

GoPump Series

Installation & Operator's Manual

**Installation, Programming,
Operating, and Diagnostics
Instructions**

READ THIS BOOK

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

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**Includes Instructions For
Installation & Programming:**

**Remote & Self-Contained
Stand Alone
Console
Mechanical Interface**

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OPERATOR SAFETY INSTRUCTIONS

WARNING

ADVERTISSEMENT

ADVERTEÑCIA

For the safe operation of this equipment, read and understand all safety notices.

“**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.

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

WARNING: You must have training in the operation and programming of this dispenser before using it.

WARNING: You must have training in the 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.

WARNING: Do not operate this equipment as a dispenser unless it is completely assembled.

WARNING: Make sure this equipment is correctly grounded. Failure to do so can cause injury or damage equipment.

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.

CAUTION: This dispenser is factory configured for Console or Stand Alone mode of operation. Mechanical Interface requires configuration of jumpers on the CPU and Power Supply circuit boards. See Installation & Operator's Manual. Failure to do so can cause injury or damage equipment.

READ AND UNDERSTAND ALL WARNING LABELS ATTACHED TO THE DISPENSER

NOTICE

This equipment generates and uses radio frequency energy. If not installed and used properly, i.e., in strict accordance with the instructions in the manual, it may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device in accordance with Subpart J of Part 15 of FCC Rules. Class A computing devices are designed to provide reasonable protection against such interference when operated in a *commercial* environment.

Operation of the equipment in a *residential* area may cause unacceptable interference to radio and TV reception. In such instances, any necessary corrective measures must be accomplished at the owner's expense.

INTRODUCTION

All of the dispensers shown in this book can be operated in the “Stand Alone” mode (no control console), with a control console system such as: Bennett 405, 410 or 430 or the Bennett 310 Pump Controller, or with a Mechanical Interface System.

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. Fluorescent lights for lighting the displays.
5. An allocation limit can be set from 1 to 9,999 volume units at the dispenser.

Maximum Display values for Menu Code 8 Option 0 are:

	Each Sale	Totals
Dollars	9999.99	9999999.99
Gallons	999.999	9999999.999
Liters	9999.99	99999999.99
Price Per Volume	9.999	

6. An internal switch (Last Sale Recall) is provided for reading totals and recalling the display information during a power failure. If the dispenser is equipped with the Local Preset option, the switch is external.
7. The display blanking feature is provided to give the appearance of power off to the dispenser. This option turns off displays and will not allow the dispenser to operate.
8. Nicad battery back-up system is provided:

The back-up battery works in conjunction with the Last Sale Recall switch and Menu Code 1 to display the last sale data and pump totals when AC power is removed from the dispenser. The battery will allow the displays to be viewed in 20 second intervals. **The battery circuit is necessary for proper operation.**
9. All major low voltage connectors incorporate gold on gold contacts to prevent oxidation and promote reliability.
10. The dispenser meets or exceeds FCC Emission Standards and UL specifications.
11. Dispenser programming is performed from the keypad. The keypad can be located behind the upper door. If the dispenser is equipped with the Local Preset option, the keypad is located on the side of the dispenser below the ON/OFF pump handle. **NOTE: To view the programming keypad, a keypad template must be placed over the Local Preset decal.**

SPECIFICATION SHEET

POWER REQUIREMENTS

AC Power

Dispenser Power 120 Watts @ 115/230 VAC, 50/60 Hz.

Lamp Power..... 90 Watts @ 115/230 VAC, 50/60 Hz.

NOTE: Self-Contained dispenser motors are set at the factory at 115 VAC.

ENVIRONMENTAL REQUIREMENTS

Operating Temperature Range:..... -40°C to +40°C

Humidity:..... 0-95% noncondensing

DIMENSIONS

Retail & Commercial 27" Wide x 17-1/2" Deep x 50-3/4" High

THE PUMP CONTROL DEVICES

The Programming Keypad. See Figure 1.

The programming keypad is located behind the upper door below the Main CPU. See Figure 1. With the proper Manager Access Code entered, the Manager can program the dispenser, read totals or display diagnostic codes. 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.

The Programming Keypad for the Local Preset Option. See Figure 2.

The programming keypad is located on the side of the dispenser below the pump handle. See Figure 2. With the Programming Keypad Template over the keypad area and the proper Manager Access Code entered, the Manager can program the dispenser, read totals or display diagnostic codes. 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. See the “How To Program The Dispenser For Operation” section for a complete description of keypad functions for programming the dispenser.

WARNING: To prevent electric shock, make sure the circuit breaker is turned off and locked out before doing any repairs or maintenance to the dispenser. Wait 30 seconds for the dispenser’s signal to disconnect power from the back-up Nicad batteries.



Figure 1

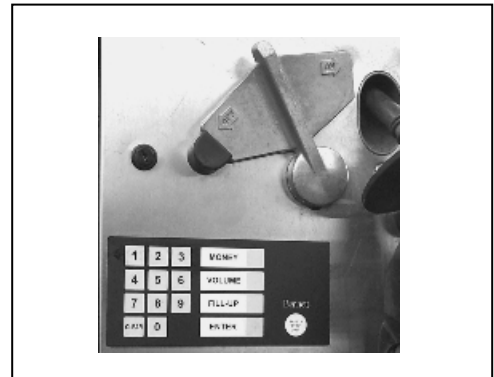


Figure 2

The Error Messages. See Figure 3.

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

NOTE: When an error message appears, the dispenser can be reset by activating and then deactivating the pump handle. The exceptions will either clear once the condition does not exist or the CPU will have to be restarted (See Menu Code 83 for Cold Start). See “How to Use Diagnostics” section for a description.

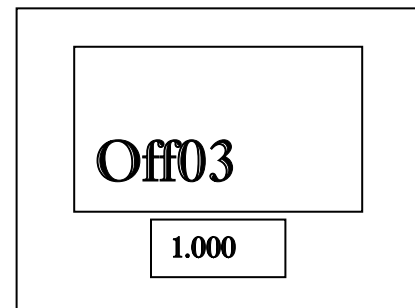


Figure 3

The Power Failure Message. See Figure 4.

The Power Fail message occurs whenever the power has been interrupted or turned off to the dispenser. If the power is turned off and the Power Fail message does not appear, the charge is low on the batteries on the Power board.

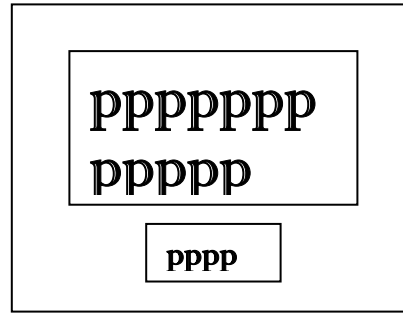


Figure 4

The Key Reset Option. See Figure 5.

The key reset switch is located on the side of the dispenser next to the handle. The key reset option gives the attendant the ability to authorize one sale at a time.

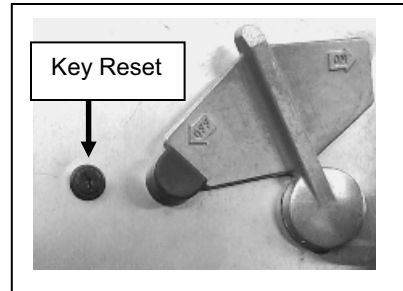


Figure 5

The Blank Display Feature. See Figures 6a and 6b.

Blanking the display gives the appearance of power off to the dispenser. The Blank Display feature is activated through the Manager's keypad behind the upper door. See Figure 6a. If the dispenser is equipped with Local Preset, the feature is activated through the "Safety Stop Only" Button on the Local Preset keypad. See Figure 6b. For instructions, see "How to Operate the Dispenser".

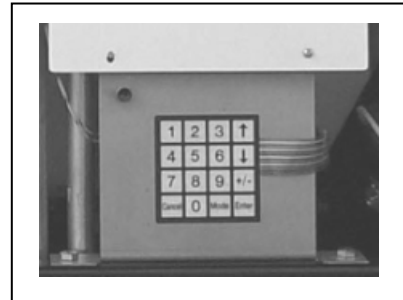


Figure 6a



Figure 6b

The Previous Sale Feature. See Figures 6a and 6b.

The Previous Sale feature displays the sale before the currently displayed sale. The Previous Sale feature is activated through the Manager's keypad behind the upper door. See Figure 6a. If the dispenser is equipped with Local Preset the feature is activated through the "Safety Stop Only" Button on the Local Preset keypad. See Figure 6b. The PPV displays "PrEV". See Figure 7. For instructions, see "How to Operate the Dispenser".

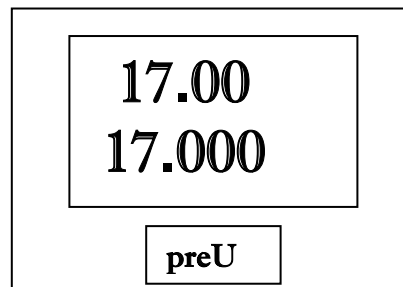


Figure 7

The Last Sale Recall Switch. See Figure 8a and 8b.

If power to the dispenser is interrupted, the current sale information and totals can be accessed. The Last Sale Recall switch is located behind the upper door next to the Manager's keypad. See Figure 8a. If the dispenser is equipped with Local Preset the switch is located just above the BENNETT Logo. See Figure 8b. Push the button. The last sale in progress will display for 20 seconds. To access dispenser totals Menu Code 1 must be accessed. The button may be pressed successively to bring up the last sale information every 20 seconds. For instructions, see "How to Operate the Dispenser".

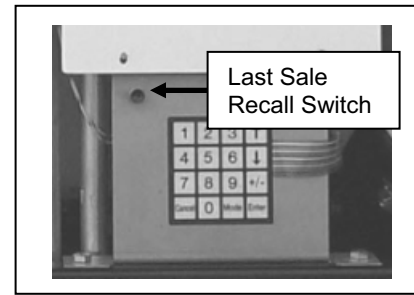


Figure 8a

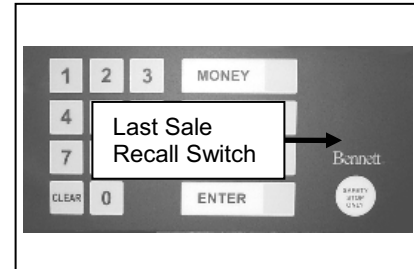


Figure 8b

The Door Lock. See Figure 9.

The key lock for the Upper door and lower door panel is located at the top of the lower door panel in the center.

To unlock, insert the key in the lock and turn the key clockwise until it stops. Slide the upper door up approximately 1 inch and remove. To lock, turn the key counterclockwise until it stops.

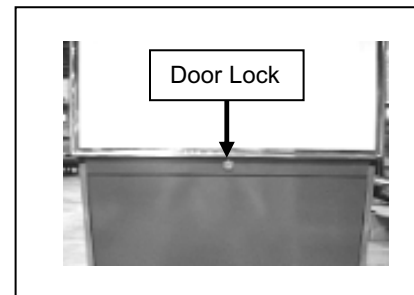


Figure 9

The Totalizer Option. See Figure 10.

The Totalizer window is located on the side of the dispenser above the pump handle for its product. The total is cumulative and non-resettable. This is a purchased option.

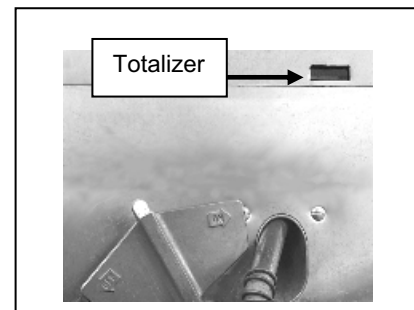


Figure 10

The Pump Handle. See Figure 11.

The pump handle is located on the side of the dispenser. To operate the dispenser, remove the nozzle from the holder and move handle to the **ON** position. Move the handle back and replace nozzle for the **OFF** position.

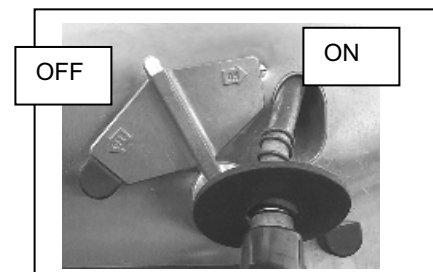
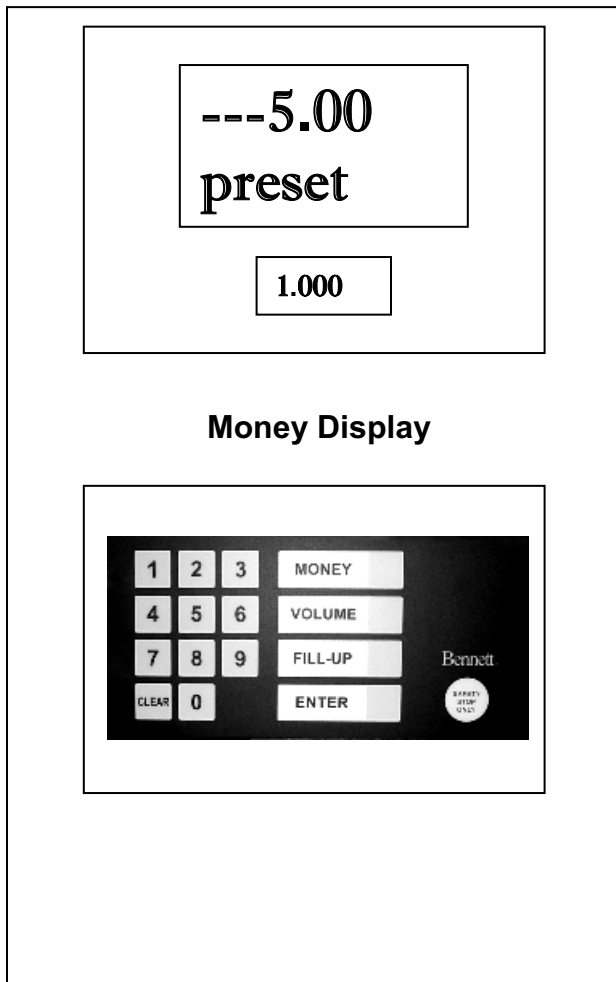


Figure 11

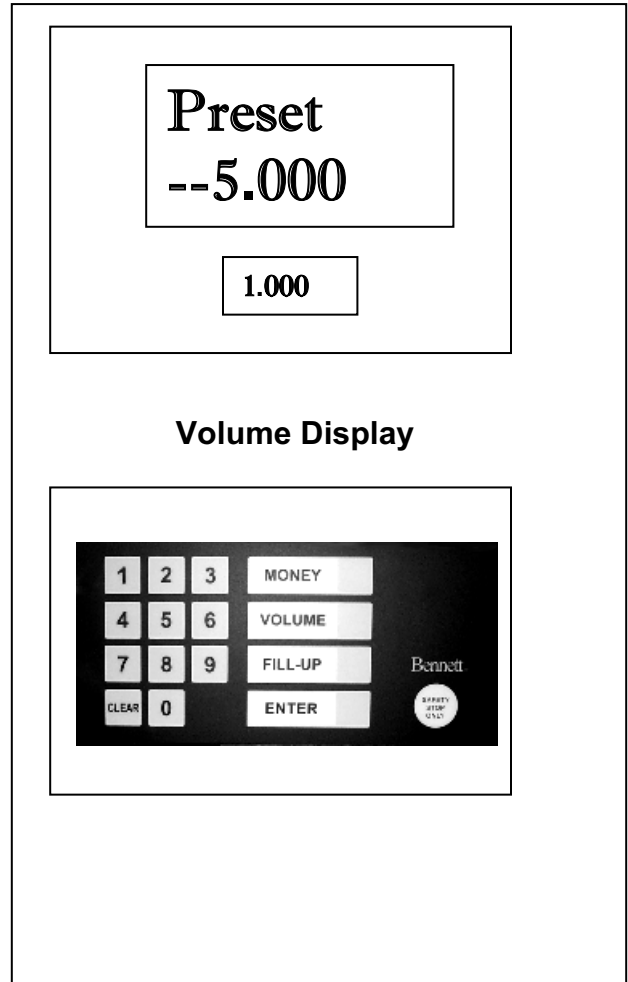
The Local Preset Option. See Figure 12a and 12b.

