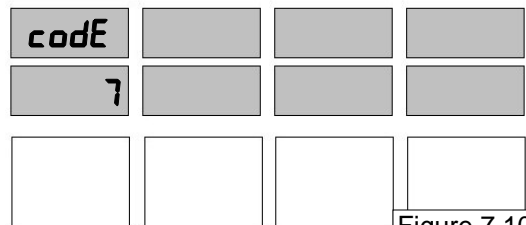
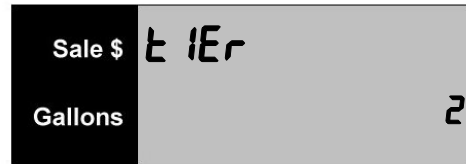


Figure 7.10

How to Program the Dispenser for Operation

How To Change the Decimal Point Locations For Other Than U.S. Standard Menu Code 8

The dispenser is shipped from the factory set for the monetary system in the United States.

NOTE: IF THE DISPENSER IS TO BE OPERATED IN U.S. DOLLARS, DO NOT ENTER THIS MENU CODE.

The decimal in the top display (Money) and the bottom display (price per volume) can be changed. Contact an authorized service man to change from gallons to liters.

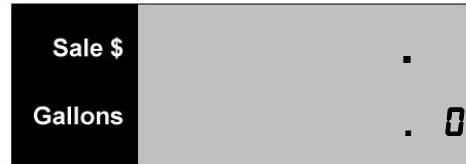
To change the decimal placement, follow this procedure:

- After the Manager's Mode has been accessed, press the 8 button and then the **MODE** button on the keypad. The United States standard decimal placement appears in the main display and Price display. The number 0 appears in the main display to show the dispenser is set for U.S. Standard. See Figure 8.1.

NOTE: There are seven decimal selections available. See Figure 8.1 for a sample of the decimal display for each selection. The price in Selection 0 is in dollars. The price in Selection 6 is in cents.

DECIMAL PLACEMENT SELECTIONS				
	MONEY DISPLAY	VOLUME DISPLAY	PPV DISPLAY	
Selection	Money	Gallons / Liters	Price	
0	[1.23]	[1.234] [1.23]	[1.234]	
1	[1.23]	[1.234] [1.23]	[12.34]	
2	[1.2]	[1.234] [1.23]	[12.34]	
3	[1.2]	[1.234] [1.23]	[123.4]	
4	[12]	[1.234] [1.23]	[123.4]	
5	[123]	[1.234] [1.23]	[1234]	
6	[1.23]	[1.234] [1.23]	[123.4]	

Figure 8.1



To select a new decimal placement value, follow this procedure:

- As you initially enter into this mode you'll see Figure 8.2.
 - Use the 0 through 6 buttons on the keypad to enter a new selection.
 - Press the **ENTER** button. The new decimal placement appears in the displays. See Figure 8.3.
 - If an error is made, repeat steps 1 and 2 until the correct decimal placement selection appears.
- When the correct decimal selection is made, press the **ENTER** button to save the selection.
 - Press the **CANCEL** button to exit this menu code.
 - If this is a two sided dispenser, changing one side will automatically change the second side to the same value as the first.



Figure 8.2

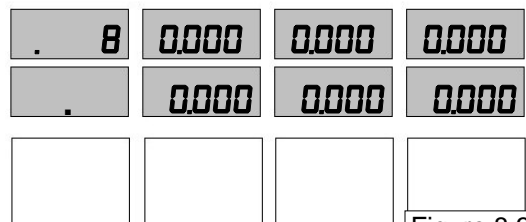


Figure 8.3

How to Program the Dispenser for Operation

How To Set a No Flow Time Out Menu Code 9

As a safety feature, the dispenser can be programmed to turn off if no flow occurs within a specific amount of time. If the pump handle is turned on, but no flow occurs, the No Flow Time Out feature prevents delivery after the time period you programmed expires. If the pump handle is turned on and flow occurs, but is stopped, the No Flow Time Out feature prevents delivery after the period of time programmed has elapsed.

The No Flow Time Out feature is programmable from 0 seconds to 999 seconds (16.6 minutes or an infinite amount of time represented by - - -). The dispenser is shipped from the factory with Menu Code 9 disabled (infinite time).

To program the period of time before the No Flow Time Out turns off the dispenser or to disable Menu Code 9, follow this procedure:

1. After the Manager's Mode has been accessed, press the 9 button and then the **MODE** button on the keypad. The main display on an un-programmed dispenser will appear as in Figure 9.1. This is the default. The price display shows the dispenser is in Menu Code 9.

The three dashes indicate the No Flow Time Out amount is an infinite amount or that Menu Code 9 is disabled. With this setting the dispenser's valves will remain on indefinitely after the pump handle lever is put in the **ON** position and the dispenser is authorized.

2. Use the 0 through 9 buttons on the keypad to enter a Flow Time Out value in seconds. For example, if a 20 second delay is entered, the volume display window looks like Figure 9.2.

NOTE: If an error is made, press the 0 button until all three digits are zeros and enter a new number, or push number buttons until the correct number of seconds appears in the volume display.

3. When the correct value appears in the volume display, press the **ENTER** button to save the selection.
4. To disable Menu Code 9, press the ↑ button on the keypad (See Figure 9.3) and press the **ENTER** button. The volume display returns to three dashes.
5. Press the **CANCEL** button to exit this menu code.
6. If this is a two sided dispenser, changing one side will automatically change the second side to the same value as the first.

NOTE: The no flow timer works with the dispenser in the ready state (handle up and armed) and in the flow state (handle up and at least .009 Gallons / Liters dispensed).

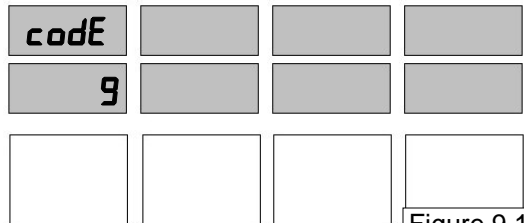


Figure 9.1

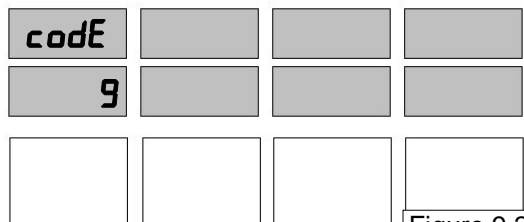


Figure 9.2

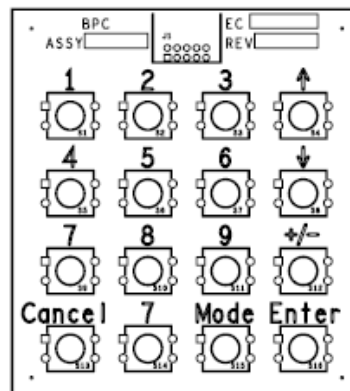


Figure 9.3

How to Program the Dispenser for Operation

How to Set a Slow Flow Amount Menu Code 10

This code applies to console prepay sales or optional local preset sales only. In both cases, the flow of fuel is stopped at a pre-selected amount. At fast flow rates the solenoid valve may not be able to react fast enough to stop at the exact pre-selected amount. A proportional valve is used so that the *fast flow* stage of the valve is closed when a selected unit of volume remains to be dispensed and allows the *slow flow* stage of the valve to complete the sale. Dispensers with higher flow rates require a longer period of time to react and shutdown the valve. For example, at a setting of 0.100, the solenoid valve will go into *slow flow* stage when there is 1/10 (one tenth) of a unit remaining to be delivered to reach the pre-selected amount. The minimum volume that can be selected is 0.1 and the maximum volume that can be selected is 9.9.

Suggested Settings for Gallons or Liters

GALLONS										
.100	.200	.300	.400	.500	.600	.700	.800	.900	1.000	1.300
8-18 GPM					18 GPM or higher					
LITERS										
1	2	3	4	5	6	7	8	9	10	
30 - 68 LPM					68 LPM or higher					

To select a slow flow amount in gallons or liters, follow this procedure:

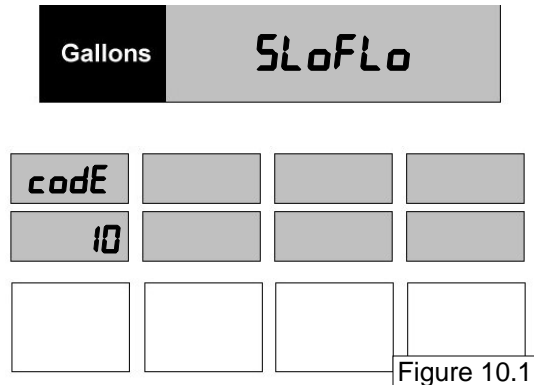
1. After the Manager's Mode has been accessed, press the number 1 and 0, then the **MODE** button on the keypad.

If the dispenser has not been programmed since it came from the factory, the number 0.200 appears in the main display. This is the default setting for a volume of 0.2 units. The price display shows the dispenser is in Menu Code 10. See Figure 10.1.

2. To change the setting, use the 0 through 9 buttons on the keypad to enter a new volume amount. The software allows a maximum value of 9.9 gallons or liters. The suggested setting for the dispenser is 1.000 or lower. See suggested settings above.

NOTE: If an error is made, press the correct number. The new number replaces the error.

3. When the correct setting appears in the volume display, press the **ENTER** button to save the selection.
4. Press the **CANCEL** button to exit this menu code.
5. If this is a two sided dispenser, changing one side will automatically change the second side to the same value as the first.



How to Program the Dispenser for Operation

How To Set A Volume Allocation Limit Menu Code 11

The dispenser can be programmed to stop the flow of fuel at a volume you determine. The dispenser is programmed at the factory to stop the flow of fuel at 0999 volume units. This is the maximum volume limit that can be set for gallons. The maximum limit for liters is 9999 volume units. The minimum volume limit is 0001 unit. **THE DISPENSER WILL NOT OPERATE IF A ZERO LIMIT IS SET.**

NOTE: Some control consoles will overwrite the volume allocation limit.

To set a limit on the volume that can be pumped from the dispenser for each delivery, follow this procedure:

1. After the Manager's Mode has been accessed, press the number 1 and 1, then the **MODE** button on the keypad. The price display shows the dispenser is in Menu Code 11.

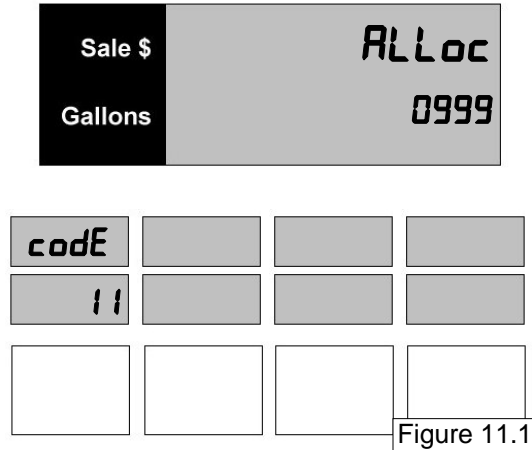
If the dispenser has not been programmed since it came from the factory, the number 0999 appears in the main display. This is the default setting. See Figure 11.1.

2. To change the setting, use the 0 through 9 buttons on the keypad to enter a new volume allocation limit.

Example: If a volume allocation of 0050 has been set, the dispenser stops the flow of fuel at 50 volume units.

