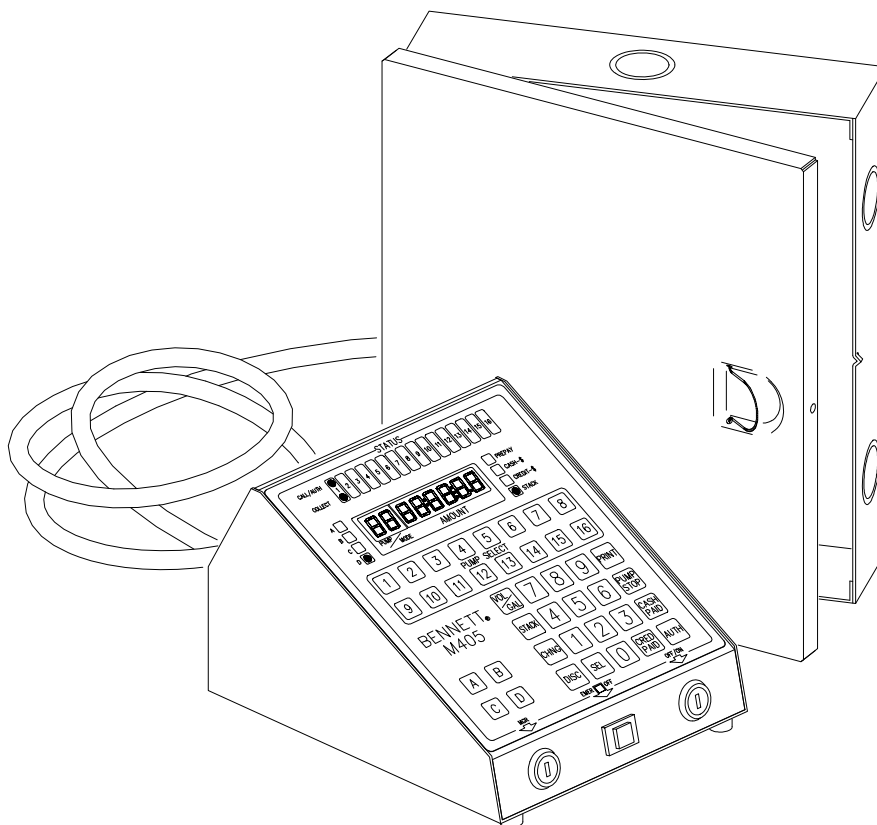


# BENNETT®



## READ THIS BOOK

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

For new books, write to:  
BENNETT  
2740 Wood St.  
P.O. Box 597  
Muskegon, Michigan 49443

## Installation Information, Programming Instructions, and Operating Instructions

## Access 405E & 405M System for 8 to 16 Fueling Positions

## Electronic & Mechanical Dispenser Control Console



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### NOTICE

This equipment complies with the requirements in Part 15 of FCC Rules for a Class A computing device. Operation of the equipment in a residential area may cause unacceptable interference to radio and TV reception requiring the operator, at his own expense, to take whatever steps are required to correct the interference.

## SAFETY INSTRUCTIONS

### WARNING

### ADVERTISSEMENT

### ADVERTEÑCIA

For the safe installation, maintenance and operation of this console and related equipment, read and understand all warnings and cautions. Look for these warnings:

“**DANGER**” means: If you do not follow the instructions, severe injury or death **will** occur.

“**WARNING**” means: If you do not follow the instructions, severe injury or death **can** occur.

“**CAUTION**” means: If you do not follow the instructions, damage **can** occur to the equipment

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

**WARNING:** Maintenance and repairs must be done by authorized personnel only.

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

**WARNING:** You must have training in the installation and service of this dispenser before working on it. **READ THIS BOOK.**

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

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

**WARNING:** In case of emergency, push the red emergency button on the front of the console.

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

~~**CAUTION:** Do not drill holes in fuel dispensers. Holes can cause failure of the electronic equipment and voids the warranty. Use only adhesive backed price sign mounting brackets. Order Bennett Kit KR-322.~~

#### ~~HOW TO STOP PUMPING AT ALL LOCATIONS ON THE SITE~~

Press the red **EMERGENCY** button on the front of the console (flashing light).

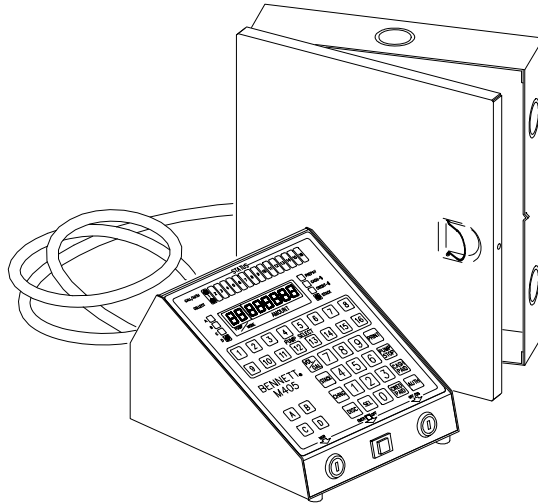
To return to normal operation, press the **EMERGENCY** button (light off).

#### ~~HOW TO STOP PUMPING AT ONE FUELING POSITION ON THE SITE~~

Press the appropriate pump number and then the **PUMP STOP** button.

To return to normal operation, customer must return the hose to the pump before it can be reauthorized.

## INTRODUCTION



The 405 Console is a dispenser control device capable of controlling any combination of current Bennett dispensers. Bennett electronic dispensers (including blend style-up to four grades). Pumps/dispensers are connected to the console through an interconnection box and power center.

The console comes with a 25' console power cable (405E) or 20' power cable (405M); interconnect box and printer interface; and installation, operating and programming manual. Optional cable lengths of 50, 75, 100, and 150 feet are available.

The console can control multi-product dispensers of 4 grades per side. The maximum configuration is 16 fueling positions.

**NOTE:** Each side of a multi-product dispenser is one fueling position no matter how many hoses are being used on that side.

To control mechanical as well as electronic pumps/dispensers simultaneously, the console must be ordered as a hybrid. Hybrid consoles require both an electronic cable and a mechanical cable. Also required is a mechanical control IC box, a mechanical cable and one relay board per fueling position. Sites with more than 8 mechanical fueling positions will require two IC boxes and cables. Contact the Customer Response Department for more information.

## BACK-UP SYSTEM

The system memory is supported by a 3.6 VDC Ni-Cad battery. An additional 9 VDC Ni-Cad battery will maintain totals for 10 days without power. If a power failure occurs, station personnel can complete sales in progress and record total information for 15 minutes. To preserve battery power, put the ON/OFF key switch in the OFF position.

**ACCESS M405 SPECIFICATION SHEET**

**POWER REQUIREMENTS:**

AC Emergency OFF Contact ..... 115 VAC 1 Amp Max., 120 Watts Max.  
(for an Emergency OFF Relay Box)  
Console Power Input..... 115 Vac, .5 Amp Max., 50/60 Hz.

**DISPENSER FIELD DATA WIRES:**

Connection of data wires to the 405 console is made through a 25 foot round cable having 15 conductors and two “D” connectors that connect to an interconnect box. Longer optional cables may be used. Maximum distance is 150 feet between the 405 console and the interconnect box.

Connection between the Hybrid console and the mechanical interconnect box is made through a 25 foot round cable with 44 conductors, 1 card edge connector, and 8 slide-on “Molex” connectors.

**ENVIRONMENTAL REQUIREMENTS:**

32°F to 104°F (0°C to 40°C), Non-condensing humidity. AVOID EXPOSURE TO DIRECT SUNLIGHT OR HEAT. Locate the console in an area that allows a clear unobstructed view of all fueling positions.

**DIMENSIONS:**

Console ..... 7-3/8” Wide x 8-3/4” Deep x 5-1/4” High  
405E Interconnect Box..... 10” Wide x 2-3/4” Deep x 11-1/2” High  
405M Interconnect Box..... 13-3/4” Wide x 4” Deep x 15” High

**WEIGHT:**

Console ..... 6 pounds  
Hybrid Console ..... 8 pounds  
405E Interconnect Box..... 8 pounds  
405M Interconnect Box ..... 16 pounds, plus 1/2 pound per fueling position

**PERIPHERAL INTERFACE INSTALLATION**

In compliance with UL regulations and standards that apply to the Petroleum Equipment Industry, the following information establishes installation parameters for the use of peripheral equipment with the BENNETT 405 control console.

1. Any peripheral equipment must be UL listed.
2. Any peripheral equipment must have an Electronics Industry Association (EIA) Standard RS-232C or RS-422A communications interface (whichever is appropriate for the application).
3. Any peripheral equipment MUST NOT be installed in or above a hazardous location.
4. The interconnection cable must be either UL Style 1061 or 2462 suitable for interconnection of electronic equipment.

## INSTALLATION INFORMATION

**WARNING:** Failure to properly ground all Bennett equipment can cause injury or damage equipment.

**WARNING:** Installation must comply with National Electrical Code (NFPA #70), Automotive and Marine Service Code (NFPA #30A), Federal, State and local electrical codes.

**WARNING:** To prevent personal injury or damage to equipment, disconnect all power before performing this installation.

### INSTRUCTIONS FOR CONNECTION TO THE POWER SUPPLY AND THE ELECTRICAL GROUND

Follow proper grounding procedures to reduce radio frequency interference (RFI). Ground each piece of Bennett equipment connected to the console to the main electrical service panel ground.

Each dispenser must have a 12 gauge or larger green stranded ground wire connected from the grounding lug of the junction box to the main electrical service panel ground. (National Electrical Code, Article 514-7). It is unacceptable to rely on the conduit for this grounding requirement.