This option allows the customer to pre-select the amount of fuel to be purchased. Flow will stop automatically at the pre-selected money (see Figure 12a) or volume (see Figure 12b) amount. A fill-up feature is also present.



Customer Preset Keypad

Figure 12a



Customer Preset Keypad

Figure 12b

The Electronic Calibration Option. See Figure 13.

The *GoPump* can be ordered with meters that are electronically calibrated. The seal wire is no longer located on the meter. Instead it is through a pin blocking the switch used for calibration on the *Memory* circuit board. Once the seal is broken, the pin is removed, and the switch is pushed up the operator will automatically be in calibration mode. This is a purchased option.

NOTE: There is a special seal for the mechanically calibrated meter that should never be removed.

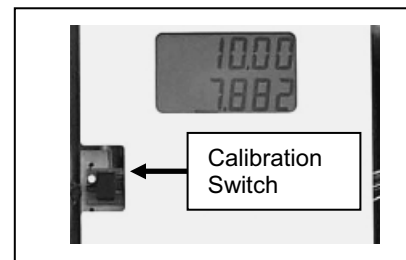


Figure 13

SECTION 1

INSTALLATION

INSTRUCTIONS

GENERAL

IMPORTANT

Examine the shipment immediately upon arrival to make certain there has been no damage or loss in transit. The Company, as shipper, is not liable for the hazards of transportation.

Please read these instructions carefully and read all tags attached to the dispenser before starting installation. A dispenser that is not properly installed will not perform properly.

If the dispenser is to be attached to an old underground installation, check the installation carefully. The Company is not responsible for any damage to the dispenser or for improper operation due to accidents, abuse, or faulty installation.

Installation must be in accordance with the National Electrical Code (NFPA 70), the Automotive and Marine Service Station Code (NFPA 30A), and all state and local codes.

For complete instructions for installing underground liquid storage systems, order "Recommended Practices for Installation of Underground Liquid Storage Systems" from the Petroleum Equipment Institute, P.O. Box 2380, Tulsa, OK 74101.

Anchor the dispenser to the island with two anchor bolts through the base frame. 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.

OLD INSTALLATIONS

- When a new dispenser is attached to an old underground installation, the tanks should be cleaned and tested for leaks.
- Any water accumulation in the tank must be removed.

NEW INSTALLATIONS

- The dispenser must be mounted on a concrete foundation. Do not pour concrete around the product pipes or electrical conduit.
- Always test new tanks before placing them in the ground. Tank testing should be done by a qualified professional.
- Never install tanks in ground containing chemicals or abrasive materials that will corrode the tank.

PIPELINES

1. Use galvanized pipe or approved fiberglass piping. For fill and vent lines in the storage tank, consult tank manufacturer.

NOTE: All piping must be clean of foreign debris, such as: oil, grease and shavings. All connections must be tight to prevent leaks.

2. Swing joints or flex pipe must be used at the ends of the horizontal pipe between the dispenser and the tank. See Figure 1 on the following page. These joints prevent leaks which might develop through ground movement from settling of the tank, frost heaving of the ground or pump island settling. The joint or flex pipe under the dispenser also aids proper alignment of the product pipe to the dispenser inlet.

FILL PIPE

If the Fill pipe is used for the insertion of a gauge stick to determine the amount of fuel in the tank, it is important the pipe be in a straight vertical position. The top of the pipe should be protected by a fill box or spill containment box to prevent frozen ground from pulling the tank flange loose from the tank.

VENT PIPE

The tank must be vented in accordance with the rules of the National Board of Fire Underwriters. It is important that the vent line slope upward from the tank to avoid traps or pockets. The line should be equipped with swing joints to prevent damage due to settling or freezing. Installation must be in accordance with **NFPA 30**.

NOTE: Make certain all installations conform to Federal, State, and Local codes for underground storage systems.

SELF-CONTAINED SPECIFICATIONS

To obtain maximum flow rates on a self-contained pump, follow these guidelines:

1. The total length of horizontal piping between the pump and tank must be no more than 60 feet. See Figure 1.
2. Piping specifications:
 - a. Use new 1-1/2" galvanized or approved non-metallic pipe for 10-15 GPM (38-57 LPM) pumps.
Use new 2" galvanized or approved non-metallic pipe for 20-24 GPM (76-91 LPM) pumps.
 - b. All horizontal piping must be buried a MINIMUM of 18" below the finished grade.
 - c. The pipe from the tank must slope up to the pump. (Approximately 1-1/2" to 2" per 10 ft.)
A minimal use of directional change elbows is advised. The pipe must be supported continuously to prevent sagging.
 - d. All piping must hold a 50 PSI pressure test for 10 minutes.
 - e. Swing joints or flex pipe must be used at the ends of the horizontal pipe between the dispenser and the tank. See Figure 1. These joints prevent leaks which might develop through ground movement from settling of the tank, frost heaving of the ground or pump island settling. The joint under the dispenser also aids proper alignment of the product union or coupling. See Figure 1.
 - f. Only one pumping unit is permitted for each underground pipe. Do not use a tee to connect two pumps off one line.
 - g. Install a vertical, in line, check valve underneath the pump in accordance with EPA regulations.
3. Above Ground Tank:

Bennett self contained dispensers can be used with above ground tank installations if the following requirements are met:

- a. A UL Listed Pressure Regulating Valve designed for under-the-pump mounting is installed for each pumping unit according to the valve manufacturer's instructions.
- b. Any additional valves suggested by the Pressure Regulating Valve manufacturer are installed according to the manufacturer's recommendations.
- c. The installation must be installed and used in accordance with Federal, State, Local, and National Electrical code NFPA #70 and Automotive and Marine service station code NFPA 30A.

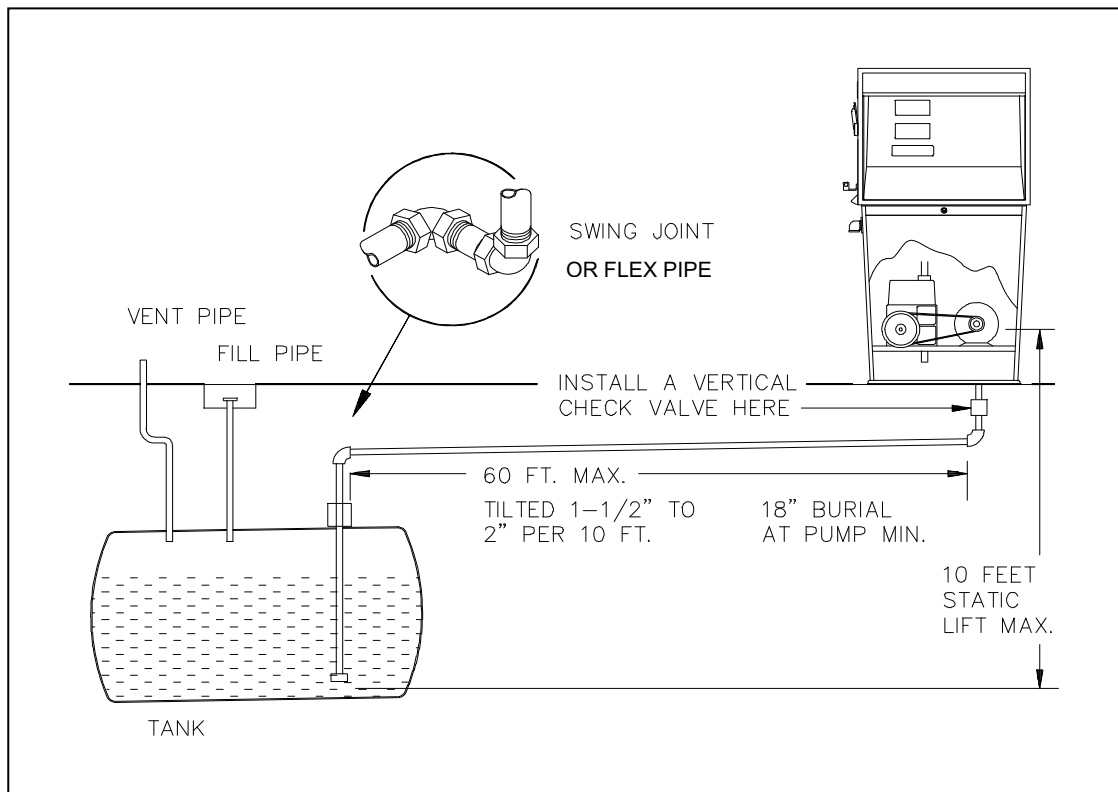


Figure 1

REMOTE SPECIFICATIONS

Install a UL Listed emergency shear valve, designed to close automatically in the event of severe impact or fire exposure, in the dispenser supply line at the base of the dispenser. The valve will also permit safe inspection and maintenance. Follow the installation instructions for the valve being installed. See Figure 2.

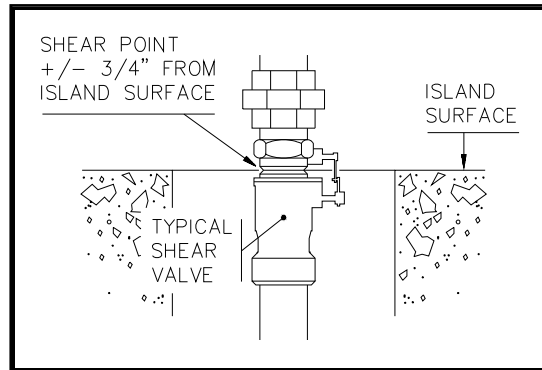


Figure 2

ELECTRICAL WIRING SPECIFICATIONS

The Base Diagram and Field Wiring Diagrams are located in the APPENDIX.

MUST DO INSTALLATION NOTES:

1. Each dispenser must be earth grounded using a dedicated 12-gauge or larger green stranded ground wire to each pedestal. The ground must be 1 ohm (or less) resistance to earth ground. Terminate this wire at the junction box. All 12-gauge ground wires from each unit are terminated at the main electrical service panel ground. **DO NOT USE WIRE NUTS FOR GROUND CONNECTIONS. USE ONLY COMPRESSION CONNECTORS.**
2. For maximum electronic performance and system reliability, leave the dispenser "ON" 24 hours a day. To prevent product theft during closing hours, turn off pump motor power. To give the appearance that the dispenser is shut off, activate the display blanking feature.
3. **DO NOT USE ONE CIRCUIT BREAKER** to supply pump motor power and dispenser electronic power. Separate circuits are required.
4. For remote dispensers the RC/MOV filters must be installed per wiring diagram for proper operation (NOTE: 3 per submerged pump relay).
5. Do not use PVC conduit. Use only rigid metal conduit.
6. Use only stranded wire with listed gas and oil resistant insulation. Do not use wire smaller than listed on the wiring diagrams.
7. **DO NOT USE WIRE NUTS ON DATA LINES. DO NOT SPLICE DATA WIRES.**

WARNING: All installation, maintenance and repairs must be done by authorized personnel only.

AC POWER

All references to 115 VAC in this manual can also be identified as 230 VAC if the dispenser ordered is for 230 VAC.

Each remote dispenser uses two 115V, 50/60 Hz or 230V, 50/60Hz circuits. One for dispenser power and the other for lamp power. Make sure the power source has the correct frequency and voltage.

Dispenser power must be a dedicated circuit. The dispenser is factory wired for 115V or 230V operation and may not be changed in the field. (If this is done, the warranty is voided.)

WARNING: All Dispenser AC Power circuits (for Remotes only) must be on the same phase or damage will result.

Rules to ensure proper operation:

1. Put each power circuit on a dedicated (individual) circuit breaker.
2. Do not connect any other devices to these circuits.
3. Each remote dispenser uses two 115V, 50/60 Hz or 230V, 50/60Hz circuit for dispenser power and lamp power. There is no AC power switch inside the dispenser. For the convenience of future servicing, put no more than two *GoPump* dispensers on a circuit breaker.
4. Put the pump wiring in a separate conduit. Do not put non-pump related wires, such as price signs, in the same conduit as pump wiring.
5. Use only 14-gauge stranded gas and oil resistant THHN wire.
6. Do not use wire nuts within the dispenser.

PUMP MOTOR POWER

Remote Dispensers

Remote dispensers require a submerged pump control relay box, such as, Red Jacket or F.E. Petro, across the line starters. Check with those manufacturers for information on control relay boxes.

NOTE: READ AND UNDERSTAND THE DISCUSSION OF RC NETWORKS ON THE FOLLOWING PAGE.