NOTE: If an error is made, press the 0 button until the volume display window shows all zeros. Enter a new number.

3. When the correct volume allocation appears in the main display, press the **ENTER** button to save the selection.
4. Press the **CANCEL** button to exit this menu code.
5. If this is a two sided dispenser, changing one side will automatically change the second side to the same value as the first.



How to Program the Dispenser for Operation

How To Program Submerged Pump Precharge Time Menu Code 12

The dispenser software is capable of programming the “time delay” circuits for the main control valves to prevent the leak detector from obtaining a false reading. The submerged pump is energized as soon as the pump handle is put in the **ON** position and the fueling position is authorized.

The main control valves can be programmed to energize from 1 to 9 seconds after the start of the reset cycle. This allows the leak detector time to determine whether or not a leak is present. If no leak is detected, it will allow the flow of fuel.

To program the number of seconds between the time the submerged pump comes on and the main control valve turns on, follow this procedure:

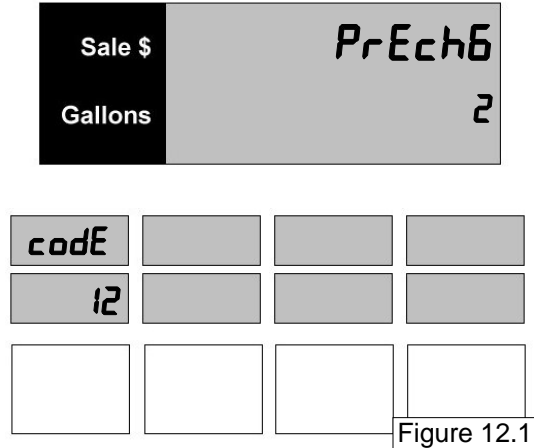
1. After the Manager’s Mode has been accessed, press the number 1 and 2, then the **MODE** button on the keypad. The price display shows the dispenser is in Menu Code 12. See Figure 12.1.

If the dispenser has not been programmed since it came from the factory, the number 2 appears in the main display. This is the two second default setting.

2. To change the setting, use the 1 through 9 buttons on the keypad to enter a time delay value in seconds.

NOTE: If an error is made, press the correct number. The new number replaces the error.

3. When the correct number appears in the volume display, press the **ENTER** button to save the setting.
4. Press the **CANCEL** button to exit this menu code.
5. If this is a two sided dispenser, changing one side will automatically change the second side to the same value as the first.



How to Program the Dispenser for Operation

How to Select Audio Tone Options Menu Code 13

The dispenser can be programmed to emit audio tones when certain buttons are pushed or a pump handle is turned on. The four options available are:

- 0 - No Audio tones
- 1 - Audio tone whenever a button on the keypad is pushed.
- 2 - Intermittent audio tone whenever an unauthorized pump handle is turned on. The tone stops when the dispenser is authorized. This option also emits four audio tones at the beginning of a prepaid sale.
- 3 - Combination of option 1 and 2. (This is the default setting.)

To select one of the options in Menu Code 13, follow this procedure:

1. After the Manager's Mode has been accessed, press the number 1 and 3, then the **MODE** button on the keypad. The price display shows the dispenser is in Menu Code 13.

If the dispenser has not been programmed since it came from the factory, the number 3 appears in the main display. See Figure 13.1. This is the default setting.

2. To change the setting, use the 0 through 3 buttons on the keypad to enter a new option.

NOTE: If an error is made, press the correct number. The new number replaces the error.

3. When the correct option number appears in the volume display, press the **ENTER** button to save the selection.
4. Press the **CANCEL** button to exit this menu code.
5. If this is a two sided dispenser, changing one side will automatically change the second side to the same value as the first.

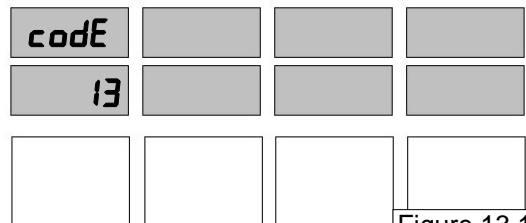


Figure 13.1

How to Program the Dispenser for Operation

How to Select Individual Price Per Volume Display Options Menu Code 14

The Individual Price Per Volume Displays can be programmed to operate several ways. This Menu Code programs the operation of the price displays.

The Flash Option allows the price display for the idle hose to be programmed to act in one of two different ways. The choices are:

- 0 - The price displays are illuminated constantly in the idle mode.
- 1 - **Default** The price displays flash at 1 second intervals in the idle mode.

The Dash option allows the price displays for the unselected displays to be programmed two different ways. The choices are:

- 0 - **Default** All unselected displays become blank after a hose is selected.
- 1 - All unselected displays show dashes after a hose is selected.

The Flip Option allows a two tier price display to be inverted or “flipped” between the cash and credit price displays. This option was added to support various POS systems that display prices opposite of a Verifone Ruby. Example: TMS MPC. The choices for Flip are:

- 0 - **Default** The POS sends the credit price to the top display and cash price to the bottom display.
- 1 - **FLIPPED** The POS sends the the credit price to the bottom display and cash to the top display requiring “FLIP” to be turned on.

The Digit Option is used to program the cpu for a four or five digit PPV display. The choices are:

- 0 - Four Digit Display
- 1 - Five Digit Display

****IMPORTANT:** If option 1 is accidentally selected for a five digit display, on a display only capable of four digits, the display characters will be unreadable and programming will be extremely difficult to perform. Press the CANCEL button on the keypad several times until “S IdE” is displayed. Press the +/- key five times to alternately program the digit function to option 0 for a four digit display.

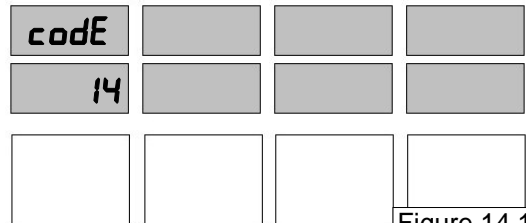


Figure 14.1

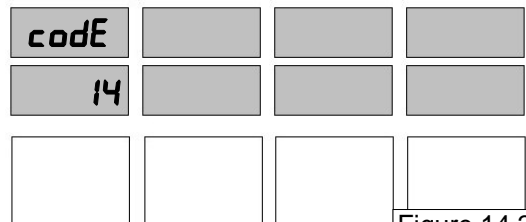


Figure 14.2

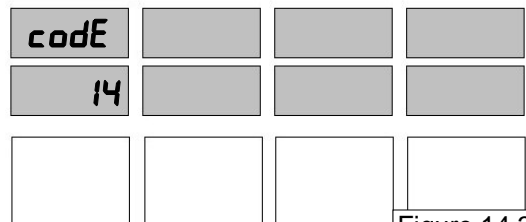
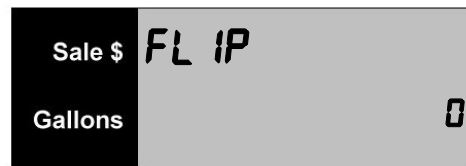


Figure 14.3

Cont'd on next page

How to Program the Dispenser for Operation

How to Select Individual Price Per Volume Display Options Menu Code 14 (Continued)

To select different options in Menu Code 14, follow this procedure:

1. After the Manager's Mode has been accessed, press the number 1 and 4, then the **MODE** button on the keypad. The price display indicates the dispenser is in Menu Code 14.

If the dispenser has not been programmed since it came from the factory, the display appears as in Figure 14.1. This is the default setting for the Flash option. Press **ENTER** to see the Dash option. See Figure 14.2. This is the default setting for the Dash option. Press **ENTER** to see the FLIP option. See Figure 14.3. This is the default setting for the FLIP option. Press **ENTER** to see the Digit option. See Figure 14.4. This is the default setting for the digit option.

2. To change a setting, use the 0 and 1 buttons on the keypad to enter a new setting.

NOTE: If an error is made, press the correct number. The new number replaces the error.

3. When the correct option numbers appear in the main display, press the **ENTER** button to save the selections and then press the **CANCEL** button to exit this menu code.
4. If this is a two sided dispenser, changing one side will automatically change the second side to the same value as the first.

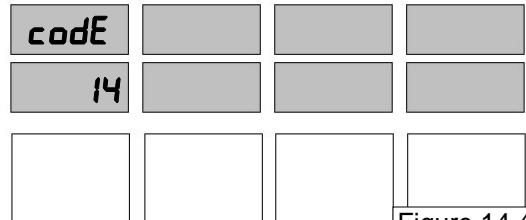
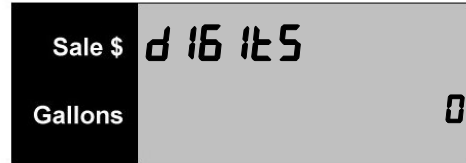


Figure 14.4

How to Program the Dispenser for Operation

How To Select the Fleet Option Menu Code 15

NOTE: This menu code only applies to dispensers connected to a fleet system interface.

This menu (when enabled) will allow a price change after the pump handle has been turned on. This allows the dispenser to be compatible with fleet systems for use in non-retail situations. The dispenser may not be compatible with the fleet system interface if this option is not enabled. The fleet option is set as enabled as a default. The options are:

- 0 - the fleet option is disabled
- 1 - the fleet option is enabled (this is the default)

To select a different option in Menu Code 15, follow this procedure:

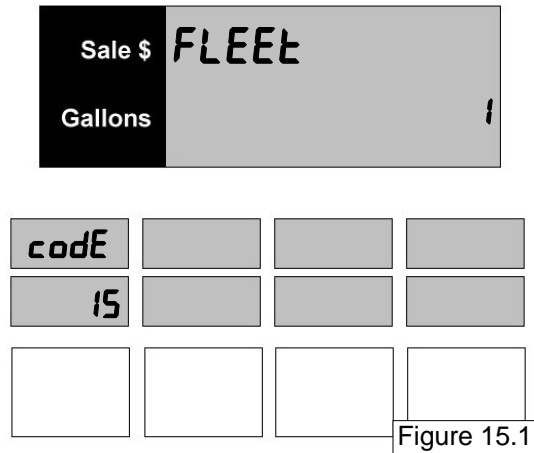
1. After the Manager's Mode has been accessed, press the number 1 and 5, then the **MODE** button on the keypad. The price display shows the dispenser is in Menu Code 15.

If the dispenser has not been programmed since it came from the factory, the number 1 appears in the main display. See Figure 15.1. This is the default setting.

2. To disable the fleet option, press the 0 button on the keypad to enter.

NOTE: If an error is made, press the correct number. The new number replaces the error.

3. When the correct option number appears in the main display, press the **ENTER** button to save the selection.
4. Press the **CANCEL** button to exit this menu code.
5. If this is a two sided dispenser, changing one side will automatically change the second side to the same value as the first.



How to Program the Dispenser for Operation

How to Program the Local Preset and Tax Receipt Printer

The Pacific is available with an optional Local Preset keypad that allows an attendant to preset a money or volume amount to be dispensed. The dispenser will stop the flow of fuel and complete the sale at that preset amount. The Local Preset keypad is an option to the standard Pacific dispenser (See Figure 17.1). When the Local Preset option is purchased, customer may choose to also purchase an optional Tax Receipt Printer. The Tax Receipt Printer is available as an option ONLY when the Local Preset option is also purchased.

If the Local Preset option is present without the Tax Receipt Printer option, no programming is necessary to enable the keypad.