### IMPORTANT NOTES

1. All data wires must be 18 gauge or larger.
2. All AC wires must be 14 gauge or larger.  
Do not use wire nuts on any ground connections. Make all connections with compression connectors (crimp or split lug).
3. If the console or dispenser power comes from a subpanel, all ground wires must end at the main electrical service panel ground.
4. There must be no more than 1 ohm of resistance between neutral and earth ground.
5. Do not use old or used wire for dispenser wire connections.
6. Do not use wire nuts on any wires.
7. Use rigid metal conduit only. Do not use PVC conduit.
8. Do not route mercury vapor, canopy light wiring or other unrelated wiring through the dispenser wiring conduit.
9. Do not put data cable conduit under ground. It can cause damage to the cable or equipment due to water condensation or ice forming in the conduit. Data cables are not designed to operate under these conditions. Cables installed underground are not covered under warranty.
10. The standard data cable furnished with the console is 25 feet. Fifty, 75, 100 and 150 foot cables are available from Bennett.
11. If the data cable is put through conduit, use a 2" conduit to allow room for the connectors on the cable.

12. Use cable ties to keep the data cable in place from the console to the interconnect box. This avoids damage from objects falling on the cable, persons stepping on the cable, or other similar abuse.

#### A.C. Power Requirements

1. **Dispensers:** The dispensers use a 120 VAC electrical circuit. Use 14 gauge THHN stranded wire to supply power to the electronics, solenoid operated valves and fluorescent lighting in Bennett electronic dispensers. Refer to the installation instructions for the dispenser you are installing for complete installation requirements.

**NOTE:** Connect no more than two dispensers to one 15 Amp breaker. For easy service, connect each dispenser to a separate breaker.

2. **Pump Motor:** Please refer to the installation manual for the dispensers for proper installation of the pump motor circuits.

**NOTE:** If auxiliary relays are used in the pump motor circuit, refer to the drawings and special notes in the installation manual for the dispenser.

3. **Breaker Panel:** A 125 Amp breaker panel is the minimum allowable electrical service for the pump motor, console, dispensers, canopy lights and advertising signs.

4. **Console:** The console requires a dedicated 115 VAC circuit. Make sure the correct frequency and voltage are present. All 14 gauge AC wires must be in a conduit. Do not put wiring from other sources in this conduit. Use a 15 Amp breaker for the console with no other devices or outlets connected to it. See Figure 2 for connection to the interconnect board of a 405E.

**CAUTION: DO NOT CONNECT THE 115 VAC "HOT" WIRE TO EITHER THE NEUTRAL OR GROUND TERMINAL. PERMANENT DAMAGE WILL RESULT TO THE INTERCONNECT BOARD.**

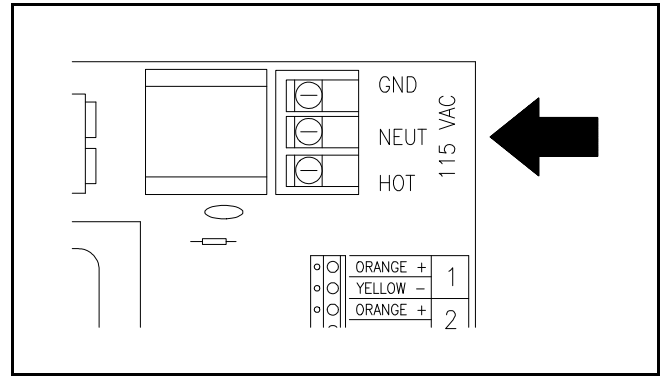


Figure 2 - 405E

Figures 3 and 4 show typical 405E connection diagrams.

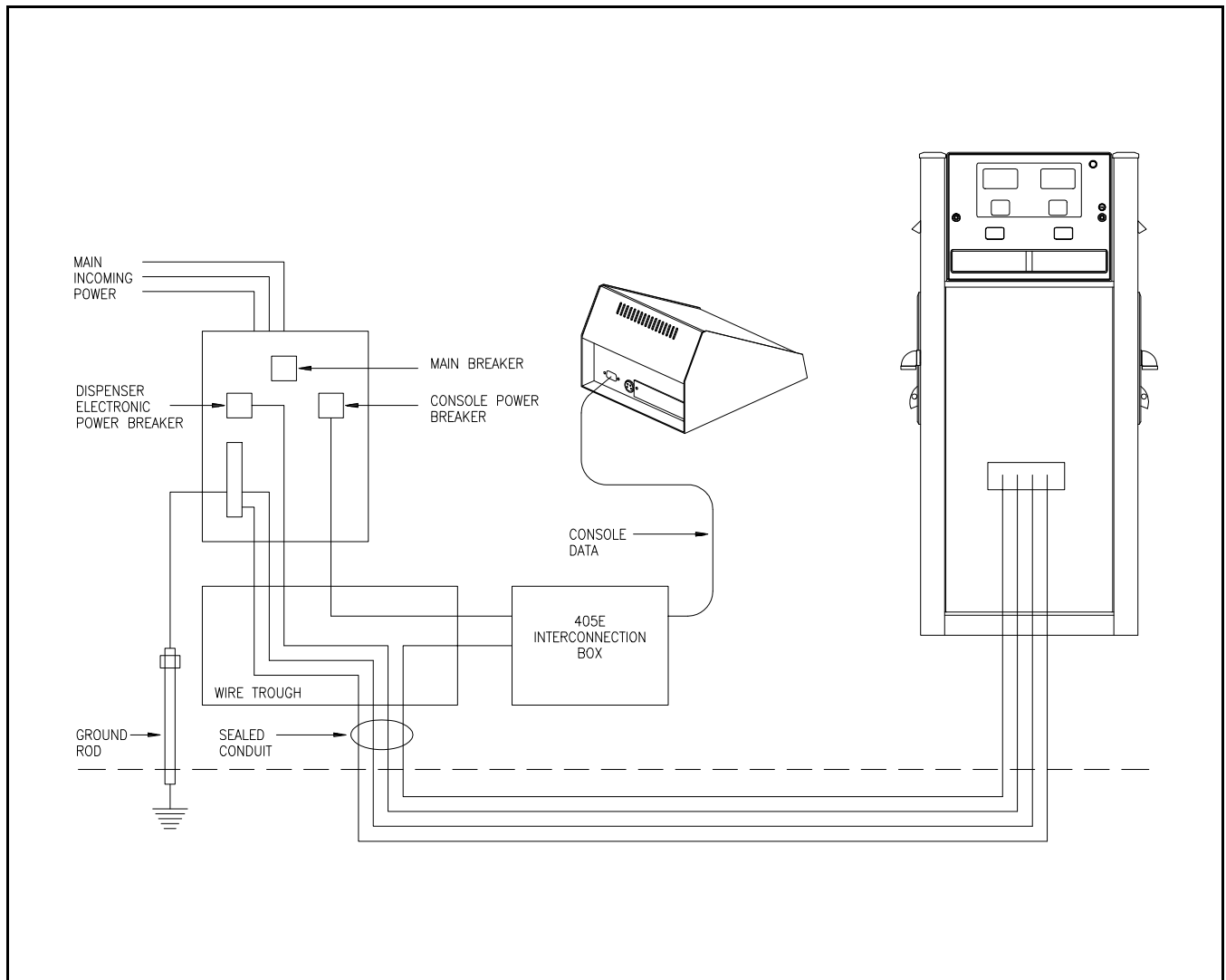


Figure 3 - 405E

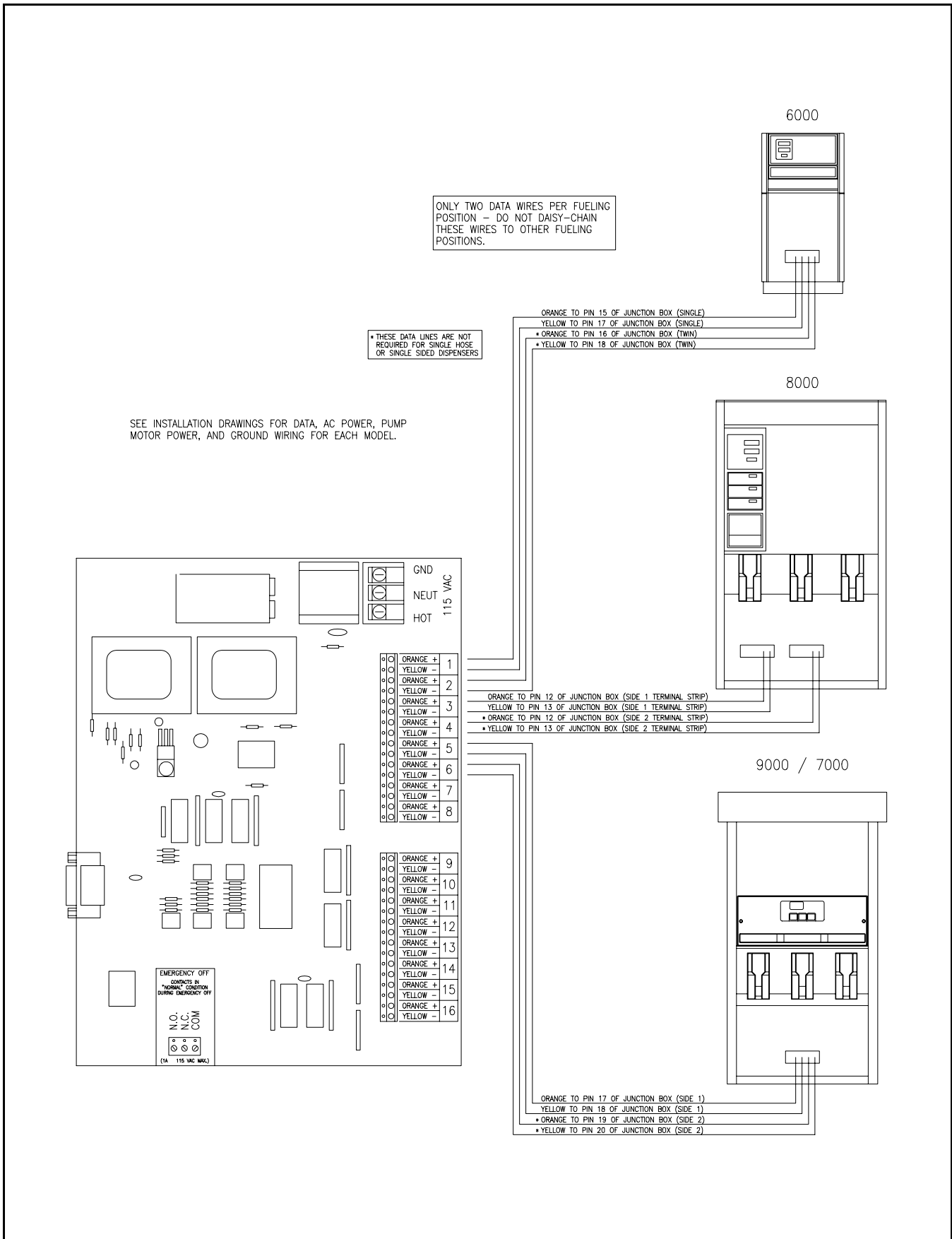


Figure 4 - 405E



The 405M mechanical version of the console uses a different cable connection shown in Figure 5 and 6. Figures 7, 8, and 9 show typical remote and self-contained wiring diagrams for single and dual dispensers.