Use only Bennett RC Network device for suppressing relay contacts and coils. Contact Bennett Order Entry to order.

CAUTION: Use a separate circuit breaker for each pump motor. Make sure the pump motor is never on the same circuit breaker as any other power circuit for the dispenser.

CAUTION: Install RC Networks correctly for proper dispenser operation.

Self-Contained Dispensers

Self-contained dispensers have the pump motor mounted in the lower hydraulic area. The power is passed to the pump motor using the pump motor relay located in the electronic enclosure. Use 14-gauge (or larger) stranded THHN wire.

The motors are shipped from the factory set for 115 volt operation. If 230 volt operation is needed, change the Voltage Selector Switch on the motor from the low setting (115 Volt) to the high setting (230 Volt).

CAUTION: Use a separate circuit breaker for each pump motor. Make sure the pump motor is never on the same circuit breaker as any other power circuit for the dispenser.

RC NETWORKS

An RC Network is an electrical noise suppression device. It is used on AC power devices such as coils and across relay contacts. When AC voltage is applied to coils they are converted to electromagnets. Coils are used to operate AC devices, such as solenoid dispensing valves and AC power relays or contactors. When the AC power is removed from a coil, the electromagnetic field collapses. This causes an AC voltage spike as high as 1500 VAC which can affect electronic systems.

The submerged pump motors are controlled by an auxiliary pump motor relay. Follow this procedure to protect dispenser and console operation:

1. Use an RC Network on the coil circuit and across the contacts of each submerged pump motor control relay. See wiring diagram.
2. Check local code requirements concerning complete disconnect of submerged pump voltages. RC Networks will allow voltage to be present at all times.
3. Turn off all related circuit breakers when servicing submerged pumps or dispensers.

EARTH GROUNDING THE EQUIPMENT

WARNING: Failure to properly ground the equipment can cause injury or damage to the equipment.

This product must be properly grounded. Each dispenser requires a 12-gauge earth ground wire. Grounding provides a path of least resistance for electric current to reduce the risk of electric shock. Grounding is required to protect the dispenser from external electrical noise generating devices. Ground must be 1 ohm (or less) resistance to earth ground. To establish a good earth ground, follow this procedure:

1. Connect a 12-gauge, green stranded wire to the grounding screw near the terminal block in the junction box.
2. Pull the wire through the rigid metal conduit and connect it directly to the ground bar of the **MAIN** electrical service panel, not a sub-panel. Do NOT rely on the metal conduit as a ground.

DO NOT USE WIRE NUTS ON GROUND WIRES. USE COMPRESSION CONNECTORS ONLY.

3. Do not daisy-chain. All ground wires are separate.

CIRCUIT BOARD JUMPER CONFIGURATION & WIRING FOR DISPENSER INTERFACE

The Base Diagram and the Field Wiring Diagrams are located in the Appendix.

The *GoPump* series can operate in three different modes, which must also be defined in Menu Code 21, SECTION 2:

Stand Alone Mode

Stand Alone mode allows the *GoPump* to operate without being connected to a console or control device.

Console Mode

Console mode allows the *GoPump* to communicate with Bennett compatible consoles or control devices using a Bennett compatible data loop.

Mechanical Mode

Mechanical mode allows the *GoPump* to imitate a mechanical pump and interface to mechanical pump console or control devices.

Jumper configuration changes are required on both the Power Supply circuit board and CPU circuit board to change from console mode of operation to mechanical mode of operation. Figures 3 & 4 show the various jumper configurations available. These will be described in more detail below.

Console Mode

The *GoPump* is shipped from the factory configured for the console mode of operation.

Figure 3a shows the default CPU circuit board jumper configuration used for console mode. This figure shows CPU circuit board header JP5 with a shunt jumper installed across pins 1 & 2 and a shunt jumper installed across pins 5 & 6.

Figure 4e shows the default Power Supply circuit board jumper configuration used for the console mode of operation. This figure shows Power Supply circuit board header JP1 with a wire jumper across pins 1 & 2 and header JP2 with a wire jumper across pins 1 & 2.

These jumper placements configure terminal strip TS1 positions 9 & 10 as a data loop.

TS1-9 = DATA –
TS1-10 = DATA +

CAUTION: DO NOT CONNECT THE *Go Pump* TO A MECHANICAL PUMP CONSOLE OR CONTROL DEVICE WITH THESE JUMPERS CONFIGURED FOR CONSOLE MODE OR PERMENANT DAMAGE WILL RESULT.

CAUTION: Data wires (two 18-gauge per fueling position) are dedicated to a particular fueling position. To prevent damage to the electronic circuit boards, do not mix the data wires or connect them to any other data wires.

CAUTION: DO NOT USE WIRE NUTS OR SPLICES ON DATA WIRES. FAILURE OF THE SYSTEM WILL OCCUR.

Mechanical Mode

If the *GoPump* is to be used with a mechanical pump console or control device, configure the jumpers as described below.

Valve Inputs

Figure 3b shows the CPU circuit board jumper configuration used for mechanical mode. This figure shows CPU circuit board header JP5 with a shunt jumper installed across pins 3 & 4 and a shunt jumper installed across pins 7 & 8.

Figure 4f shows the Power Supply circuit board jumper configuration used for the mechanical mode of operation. This figure shows Power Supply circuit board header JP1 with a wire jumper across pins 2 & 3 and header JP2 with a wire jumper across pins 2 & 3.

These jumper placements configure terminal strip TS1 positions 9 & 10 as valve inputs.

TS1-9 = Main Valve input (MV)
TS1-10 = Dribble Valve input (DV)

Valve inputs are used as the authorize signals for mechanical mode. While the CPU directly controls both the Main and Dribble valves, the CPU cannot energize the Main or Dribble valve unless the respective valve input is active. This allows the *GoPump* CPU the ability to terminate a delivery in case of a pump error.

The maximum rated voltage for the Valve Input terminals is:

240 Vac, 50/60 Hz

In addition to the valve inputs mentioned above, two other signals are available for use in mechanical mode. These signals are Pump Handle Output and Unit Pulse Output.

Pump Handle Output

Pump Handle output provides a solid state contact closure that can be used to signal a mechanical pump console or control device. This output can be configured to control either an AC circuit or DC circuit.

Figure 4a shows the jumper configuration required for DC circuit operation. This figure shows Power Supply circuit board header JP5 with a wire jumper across pins 1 & 2 and header JP6 with a wire jumper across pins 1 & 2.

These jumper placements configure terminal strip TS1 positions 5 & 6 as DC Pump Handle outputs.

TS1-5 = Pump Handle - DC
TS1-6 = Pump Handle + DC

Figure 4b shows the jumper configuration required for AC circuit operation. This figure shows Power Supply circuit board header JP5 with a wire jumper across pins 2 & 3 and header JP6 with a wire jumper across pins 2 & 3.

These jumper placements configure terminal strip TS1 positions 5 & 6 as AC Pump Handle outputs.

TS1-5 = Pump Handle AC
TS1-6 = Pump Handle AC

The maximum rated load for the Pump Handle output terminals is:

200 Vdc, 15 W or
120 Vac, 50/60 Hz, 15 VA

Unit Pulse Output

Unit Pulse output provides a solid state contact closure that can be used to signal a mechanical pump console or control device. This output must be defined in Menu Code 50, SECTION 2 page 43. This output can be configured to control either an AC circuit or DC circuit.

Figure 4c shows the jumper configuration required for DC circuit operation. This figure shows Power Supply circuit board header JP3 with a wire jumper across pins 1 & 2 and header JP4 with a wire jumper across pins 1 & 2.

These jumper placements configure terminal strip TS1 positions 7 & 8 as DC Unit Pulse outputs.

TS1-7 = Unit Pulse - DC
TS1-8 = Unit Pulse + DC

Figure 4d shows the jumper configuration required for AC circuit operation. This figure shows Power Supply circuit board header JP3 with a wire jumper across pins 2 & 3 and header JP4 with a wire jumper across pins 2 & 3.

These jumper placements configure terminal strip TS1 positions 7 & 8 as AC Unit Pulse outputs.

TS1-7 = Unit Pulse AC
TS1-8 = Unit Pulse AC

The maximum rated load for the Unit Pulse output terminals is:

200 Vdc, 15 W or
120 Vac, 50/60 Hz, 15 VA

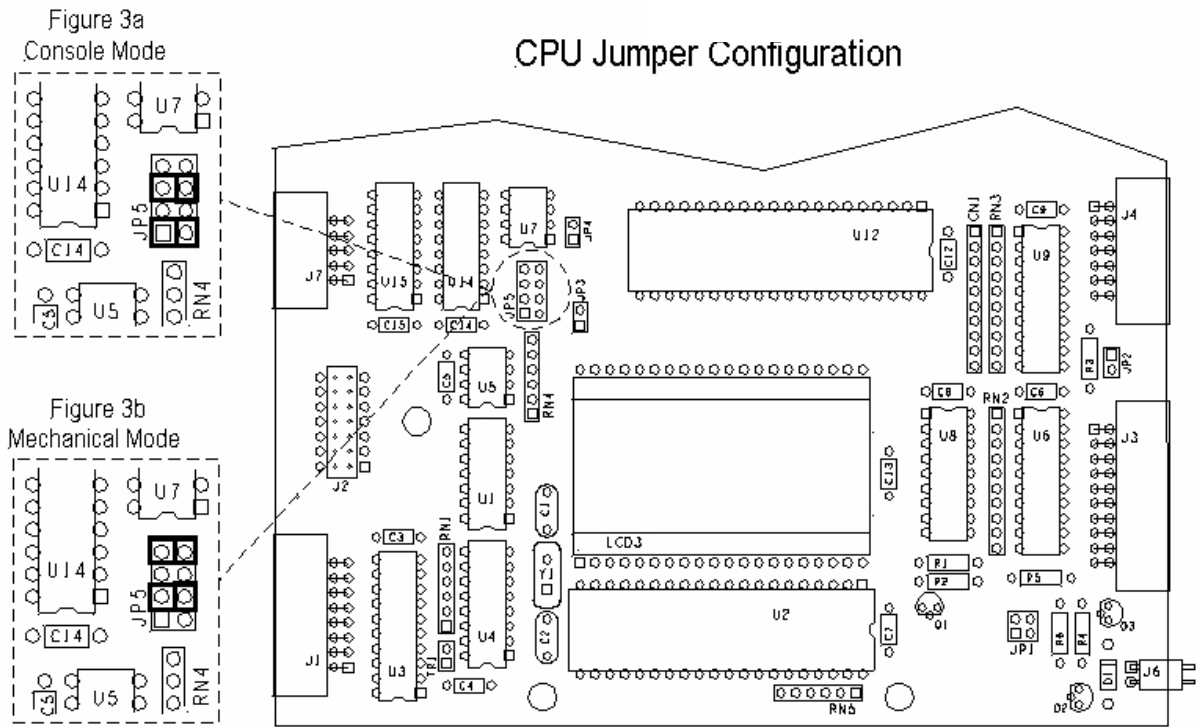


Figure 3

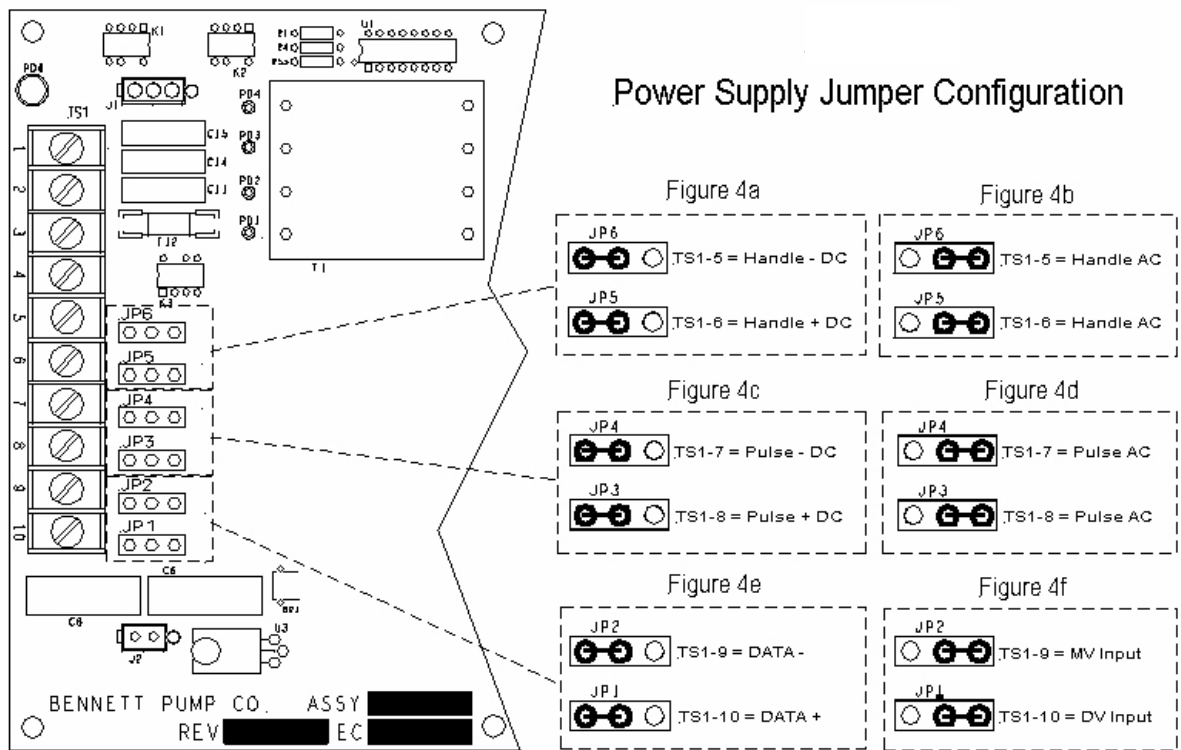


Figure 4

DISPENSER START-UP AND CHECKLIST

DANGER: Fire, explosion, injury or death will occur if fuel vapors are present. Make sure there are no vapors present before starting this procedure.

CAUTION: To prevent damage to the dispenser, follow the proper start-up procedures.