Programming the Tax Receipt Printer is done with the use of a standard PC keyboard with a PS2 connector.

Unlock and gently open the electronic enclosure door.

Plug in the keyboard connector to the PS2 connector on the top of the Local Preset Board. See Figure 17.2. Gently close the electronic enclosure door, and engage one of the two locks slightly to hold the door in place, so that you can see the display of the Local Preset.

As soon as a PC keyboard is plugged in, the Local Preset goes into programming mode.

For instructions to program the Tax Receipt Printer, refer to Manual #106752.

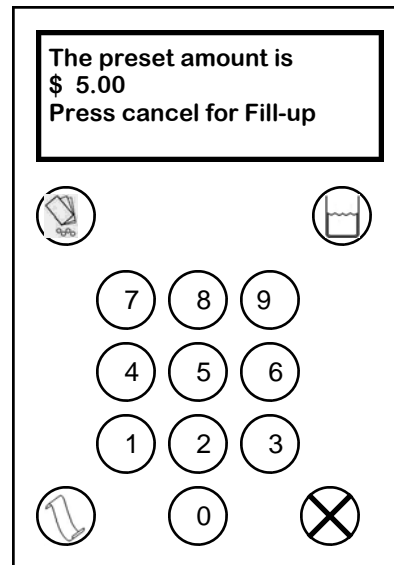


Figure 17.1
Example of Local Preset Keypad when the optional Tax Receipt Printer is purchased. If the optional Tax Receipt Printer is not purchased, the graphic overlay will not show a "PRINT" key.



Figure 17.2
Backside of Local Preset Board
With PC Keyboard connected

How to Program the Dispenser for Operation

How To Change The Money Totals Calculation Method Menu Code 18

This menu code allows the Manager to select the method for calculating Money Totals. The first method adds the value on the display to the Money Totals and stores the amount. This Money Total matches the cash drawer total.

The second method stores the Money Total as it was calculated at delivery. No rounding - Cross multiplication method (volume x Price Per Volume). The Money Total is stored up to seven digits with five decimal places (only two are displayed). This method results in higher accuracy of Money Totals.

The options are:

- 0 - Sale Money is rounded to nearest penny. Cash drawer method of calculation (This is the default).
- 1 - No rounding. Cross multiplication method of calculation (volume x PPV).

To select a different option in Menu Code 18, follow this procedure:

1. After the Manager's Mode has been accessed, press the number 1 and 8, then the **MODE** button on the keypad. The price display shows the dispenser is in Menu Code 18.

If the dispenser has not been programmed since it came from the factory, the number 0 appears in the main display. This is the default setting. See Figure 18.1.

2. To change the setting, use the 0 or 1 button on the keypad to enter a new option.

NOTE: If an error is made, press the correct number. The new number replaces the error.

3. When the correct option number appears in the main display, press the **ENTER** button to save the selection.
4. Press the **CANCEL** button to exit this menu code.
5. If this is a two sided dispenser, changing one side will automatically change the second side to the same value as the first.

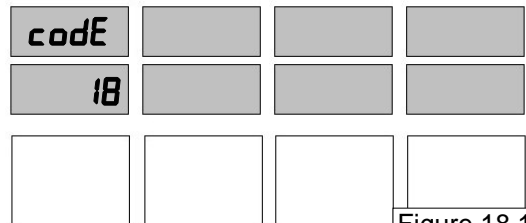


Figure 18.1

How to Program the Dispenser for Operation

How To Set The Dispenser Communication Type Menu Code 21

- 0 - Bennett Current Loop (Bennett 515 Controller to Verifone or TMS MPC)
- 1 - Stand Alone
- 2 - Dresser Wayne Loop (Bennett 621 Controller to POS supporting Wayne Fuel Protocol)
- 3 - Bennett RS485 Retail (Allied NexGen or POS supporting Bennett RS485 Retail)

To select a different option in Menu Code 21, follow this procedure:

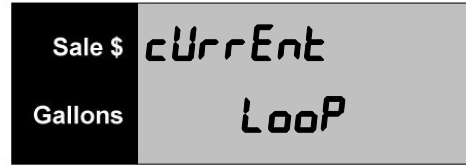
1. After the Manager's Mode has been accessed, press the number 2 and 1, then the **MODE** button on the keypad. The price display shows the dispenser is in Menu Code 21.

If the dispenser has not been programmed since it came from the factory, the default setting is 0 for Current Loop.

2. To change the setting, use the 0 - 3 buttons on the keypad to enter a new option.

NOTE: If an error is made, press the correct number. The new number replaces the error.

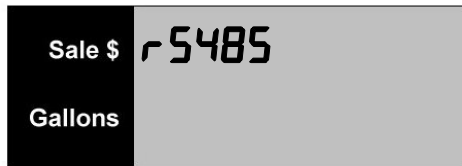
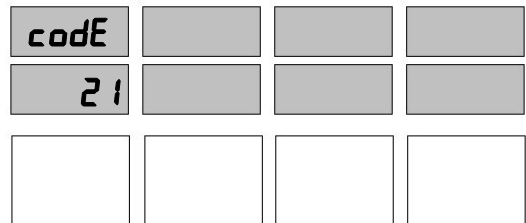
3. When the correct option number appears in the main display, press the **ENTER** button to save the selection
4. Press the **CANCEL** button to exit this menu code.
5. If initial programming of a dispenser with two fueling positions is being performed, program the other side.



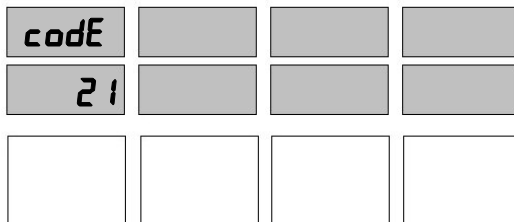
Option 0



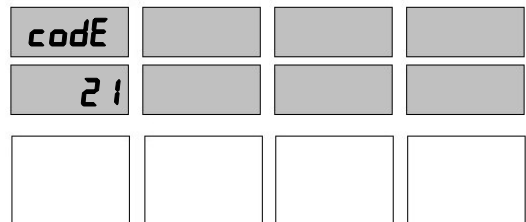
Option 1



Option 3



Option 2



How to Program the Dispenser for Operation

How To Set A Dispenser Address Menu Code 22

This menu code allows the Service Technician to set a dispenser address for each dispenser when multiple dispensers are on the same communications loop. This setting will always be 0 when using Current Loop. However, if more than one dispenser is using the same communications loop, a value of 0 to 255 is available.

To select a different option in Menu Code 22, follow this procedure.

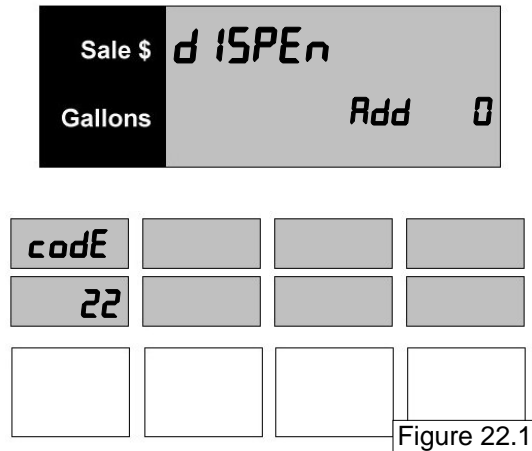
1. After the manager mode has been accessed, press the number 2 and 2, then the **MODE** button on the keypad. The PPV display shows the dispenser in **Menu Code 22**.

If the dispenser has not been programmed since it came from the factory, the number 1 appears in the main display. This is the default setting. See Figure 22.1.

2. To change the setting use the 0, 1, 2, or 3 button on the keypad to enter a new address.

NOTE: If an error is made, press the correct number. The new number replaces the error.

3. When the correct option number appears in the main display, press the **ENTER** button to save the selection
4. Press the **CANCEL** button to exit this menu code.
5. If initial programming of a dispenser with two fueling positions is being performed, program the other side.



How to Program the Dispenser for Operation

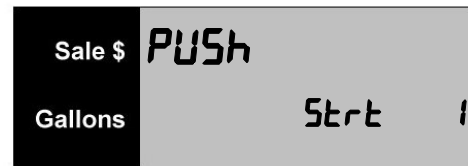
How to Set a Dispenser with the Push to Start Option Menu Code 23

This menu code is used for dispensers with nozzle boots designed with an *automatic on* mechanism. This menu code allows the manager to program the dispenser to wait for the customer to activate a button on the dispenser before fuel can be dispensed. The cash/credit buttons, product buttons or a "Push to Start" button, when equipped, can be programmed to satisfy this requirement. The options are:

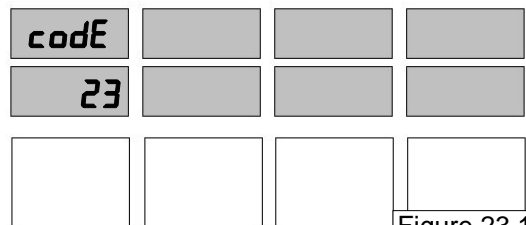
- 0 - Once the dispenser is authorized and the nozzle is removed from the nozzle boot, the motor turns on immediately. The valves turn on as soon as the dispenser completes the reset cycle and the pre-charge time is reached.
- 1 - Once the dispenser is authorized and the nozzle is removed from the nozzle boot, the motor turns on as soon as a product select button is pushed. The valves turn on as soon as the dispenser completes the reset cycle and the pre-charge time is reached.

To select a different option in Menu Code 23, follow this procedure:

1. After the Manager's Mode has been accessed, press the number 2 and 3, then the **MODE** button on the keypad. The Price display shows the dispenser is in Menu Code 23.



If the dispenser has not been programmed since it came from the factory, the number 1 appears in the main display. This is the default setting. See Figure 23.1.



2. To change the setting, use the 0 or 1 button on the keypad to enter a new option.

NOTE: If an error is made, press the correct number. The new number replaces the error.

3. When the correct option number appears in the main display, press the **ENTER** button to save the selection
4. Press the **CANCEL** button to exit this menu code.
5. If this is a two sided dispenser, changing one side will automatically change the second side to the same value as the first.

How to Program the Dispenser for Operation

How to Reset Shift Totals Menu Code 26

This menu code allows the manager or operator to read and reset the electronic re-settable shift hose totals that accumulate in the dispenser for money, volume, number of sales, and number of price changes. The manager can reset after each shift, at the end of each day or any other period of time. This re-setting feature is accessed through Menu Code 26. The totals in Menu Code 1, however, are not affected and will continue to accumulate totals until there is a RAM memory clear.

To read the money totals, follow this procedure:

1. After the Manager's Mode has been accessed, press the number 2 and 6, then the **MODE** button on the keypad. The main sales display appears similar to Figure 26.1.

The main display shows the total money amount. For example: If the total money amount for the dispenser is \$7,890,123.45, the display appears as in Figure 26.1.

The price display window reads P 1 1 .d for Product 1, Money Total, Menu Code 26.

2. To read the money totals for Hose 2 and the remaining hoses, press the **ENTER** button or the number button for the hose (1,2,3,4). The price display reads P 2 1 .d for Product 2, Money Total, Menu Code 26. See Figure 26.2.

To read the volume totals on the dispenser, follow this procedure:

1. Press the ↓ button. The main display indicates Hose 1 volume totals. See Figure 26.3.

The main display shows the total volume amount. For example: If the total volume amount for the dispenser were 901,234.567 gallons, the display would appear as in Figure 26.3.