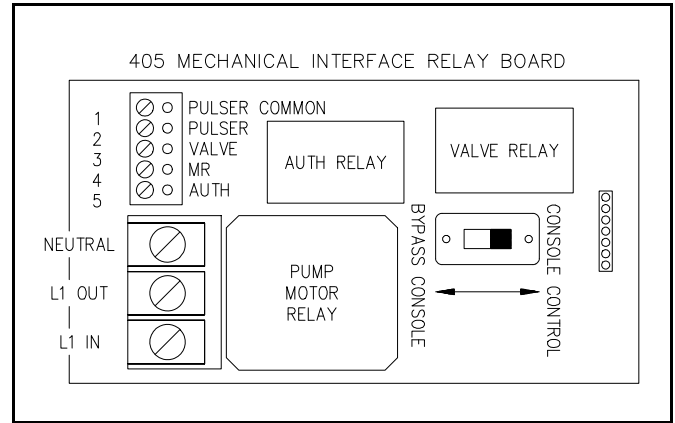


Figure 5 - 405M

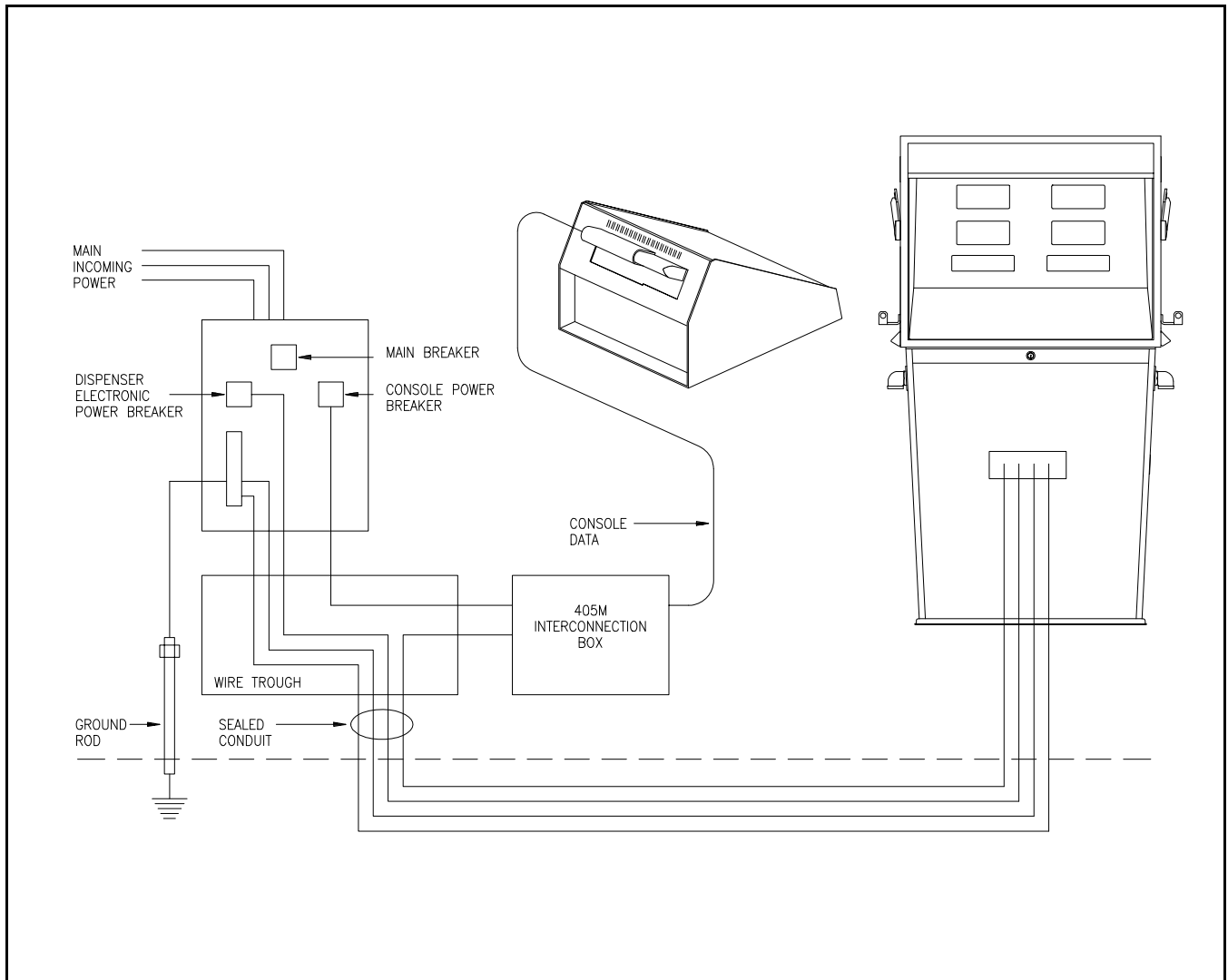


Figure 6 - 405M

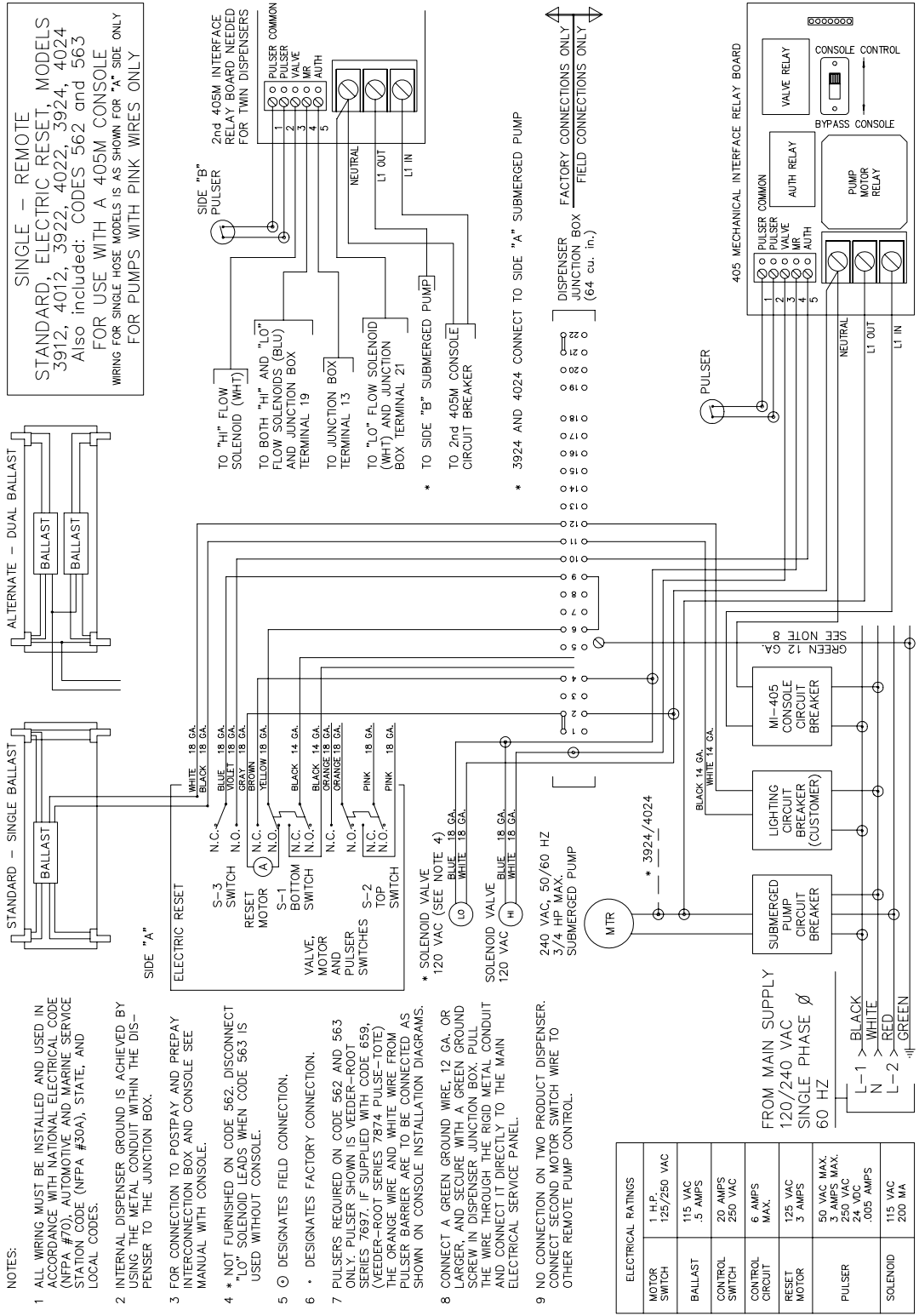


Figure 7 - Wiring Diagram for 3912/4012 Remote with 405M

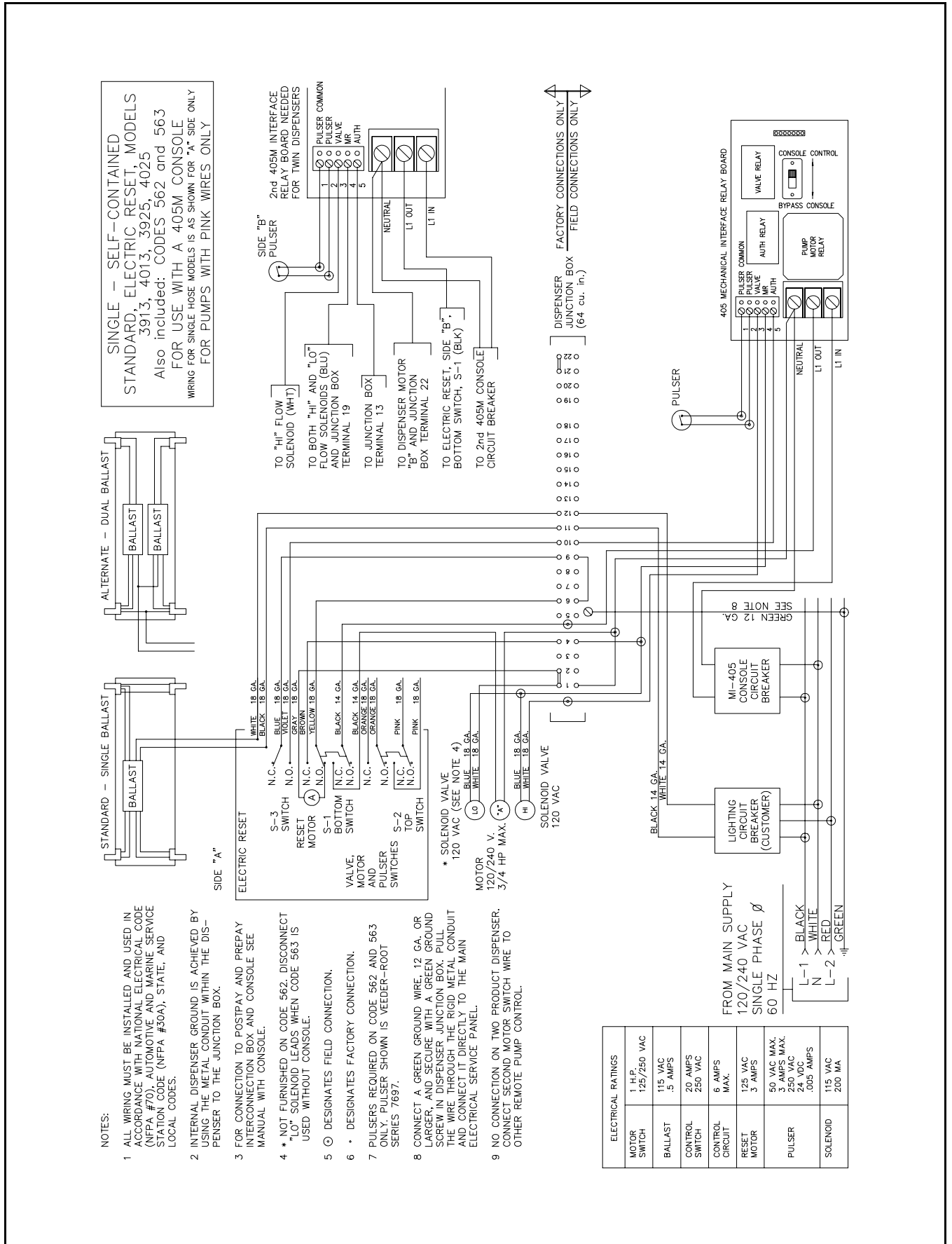


Figure 8 - Wiring Diagram for 3913/4013 Self-Contained with 405M

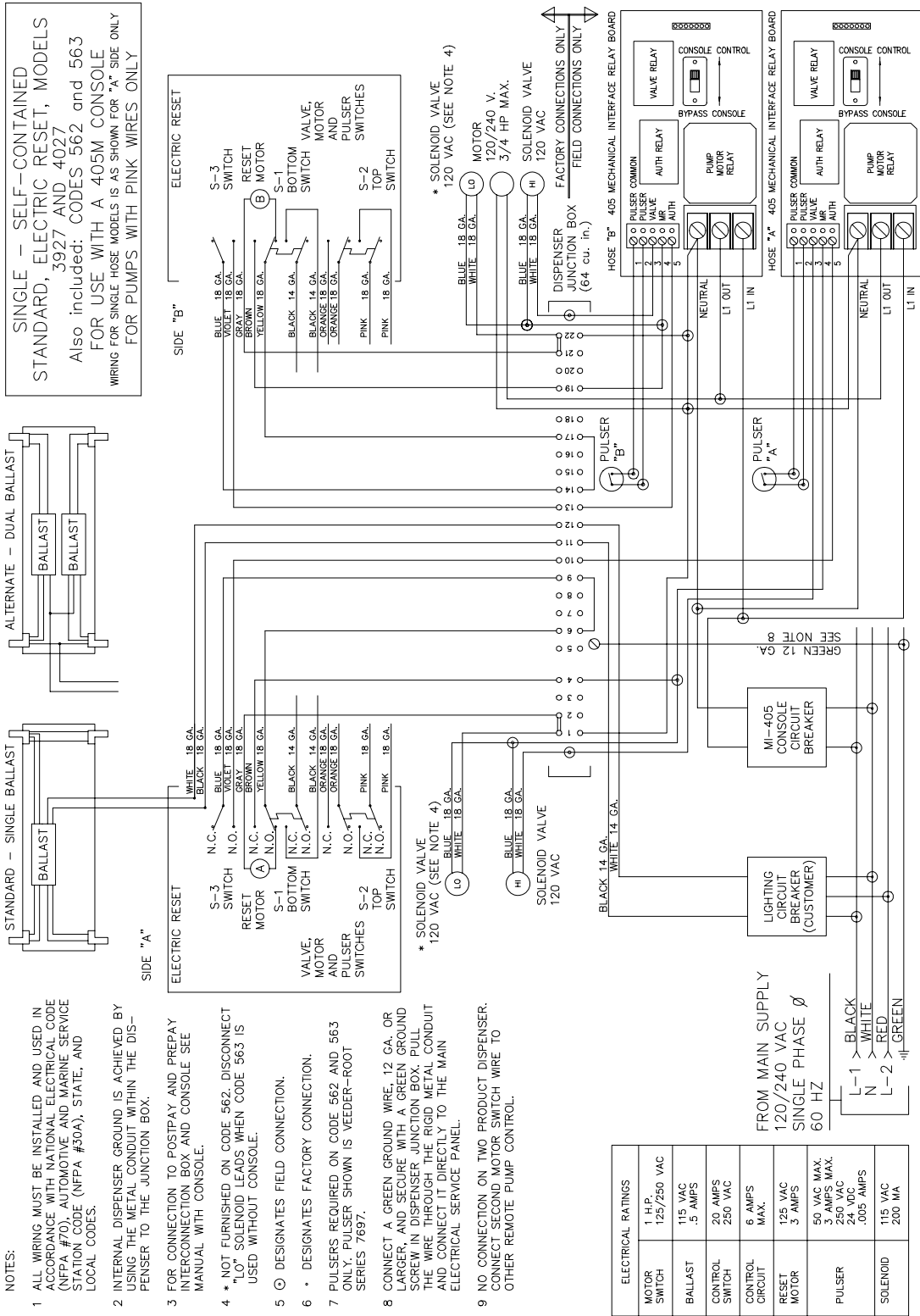


Figure 9 - Wiring Diagram for 3927/4027 Mechanical Remote with 405M

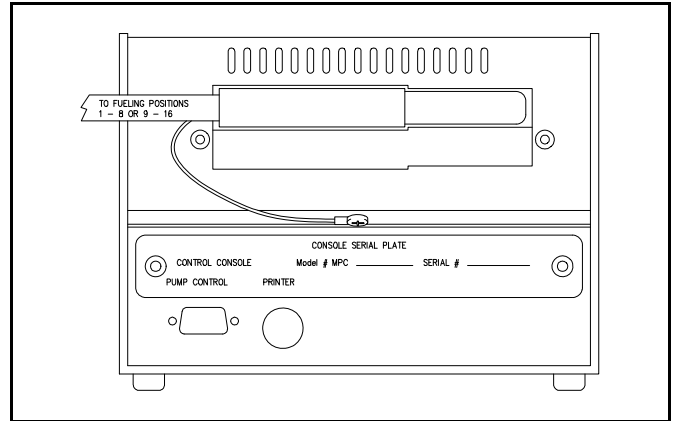
## CONNECTING MECHANICAL CABLES TO HYBRID CONSOLES

### HYBRID CONSOLE WITH ONE MECHANICAL INTERFACE BOARD

An eight fueling position hybrid console contains one mechanical interface board and allows addressing of mechanical (and electronic, if applicable) pumps/dispensers to any fueling position (1 - 8).

A sixteen fueling position hybrid MPC console that contains only one mechanical interface board limits addressing of mechanical pumps/dispensers to fueling positions nine through sixteen (9-16).

Refer to Figure 10 to connect a mechanical cable to a hybrid console with one mechanical interface board.