Before applying AC power to the dispenser, follow this procedure:

1. Unlock and remove the upper doors. Remove the lower panels to expose the hydraulics.
2. Check to make sure:
 - The boards and other components have not come loose. LCD display boards are not cracked or damaged.
 - The cables are properly connected to the boards. There are no torn cables or stranded harnesses.
 - Pulser and pump handle harnesses are connected properly to the CPU board.
3. Make sure the impact valves are closed.
4. Turn off all submerged pump circuit breakers and all other circuit breakers to the dispenser.

Make sure the 12-gauge green ground wire is properly terminated in the junction box and measures 1 ohm (or less) resistance to earth ground.

Turn on 115 or 230 Volts AC electronic power to the unit.

1. Use a voltmeter to verify 115 or 230 Volts AC only at Terminal 10 in the junction box. Terminal 11 in the junction box is Neutral. This AC circuit provides power to the electronic boards.
2. Make sure displays are normal and not garbled.

WARNING: Make sure all dispenser power circuits for REMOTES ONLY are on the same phase/leg of the breaker panel or damage will result.

3. Program the dispenser for Stand Alone operation. See Menu Code 21, SECTION 2 for complete instructions.

CHECK THE PUMP MOTOR CIRCUIT

Remotes

WARNING: To prevent injury, make sure impact valves and submerged pump breakers are off.

1. Put the Product A pump handle in the **ON** position. The dispenser display will reset. Use a voltmeter to verify 115 or 230 Volts AC on Terminal 5 in the junction box. Use Terminal 11 in the junction box as neutral.
2. Put the Product A pump handle in the **OFF** position.
3. Put the Product B pump handle in the **ON** position. Use a voltmeter to verify 115 or 230 Volts AC on Terminal 18 in the junction box. Use Terminal 11 in the junction box as Neutral.
4. Put the Product B pump handle in the **OFF** position.
5. Open and set the impact valves.

Self-Contained

WARNING: If the lower door on the pulley side of the unit is off, replace the door and lock it to prevent injury.

1. Turn on the Product A pump motor circuit breaker. With the pump handle **OFF**, use a voltmeter to verify 115/230 Volts AC across the Product A solid state relay in the ballast box. See wiring diagram for the solid state relay location. Product A pump motor should not be running at this time.
2. Turn off the Product A pump motor circuit breaker.
3. Turn on the Product B pump motor circuit breaker. With the pump handle **OFF**, use a voltmeter to verify 115/230 Volts AC across the Product B solid state relay in the ballast box. See wiring diagram for the solid state relay location. Product B pump motor should not be running at this time.
4. Turn off the Product B pump motor circuit breaker.

All Dispensers

1. Turn off all circuit breakers.
2. Replace the lower door panels and the upper door.
3. Turn the circuit breaker for the system on.
4. Purge the air from the system.
5. Dispense a small amount of fuel from each hose to verify all positions are counting.
6. Proceed to the appropriate meter calibration procedure on the following pages.

METER CALIBRATION

The Bennett SB-100 Meter is built to maintain accurate measurement under normal operating conditions. The meter is a high precision metering instrument, which contains rods and pistons, which require a break-in period. The meter is calibrated at the factory using a solvent for safety purposes, and must be calibrated after it has been installed. We strongly suggest recalibrating the meter after a 90 day break-in period, and on an semi-annual basis thereafter.

Mechanical Meter Calibration

Each SB-100 meter is provided with the following calibration information:

- The dial adjusting cover has (+) and (-) arrows to indicate the correct direction to rotate the dial to either increase or decrease delivery.
- A self-adhesive metal label listing the minimum incremental adjustment is attached to the collector housing immediately above the adjusting dial.

The dial cover has two pin hubs, one to the left of the shaft and one to the right. The seal pin may be inserted in either hub. See Figure 5. The smallest adjustment (.6 cu. in.) occurs when the pin is pulled from one side and inserted in the other side by moving the dial the least amount or half a hole. A 1.2 cu. in. adjustment is made by pulling the pin and turning the dial until the next adjacent hole aligns with the same hub and reinserting the pin.

To calibrate the meter, follow this procedure:

1. Measure the actual delivery of the meter at fast flow in an accurate test measure. Dispense a minimum of 5 gallons (20 liters).
2. Cut and remove the existing seal wires and remove the seal pin. See Figure 17.
3. Turn the dial the necessary amount in the (+) or (-) direction to increase or decrease the quantity of fuel delivered.
4. Re-insert the seal pin in the desired pin hub.
5. Dispense 5 gallons (20 liters) of fuel to allow the meter to adjust to the new settings. Do not make any adjustments based on this delivery.

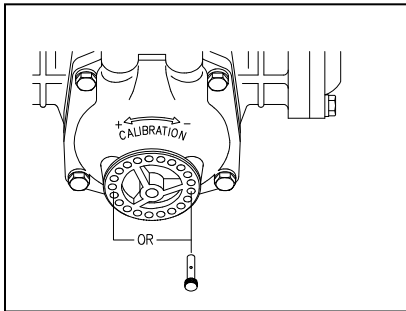


Figure 5

6. Make sure the meter is properly calibrated. Dispense another 5 gallons (20 liters) of fuel into an official test measure to check the calibration.
7. Reseal the meter adjustment. See Figure 6.

Example 1

1. A fast flow test at 11 GPM shows a +3 cu. in. reading in a five gallon test measure.
2. Remove the existing seal and pin and turn the dial clockwise (-) five minimum adjustments (half holes) and reinsert the pin.

$$\frac{3 \text{ cubic inches}}{.6 \text{ cu. in./adjustment}} = 5 \text{ half holes (-) CW}$$

Example 2

1. A fast flow test at 25 GPM shows a -2 cu. in. reading in a five gallon test measure.
2. Remove the existing seal and pin and turn the dial counterclockwise (+) three minimum adjustments (half holes) and reinsert the pin.

$$\frac{2 \text{ cubic inches}}{.6 \text{ cu. in./adjustment}} = 3 \text{ half holes (+) CCW}$$

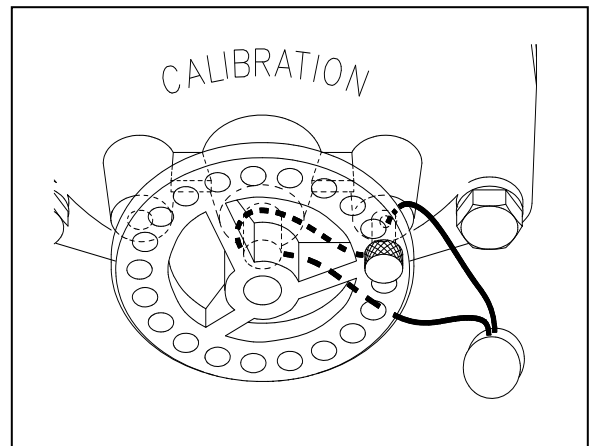


Figure 6

SECTION 2

OPERATOR'S

INSTRUCTIONS

HOW TO PREPARE THE DISPENSER FOR PROGRAMMING

NOTE: Each dispenser's programming should be verified and programmed as needed. This will ensure proper operation at each individual site. All programming instructions in this manual are given for the use of the Manager.

Manager's Keypad

NOTE: To access the Manager's keypad you must remove the upper door. The keypad is located below the dial-face. See Figure 1.

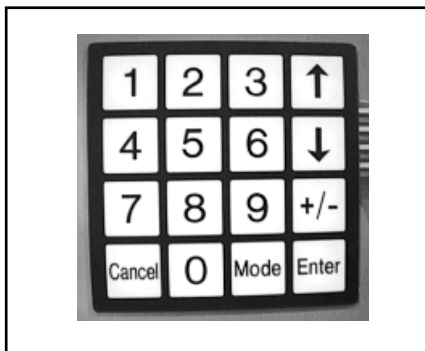


Figure 1

Local Preset Keypad

NOTE: To view the keypad, a programming keypad template must be placed over the Local Preset keypad. See Figure 2.



Figure 2

Programming is done with the controls set as follows:

Make sure the pump handle is in the OFF position.

Press and hold the **CANCEL** and **ENTER** keys at the same time until "Enter Code.00" is displayed, this takes 6 seconds.

Select the menu code to be programmed or viewed.

Programming is done with the controls set as follows:

Make sure the pump handle is in the OFF position.

Place the Programming Keypad Template over the decal on the side panel below the pump handle to be programmed.

Press and hold the "Safety Stop Only" button until "Enter Code .00" is displayed, this takes 6 seconds.

Select the menu code to be programmed or viewed.

These instructions will not be repeated for each Menu Code.

DEFAULT SETTINGS

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

Menu Code	Description	Default
3	Manager Access	2218
8	Decimal Location	0.00 - U.S.A.
9	No Flow Time Out	- - - (Disabled)
10	Slow Flow Amount	0.200 Unit
11	Volume Allocation	9999
12	Prestart Time	2 seconds
15	Fleet	Set to option needed (Retail or Commercial)
17	Local Preset	0 – Disabled
18	Motor Delay	No Delay
21	Stand Alone	0 - Console Mode
22	Dispenser Address	0 – One fueling position per current loop
23	Push to Start	1 - Requires button to be pressed for flow
24	Forced Zeros	Money Preset Option with no zero's set
27	Electronic Calibration	Factory Calibrated
50	Mechanical Pulse Output	2 milliseconds, 100 pulses per gallon
99	Gallons/Liters	1 - gallons

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

SUGGESTED SET-UP 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. 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. However, the Menu Codes are explained in the operator's manual in numerical order.

Menu Code No.	INITIAL SETUP
3	Manager Access Code
99	Unit of Measure
21	Stand Alone, Console, Mechanical Pulse Output
15	Fleet Operation
8	Decimal Mode – for other than U.S. standard
4	Price Per Volume
23	Push to Start
50	Mechanical Pulse Output – if dispenser is intended for mechanical interface.

Menu Code No.	REMAINING DISPENSER SETUP
9	No Flow Timeout
10	Slow Flow Amount - control for prepay sales
12	Precharge Time - for submerged pump
17	Local Preset - operation
22	Addresses multiple dispensers connected on one current loop
24	Displays zero's automatically for money or volume under local preset

Make sure the initial setup menu codes are programmed before testing any dispenser operations. Failure to do so may lead to difficulty getting the dispenser to operate properly.

HOW TO PREPARE THE DISPENSER FOR OPERATION

NOTE: Manager's access is cancelled when the CANCEL and ENTER buttons at the same time or the "Safety Stop Only" button are pushed once. If this has been done, push the CANCEL and ENTER at the same time or the "Safety Stop Only" button again and hold until the displays read "Enter Code.00", this takes 6 seconds. Enter the Manager's access code number to allow programming. See Menu Code 3.

How To Access Manager's Mode Menu Code 3

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 wishes to access or program 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 keypad. The display shown in Figure 3 appears.
2. Press the default number **2218**. Four dashes appear in the display.
3. Press the **ENTER** button. When access is gained, the four dashes disappear and the PPV display appears as in Figure 4. If the dashes do not move, 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. See Figure 5. The hidden menu codes can now be accessed.

How to Change the 4 – digit Manager's Access Code

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

CAUTION: IF THE MANAGER'S ACCESS CODE IS CHANGED THERE IS NO WAY TO RESTORE THE DEFAULT VALUE. THE MEMORY CIRCUIT BOARD WILL HAVE TO BE REPLACED.

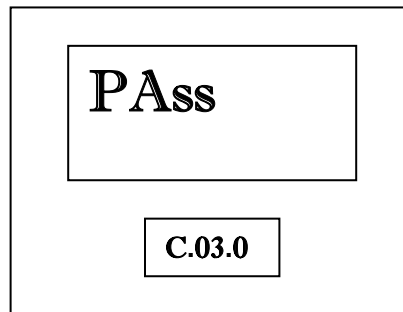


Figure 3

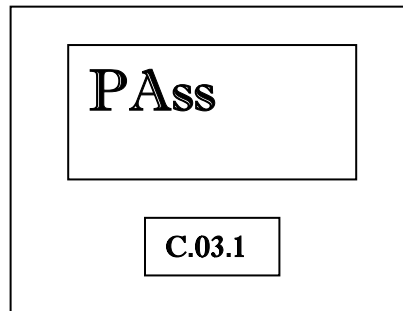


Figure 4

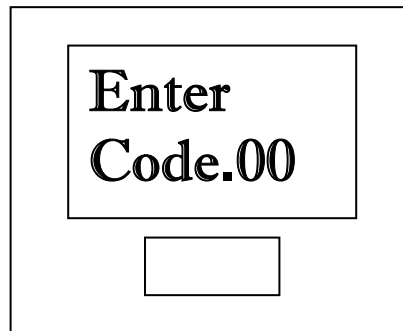


Figure 5

To assign a new access code, follow this procedure:

1. Press the 3 button and then the **MODE** button on the keypad.
2. Press the ↑ button. See figure 6a and 6b. The display looks like Figure 7.
3. Press 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.
4. Press the **ENTER** button to save the new access code. The **ENTER** button is not enabled until four digits are entered.
5. Test the new access code.

To test the access code, follow this procedure:

1. Press the **CANCEL** and **ENTER** buttons at the same time or press the "Safety Stop Only" button once for Normal Operation. Re-enter programming mode.
2. Press the 3 button and then the **MODE** button on the keypad.
3. Press the new four digit access number. Four dashes appear in the volume display.
4. Press the **ENTER** button. If access is gained, the four dashes disappear and the main PPV display appears as in Figure 4. If the dashes do not move, an error was made. Repeat Steps 1 through 3. If an error is made recording the new access code, the only way to clear an unknown code is to **REPLACE** the memory circuit board.
5. Press **CANCEL** button to exit this menu code.

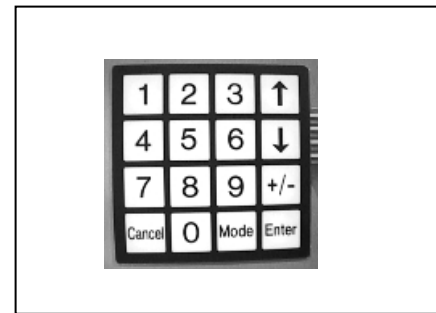


Figure 6a



Figure 6b

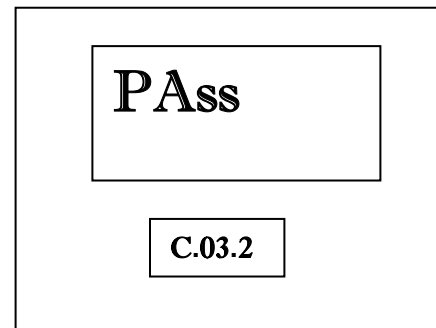


Figure 7

How to Program Price Per Volume Menu Code 4

This menu code allows the Manager to set price per volume data at the dispenser. **NOTE: If the dispenser is Volume only, no price is required.**

To program price per volume data, follow this procedure:

NOTE: The access code (Menu 3) must be entered into the pump before this mode may be entered.