2. To read the volume totals for Hose 2 and the remaining hoses, press the **ENTER** button or the number button for the hose (1,2,3,4).

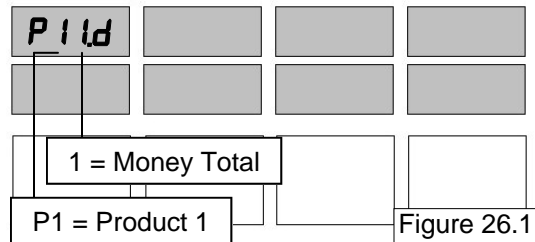


Figure 26.1

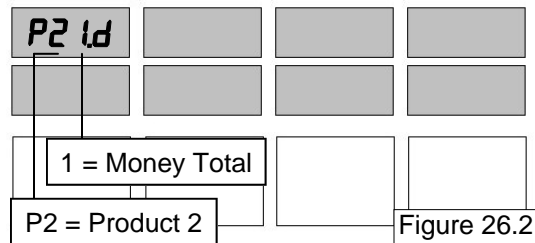
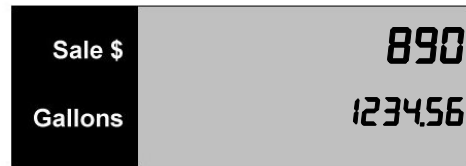


Figure 26.2

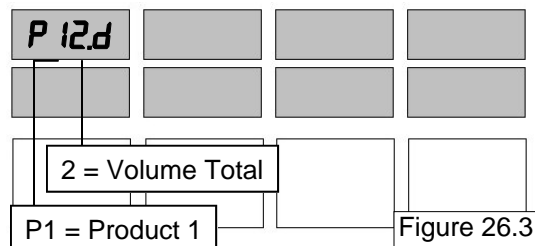


Figure 26.3

How to Program the Dispenser for Operation

To read the total number of sales and total number of price changes, follow this procedure:

1. Press the +/- button. The main sales display indicates Product 1 counter totals. See Figure 26.4.

The top line of the display shows the number of sales for Product 1. The second line shows the number of price changes for Hose 1.

2. To read the counters totals for Product 2 and the remaining hoses, press the ENTER button or the number button for the hose (1,2,3,4).

NOTE: To move from money press the ↑ button, to volume press the ↓ button, to counter totals press the +/- button. Remember, only the number of products selected in Menu Code 7 will be displayed. See Figure 26.5.

If the dispenser is a blender Series:

- The first product represents an unblended Product.
- The middle product represents the blended total of the first unblended Product and the last unblended Product.
- The last product represents the other unblended Product.



WARNING: THE FOLLOWING PROCEDURE ZEROS ALL THE SHIFT MONEY, VOLUME, AND COUNTER TOTALS IN THIS MENU CODE. MAKE SURE ALL TOTALS ARE RECORDED BEFORE PROCEEDING WITH THE NEXT STEP. DATA CANNOT BE RETRIEVED.

3. To reset the totals, press the 0 button. The screen will flash with the message in Figure 26.6.
4. Press ENTER and the display returns to P11.d. ALL TOTALS IN MENU CODE 26 ARE RETURNED TO ZERO.
5. Press the CANCEL button to exit this menu.

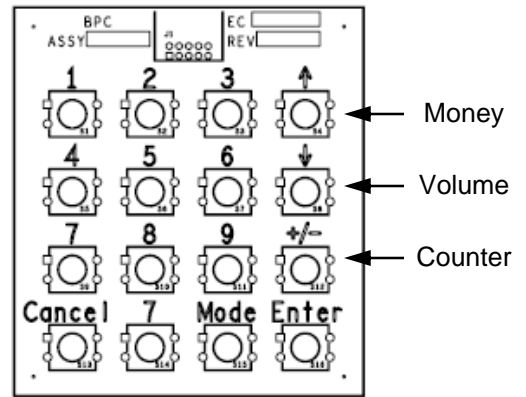
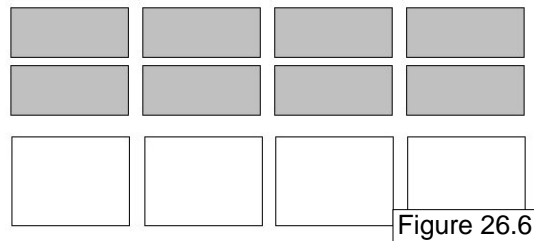


Figure 26.5



How to Program the Dispenser for Operation

How to Perform an Electronic Calibration Menu Code 27

This menu code allows the technician to perform an electronic calibration procedure. These procedures include two different incremental calibration procedures and one overwrite calibration procedure. In an incremental calibration procedure, the new entered value is added to the existing value. In an overwrite calibration procedure, the new entered value replaces the existing value.

WARNING!!! - You must perform the E-Cal prior to dispensing fuel. If the E-Cal isn't performed properly then the dispenser will produce a Calibration error.

Prior to entering Mode 27 you must slide the switch over on the CPU Board. Currently this switch is in "Normal Operating Mode". To gain access to Mode 27 you must slide it to the right anytime before going into this mode. If you attempt to dispense with this switch in "E-Cal Mode" then the dispenser will give you an Error 74.

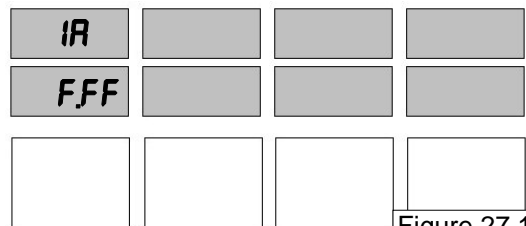


Figure 27.1

The Basic Calibration Procedure

This procedure assumes that the test can sight glass is graduated in units of cubic inches or cubic centimeters (milliliters). If the sight glass is in test can percentage units, refer to the optional calibration procedure in the next section.

Prior to performing any E-Cal procedure you must go to Mode 6 and make sure the dispenser configuration is correct. An incorrect configuration will prevent the use of un-configured meters. You also must make sure that every product has a price other than zero. A zero price will prevent the use of any configured meter.

To perform a basic calibration, follow this procedure:

1. After the Manager's Mode has been accessed, press the number 2 and 7, then the **MODE** button on the keypad. The first display shows the current electronic calibration correction constant of the first configured meter. See figure 27.1. Use the \uparrow button or \downarrow button to view the current electronic calibration correction constant for each configured meter. Once you are viewing the desired meter, press **ENTER**.
2. The main display shows the test can size entry prompt. See figure 27.2. Enter the test can size and press the **ENTER** button. Once the test can size has been entered, the main display for the select dispenser side will show "READY" and the test can size will appear in the first ppv display. The second ppv display will show the volume unit of measure (USG for United States Gallon, LIT for liter or BIG for British Imperial Gallon). See figure 27.3

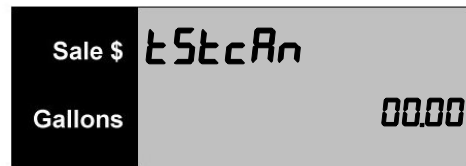


Figure 27.2

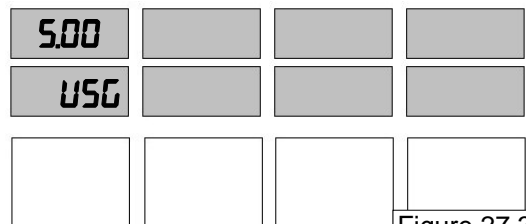
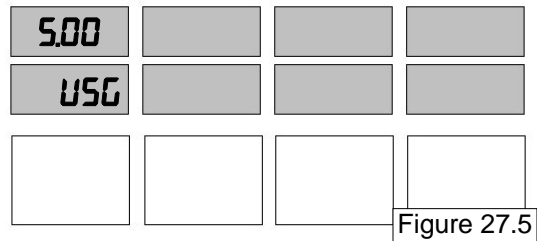
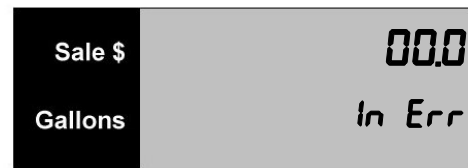
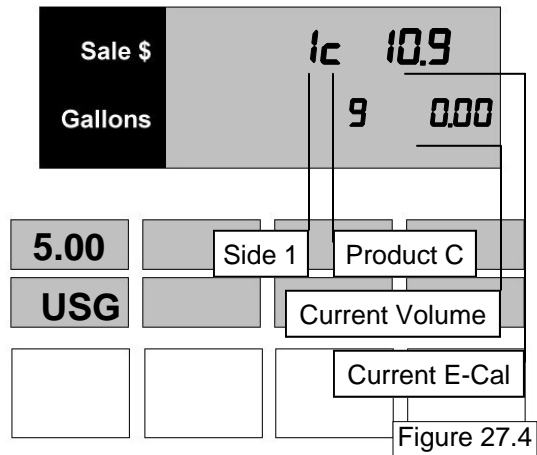


Figure 27.3

How to Program the Dispenser for Operation

3. At this point you are ready to run a test can sale. Turn on the pump handle. If push-to-start is active you will be prompted to push the start button. If the selected pump handle supports multiple products, you will be prompted to choose the desired product.
4. Once the product is selected, the main display will reset. The main money display will show the current electronic calibration correction constant for the selected meter. The volume display will show the current sale volume. See figure 27.4.
5. Run a sale as close as possible to the test can size entered in step 2 and turn off the pump handle. The display will change to the error entry display. See figure 27.5
6. Depending on the volume unit of measure, the error display will either show "in Err" for cubic inches or "cc Err" for cubic centimeters (milliliters). Enter the amount of the error (positive or negative) and press the **ENTER** button. You can only change the amount to a negative value after the entered amount is other than zero. Once the **ENTER** key is pressed, the main display will show "READY". Go to step 3 to run another test can or press **CANCEL** to exit.

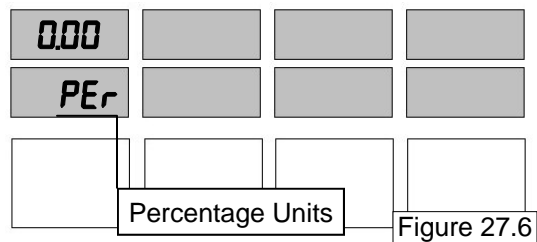
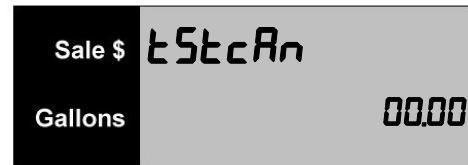


The Optional Calibration Procedure

This procedure assumes that the test can sight glass is graduated in test can percentage units rather than cubic inches or cubic centimeters (milliliters) as in the basic calibration procedure. If the sight glass is in cubic inches or cubic centimeters, refer to the basic calibration procedure.

To perform the optional calibration, follow this procedure:

1. Repeat step one from the basic calibration procedure.
2. The main display now shows the test can size entry prompt. Before entering the test can size, press the +/- button. This switches the error entry mode from cubic units to percentage units. The second ppv display will show "PER" to confirm the percentage unit mode. See figure 27.6. Enter the test can size (still in gallons or liters) and press the ENTER button. Once the test can size has been entered, the main display for the select dispenser side will show "READY" and the test can size will appear in the first ppv display. The second ppv display will still show "PER" for the percentage unit mode for error entry.