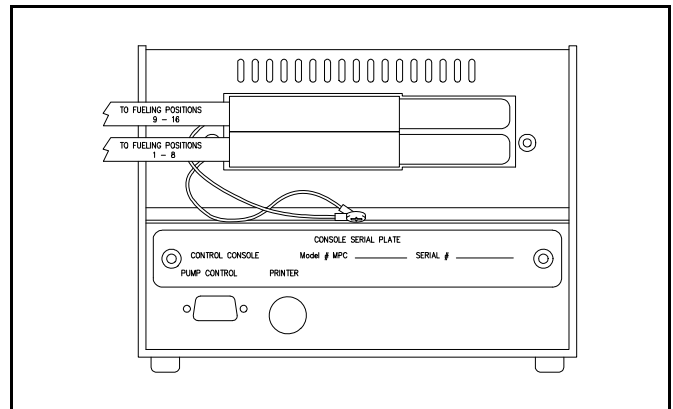
**Figure 10**

### HYBRID CONSOLE WITH TWO MECHANICAL INTERFACE BOARDS

A sixteen fueling position hybrid console with two mechanical interface boards allows addressing of mechanical pumps/dispensers to one through sixteen (1-16), providing two mechanical cables and IC boxes are present.

Refer to Figure 11 to connect mechanical cables to a hybrid console with two mechanical boards.

**NOTE: Select the correct cable connector for the desired mechanical fueling position number. The cable connector marked as “1” is the first available position and “8” is the last. For sites with mechanical pumps/dispensers addressed as fueling positions nine through sixteen, cable connector “1” corresponds to fueling position nine (9), and “8” corresponds to position sixteen (16).**



**Figure 11**

## HOW TO INSTALL THE 405 CONSOLE

The console, an interconnection box for either 8 or 16 fueling positions and an interconnect cable are the components of the system. An optional printer can be installed. An optional customer installed Emergency OFF relay box also can be added.

To install the 405, follow this procedure:

1. Place the console in a location that allows an unobstructed view of all fueling positions at the site. **DO NOT CONNECT THE CABLE FROM THE INTERCONNECT BOX TO THE CONSOLE AT THIS TIME.**

**NOTE: Keep the console within a normal operating temperature range of 32°F to 104°F. See the Specification Sheet on Page 3 for complete environmental requirements.**

2. Mount all interconnect boxes within 25 feet of the console, when using the standard data cable, and near the wire trough or where the conduit from the pumps enters the building.
3. Connect the 18 gauge data wires from each fueling position to the terminal strip in the interconnect box. See Figure 4 or 7 through 9 for identification of the pins. **ONLY DATA WIRES ARE ENDED AT THE TERMINAL STRIP IN THE INTERCONNECT BOX.**

**CAUTION: Do not use wire nuts. splicing with wire nuts can cause poor data transmission or failure of the system.**

**NOTE: ALL DATA WIRES GOING TO THE DISPENSER MUST BE 18 GAUGE OR LARGER.**

4. Connect the data cable from the interconnect box to the console.

To connect the data cable on a 405E, follow this procedure:

- a. Using the two screws provided, install either end of the data cable to the console. See Figure 12.
- b. Using the two screws provided, install the other end of the data cable to the interconnect box. See Figure 13.

To connect the data cable on a 405M, follow this procedure:

- a. Install the connector end of the data cable to the back of the console. Use screws provided to connect the cable ground wire to the ground screw. See Figure 14.

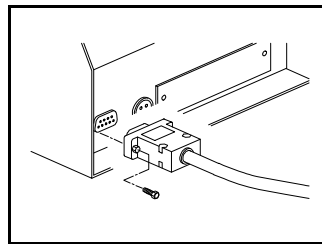


Figure 12

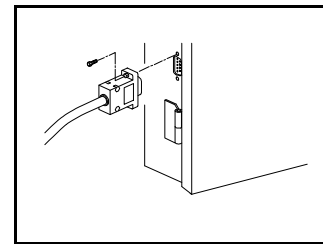


Figure 13

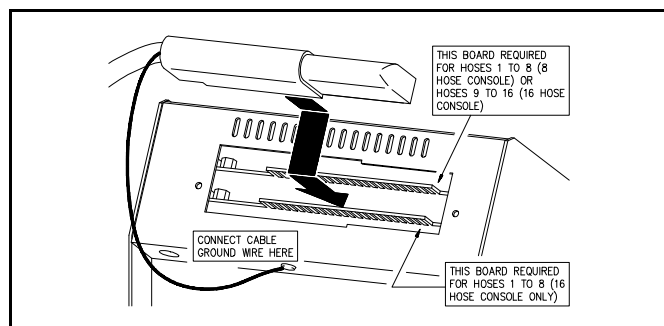


Figure 14

## How to Connect an Optional Emergency OFF Cable and Relay Box

If State or local codes require an Emergency OFF breaker switch, an Emergency OFF cable (not supplied with the console) can be wired from the interconnect box to a relay box (not supplied with the console). A relay box can be ordered from Bennett (Part No. N156904).

With an Emergency OFF cable and relay box in place, the console can switch all power off to the dispensers, pump motors, canopy lights, advertising sign or any other device to be controlled in an emergency.

*To connect the Emergency OFF cable, follow this procedure:*

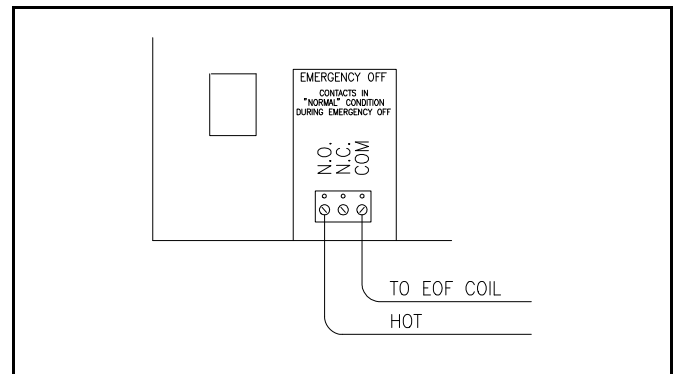
1. Install a single contact Emergency OFF control relay in a UL recognized junction box or wire trough.

**NOTE: National Electrical Code NFPA No. 70 and Automotive and Marine Service Station Code NFPA 30A apply.**

2. Connect the 120 VAC power to the Emergency OFF relay in the interconnect box. See Figures 15 and 16 for details. The Interconnect box control relay must only control one mechanical relay.
3. Install the Emergency OFF cable to the interconnect board. See Figure 15.

**CAUTION:** Connecting more than one mechanical relay to the relay in the interconnect box control relay can destroy the control relay.

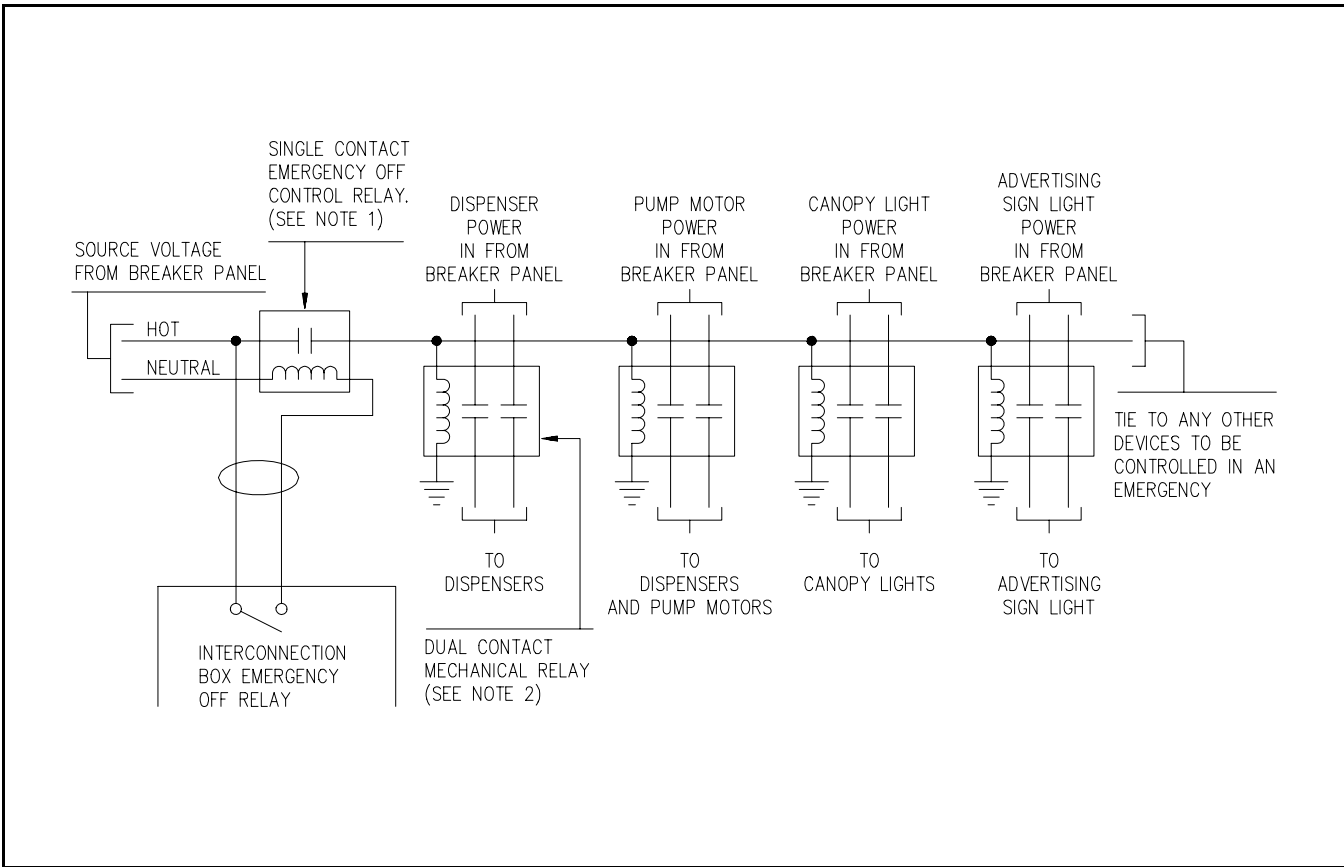
4. Connect the other end of the cable to the relay box.