1. Press the 4 button and then the **MODE** button on the keypad. The Price Per volume display is shown. See Figure 8.

1. Use the 0 through 9 buttons on the keypad to enter the price. See figure 9.

When the first digit of the new price is entered the main display indicates the new digit in the right most display. The new price appears on the Price Per Volume display window.

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

3. When the correct price appears in the Price Per Volume display window, press the **ENTER** button. The PPV displays the new price. See Figure 10.

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

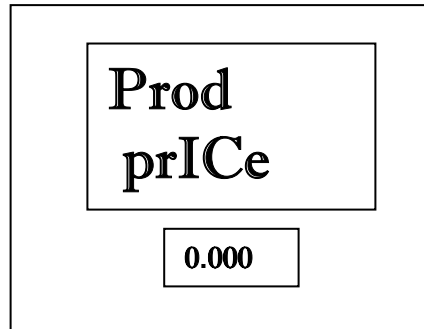


Figure 8

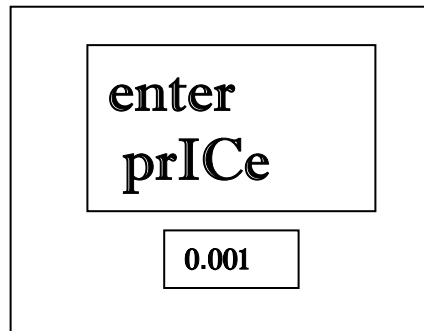


Figure 9

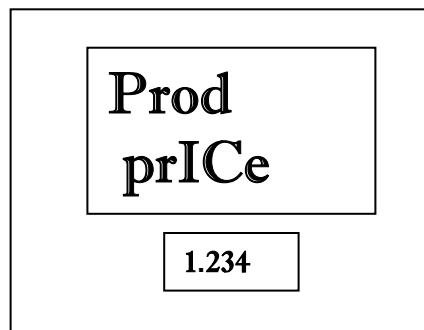


Figure 10

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 money display and the price per volume display can be changed. The volume display (gallons, liters, or British Imperial gallons) cannot be changed in this menu.

To change the decimal placement, follow this procedure:

1. 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 PPV display. The number 0.00 appears in the main display to show the dispenser is set for U.S. Standard. See Figure 11.

There are seven decimal selections available.

DECIMAL PLACEMENT SELECTIONS				
	<u>MONEY</u> <u>DISPLAY</u>	<u>VOLUME</u> <u>DISPLAY</u>	<u>PPV</u> <u>DISPLAY</u>	
		Volume		
<u>Selection</u>	<u>Money</u>	<u>Gallons /</u>	<u>Liters</u>	<u>Price</u>
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]

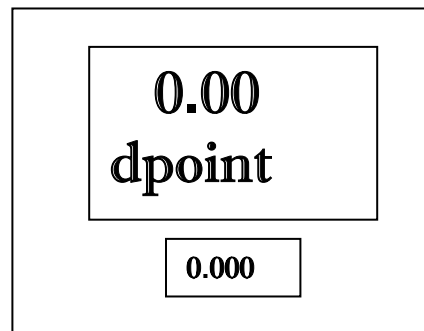


Figure 11

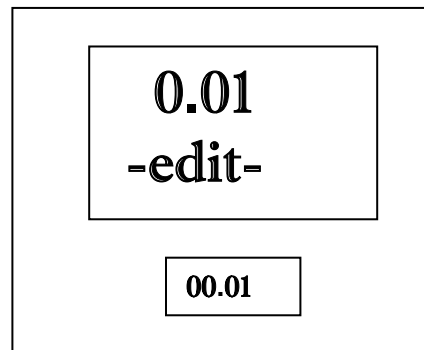


Figure 12

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

1. Use the 0 through 6 buttons on the keypad to enter a new selection. The display will show the option number as well as the decimal placements in the money and PPV displays. See Figure 12.
2. Press the **ENTER** button. The new decimal placement appears in the displays.
3. If an error is made, repeat steps 1 and 2 until the correct decimal placement selection appears.
4. Press the **CANCEL** button to exit this menu code.

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 for 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 an amount of time you program. If the pump handle is turned on and flow occurs, but is stopped, the No Flow Time Out feature prevents delivery after the amount of time programmed has elapsed.

The No Flow Time Out feature is programmable from 0 seconds to 999 seconds. An entry of 0 = infinite time that will be displayed as "---". The dispenser is shipped from the factory with Menu Code 9 disabled (infinite time).

To program an amount 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 default is infinite time. The PPV display shows the dispenser is in Menu Code 9. See Figure 13.

The three dashes mean the No Flow Time Out amount is an infinite amount or that Menu Code 9 is disabled. The main solenoid valve and the slow flow valve remain on after the pump handle lever is put in the **ON** position and the dispenser is authorized.

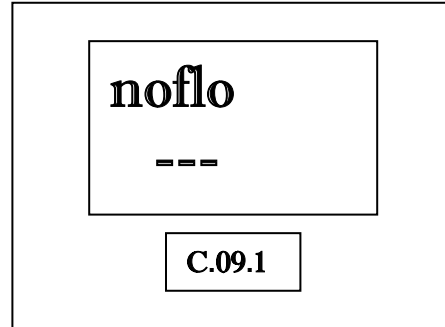


Figure 13

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 14.

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.

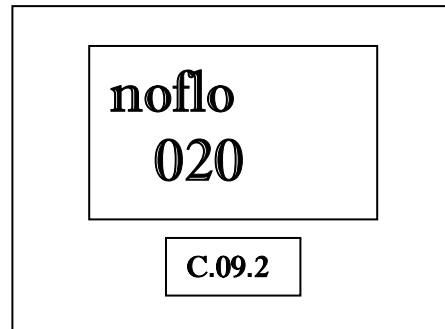


Figure 14

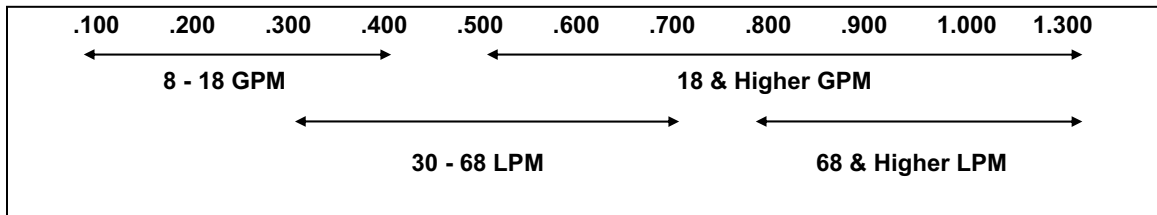
3. When the correct value appears in the volume display, press the **ENTER** button to save the selection.
4. To disable Menu Code 9, press the 0 button on the keypad and press the **ENTER** button. The volume display returns to three dashes.
5. Press the **CANCEL** button to exit this menu code.

How to Set a Slow Flow Amount Menu Code 10

NOTE: This menu code is only used when the dispenser is equipped with Prepay valves.

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 two stage solenoid 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 0.200 (default), the solenoid valve will go into *slow flow* stage when there is 2/10 (two tenths) of a unit remaining to be delivered to reach the pre-selected amount. The minimum volume that can be selected is 0.1 units and the maximum volume that can be selected is 9.9.

Suggested Settings



To select a slow flow amount, 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. The PPV display shows the dispenser is in Menu Code 10. See Figure 15.

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 units. 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.



Figure 15

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 9999 volume units. This is the maximum volume limit. The minimum volume limit is 1 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 PPV display shows the dispenser is in Menu Code 11.

If the dispenser has not been programmed since it came from the factory, the number 9999 appears in the main display. This is the default setting. See Figure 16.

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 050 has been set, the dispenser stops the flow of fuel at 50 volume units (gallons or liters).

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.

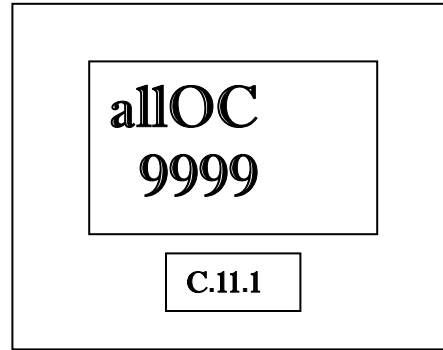


Figure 16

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 2 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 PPV display shows the dispenser is in Menu Code 12. See Figure 30.

If the dispenser has not been programmed since it came from the factory, the number 2 appears in the main display. See Figure 17. This is the two second default setting.

2. To change the setting, use the 2 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.

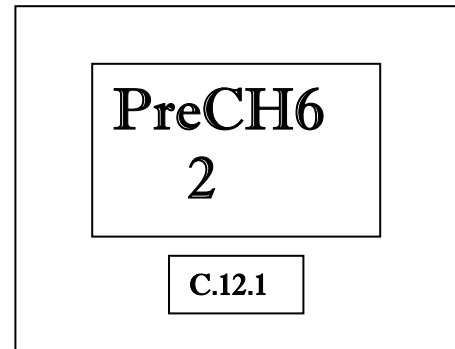


Figure 17

How to Program Fleet Option Menu Code 15

NOTE: This menu code must be programmed as 1, enabled, for commercial (volume only) dispensers.

This menu code, when enabled, allows the dispenser to operate as a commercial (volume only) dispenser.

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

1 - the fleet option is enabled

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 PPV display shows the dispenser is in Menu Code 15.

If the dispenser has not been programmed since it came from the factory, the number 0 appears in the main display. If the dispenser is commercial (volume only) the menu code will be set to 1 at the factory. See Figure 18.

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.

NOTE: On Volume only pumps there is only one line for the display window and no PPV window. All information will display one line at a time on the display window. See Figure 19. All information is programmed the same. To toggle through the lines use the ↓ button. The order that appears as you toggle is the same for each Menu Code. As you toggle each step will show you the applicable menu code number your in. (Example: C.15.1) This is what was shown in the PPV window on a non-volume only dispenser.

As you continue to press the ↓, the cycle will start over. Pressing **CANCEL** will take you out of the menu code your in.

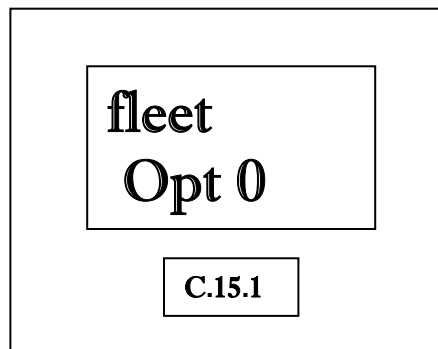


Figure 18

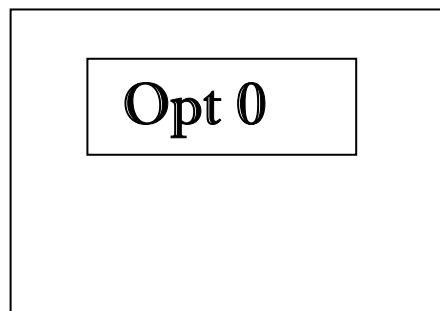


Figure 19

How to Program the Way the Customer Preset Option Operates Menu Code 17

This menu code tells the dispenser whether the optional local preset keypad is installed on the dispenser.

NOTE: If no local preset key pad is installed on the dispenser, do not enter this menu code to change the setting. The default setting is for no local preset.

This menu code also tells the dispenser how to operate the local preset option. The options are:

- 0 - No Local preset keypad
- 1 - Local preset installed; customer can select a money amount only
- 2 - Local preset installed; customer can select a volume amount only
- 3 - Local preset installed; customer can select a volume amount or a money amount

To select a different option in Menu Code 17, follow this procedure:

1. After the Manager's Mode has been accessed, press the number 1 and 7, then the **MODE** button on the keypad. The PPV display shows the dispenser is in Menu Code 17.

If the dispenser has not been programmed since it came from the factory, the number 0 appears in the main display. See Figure 20. 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.

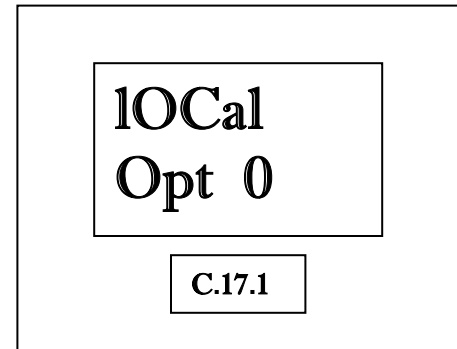


Figure 20

How to Program Motor Delay Menu Code 18

This menu code is only used on self-contained dispensers that do not have valves. The 2 second delay prevents the dispenser from turning on immediately when the pump handle is activated. The pump motor will activate following the display reset sequence.

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 PPV display shows the dispenser is in Menu Code 18.

If the dispenser has not been programmed since it came from the factory, the option for NO delay (0) appears in the main display. This is the default setting. See Figure 21.

2. To change the setting, use the 1 button on the keypad to enter a 2 second delay.

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

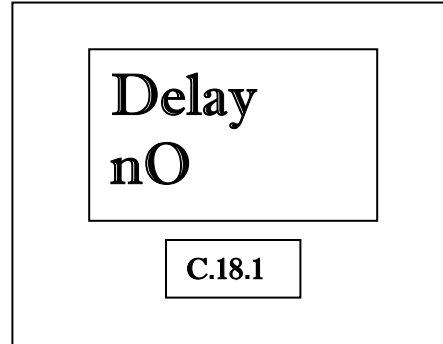


Figure 21

How to Set the Dispenser Mode of Operation Menu Code 21

This menu code allows the Manager to set the dispenser mode of operation. Circuit boards must also be configured for mode of operation. See Circuit Board Jumper Configuration & Wiring for Dispenser Interface, SECTION 1. The options are:

- 0 - the console mode is active (this is the default)
- 1 - the stand alone option is active
- 2 - mechanical interface is active

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 PPV display shows the dispenser is in Menu Code 21.