How to Program the Dispenser for Operation

3. Repeat steps 3 - 4 from the basic calibration procedure.
4. The error display will show "PC Err" for percent error. Enter the amount of the error (positive or negative) and press the **ENTER** button. You can only change the amount to a negative value after the entered amount is other than zero. Once the **ENTER** key is pressed, the main display will show "READY". Go to step 3 to run another test can or press **CANCEL** to exit.

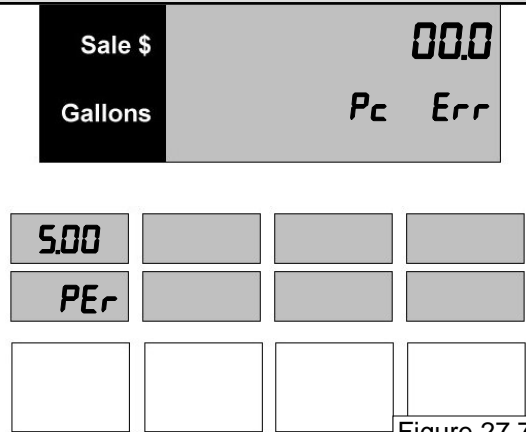


Figure 27.7

The Direct Percentage Entry Procedure

This procedure provides a way of zeroing or overwriting the electronic calibration correction constant. This procedure requires no test can.

To perform the direct percentage entry, follow this procedure:

1. Repeat step one from the basic calibration procedure.
2. The main display now shows the test can size entry prompt. Press the \uparrow button to bypass the test can prompt and access the direct percentage entry menu. See figure 27.8
3. The \uparrow button or the \downarrow button is used to select the meter. Note that only the top ppv will display the selected meter as you press these buttons.
4. As the new electronic calibration correction constant is entered, it will show up in the main volume display. When the **ENTER** button is pressed, the entered electronic calibration correction constant is loaded into the current meter and appears in the second ppv display. Go to step 3 to update another meter or press the **CANCEL** button to exit this menu code.

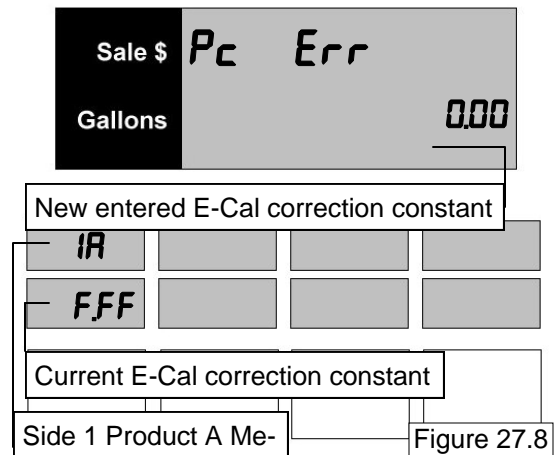


Figure 27.8

How to Program the Dispenser for Operation

How to Set Rounding or Truncating the Sale Money Menu Code 28

This menu code allows the manager or operator to set the dispenser for rounding or truncating the sale money. The rounding option is set as the default.

- 0 - Truncating the Sale Money
- 1 - Rounding the Sale Money (this is the default).

To select a different option in Menu Code 28, follow this procedure:

1. After the Manager's Mode has been accessed, press the number 2 and 8, then the **MODE** button on the keypad. The price display shows the dispenser is in Menu Code 28.

If the dispenser has not been programmed since it came from the factory, the number 1 appears in the main display. This is the default setting. See Figure 28-1.

2. To change the setting, use 0 or 1 button on the keypad to enter a new option.

NOTE: If an error is made, press the correct number. The new number will replace the error.

3. When the Correct option number appears in the main display, press the **ENTER** button to save the selection.
4. Press the **CANCEL** button to exit this menu code.
5. If this is a two sided dispenser, changing one side will automatically change the second side to the same value as the first.

Note: In order to guarantee that the sale display cross multiplies properly for Weights & Measures, you must round the Sale Money.

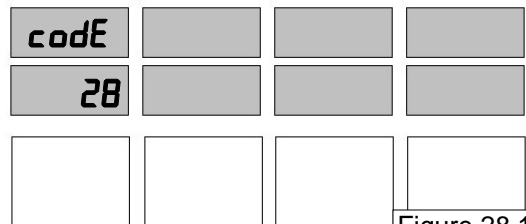


Figure 28.1

How to Program the Dispenser for Operation

How to Set the Resettable Electronic Volume Totals Menu Code 29

This menu code is for the modification of the resettable electronic volume total. Every time a sale is completed, the corresponding volume total is updated.

To set the volume totals in mode 29, follow this procedure:

1. After the Manager's Mode has been accessed, press the number 2 and 9, then the **MODE** button on the keypad. The top left price display shows the dispenser is in Menu Code 29. The first digit shows you that it is displaying the totals for the volume of Product 1. The bottom left price display shows you that it is displaying side 1. See figure 29.1
2. To change the volume press the numeric keys on the Manager's Keypad until the desired number appears on the Money / Volume Display.
3. To advance to the next product hit the **Enter** button. See figure 29.2. The top left price display shows "02" which tells you that it is displaying the totals for the volume of Product 2.

NOTE: If an error is made, press the correct number. The new number will replace the error.

3. When the Correct option number appears in the main display, press the **ENTER** button to save the selection.
4. Press the **CANCEL** button to exit this menu code.
5. If this is a two sided dispenser, changing one side will automatically change the second side to the same value as the first.

NOTE: If you are viewing the Total for a Non-Blender then the PPV Display will show a "1" (without a 0 preceding the product number). If you are viewing the Total for a Blender then the PPV Display will show a "02" (with a 0 preceding the product number).

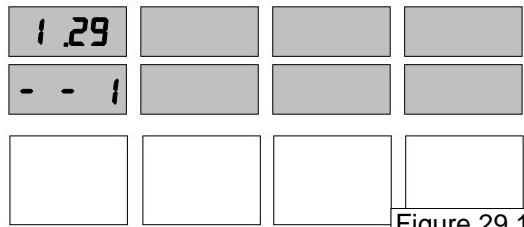


Figure 29.1

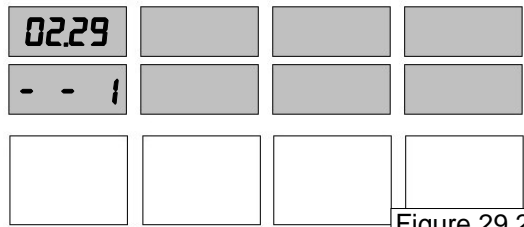
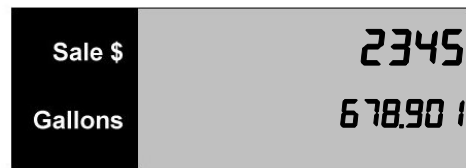


Figure 29.2

How to Program the Dispenser for Operation

How to Perform a RAM Clear Menu Code 49

Sometimes it may be necessary to perform a “RAM Clear” procedure. This is a procedure that should only be done after all other logical troubleshooting steps have been exhausted. It is used sometimes if the dispenser software stops operating. Or, if the main memory gets “corrupted” or “filled with garbage”. This procedure will clear the memory.

To clear the RAM in mode 49, follow this procedure:

1. After the Manager’s Mode has been accessed, press the number 4 and 9, then the **MODE** button on the keypad. See figure 49.1.
2. To perform the RAM Clear you must hit the 1 button then **ENTER**. At this point the display will say, “COLd StArt” for approximately 45 seconds. See figure 49.2.
3. After 45 seconds the display will act like you just plugged in the manager’s keypad for the first time. See figure 49.3. You will have to re-enter the password in Mode 03 before proceeding.

Caution - Some dispenser programming may be lost after the RAM Clear and system reprogramming will be required.

Caution - This procedure will zero out electronic pump totals.

Caution - Do not show your customer how to do this procedure. This procedure should only be performed by factory trained personnel.

Note : The RAM Clear procedure is not a warranted procedure unless Technical Support is contacted and recommends it.



Figure 49.1

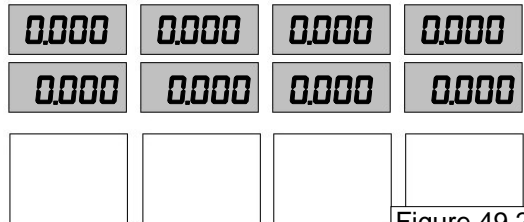


Figure 49.2

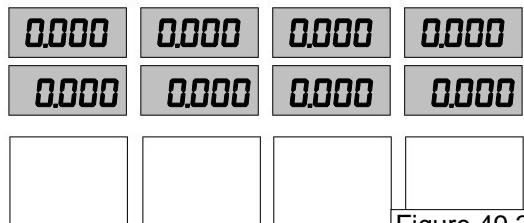


Figure 49.3

How to Program the Dispenser for Operation

How to Set the UART Restart Time Menu Code 98

This mode is for the UART restart time. It determines the amount of time before the communication UART is restarted. There are times where the dispenser stops communicating with the console in the field. By restarting the UART, communication is restored.

To set the UART restart time in mode 98, follow this procedure:

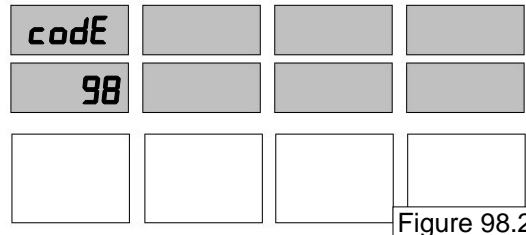
1. After the Manager's Mode has been accessed, press the number 9 and 8, then the **MODE** button on the keypad. See figure 98.1.
2. The default value for this is 120. This means that it will reset after 120 seconds of no communication.

You can set this from 5 seconds to 200 seconds.

3. Press the numeric keys to enter the desired time for the reset.
4. If you press the \uparrow button then you will disable the timer and it will not reset. If this is done then " - - -" will appear on the screen. See figure 98.2.

NOTE: If an error is made, press the correct number. The new number will replace the error.

5. When the Correct option number appears in the main display, press the **ENTER** button to save the selection.
6. Press the **CANCEL** button to exit this menu code.
7. If this is a two sided dispenser, changing one side will automatically change the second side to the same value as the first.



How to Program the Dispenser for Operation

How to Set Volume Units and View E-CAL Values Menu Code 99

This menu code sets the unit of measurement used in the country where the dispenser is located.

The first option allows the technician to set the dispenser for the following options:

- 1 - Gallons (this is the default)
- 2 - Liters
- 3 - British Imperial Gallons

The second option allows the technician to choose the setting for two decimal places or three decimal places.

- 1 - 1000th (volume resolution - gallons “.001”) - this is default
- 2 - 100th (volume resolution - liters “.01”)

The third option is for viewing the E-Cal settings.

To select a different option in Menu Code 99, follow this procedure:

1. After the Manager’s Mode has been accessed, press the number 9 and 9, then the **MODE** button on the keypad. The price display shows the dispenser is in Menu Code 99.

If the dispenser has not been programmed since it came from the factory then it will be set for the default.

The 0 (if new) or any other number which appears in the second row under the 1 is a counter. It tracks the number of times this setting has been changed. See figure 99.1.