**Figure 15**

**NOTES:**

1. 120 VAC Emergency OFF output available from the interconnect box Emergency OFF relay is 1 Amp, 120 Watt maximum, intended to support only one relay coil, as shown. If State or local codes require an Emergency OFF switch on each island, install a switch in series with this circuit.
2. Use a Potter-Brumfield Relay, Part No. PRD7AYO, or equivalent, Bennett 1/3 and 3/4 HP (max.) motors found in the self-contained and remote dispenser wiring diagrams. The PRD76AYO relay is rated at 1 HP at 120 VAC, 20 Amp.; or 2 HP at 240 VAC, 25 Amp. for larger horsepower motors. The load capacity of the selected relay must be consistent with the required load.



**Figure 16**



## EQUIPMENT START-UP PROCEDURE

When all of the equipment is properly installed and grounded, apply power in the following order.

1. Apply power to the pump/dispensers after referring to the installation instructions for the equipment being installed.

**NOTE: If problems exist, please contact your local Bennett distributor or the Technical Service Department at Bennett Pump Company, Muskegon, Michigan at (800) 423-6638.**

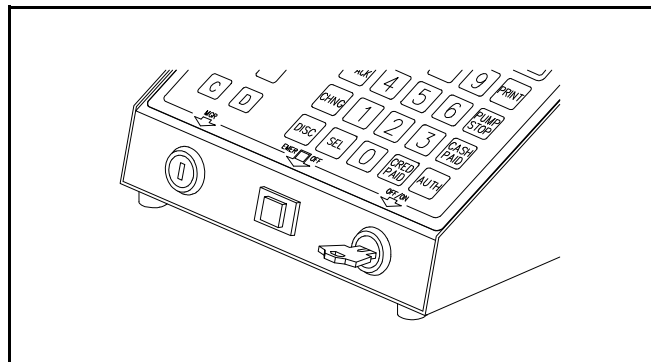


Figure 17

2. Put the console OFF/ON key switch in the ON (horizontal) position. See Figure 17.
3. Put the Manager's key switch in the **ON** (horizontal) position. See Figure 18.
4. If the console display window shows P P P P P . P P when the key is turned on it means no power is being supplied to the console.
  - Make sure all connections are correct and that the breaker is switched to the **ON** position.
  - Recheck all wiring. Connect all wires properly.
5. Program the console using the information presented in this book beginning on page 19.

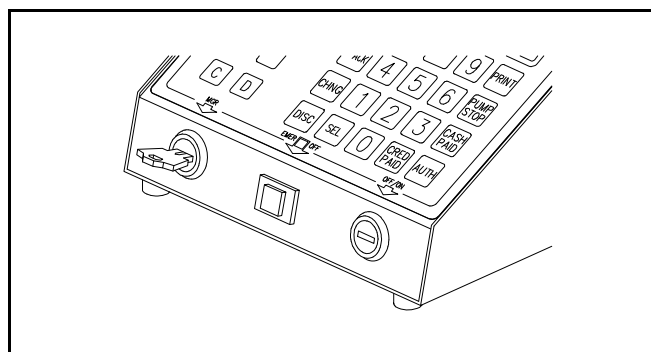


Figure 18

It is not recommended or necessary to turn **OFF** the dedicated system breaker that supplies power to the console during the time the store/station is closed. Simply turning the console off/on key to the **OFF** position after all hoses have been deauthorized, along with following the dispenser power down sequence, will prevent fuel from being dispensed.

### IN CASE OF EMERGENCY:

In an emergency situation that requires one or more pump/dispensers to be turned OFF, push the **EMER OFF** button on the front of the console (**EMER OFF** light blinks). This causes two things to happen:

1. A turn OFF signal is sent to every pump/dispenser.
2. The EMERGENCY OFF relay on the board is deactivated (goes to "normal" condition.)

To return to normal operation, push the **EMER OFF** button again (EMER OFF light goes out). Two things happen:

1. A "Resume pumping" signal will be sent to each pump that was originally pumping (and not yet hung up).
2. EMERGENCY OFF relay will be activated.

## THE CONTROLS

**The Manager Key Switch.** See Figure 19.

The Manager key switch is located on the left front of the console. Put the key switch in the ON position (horizontal as shown in Figure 19) to enter or change programmed information in the console's memory. For normal operation, put the key switch in the OFF (vertical) position.

NOTE: The console is operational whether the manager's key switch is turned ON or OFF. For security reasons only, the key switch should be in the OFF position and the key removed.

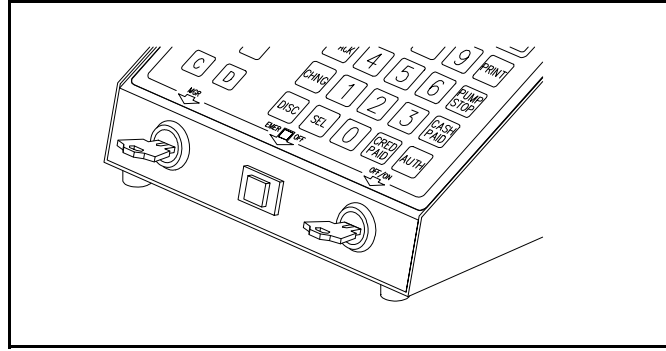


Figure 19

**The Emergency Off Button.** See Figure 19.

The Emergency Off (EMER OFF) button is the red button located on the front of the console. Pressing this switch causes the EMER OFF light to flash, and a "turn off" signal is sent to all fueling positions. Press this switch again; the light stops flashing, and a "resume pumping" signal is sent to each position that was originally pumping ( and not yet hung up).

**The ON/OFF Key Switch.** See Figure 19.

The ON/OFF key switch is located on the right front of the console. This key switch must be in the ON position (horizontal as shown in Figure 19) for normal operation. To keep the battery from discharging, turn the switch off whenever AC power to the system is turned off.

**The Status Lights.** See Figure 20.

These three sets of lights are located at the top of the console.

The first set of lights is located across the top of the console and shows the status of each fueling position.

**CALL/AUTH.** A light flashing at the top of a fueling position number indicates the customer has picked up the hose and turned on the handle. The operator must authorize the position before the customer can pump fuel. When authorized, the flashing light changes to constant.

**COLLECT.** A light flashing at the bottom of a fueling position number indicates the customer has turned the handle off. The sale is waiting to be finalized. If the COLLECT light is constantly on, then both the current sale and a stacked sale (two sales at one position) are waiting to be finalized.

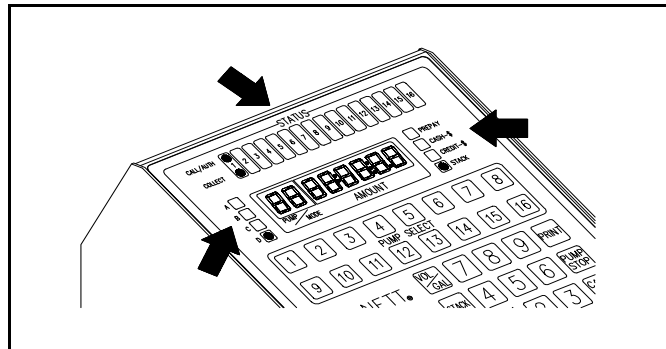


Figure 20

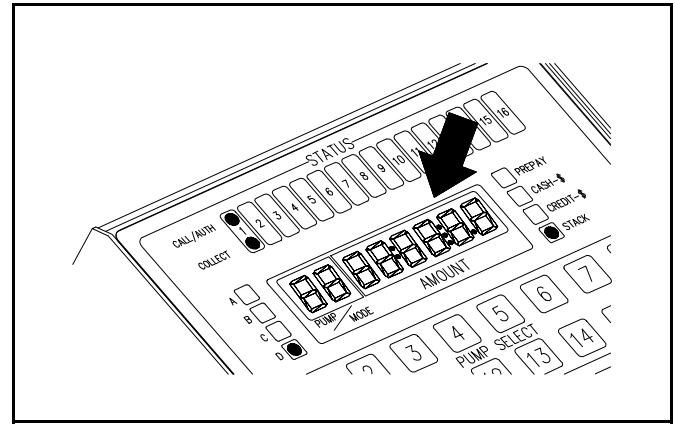
**A B C D.** The second set of lights is located at the left end of the Pump/Mode - Amount Window. These lights indicate which product handle has been lifted or which product button has been selected for a sale at an MPD. On single product dispensers, only the A light turns on. These lights are also used during some programming steps.

**PREPAY, CASH, CREDIT, STACK.** The third set of lights is located at the right end of the Pump/Mode - Amount Window. These lights indicate whether the sale is Prepay, Cash, Credit, or Cash = Credit (both Cash and Credit lights on) and whether a sale displayed is a stacked sale.

**The Pump/Mode - Amount Window.**

See Figure 21.

This display window is located below the status lights at the top of the console. It allows the operator to view pump numbers, sales in progress, final sale amounts, programming data, and various totals in the console memory. The normal on-line display is the number of the last pump to complete a sale.

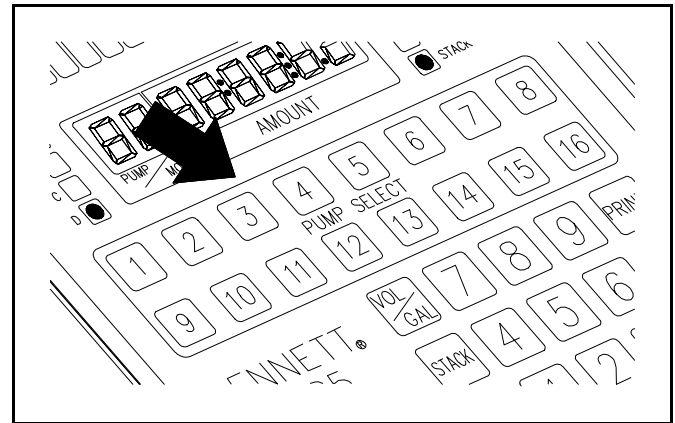


**Figure 21**

**The Pump Select Buttons.**

See Figure 22.