If the dispenser has not been programmed since it came from the factory, the Console Mode appears in the main display. This is the default setting. See Figure 22.

2. To change the setting, use the 0, 1, or 2 button on the keypad to enter a new option. See Figures 23 (Stand Alone) and 24 (mechanical interface).

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

1. When the correct option number appears in the main display, press the **ENTER** button to save your setting.
2. Press the **CANCEL** button to exit this menu code.

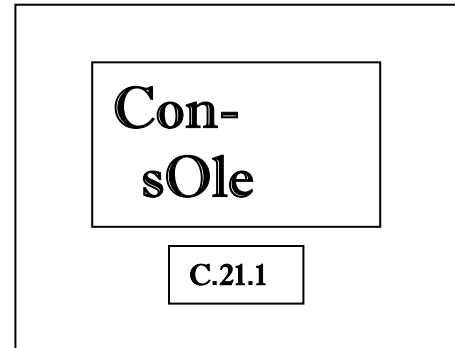


Figure 22

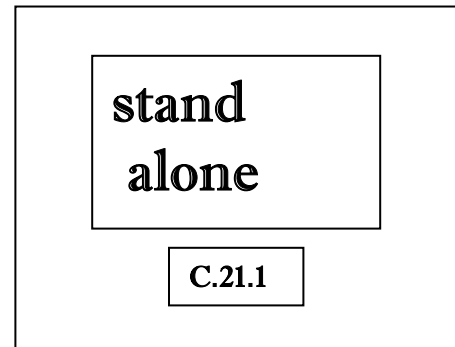


Figure 23

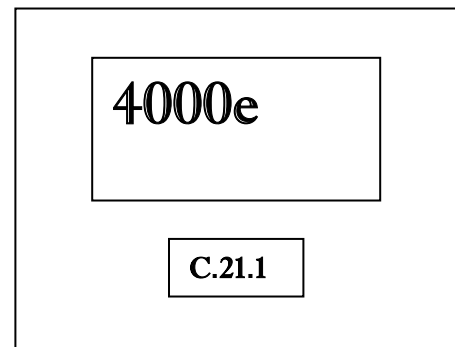


Figure 24

How to Set a Dispenser Address Menu Code 22

This menu code allows the Manager to set a dispenser address for each dispenser when multiple dispensers are on the same communications loop. Normally, this setting will always be 0. However, if more than one dispenser is using the same communications loop (up to four dispensers), a value from 0 to 3 is available.

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

1. After the Manager's Mode has been accessed, press the number 2 and 2, then the **MODE** button on the keypad. The PPV display shows the dispenser is in Menu Code 22.

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 25.

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

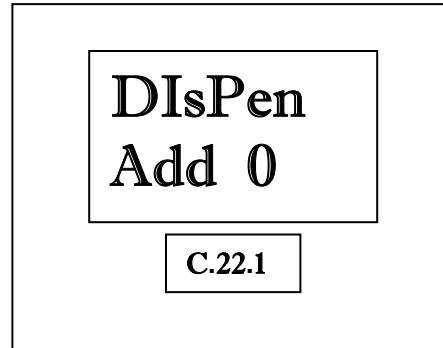


Figure 25

How to Program a Dispenser for 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 “Push to Start” button, can be programmed to satisfy this requirement. The options are:

- 0 - Valves actuate as soon as the nozzle is removed from the nozzle boot and the ON/OFF lever is in the ON position.
- 1 - Valves and motors remain off until a designated button is pushed (this is the default). This setting is required in the U.S.A. for dispensers not equipped with an ON/OFF lever.

NOTE: The GoPump series are programmed at the factory to option 0.

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.

If the dispenser has not been programmed since it came from the factory, Auto-On appears in the main display. This is **not** the default setting. See Figure 26.

1. 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.

2. When the correct option number appears in the main display, press the **ENTER** button to save your setting.
4. Press the **CANCEL** button to exit this menu code.

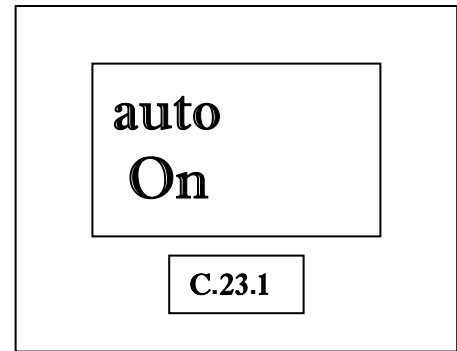


Figure 26

How to Program a Dispenser with Zeros Automatically Displayed in Customer Preset Menu Code 24

This menu code is used for setting zeroes, up to four places, either for money or volume allocation in Local Preset. The customer can preset an amount without having to key in the zeros.

Example:

If the customer wants \$5.00 in fuel all he has to press on the keypad is 5, the zeros are already displayed (dispenser programmed with two zeros in the money display).

The options are:

- ↑ button toggles between the money and volume preset settings.

To program the number of zeros needed in Money or Volume in local preset, follow this procedure:

1. After the Manager's Mode has been accessed, press the number 2 and 4, then the **MODE** button on the keypad.

If the dispenser has not been programmed since it came from the factory, the Money Preset appears in the main display with no zeroes placed automatically for the customer. See Figure 27.

2. To change from Money Preset to Volume Preset setting, use the ↑ button on the keypad. To return to Money Preset press the ↑ button. To add zeroes (up to four places) press the +/- button on the keypad.

NOTE: If an error is made continue pressing +/- until the correct number of zeros is needed.

NOTE: To change the settings re-enter Menu Code 24 and press the ENTER button to clear the forced zeroes.

3. When the correct options appears in the main display, press the **ENTER** button to save your setting.
4. Press the **CANCEL** button to exit this menu code.

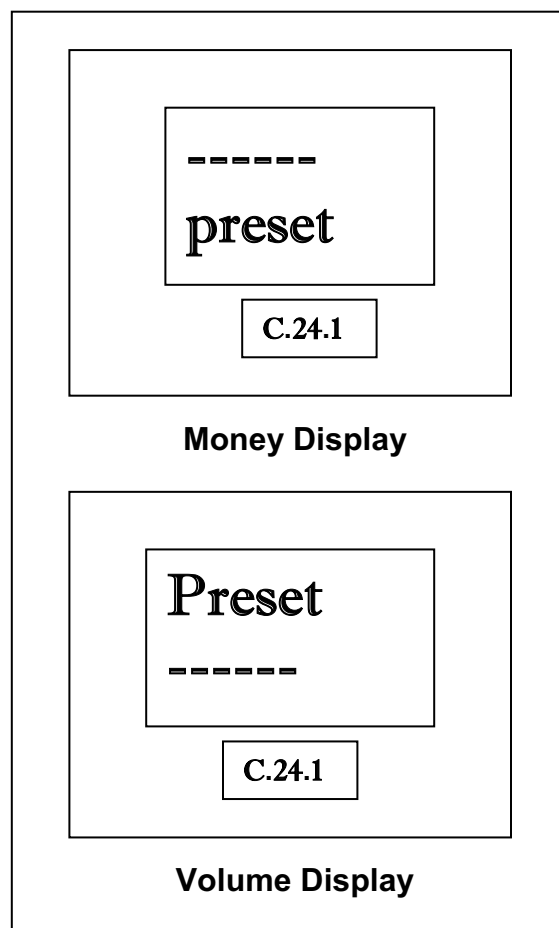


Figure 27

How to View a Dispenser's Electronic Calibration Menu Code 27

The *GoPump* dispenser comes with two types of SB-100 Meters. Either with the mechanical adjuster which means Electronic Calibration is not used and is calibrated the traditional way, or without the adjuster which means the meter must be calibrated through a sealed switch. Electronic Calibration is a purchased option. If the dispenser is not equipped with this option software will not allow Electronic Calibration.

Menu Code 27, without the calibration switch activated, can only view the calibration constants of the meter. If calibration must be done on the meter see the Electronic Calibration Addendum.

To view calibration settings in Menu Code 27, 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 display shown in Figure 28 appears.

If the dispenser is not equipped with the electronic calibration feature the display will have a value 0.00 for calibration (this will never change). If the dispenser is equipped with electronic calibration the factory will do an initial calibration of the meter. The initial calibration value will be displayed. Before start-up each meter must be re-calibrated.

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

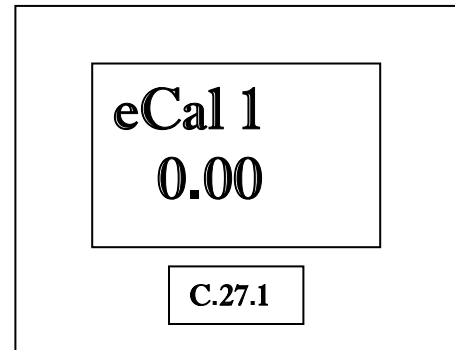


Figure 28

How to Program Mechanical Pulse Output Menu Code 50

This menu code allows the dispenser to be connected to a control console like a mechanical dispenser. The dispenser will generate pulse and handle signals to the control console. This menu code cannot be accessed unless Menu Code 21 is set to mechanical interface (4000E).

This menu code contains three sub-menu codes that need to be set for correct operation. These are pulse length, pulse unit, and pulse base digit. The pulse length defines a pulses output length. The measurements are done in milliseconds. The pulse unit defines if the pulse is a money pulse or a volume pulse for the console interface. The pulse base defines which digit of the money or volume that is equivalent to one pulse.

To select a different option, follow this procedure:

1. After the Manager's Mode has been accessed, press the number 5 and 0, then the **MODE** button on the keypad. The display shown in Figure 28 appears.

If the dispenser has not been programmed since it came from the factory, the default is 2 milliseconds. See Figure 29.

2. To change the setting, use the 1 through 8 buttons on the keypad to enter the pulse length.

NOTE: If connecting to the BENNETT MI-320 or MI-350 this setting must 8.

3. When the correct number appears in the volume display press the **ENTER** button to save the setting.
4. Press the **↑** button to advance to the unit sub-menu.

If the dispenser has not been programmed since it came from the factory, the default is Petro (volume). See Figure 30.

- 1 – Petro (Volume)
- 2 – Dollar (Money)

5. To change the setting, use the 1 button for Petro or the 2 button for money.
6. When the correct option appears, press the **ENTER** button to save the setting.
7. Press the **↑** button to advance to the base sub-menu.

If the dispenser has not been programmed since it came from the factory, the default is 5 for the 1/100ths position of the Petro (volume). This is the setting for 100 pulses per volume unit. See Figure 31.

8. To change the setting, use the 1 through 6 buttons on the keypad to enter the base digit. The money and the volume display each have six digits. From the left the first digit equals 1, the second digit is 2, and so on. The default is 5, see figure 30. If the emulation is a 1 to 10 pulser, option 4 would be the setting.
9. When the correct digit appears, press the **ENTER** button to save the setting.
10. Pressing the **↑** button will start the menu over.

11. Press the **CANCEL** button to exit this menu.

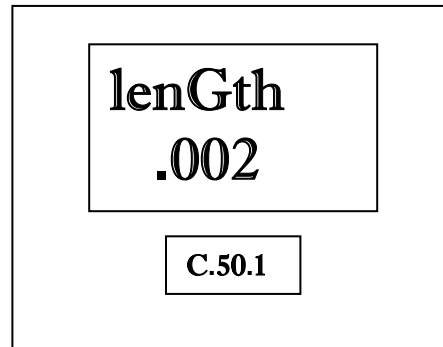


Figure 29

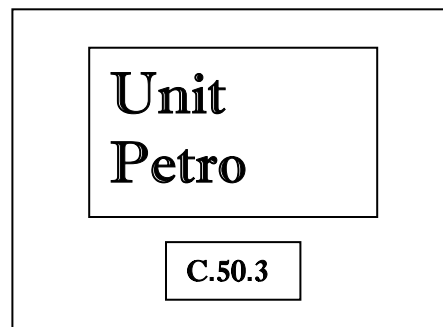


Figure 30

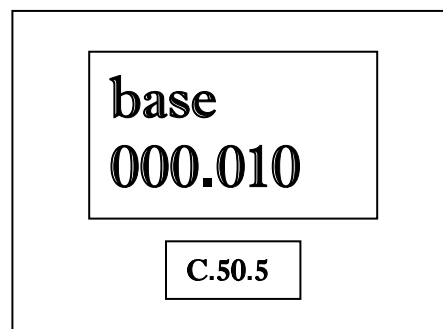


Figure 31

How to Perform a Cold Start on the Dispenser Menu Code 83

This menu code allows the manager or operator to reset the manager modes back to the default values. Refer to the beginning of this section to see the default settings and to see the suggested set-up sequence. A cold start also clears some error counting logs. This does **not** clear dispenser totals, access code (Menu Code 3), or meter calibration constants.

To perform a cold start, follow this procedure:

1. After the Manager's Mode has been accessed, press the number 8 and 3, then the **MODE** button on the keypad. The display shown in Figure 32 appears.
2. Press the 1 for YES or the 2 for NO on the keypad and press the **ENTER** button.

NOTE: If the YES button is entered you will automatically go to normal operation.

3. Press the **CANCEL** button to exit this menu.

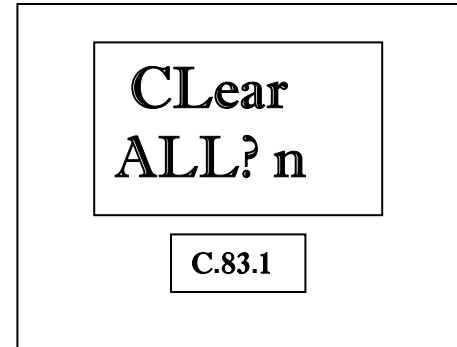


Figure 32

How to Configure the Dispenser for Unit of Measure Menu Code 99

This menu code allows the manager to set the dispenser unit of measure. The options:

- 1 - Gallons
- 2 - Liters
- 3 - British Imperial Gallons

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 PPV display shows the dispenser is in Menu Code 99.

If the dispenser has not been programmed since it came from the factory, the Unit "US Gal" appears in the main display. This is the default setting. See Figure 33.

2. To change the setting, press the 1, 2, or 3 button on the keypad. The choice is 1 for gallons (see Figure 33), 2 for liters (see Figure 34), or 3 for British Imperial gallons (see Figure 35).
3. When the correct option number appears in the main display, press the **ENTER** button to save the setting.
4. Press the **CANCEL** button to exit this menu code.