2. To change the setting, use the 1, 2 or 3 button on the keypad to enter a new option. Press **ENTER**. The display moves to the Decimal Place Configuration. See figure 99.2. The choice is 1 for three decimal places or 2 for two decimal places. *This only affects a dispenser set for gallons or liters*

Again, The 0 (if new) or any other number which appears in the second row under the 1 is a counter. It tracks the number of times this setting has been changed.

3. After you press **ENTER** then you will be able to view the E-Cal values for each product. See figure 99.3

4. Press the **CANCEL** button to exit this menu code.

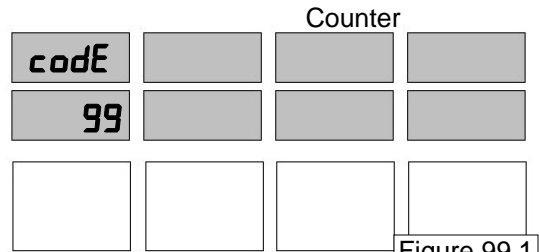


Figure 99.1

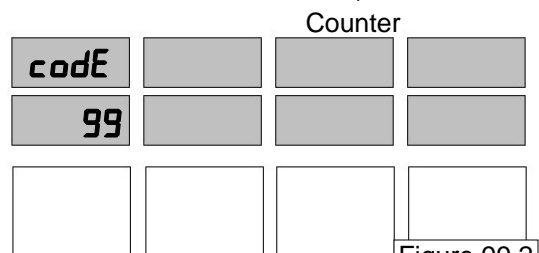


Figure 99.2

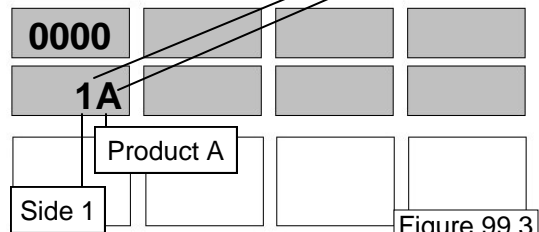


Figure 99.3

How to Use Diagnostics

How to Use Diagnostics Menu Code 0

To enter Diagnostics the manager's keypad must be connected to the dispenser to place the dispenser into the manager's mode. See page 18 for instructions on how to attach the manager's keyboard. Make sure the A.C. Reset switch is in the ON position, and the pump handles are all in the OFF position. These instructions will not be repeated for each Menu Code.

Diagnostic tests have been programmed into the dispenser software to help the operator and service technician troubleshoot failures of the dispenser. The dispenser can run several levels of self-diagnostic tests to determine where the failure has occurred. The levels that will be discussed here are:

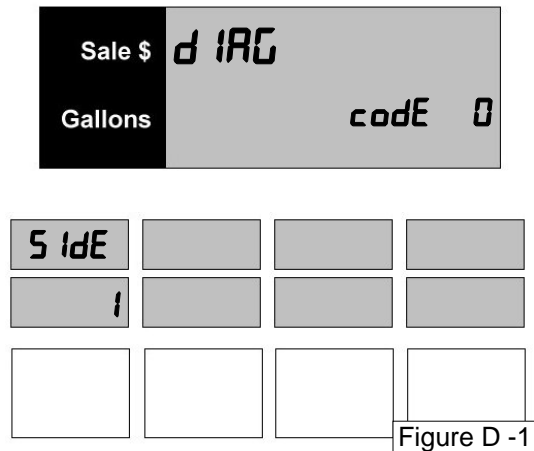
Diagnostic Code	Description	Diagnostic Code	Description
0	.1 Design Type	6	.2 Uart Failure Counter
0	.2 Software Release Number	6	.3 Cold Start Counter
0	.3 Software I.D. Number (CKsum)	6	.4 Reserved
1	Display Segment Test	6	.5 Reserved
2	Fault History	6	.6 Reserved
3	CPU Test (Error 99)	6	.7 Reserved
4	RAM Test	7	Keyboard/Switch/Beeper Test
5	Pump Handle Test	8	State Transition History
6	.1 Power Failure Counter		

By performing a diagnostic test, the operator or manager can inform the service technician of the problem before coming to the site. The service technician can then anticipate which repair parts to bring to the site.

To enter Diagnostics, follow this procedure:

After the correct number (1 or 2) has been entered for the side to be viewed, press the 0 button and then the **MODE** button on the keypad. The main display appears as in figure D-1. The price shows the Side being read.

From this point, any test can be entered by pressing the number of the test and the **ENTER** button. To exit a diagnostic test, press the **CANCEL** button.



How to Use Diagnostics

Diagnostic Code 0

This test is used to display the design type, software revision level, and the software identification or checksum of this software.

To enter this test, enter diagnostics and press the 0 button on the keypad and the **ENTER** button. If you have just entered diagnostics, press **ENTER** to see the first level of Test 0.

0.1 - Design Type. The display shown in figure D-2 appears. The price display shows the dispenser is in Diagnostics Level 0.1.

The number 6 is the default. It means the dispenser is a "708 CPU design" computer.

Press **ENTER** to move to the next level of Diagnostic Code 0.

0.2 - Software Release Number. The display shown in figure D-3 appears. The price display shows the dispenser is in Diagnostics Level 0.2.

The current level of software installed in the dispenser is displayed, which will change from version to version.

Press **ENTER** to move to the next level of Diagnostic Code 0.

0.3 - Software I.D. Number. The display shown in figure D-4 appears. The price display shows the dispenser is in Diagnostics Level 0.3.

This field is a number that identifies the software revision level. This will change from software version to software version.

At this point, if **ENTER** is pressed, the Design Type is redisplayed. Continue to press **ENTER** to move from one level to another of Diagnostics Code 0.

Press the **CANCEL** button to exit this code. Press the **CANCEL** button twice to exit Diagnostics.

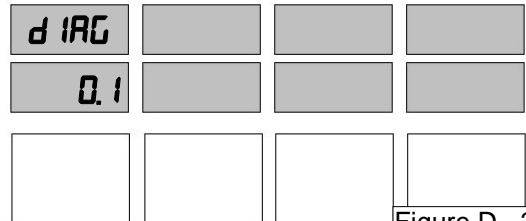


Figure D - 2



Figure D - 3

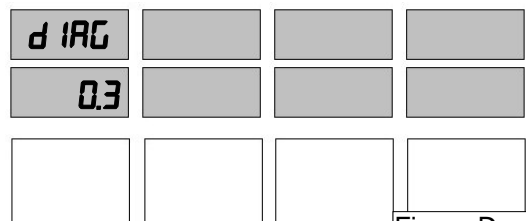


Figure D - 4

How to Use Diagnostics

Diagnostic Code 1 - Display Segment Test

This test is used to identify failed segments in the main sales displays or the individual price per volume (IPPV) displays.

To enter this test, enter diagnostics and press the 1 button on the keypad and the **ENTER** button.

The main sales display window will instruct you the press the **ENTER** button to begin. See figure D-5a.

Each time you hit the **ENTER** button a new set of segments will be displayed. See figure D-5b.

Press the **CANCEL** button to exit this code. Press the **CANCEL** button twice to exit Diagnostics.

Diagnostic Code 2 - Error History

The error log file provides 40 entries total. The latest 40 errors are included in the error log file. The errors are displayed for the selected side. If the latest 40 errors were all on side 2, then no errors would be displayed on side 1, and 40 errors would be displayed on side 2. Refer to figure 6.

To enter this test, enter diagnostics and press the 2 button on the keypad and the **ENTER** button. Press the Enter button to view the data in descending chronological order.

Press the **CANCEL** button to exit this code. Press the **CANCEL** button twice to exit Diagnostics.

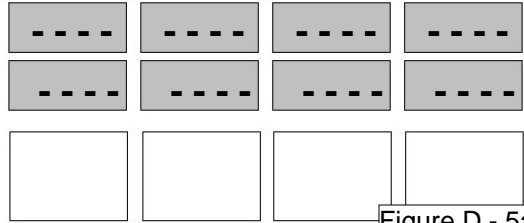


Figure D - 5a

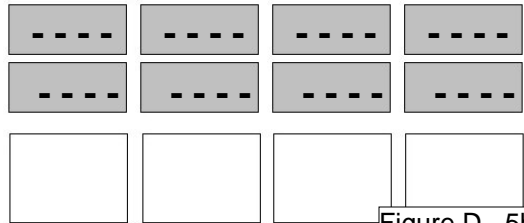
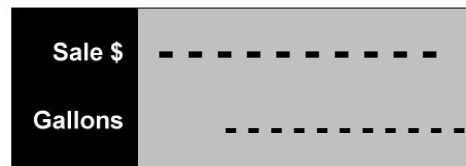


Figure D - 5b

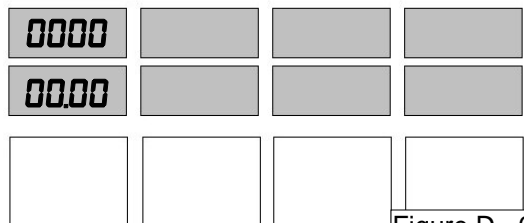


Figure D - 6

How to Use Diagnostics

Diagnostic Code 3 - CPU Test

This test deliberately introduces a fault into the arithmetic unit of the CPU. The display must then read **ERROR 99** indicating the system has detected the fault. If the message is not displayed, the test has failed.

To enter this test, enter diagnostics and press the 3 button on the keypad and the **ENTER** button.

A typical test appears as in figure D-7

The 99 error will clear when the **CANCEL** button is pushed to exit Diagnostics.

Press the **CANCEL** button to exit this test. Press the **CANCEL** button twice to exit Diagnostics.

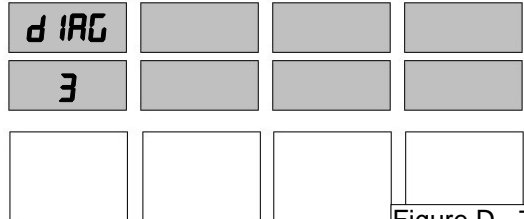
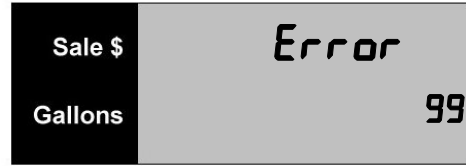


Figure D - 7

Diagnostic Code 4 - RAM Test

To enter this test, enter diagnostics and press the 4 button on the keypad and the **ENTER** button.

This test is used to test the system RAM. The CPU performs a RAM test to determine if RAM is good or corrupted.

If the RAM failure is detected by the RAM test, the displays flash the message in figure D-8a.

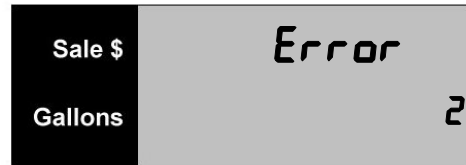


Figure D - 8a

If a RAM failure is not detected by the RAM test, the displays flash the message in figure D-8b.

Press the **CANCEL** button to exit this test. Press the **CANCEL** button twice to exit Diagnostics.

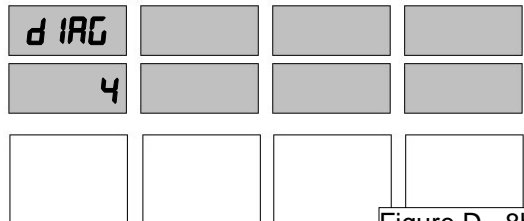


Figure D - 8b

How to Use Diagnostics

Diagnostic Code 5 - Pump Handle Test

To enter this test, enter diagnostics and press the 5 button on the keypad and the **ENTER** button.