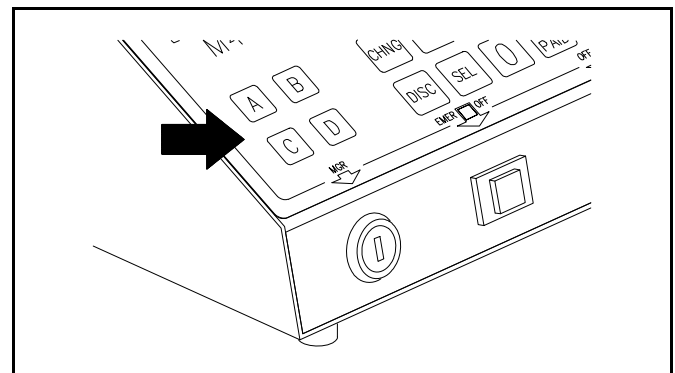
This set of 8 or 16 buttons is used to select a fueling position to view a sale in progress, or to authorize a position for preset, prepay, or postpay sales, and to program information into the console's memory by individual fueling position.



**Figure 22**

**The A, B, C, D Product Buttons.** See Figure 23.

These four buttons are located on the lower left corner of the console and are used for programming and retrieving totals information for product hoses. They are not used during normal operation and do not relate to any tank. The A button relates to the "first" hose, B the second, C the third, and D the fourth hose at a fueling position. The hose at any single product fueling position is identified as A.



**Figure 23**

**The Data Entry Buttons.** See Figure 24.

The 0 through 9 Data Entry buttons are located on the lower right side of the console. These buttons are used to enter prepay sale amounts, to access programming modes, and to enter program data into the console's memory.

**Function Buttons.** See Figure 24.

The following buttons are all located around the Data Entry buttons.

1. **The Vol/Gal Button.** Press this button to view volume amounts. The correct fueling position must be selected and in the collect status to view a volume amount. If the sale has been paid out, select MODE 17, then **hold** the desired PUMP SELECT button while pressing the VOL/GAL button. Hold a tank number on the Data Entry keys while in MODE 64 or 74 and press this button to view the volume sold from a particular tank.
2. **The Stack Button.** To allow a stacked sale, the console's #3 dipswitch must be turned on to allow stacking (See page 19). press this button to toggle between the current and the stacked sale. The STACK light flashes when you select a fueling position with a stack sale in memory. Press the STACK button to display the stacked sale. With the light constantly on, the sale can be closed out by pressing the CASH/CRED button.
3. **The CHNG Button.** The CHNG button has three functions:
  - Following an incomplete prepaid sale, press and hold CHNG to view the change (\$) due to the customer.
  - During the dispensing of a prepaid sale, press and hold CHNG to display prepaid amount remaining or the amount for a preset sale.
  - Press CHNG to enter or change programmed data in the console's memory.
4. **The DSC Button.** Press this button to toggle between the cash or credit value of a postpay sale in COLLECT status.
5. **The SEL Button.** Press and **hold** this button while pressing numbers on the DATA ENTRY keys to enter a desired programming or totals mode. Press again to return to normal operation.
6. **The CRED PAID Button.** Press to finalize a postpay credit sale or to authorize a prepay sale at the credit price.

7. **The AUTH Button.** Press after pressing a PUMP SELECT number to authorize a sale. If the sale is a preset, prepay cash, or prepay credit sale, press after the sale amount has been entered on the data entry keypad.
8. **The CASH PAID Button.** Press to finalize a postpay cash sale or to authorize a prepay cash sale.

**NOTE:** For single price display pumps the console defaults to the credit price during normal operation. To display a sale at the cash price, press the DISC button. To finalize the sale as a cash sale, press the CASH PAID button. To prepay a cash price sale, select the fueling position, enter the desired \$ amount, press the CASH PAID and AUTH buttons.

9. **The PUMP STOP Button.** Press the appropriate pump select number and then press **PUMP STOP** to deauthorize a fueling position or stop a sale at an individual fueling position. Fuel flow stops at the fueling position displayed in the Pump/Mode window. The AUTH light turns off and the COLLECT light flashes until the sale is finalized.

**NOTE:** After a hose has been "pump stopped," the pump handle must be turned off before the pump can be reauthorized.

10. **The PRINT Button.** Press this button to print a sale receipt for the last finalized sale on a selected fueling position displayed in the MODE window. It is also used to print various reports and program instructions for MODES described later in this manual.

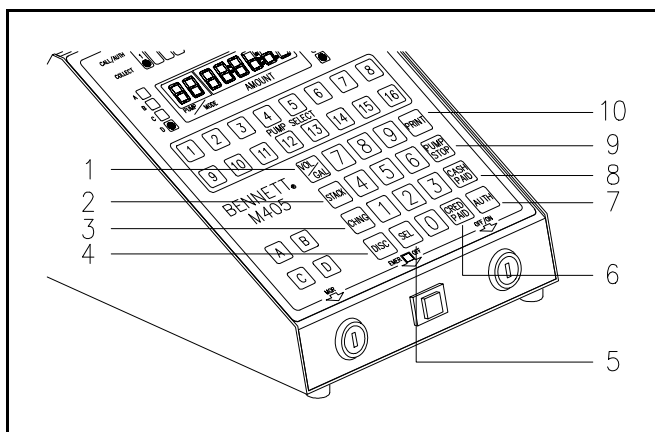


Figure 24

## GENERAL PROGRAMMING INFORMATION

Several functions are programmed by changing the settings on an eight-position dipswitch. The console keyboard is used to program the remaining functions.

The console can be programmed to read individual sale amounts, give station totals according to individual fueling positions as well as sales by grade totals. Some reports are user defined to show only the information needed. The mechanical totalizer readings and declining tank inventories can be programmed into memory, and read from the console. Full or Self-Service operation by fueling position, manual or automatic receipt printing, and down loading of the electronic hose totals from the pumps/dispensers are also programming options.

Setting the console for the style in which sales are made and completed is accomplished through the 8 position dip switch inside the console. See Figure 25. Operational options include allowing prepay, postpay, and stacked sales and single or two-tier pricing.

### Definitions

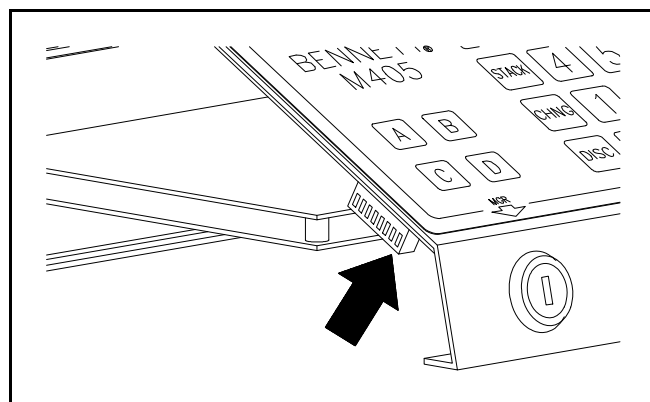
The difference between a prepaid and a preset sale is as follows.

**Prepaid sale:** a customer pays for a specific amount of fuel before pumping, and the operator sets the fueling position for that amount, presses PAID, and then **AUTH** button. The console authorizes the fueling position, and when the prepaid amount is reached, stops the fuel delivery. No further steps are made by the operator. When the customer hangs the nozzle up, the sale is completed.

**Preset sale:** happens the same way, except the customer has not paid any money, and the operator does not press paid. Therefore, the console will not automatically pay the sale out. When the customer hangs up the nozzle, he must pay the operator before the sale can be made final. To allow prepay sales, turn dipswitch #1 ON. To disallow prepay sales turn #1 dipswitch off.

**Postpay sale:** the amount of the fuel dispensed is entirely up to the customer. The operator only authorizes the sale. To allow postpay sales, turn dipswitch #2 ON, and OFF disallows postpay sales.

**Stacking sale:** allows the operator to re-authorize a sale for a second customer while waiting for the first customer to pay. Turning dip switch #3 ON allows, and OFF disallows stacking sales.



**Figure 25**

Two Tier implies that the cash and credit prices are different. Single Tier means the cash and credit prices for fuel are the same. If the cash and credit prices are not the same, both switches should be turned ON. **If there is no difference between the cash and credit price, both switches 4 and 5 must be turned OFF.**

**NOTE: Either #1 or #2 dipswitch must be turned ON for the console to authorize a sale, and #'s 4 and 5 have to be switched in the same position for the console to properly send the prices to the pump.**

To gain access to the dipswitch, remove the four rubber feet on the bottom of the console and remove the bottom console cover. The dipswitch is located at the left edge of the top board in the console. See Figure 26.

**NOTE: The console is set at the factory to allow PREPAY, POSTPAY and SINGLE TIER PRICING. STACKING is not allowed. #1 ON, #2 ON, #3 OFF, #'s 4 and 5 OFF, and #8 ON or OFF (configured as ordered as 8 or 16 fueling position). See Figure 26.**

The ON/OFF key switch and the Manager's key must be in the **ON (horizontal)** position before the console memory will accept programming information. See Figure 27.

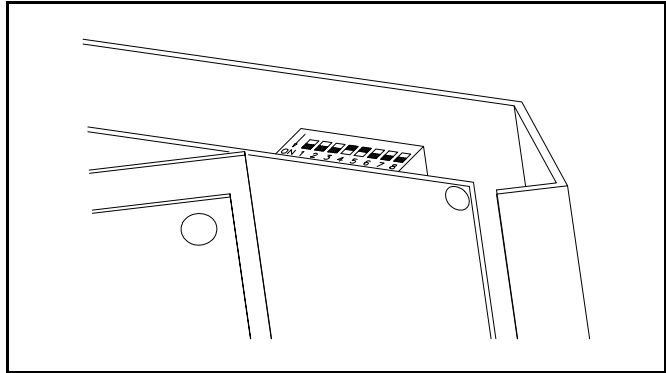
All console keyboard programming is performed by selecting a MODE number. Each MODE number controls a different function on the console.