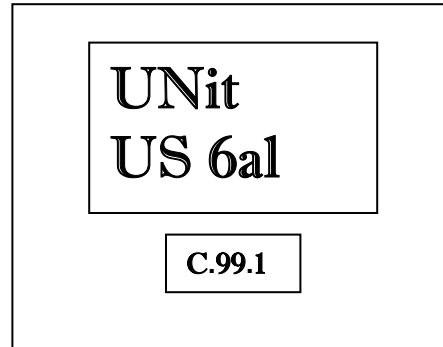


Figure 33

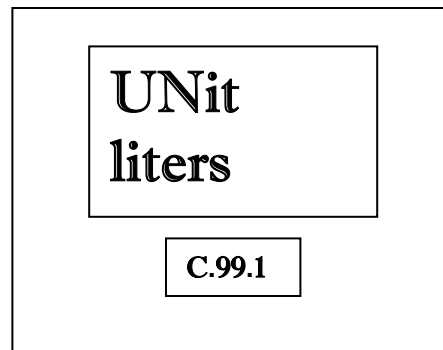


Figure 34

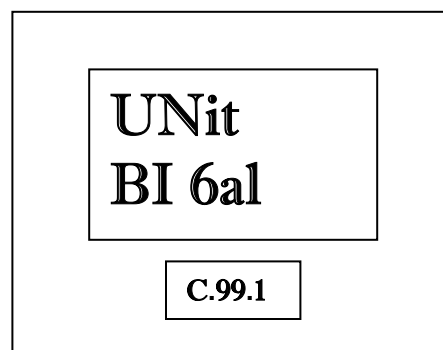


Figure 35

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.

To enter Diagnostics or read totals, press and hold the **CANCEL** and **ENTER** buttons at the same time or the **“Safety Stop Only”** button until the displays read **“Enter Code.00”**, this takes 6 seconds. Make sure the pump handle is in the **OFF** position.

These instructions will not be repeated for each Menu Code.

How to Use Diagnostics Menu Code 0

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:

Diagnostics Code	Description
0	Software I.D. Number
1	Display Segment Test/Keypad Test
2	Fault History
5	Pump Handle Test
6	.0 - P-FAIL (Power Failures Counter) .1 - C-FAIL (Communication Failures Counter) .2 - ECAL 1 (Electronic Calibration Counter) .4 - Unit CH (Unit Changes Counter) .5 - ColdSt (Cold Starts Counter) .6 - FAcTrY (Reset to Factory Defaults Counter) .7 - Er Ct - (Number of Errors Counter) .8 - Pr Ch - (Price Changes 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.

NOTE: When a valid failure has occurred, the name of the failure appears in the main display.

To enter Diagnostics, follow this procedure:

Press the 0 button and then the **MODE** button on the keypad. The main display appears as in Figure 36.

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

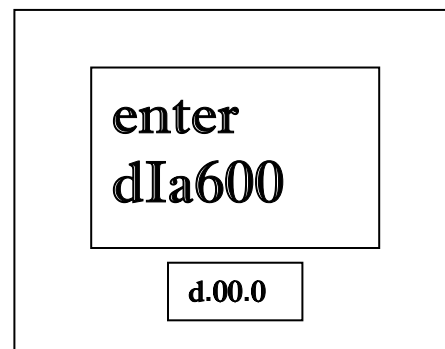


Figure 36

Diagnostic Code 0 – Software Identification

This test is used to display the software identification of this software.

To enter this test, enter diagnostics and press the 0 button on the keypad and the ENTER button.

d.00.0 Software I.D. Number. The display shown in Figure 37 appears. The PPV display shows the dispenser is in Diagnostics Level 0.0.

The top number identifies the software revision level. This will change from software version to software version.

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

Diagnostic Code 1 – Display Segment Test/ Keypad Test

This test is used to identify failed segments in the main sales displays or the price per volume (PPV) displays and to also check for failed keypads.

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

The main sales display window and the price per volume (PPV) window shows all 8's. See Figure 38. This allows a visual check of all displays.

To check keypads for failures, press each number. As each number is pressed that number will fill the display. By pressing the ↑ the display fill's with A's. By pressing the ↓ the display fill's with B's. By pressing the +/- key the display fills with C's and by pressing the Push to Start button the display will fill with S's.

NOTE: Failure of the display to change indicates the button is not working.

The display continues until the **CANCEL** button is pushed to exit this code.

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

Diagnostic Code 2 - Fault History

The fault history code is a log of fault conditions that occurred during the operation of the dispenser. The CPU board generates an error code when an abnormal condition exists during or after a sale. The CPU board is responsible for storing the last 16 fault codes that have occurred since the last cold start (clearing memory).

Enter this code to display the error codes stored in the dispenser memory.

To enter this test, enter diagnostics and press the 2 button on the keypad and the ENTER button.

The display window shows the number of errors. See Figure 39.

If there are errors recorded, press enter and the displays read as in Figure 40. The first two digits represent how many times the error occurred, the two digits after the "E" represent the error code number.

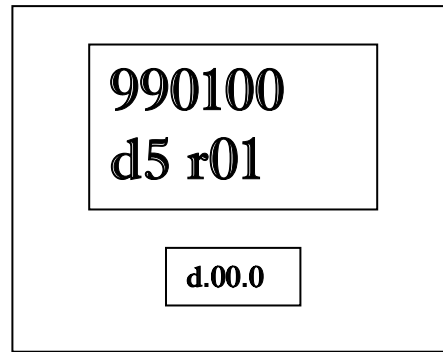


Figure 37

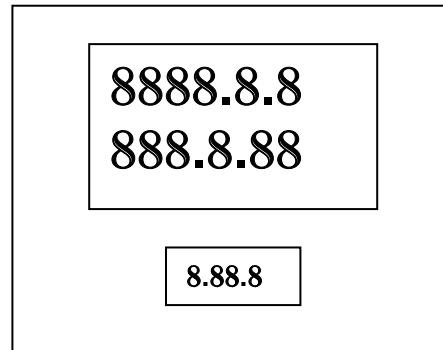


Figure 38

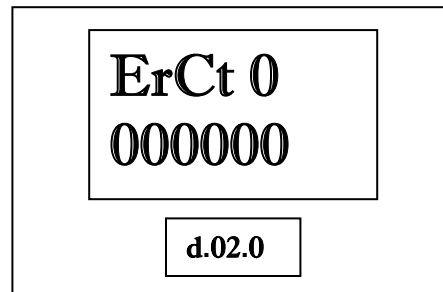


Figure 39

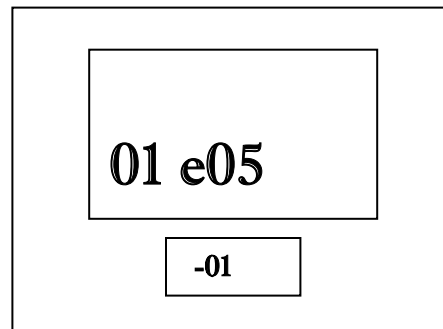


Figure 40

Error Fault Code	Description	
00	Initialization -	This display is loaded briefly at power up. If it remains for more than one second, it indicates that there is an unexpected error that is preventing the dispenser from completing initialization. Possibly micro failure. **
13	Failed pulser -	It is displayed when the signal lines from the pulser show invalid transitions over a period of time. **
15	Reverse flow fault -	This indicates excessive backward pulser activity. If constant at installation, every sale, it may be caused by reversed wires from the pulser. May also indicate bad check valves.**
08	Valve test pulser disconnect -	This indicates that the check line from the pulser is not present. Usually indicates that the pulser has been disconnected. **
A1	Mechanical Pulse Output	This indicates the flow rate exceeded the maximum pulse output configuration. **
cA	Corrupted calibration -	This indicates that the calibration value stored in the EEPROM is either invalid or corrupted. The unit will not operate until a valid calibration function has been performed. ♦♦
EE	EEPROM failure -	This indicates that the EEPROM has failed. Could be caused by a software version that is not compatible with the current software, or has never been programmed. ♦♦
FF	Failure of unknown type -	This display indicates that there is a continued failure of unknown type. This display will most often occur when leaving managers mode while the dispenser still has an active error.
A0	Vapor Recovery Failure	This indicates an error with vapor recovery. The unit will not operate until error is cleared. ♦♦
A2	Switch Not Sealed	This indicates the electronic calibration switch is not in the sealed position.

** These error messages can be cleared by activating and deactivating the on/off mechanism.

♦♦ These error messages will not allow the dispenser to function until the unit is restarted. Refer to Menu Code 83 for Cold Start.

Press the **ENTER** button to view the next fault in the fault log. Each time the **ENTER** button is pressed the fault log index is incremented and the next fault code is displayed.

When all errors have been displayed, the cycle begins from the first error message again. Press the **ENTER** button to cycle the display to the most recent fault logged.

Press the **CANCEL** button to exit this test. Press the **CANCEL** button twice to exit 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 switch and writes the status of the handle on the display. Figure 41 shows the pump handle active.

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

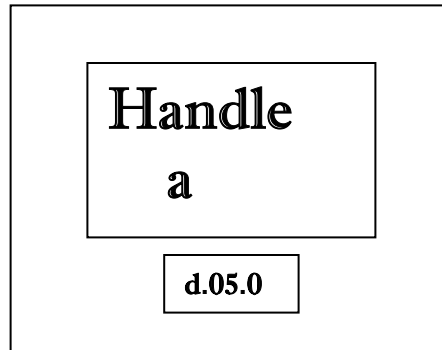


Figure 41

Diagnostic Code 6 - Counter

This code is used to count how many times there were changes or errors that occurred to the dispenser since the system was reset (cold start).

Diagnostic Code 6 counts the following in this sequence order.

How many power failures

How many times there is a communication problems between the dispenser and the console

How many times the electronic meter calibration has been changed.

Changes between gallons and liters

How many times a cold start was performed (Menu Code 83)

How many times the dispenser was reset to factory defaults

How many errors occurred on the dispenser

How many times price changes were made to the dispenser

To enter this test, enter diagnostics and press the 6 button on the keypad and the **ENTER** button. Press **ENTER** each time to view the following:

6.0 - Pfails. The display shown in Figure 42 appears. The PPV display shows the dispenser is in Diagnostics Level 6.0.

The number of power failures that have occurred since the system was reset (cold start through Menu Code 83) appears on the second line of the main display.

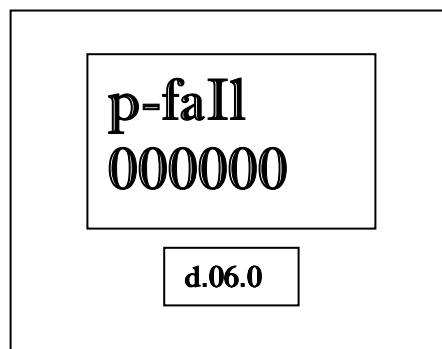


Figure 42

6.1 - Cfails. The display in Figure 43 appears. The PPV display shows the dispenser is in Diagnostics Level 6.1.

The number of communication failures between the console and the dispenser that have occurred since the system was reset (cold start through Menu Code 83) appears on the second line of the main display.

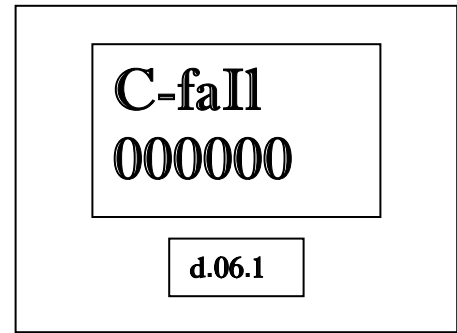


Figure 43

6.2 – E CAL 1. The display in Figure 44 appears. The PPV display shows the dispenser is in Diagnostics Level 6.2.

The number of times the meter has been electronically re-calibrated appears on the second line. This count cannot be cleared.

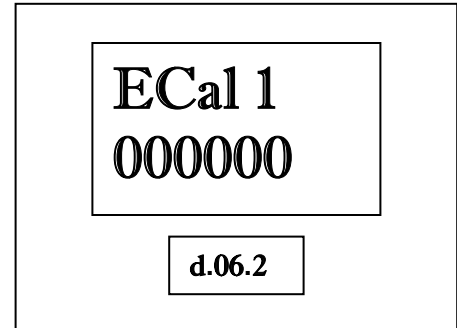


Figure 44

6.4 - Unit Ch. The display in Figure 45 appears. The PPV display shows the dispenser is in Diagnostics Level 6.4.

The number of times the dispenser was changed between gallons or liters since the system was reset (cold start through menu code 83) appears on the second line of the main display. This count cannot be cleared.

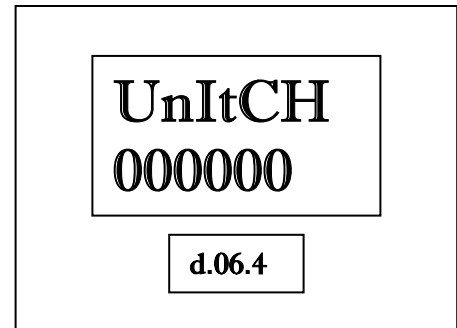


Figure 45

6.5 - ColdSt. The display shown in Figure 46 appears. The PPV display shows the dispenser is in Diagnostics Level 6.5.

The number of cold starts that have occurred since the system was reset to factory defaults (clearing memory) appears on the second line of the main display. This count cannot be cleared.

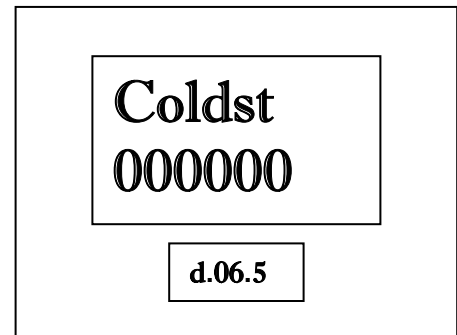


Figure 46

6.6 - Factory. The display in Figure 47 appears. The PPV display shows the dispenser is in Diagnostics Level 6.6.

The number of times the protected memory is cleared due to memory corruption. This count cannot be cleared.