This test checks the status of the pump handles on the dispenser. The CPU reads the pump handle switches and writes the status of each handle to the display.

When all handles are off, the display appears as in figure D-9a. When a handle is turned on, an A or b should appear. See figure D-9b for an example of the A pump handle raised.

Turn each pump handle on individually or all at once to test the status.

Press **CANCEL** button to exit this test. Press the **CANCEL** button twice to exit Diagnostics.



Figure D - 9a

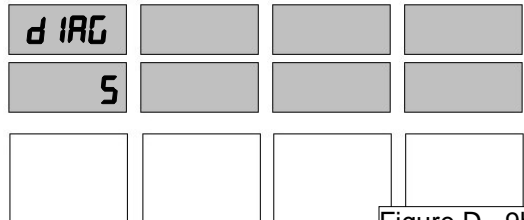


Figure D - 9b

How to Use Diagnostics

Diagnostic Code 6 - Power Failure Counter

This code is used to investigate intermittent problems with power. The counters keep track of the number of times a power failure occurs.

To enter this test, enter diagnostics and press the 6 button on the keypad and the **ENTER** button.

6.1 - Power The display shown in figure D-10a appears. The Price display shows the dispenser is in Diagnostics Level 6.1.

The number of power failures that have occurred since the system was reset (cold start) appears on the second line of the main display.

Press **ENTER** to advance to the next counter.

Communications Failure Counter

This code is used to investigate intermittent problems with communications. The counters keep track of the number of times a communications (UART) failure occurs.

6.2 - Communication The display shown in figure D-10b appears. The Price display shows the dispenser is in Diagnostics Level 6.2.

The number of communications failures that have occurred since the system was reset (cold start) appears on the second line of the main display.

To zero the counter, press the following buttons on the manager's keypad in the sequence listed:

Press **↑**, Press **↓**, Press **+/-**

NOTE: After this three button sequence is entered, the counter displayed is cleared.

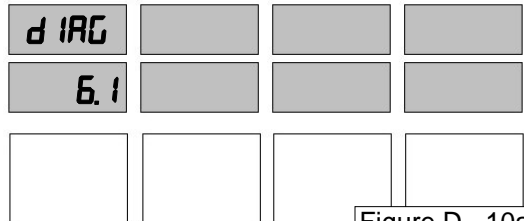


Figure D - 10a

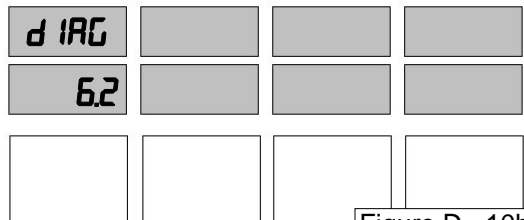


Figure D - 10b

Diagnostic Code 6 continued on next page...

How to Use Diagnostics

Continued ...

Press **ENTER** to advance to the next counter.

Cold Start Counter

This code is used to tell the technician how many times a Cold Start has been performed on the dispenser.

6.3 - Cold Start The display shown in figure D-10c appears. The Price display shows the dispenser is in Diagnostics Level 6.2.

The number of Cold Starts that have occurred appears on the second line of the main display.



Figure D - 10c

Other Failure Counters

- 6.4 - y9Err 1
- 6.5 - y9Err 2
- 6.6 - y9tOt 1
- 6.7 - y9tOt 2

These counters are used for Engineering and not to be used in the field.

Press the **CANCEL** button to exit this test. Press the **CANCEL** button twice to exit Diagnostics.

Diagnostic Code 7 - Keyboard, Switch and Beeper Test

To enter this test, enter diagnostics and press the 7 button on the keypad and the **ENTER** button. The display shown in figure D-11 appears.

This code is used to test the switches for the product buttons.

During this test the dispenser emits a tone when each product key is pressed. The name of the button appears in the top line of the display.

If no tone is heard, the button or key failed the test. The main display shows the name of the last button pressed.

Press the **CANCEL** button twice to exit this test. Press the **CANCEL** three times to exit Diagnostics.

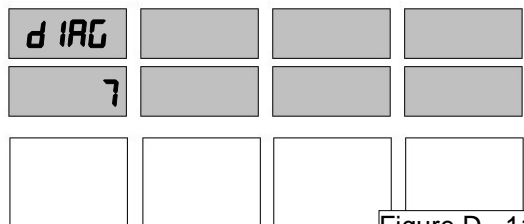


Figure D - 11

How to Use Diagnostics

Diagnostic Code 8 - State Transition History

This test is used to view the state transition log maintained by the CPU board. It stores a history of all state transitions which occur during the operation of the dispenser. It is capable of storing the last 40 state transitions and events that have occurred since the last cold start (zeroing the RAM).

Enter this code to display the states that have been stored in the dispenser memory. If no changes in state have been recorded, the display flashes the message in figure D-12a.

To enter this test, enter diagnostics and press the 8 button and the **ENTER** button.

If there are states recorded, the display is read as in figure D-12b. See explanation below:

State Definitions

nnnnnn	Is the six character name of the state. See Table 1 for a list of all possible state names.
ee	Is the event code for the event that caused the state transition. See Table 1 for a list of all possible event codes.
xx	Is the next state code for the transition. See Table 1 for the list of all possible next state codes.
dddd	Is the number of elapsed days from cold start that the displayed state occurred. Push volume to see the seconds.
hh	Is the hours portion of the elapsed time since the displayed state occurred
mm	Is the minutes portion of the elapsed time since the displayed state occurred.

Press the **ENTER** button to view the next transition in the state transitions log. Each time the **ENTER** button is pressed the next logged transition is displayed.

The previous transition can be displayed by pressing the **←** button. Press the **ENTER** button to move forward through the log.

When all logged transitions have been viewed, the display flashes the message shown in figure D-12c.

Press the **CANCEL** button to exit this test. Press the **CANCEL** button twice to exit Diagnostics.

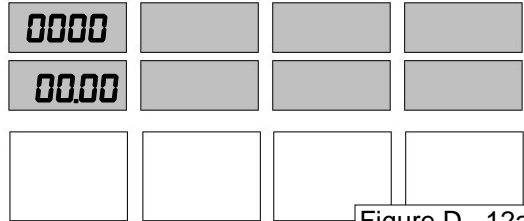


Figure D - 12a



Figure D - 12b

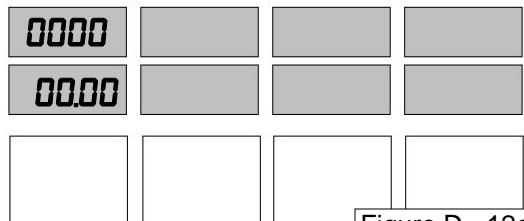
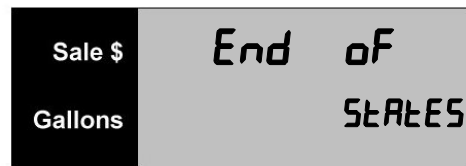


Figure D - 12c

Table 1 - State Descriptions is continued on next page...

How to Use Diagnostics

Table 1—State Descriptions

xx State Code	nnnnn State Name	Description	ee Event Code	Event Name
00	IdLE	Idle	0	Handle Active
01	ARm	Arm	1	Handle Idle
02	hARndLE	Handle	2	Set Arm
03	rERdy	Ready	3	Clear Arm
04	FLo	Flow	4	Flow Active
05	SUSPnd	Suspend	5	Set Paid
06	coLLct	Collect	6	Attendant Key On
07	PEndnG	Pending	7	Attendant Key Off
08	Attndt	Attendant	8	Blank Display
09	Error	Error	9	Fault
10	Erclct	Error Collect	10	Noflow Timeout
11	Attclct	Attendant Collect	11	Power Failure
12	toTALS	Totals	12	Totals Active
13	blANcd	Blanked	13	Totals Idle
14	FLodnE	Flow Done	14	Sale Done
15	StAnd	Stand Alone	15	Error Sale Done
			16	Warm Start
			17	Self Arm
			18	Setup Change
			19	Emergency stop Active
			20	Emergency stop Idle

Maintenance



WARNING: Do not use a high pressure washer to clean the dispenser. Liquid under pressure can enter the dispenser cabinet and damage electronic components.

Keep the dispenser clean and protected. It will keep a new pump appearance longer.

To clean painted surfaces, follow this procedure:

1. Wash the dispenser in a solution of warm water and a mild detergent that removes grease and oil.
2. Rinse thoroughly with clean water.
3. Dry all surfaces with a clean cloth.
4. If the surface is dull due to oxidation, apply a cleaner specially formulated to remove oxidation to the clean surface. This will restore luster to the painted surface.



WARNING: Do not use strong detergents, petroleum solvents, abrasive cleaners or steel wool to clean the dispenser.

To clean stainless steel, anodized aluminum or chrome plated panels, follow this procedure:

1. Wash the dispenser in a solution of warm water and a mild detergent that removes grease and oil.
2. Rinse thoroughly with clean water.
3. Dry all surfaces with a clean cloth.
4. Apply a coat of non-abrasive paste wax to protect the panels from corrosion.

NOTE: To remove tree resin or sap from dispensers, use turpentine.

Related Literature

Part No.	Description
111102	Pacific Series Electronic Installation Manual
111660	Pacific Series Operators Manual
111661	Pacific Series Electronic Service Manual
116029	Bennett SPM (Debit / Credit) Manual
105022	515 Pump Controller Installation and Service
116146	SB-100 Meter Operation, Service, and Parts Manual
116186	621 Fuel Interconnection Box Manual
117866	NexGen Controller Installation Guide for Bennett Pumps
116029	SPM Credit / Debit Module Programming, Service, and Parts Manual

Contacting Bennett Pump

Bennett Marketing Services can be contacted by mail, fax, telephone or e-mail at the locations specified below:

Bennett Pump Company
Marketing Services
1218 E. Pontaluna Road
Spring Lake, Michigan USA 49456

Telephone from USA: 800-235-7618
Telephone from outside the USA: 231-798-1310, Extension 259
Fax: 231-799-6202

USA / Canada E-mail: sales@bennettpump.com
International E-mail: intlsales@bennettpump.com
www.bennettpump.com

PCI SSC - Legal Terms and Conditions

PCI SSC's approval only applies to PEDs that are identical to the PED tested by a PCI Security Standards Council recognized laboratory. If any aspect of the PED is different from that which was tested by the laboratory - even if the PED conforms to the basic product description contained the letter, then the PED model should not be considered approved, nor promoted as approved. For example, if a PED contains firmware, software, or physical construction that has the same name or model number as those tested by the laboratory, but in fact are not identical to those PED samples tested by the laboratory, then the PED should not be considered or promoted as approved.

No vendor or other third party may refer to a PED as "PCI Approved" nor otherwise state or imply that PCI SSC has, in whole or part, approved any aspect of a vendor or its PEDs, except to the extent and subject to the terms and restrictions expressly set forth in a written agreement with PCI SSC, or in an approval letter. All other references to PCI SSC's approval are strictly and actively prohibited by PCI SSC.