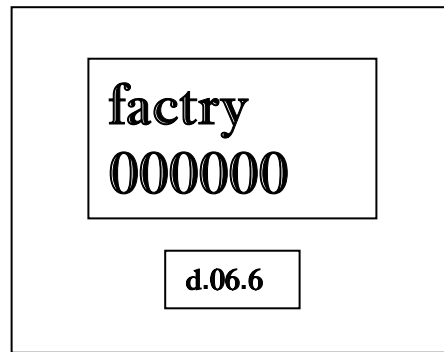


Figure 47

6.7 - ErCt. The display in Figure 48 appears. The PPV display shows the dispenser is in Diagnostics Level 6.7.

The number of errors that have occurred since the system was reset (cold start through Menu Code 83) appears on the second line of the main display.

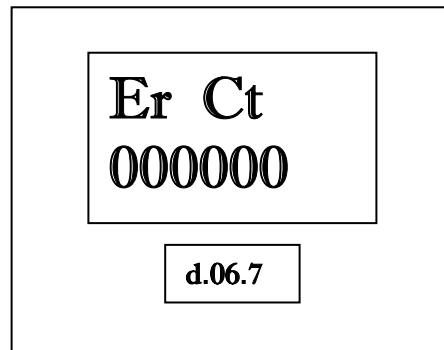


Figure 48

6.8 - PrCh. The display in Figure 49 appears. The PPV display shows the dispenser is in Diagnostics Level 6.8.

The number of price changes that have occurred since the system was reset (cold start through Menu Code 83) appears on the second line of the main display.

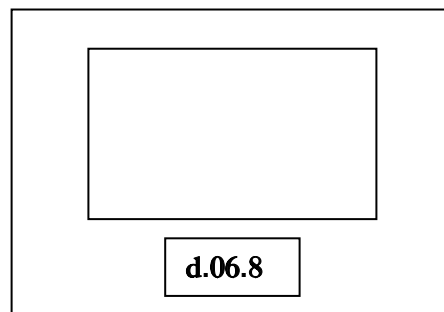


Figure 49

NOTE: By continuing to press ENTER you will go back to the beginning and the review process starts over again.

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

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.

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

1. Press the number 1 button and then the **MODE** button on the keypad. The main sales display appears similar to Figure 50.

The main display shows the total money amount. For example: If the total money amount for the dispenser is \$46,007.88, the display appears as in Figure 50.

The PPV display window reads C.01.1 for Money Total and Menu Code 1.

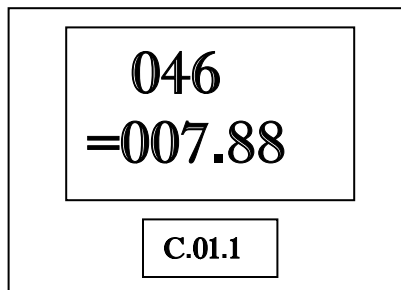


Figure 50

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

1. Press the **ENTER** button. The main display indicates Volume totals. See Figure 51.

The main display shows the total volume amount. For example: If the total volume amount for the dispenser were 1,140.032 gallons, the display would appear as in Figure 51. These totals are accumulative and cannot be changed. The dispenser displays the volume amount to three decimal places for gallons, two decimal places for liters, and three decimal places for Imperial gallons.

The PPV display window reads C.01.2 for Volume Total and Menu Code 1.

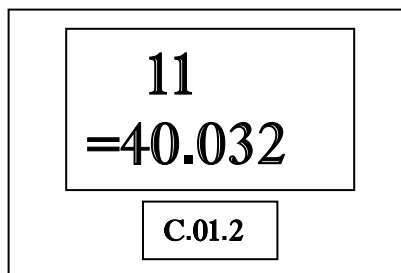


Figure 51

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

1. Press the **ENTER** button. The main display shows the total sales amount. The sales counter is incremented each time a sale is run on the nozzle. See Figure 52.

The PPV display window reads C.01.3 for Sales Totals, Menu Code 1.

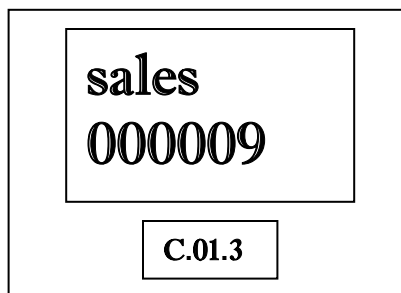


Figure 52

2. Press the **ENTER** button. The main display shows the total number of price changes. The price change counter is incremented each time a price is changed on the nozzle. See Figure 53.

The PPV display window reads C.01.4 for Price Change Totals, Menu Code 1.

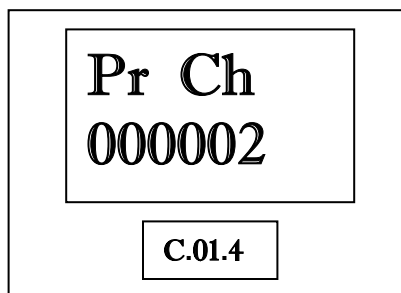


Figure 53

NOTE: Pressing the ENTER button will start Menu Code 1 over.

For Volume-Only Pumps:

Menu Code 1 will start with the Volume Totals display, there is no Money Totals Display.

How to Read the Electro-Mechanical Totalizer

If the dispenser is equipped with an electro-mechanical totalizer, there will be one for each meter that records the volume dispensed for each sale. The volume recorded is an accumulative total that cannot be reset. The viewing window on the totalizer is located at the top of the side panel above the ON/OFF pump handle that it records. See Figure 54.

NOTE: Because of rounding methods used and the nature of electronic totals vs. an analog device such as an electro-mechanical totalizer, electronic totals and the electro-mechanical totals rarely match exactly.

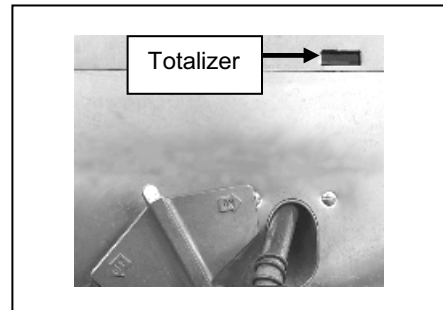


Figure 54

How to Dispense Fuel

To dispense fuel, follow this procedure:

1. Remove the nozzle from the holder and move the lever to the **ON** position. See Figure 55.
2. Wait for the displays to go to all 8's and then all 0's.
3. Squeeze the nozzle trigger to dispense fuel into the vehicle or approved container.
4. Release the nozzle trigger when the desired amount of fuel has been dispensed.
5. Move the lever to the **OFF** position and replace 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 entitled "How to Use Diagnostics".

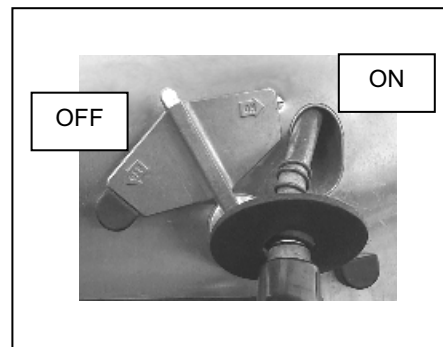


Figure 55

How to Dispense Fuel With The Local Preset Option

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

1. Choose either **MONEY** key or **VOLUME** key. See Figure 56.
2. 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.

NOTE: If an error is discovered at this point, the preset amount can be changed before the flow of fuel. The preset amount cannot be changed once flow begins.

3. Remove the nozzle from the holder and move the pump handle to the ON position.
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.
7. Move the pump handle to the OFF position and replace the nozzle.

If the dispenser stops during delivery of fuel, refer to the section entitled "How to Use Diagnostics".

Example of a MONEY sale: If you have correctly entered a \$5.00 sale, the display reads as in Figure 57.

Example of a VOLUME sale: If you have correctly entered a 15 gallon sale, the display reads as in Figure 58.

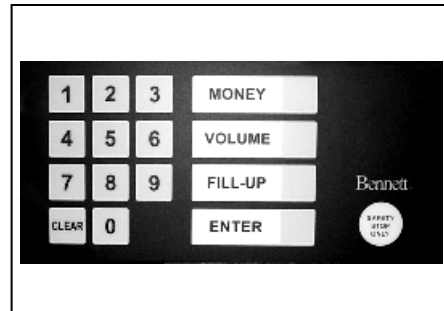


Figure 56

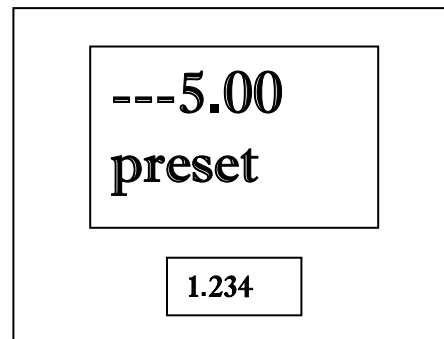


Figure 57

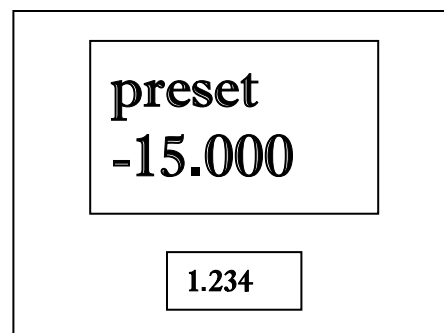


Figure 58

How to Blank the Displays

The dispenser is designed to operate with the power **ON** 365 days a year. Leave the power on all the time. This will result in fewer repairs and longer life. To give the appearance of power **OFF** to the dispenser, push and hold the **CANCEL** and **ENTER** buttons at the same time or the “Safety Stop Only” button (Local Preset option) until the display goes blank. See Figure 59a and 59b.

To prevent fuel theft during the time the site is closed, turn pump motor circuit breaker **OFF**. The dispenser cannot dispense fuel without pump motor power.

If you are unable to turn the power off to the pump motor and leave the rest of the dispenser with power, the A.C. wiring to the dispenser is not correct. Have a proper connection made by a qualified electrician.

To exit the display blanking feature push and release the **CANCEL** and **ENTER** buttons at the same time or the “Safety Stop Only” button once.

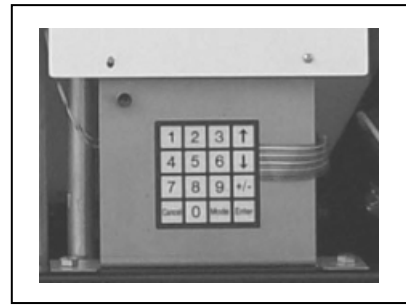


Figure 59a



Figure 59b

How to View the Previous Sale

The previous sale refers to the sale before currently displayed sale. To view the previous sale, push and hold the **CANCEL** and **ENTER** buttons at the same time or the “Safety Stop Only” button until the PPV display reads “PREV”. This takes 4 seconds to cycle the previous sale display. See Figure 60.

To exit the previous sale feature push and release the **CANCEL** and **ENTER** buttons at the same time or the “Safety Stop Only” button once.

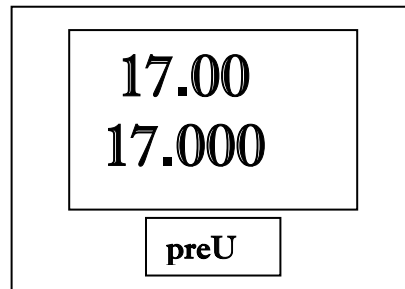


Figure 60

How to View the Audit Trail

The audit trail is a list of counters that can be viewed without entering Manager’s Mode. These counters include Power failures, communication problems, electronic meter calibrations, unit of measure changes, cold starts, factory resets, errors, and price changes. For more information on these counters, see Diagnostic Code 6. To access the audit trail push and hold the **CANCEL** and **ENTER** buttons at the same time or the “Safety Stop Only” button (Local Preset option) until the display reads “Audit Trail” (approx. 8 seconds). See Figure 61. Pressing the **ENTER** button will advance the display to the next counter. To exit, press the **CANCEL** button, or the display will automatically return to operation mode after 30 seconds.



Figure 61

How to Use Last Sale Recall

If power to the dispenser is interrupted, the current sale information and access can be gained to Menu Code 1. The Last Sale Recall switch is located behind the upper door next to the Manager's keypad. See Figure 62a. If the dispenser is equipped with Local Preset the switch is located behind the BENNETT Logo. See Figure 62b. Push the button. The last sale in progress will display for 20 seconds. The button may be pressed successively to bring up the last sale information and to access Menu Code 1 every 20 seconds.

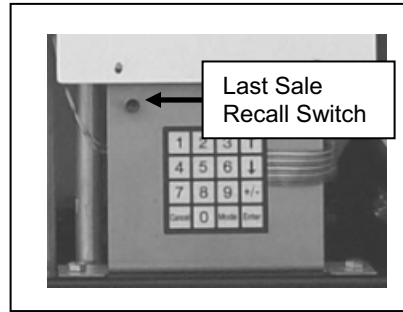


Figure 62a

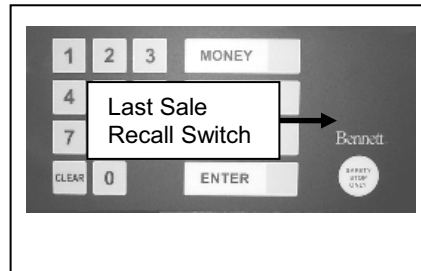


Figure 62b

How to Use Key Reset

The key reset option gives the attendant the ability to authorize one sale at a time. Each time the key is turned the dispenser will authorize for one sale. The key reset switch is located on the side of the dispenser next to the handle. See Figure 63.

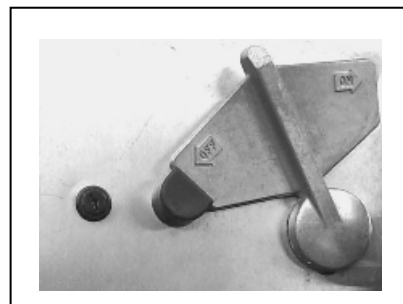


Figure 63

MAINTENANCE

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

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

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.

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.

Bennett Limited Warranty may apply to these products. For a copy of the current Bennett Limited Warranty, please contact Bennett Marketing Services and request a copy specifying the model number of the product and the country in which the product is installed.

Bennett Marketing Services can be contacted by mail, facsimile, 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 USA: 231.798.1310, Ext. 258 or 259
Facsimile: 231.739.8832
E-mail: sales@bennettusa.com
WEB: <http://www.bennettusa.com>

APPENDIX