When granted, an approval is provided by PCI SSC to ensure certain security and operational characteristics important to the achievement of PCI SSC's goals, but the approval does not under any circumstances include any endorsement or warranty regarding the functionality, quality, or performance of any particular product or service. PCI SSC does not warranty any products or services provided by third parties. Approval does not, under any circumstances, include or imply any product warranties from PCI SSC, including, without limitation, any implied warranties of merchantability, fitness for purpose or noninfringement, all of which are expressly disclaimed by PCI SSC. All rights and remedies regarding products and services, which have received an approval, shall be provided by the party providing such products or services, and not by PCI SSC or the payment brand participates.

Bennett Limited Warranty for Products Installed in the United States - Pacific & Horizon II

Bennett Pump Company guarantees new Service Station Equipment manufactured by Bennett against defects in material or workmanship during the warranty period in accordance with the provisions stated below:

- The Site Audit Report issued with all equipment must be completed and returned at time of installation to Bennett Pump Company, Spring Lake, MI to initiate warranty.
- Warranty service must be performed by the nearest Bennett Authorized Service Representative qualified to perform service on the defective equipment. Only Authorized and Certified Service Representatives are allowed to perform warranty service. Use of service personnel other than qualified Bennett Service Representatives without prior approval by Bennett Pump Company will void payment of any warranty claims.
- Labor and travel costs incurred while servicing Bennett equipment will be paid at previously contracted rates subject to published standard repair time allowances to qualified Bennett Service Representatives with travel cost limited to 200 miles. Travel cost shall be limited to 4 hours round trip.
- Bennett equipment has been installed according to the manufacturer's instructions and diagrams.
- During the warranty period, Bennett Pump Company will, at its option, repair or replace defective parts returned to its factory, transportation charges prepaid.
- The manufacturer reserves the right to make changes in the design or to make additions

Dispensers – Pacific & Horizon 2 Series Dispensers (excluding Natural Gas, Hydrogen and Hydraulic-less Dispensers)

Warranty on parts, labor, and travel is 24 months from date of installation or 30 months from date of Bennett's original invoice, whichever comes first.

Warranty excludes nozzles, hoses and fittings, hose retractor, filters, belt adjustments, paper jams, light bulbs, or any leaks after the installation start-up and audit. Minor adjustments such as meter calibration, pulser adjustments, and handle switch adjustments, customer specified items manufactured by others, and customer requested reprogramming of equipment are not covered by warranty.

Field Retrofit Card Readers, Payment Modules, Cash Acceptors, and all other field retrofit Accessories

The field retrofit assembly is warranted for parts only for 12 months from date of installation or 18 months from date of original invoice, whichever comes first, except the receipt printer and driver board which is warranted for parts for ninety (90) days from the date of installation or 180 days from original invoice, whichever comes first.

Consumable Items such as receipt paper are not warranted. The use of receipt paper not specified by Bennett will void the printer assembly warranty.

Model 515 Pump Controller, 621 Module, Fan Out Boxes

Warranty on parts, labor and travel is 12 months from the date of installation or 18 months from the date of original invoice, whichever comes first.

Software

Bennett Pump Company warrants Bennett products and software packages, whose operation is controlled by Bennett designed and developed software, shall be free of material defects and conform to current Bennett specifications for a period of ninety (90) days from the date of original invoice. Bennett shall use its best effort to correct such defects and to supply to purchaser at Bennett's expense, a corrected version within a reasonable time after purchaser notifies Bennett in writing of any defects and provides the programs and instructions required to reproduce the claimed defect.

Warranty does not cover any modification to the program, the Bennett product, and/or connection to unapproved equipment made by any person or any defect caused by such modifications/connections.

Upgrade Kits

Bennett offers kits which are installed as an option to enhance operating features of an existing Bennett product are warranted for parts only for ninety (90) days from date of installation or 12 months from date of original invoice, whichever comes first. Upgrade Kit warranty applies to kit components only. Warranty status of the remainder of the product remains unchanged.

Spare Parts

For equipment under warranty: The warranty period for all spare parts replaced is the remainder of the original warranty. Spare Parts are warranted for the value of the parts only (no labor, mileage, or other charges).

For equipment not under warranty: The warranty period is 90 days from the date of invoice to the end user, or 12 months from the date of original invoice, whichever comes first. Spare Parts are warranted for the value of the parts only (no labor, mileage, or other charges).

General Exclusions

1. Warranty does not apply to any product which has been altered, subjected to unusual physical or electrical stress, an Act of God, damaged by accident, tampered with, or subjected to misuse or abuse including substituting parts or accessories from other manufacturers without the written consent of Bennett Pump Company. The above warranties shall not exist if the original identification marks have been removed or altered.
2. Bennett makes no warranty with respect to the Bennett equipment or Bennett's performance of services under this agreement, express or implied, and Bennett hereby disclaims the implied warranties of merchantability and fitness for a particular purpose.
3. In no event shall Bennett be liable for any loss of profits, loss of use, interruption of business or indirect, special, incidental or consequential damages of any kind in connection with or arising out of the furnishing, performance, use or failure of the Bennett equipment, software or services acquired from Bennett, the distributor or the user, whether alleged as a breach of contract or tortious conduct, including negligence. Bennett's liability hereunder for damages shall not, in any event, exceed the amounts paid by the buyer to Bennett for equipment, software or services as to which the claim arose.
4. No action arising out of any claimed breach of the Warranty Agreement or transaction under this Warranty Agreement may be brought by either party more than two (2) years after the cause of action has accrued.
5. Use of non-Bennett replacement parts, unless specified by Bennett, will void the equipment warranty.
6. This warranty only applies to Bennett equipment installed in the United States of America and Canada.
7. Failure to pay the Bennett invoice within stated invoice terms, covering the respective Bennett equipment purchased under this limited warranty may, at Bennett's discretion, void this limited product warranty.

THE FOREGOING WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED INCLUDING, WITHOUT LIMITATION, THE WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

BENNETT PUMP COMPANY

1218 E. Pontaluna Road
Spring Lake, MI 49456
Tel: 231-798-1310 Fax: 231-799-6202



Bennett Limited Warranty for Products Installed Internationally

Bennett Pump Company or Bennett Commercial Pump Company guarantees new Service Station Equipment manufactured by Bennett against defects in material or workmanship during the warranty period in accordance with the provisions stated below:

- For this limited warranty to apply, the dispenser(s) must be installed according to the manufacturer's published installation instructions (shipped with each dispenser or available upon request). An installation Start-up Card must be performed by a person certified by the manufacturer to ensure that the installation conforms to Bennett's installation instructions.
- Warranty service must be performed by the nearest Bennett Authorized Service Representative qualified to perform service on the defective equipment. Only Authorized and Certified Service Representatives are allowed to perform warranty service. Use of service personnel other than qualified Bennett Service Representatives without prior approval by Bennett Pump Company will void payment of any warranty claims.
- Bennett equipment has been installed according to the manufacturer's instructions and diagrams.
- During the warranty period, Bennett Pump Company will, at its option, repair or replace defective parts returned to its factory, transportation charges prepaid.
- The manufacturer reserves the right to make changes in the design or to make additions or improvements with respect to its products without incurring any obligation to modify or install same on previously manufactured products.

Pumps and Dispensers – Horizon 2 and 3000 Series

Warranty on parts is 12 months from date of installation not to exceed 18 months from date of Bennett's original invoice, whichever comes first.

This warranty excludes nozzles, hoses and fittings, hose retractor, filters, belt adjustments, paper jams, light bulbs, or any leaks after the installation start-up and audit. Minor adjustments such as meter calibration, pulser adjustments, and handle switch adjustments, customer specified items manufactured by others, and customer requested reprogramming of equipment are not covered by warranty.

Pumps and Dispensers - All Other Models

Warranty on parts is 12 months from date of installation or 18 months from date of Bennett's original invoice, whichever comes first.

This warranty excludes nozzles, hoses and fitting, hose retractor, filters, belt adjustments, paper jams or light bulbs. Minor adjustments such as meter calibration, pulser adjustments, and handle switch adjustments, customer specified items manufactured by others, and customer requested reprogramming of equipment are not covered by warranty.

Field Retrofitted Card Acceptor or Cash Acceptor

The field retrofit assembly is warranted for parts for 12 months from date of installation or 18 months from date of original invoice, whichever comes first, except the receipt printer and driver board which is warranted for parts for ninety (90) days from the date of installation or 180 days from original invoice, whichever comes first.

Consumable Items such as receipt paper are not warranted. The use of receipt paper not specified by Bennett will void the printer assembly warranty.

Model 515 Pump Controllers

Warranty on parts is 12 months from the date of installation or 18 months from the date of original invoice, whichever comes first.

Software

Bennett Pump Company warrants Bennett products and software packages, whose operation is controlled by Bennett designed and developed software, shall be free of material defects and conform to current Bennett specifications for a period of ninety (90) days from the date of original invoice. Bennett shall use its best effort to correct such defects and to supply to purchaser at Bennett's expense, a corrected version within a reasonable time after purchaser notifies Bennett in writing of any defects and provides the programs and instructions required to reproduce the claimed defect.

This would not cover any modification to the program, the Bennett product, and/or connection to unapproved equipment made by any person or any defect caused by such modifications/connections.

Upgrade Kits

Bennett offers kits which are installed at the purchaser's option to enhance operating features of an existing Bennett product. These upgrade kits are warranted for parts for ninety (90) days from date of installation or 12 months from date of original invoice, whichever comes first. This warranty applies to kit components only. The warranty status of the remainder of the product is unchanged.

Spare Parts

For equipment under warranty: The warranty period for all spare parts re-placed is the remainder of the original warranty. Spare Parts are warranted for the value of the parts only.

For equipment not under warranty: The warranty period is 90 days from the date of invoice to the end user, or 12 months from the date of original in-voice, whichever comes first. Spare Parts are warranted for the value of the parts only.

General Exclusions

1. Warranty does not apply to any product which has been altered, subjected to unusual physical or electrical stress, an Act of God, damaged by accident, tampered with, or subjected to misuse or abuse including substituting parts or accessories from other manufacturers without the written consent of Bennett Pump Company. The above warranties shall not exist if the original identification marks have been removed or altered.
2. Bennett makes no warranty with respect to the Bennett equipment or Bennett's performance of services under this agreement, express or implied, and Bennett hereby disclaims the implied warranties of merchantability and fitness for a particular purpose.
3. In no event shall Bennett be liable for any loss of profits, loss of use, interruption of business or indirect, special, incidental or consequential damages of any kind in connection with or arising out of the furnishing, performance, use or failure of the Bennett equipment, software or services acquired from Bennett, the distributor or the user, whether alleged as a breach of contract or tortious conduct, including negligence. Bennett's liability hereunder for damages shall not, in any event, exceed the amounts paid by the buyer to Bennett for equipment, software or services as to which the claim arose.
4. No action arising out of any claimed breach of the Warranty Agreement or transaction under this Warranty Agreement may be brought by either party more than two (2) years after the cause of action has accrued.
5. Use of non-Bennett replacement parts, unless specified by Bennett, will void the equipment warranty.
6. This warranty only applies to Bennett equipment installed in the United States of America and Canada.
7. Failure to pay the Bennett invoice within stated invoice terms, covering the respective Bennett equipment purchased under this limited warranty may, at Bennett's discretion, void this limited product warranty.
8. The Warranty Claim must be received no later than 90-days after the Service performed on the equipment within the warranty period.

BENNETT PUMP COMPANY BENNETT COMMERCIAL PUMP COMPANY

1218 E. Pontaluna Road Spring Lake, MI 49456
Tel: 231-798-1310 Fax: 231-799-6202

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