To enter a MODE, press and hold the **SEL** button while pressing a **MODE** Number on the keypad. After the MODE Number appears, release the **SEL** button. Enter the appropriate data (explained later in this manual). When the display window shows the correct MODE and program data, press **CHNG** to enter or save the information in the console memory.

If the console has an optional printer connected, all programming modes can be seen by entering Mode 99 and pressing the **PRINT** button. If no printer is present, see page 21 for a complete list of modes available.

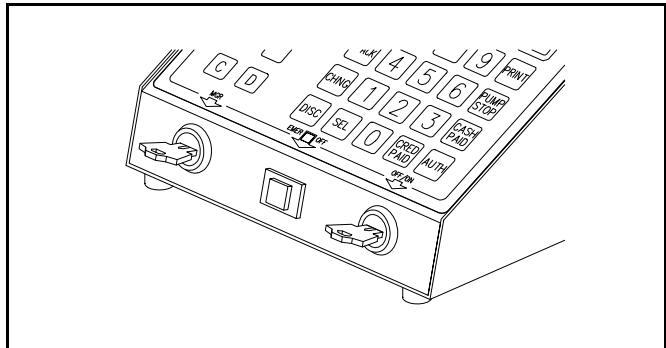
**Programming Hint:**

The console can be programmed by using one finger from each hand. To enter a programming or total MODE, hold SEL while pressing and releasing numbers on the DATA ENTRY keys. Do not press the SEL button again until another MODE number or operating mode is desired. Never HOLD an A, B, C, or D product button.



**Figure 26**

DIPSWITCH SETTINGS - ON allows, OFF disallows.	
Position	Description
1	Prepay Sales
2	Postpay Sales
3	Stacking Sales
4 & 5	Pricing Structure
6 & 7	Not used
8	<b>ON</b> configures the console for <b>8-hose</b>



**Figure 27**

## MODE REFERENCE GUIDE

FUNCTIONS	MODE	DESCRIPTION	PAGE NO.
<b>Hose Control &amp; Display</b>	1-16	Display Current Sale & control Fueling	
	40	Change Shift	
	18	Assign Price to individual Hose	
	21	Tank 1 Program Data )	(A - Self-Service Price (B - Full-Service Price (C - Product Code (D - Inventory Level
	22	Tank 2 Program Data )	
	23	Tank 3 Program Data )	
24	Tank 4 Program Data )		
25	Tank 5 Program Data )		
26	Tank 6 Program Data )		
<b>Programming</b> (Manager Key Req'd)	28	Assign Tank to Individual Hose	
	29	Assign Tank to Hose Group	
	30	Audio Alert (Beeper) for CALL	
	31	Audio Alert (Beeper) for COLLECT	
	32	Specify Dispenser Type	
	34	Specify Self-Service/Full Service Operation	
	35	Set Time	
	36	Set Date	
	38	Specify Automatic/Manual Receipt Printing	
	39	Set Slow Down Point for Mechanical Hoses	
	42	Shift Reports	
	43	Manager's Report	
	50	Accumulating Totals Type	
	51-52	Enter Mechanical Totalizer Money Amounts	
	53-54	Enter Mechanical Totalizer Volume Amounts	
98	Program Printer Receipt Heading		
<hr/>			
	17	Display Paid out Sale on Selected Fueling Position	
	51	Accumulating Money Totals (Last 5 Digits)	
	52	Accumulating Money Totals (First 5 Digits)	
	53	Accumulating Volume Totals (Last 5 Digits)	
	54	Accumulating Volume Totals (First 5 Digits)	
<hr/>			
<b>Display</b>	Present		Previous
	Shift		Shift
	60	Cash & Credit*	70
			71
			72
	63	Volume (Gallons)*	73
	64	Tank Usage 1-6**	74
65	Time Shift Started	75	
66	Date Shift Started	76	
<hr/>			
<b>Print</b>	27	Print Tank Inventories	
	37	Print Program Data	
	41	Manager's Report	
	47	Print Available Product Codes	
	57	Print Accumulating Totals	
	67	Print Shift Report	
	77	Print Previous Shift Report	
	87	Print 2nd Previous Shift Report	
	97	Print 3rd Previous Shift Report	
	99	Print Mode Definitions	

~~\*View an individual hose total as follows: for a single product fueling position, press and hold a PUMP SELECT number; for a multi-product fueling position, press and hold a PUMP SELECT number, and press A, B, C, or D.~~

\*\*Press and hold the desired tank number **on the keypad** to view tank usage expressed in monetary units; while doing this, press and hold the VOL button to view tank usage expressed in volume units.

# HOW TO PROGRAM THE CONSOLE

**NOTE:** The manager key switch must be in the ON (horizontal) position before the console will accept programming instructions.

## CLEARING THE CONSOLE MEMORY

CLEAR THE CONSOLE'S MEMORY AT STARTUP ONLY. Program changes such as price per gallon and fuel inventory changes do not require that the console's memory be cleared. **BE AWARE THAT THIS PROCEDURE ERASES ANY PREVIOUS PROGRAMMING AND ALL THE TOTALS IN THE CONSOLE'S MEMORY.**

Before the initial programming is started, **CLEAR THE CONSOLE'S MEMORY** by following this procedure:

1. Turn the Manager's key switch to the **ON** (horizontal) position.
2. Press and HOLD the 0 button on the keypad while turning the ON/OFF switch **OFF** then **ON**.
3. Continue to HOLD the 0 button for five seconds after the display comes on to ensure the console's memory has been cleared.

## PROGRAMMING HINT:

The console can be programmed by using one finger from each hand.

To print a copy of instructions for any MODE, enter the MODE and press PRINT.

To exit any programming **MODE**, press the **SEL** button.

## READ THE NEXT PARAGRAPH, EVEN IF YOU DON'T READ ANYTHING ELSE

Many people read their manual only as a last resort. If you are one of those, the next paragraph explains the program sequence for the 405.

## SUGGESTED SET-UP SEQUENCE

The console will not send information to the pumps/dispenser, or operate correctly if this sequence of programming modes is not followed.

In order for the console to operate at full capacity, **follow the initial programming sequence listed in the table below (starting with Mode 32)**. An explanation for each Mode is given in the manual in the order they appear below beginning on page 23.

A definition of each MODE is given in numerical

	Mode #	Programming action
1	32	Specify pump/dispenser type (Page 23)
2	28 or 29	Tank to product hose assignments (Page 24)
3	34	Set fueling positions to Self-Service or Full-Service (Page 24)
4	21-26	Set prices, product codes, inventory levels by tank. (Page 25)
5	30-31	Set call and collect audio alert (beeper) codes. (Page 26)
6	35-36	Set Time and Date (Page 26)
7	37	Press PRINT button to verify programmed information when printer is attached. (Page 26)

sequence beginning on page 27.

**Reminder:**

To enter a programming or totals MODE on the console, press and HOLD **SEL** while entering the MODE number on the data entry keypad. When the MODE number appears, release the **SEL** button.

Do not press the **SEL** button again until another operating MODE is desired.

This explanation is not repeated each time a MODE is entered in this manual.



## HOW TO SPECIFY THE PUMP/DISPENSER TYPE MODE 32

For the console to operated properly, it must know whether each pump has from 1-3 hoses per side or 4 hoses per side. Any combination of Bennett pumps can be controlled by the 405. Perform the following steps before proceeding. **THIS IS THE FIRST AND MOST IMPORTANT STEP IN PROGRAMMING THE CONSOLE.**

1. Press and HOLD the **SEL** button and enter the number 32 on the keypad.
2. Press and HOLD the desired Pump Select number. Enter one of the following pump codes:

Dispenser Type	Pump Code
Electronic with 1, 2 or 3 hoses per side	00
Electronic with 4 hoses per side	01
Electronic Blender (3 grade)	02
Mechanical	07

3. Press the **CHNG** button, then release the Pump Select number.
4. Repeat steps 2 and 3 for each fueling position at the site.

**NOTE: When a 16 fueling position 405 HYBRID console is configured with only one mechanical interface board, the mechanical fueling positions are automatically assigned to pump positions 9 through 16.**

*To exit any programming **MODE**, press the **SEL** button.*

## TANK TO PRODUCT HOSE ASSIGNMENTS MODE 28 & 29

MODE 28 allows the assignment of each individual fueling position (single and multi-hose pumps/dispensers) and product hose to a tank. When controlling single hose fueling positions (including mechanical), or a combination of single and multiple hose fueling positions, use MODE 28.

MODE 29 programs all of the "A" product hoses of every fueling position to the same tank (station wide), all of the "B" product hoses to another, and so on. Use MODE 29 only if all fueling positions are MPD's, and all are plumbed the same way. If the fuel from all of the "like" product hoses are not from the same tank, use MODE 28.

If you are installing the console on a blending dispenser, a "dummy" tank must be assigned to blended Product B to allow pricing by tank, and a product code and grade total to show on receipts and reports. This step will facilitate programming the console when using the price by tank method outlined in MODES 21 through 26.

**MODE 28** - To assign tanks to individual hoses, follow this procedure:

1. Enter **MODE 28**.
2. Press and HOLD the first Pump Select **NUMBER**.
3. With the Pump Select **NUMBER** still depressed: Press the **A, B, C** or **D** product number. (You must use **A** for all single product fueling positions.)
4. Press the Tank Number (1-6) from the keypad.
5. Press the **CHNG** button.
6. Repeat steps 3 and 5 for all hoses at that fueling position.
7. Release the Pump Select number.
8. Repeat steps 2 through 7 for each fueling position at the site.

**MODE 29** - To assign product hoses to a tank, follow this procedure:

1. Enter **MODE 29**.
2. Press the **A, B, C** or **D** product button.
3. Enter the Tank Number (1-6) from the keypad.
4. Press the **CHNG** button.
5. Repeat steps 2 through 4 for each product hose.

## HOW TO SET EACH FUELING POSITION FOR SELF-SERVICE OR FULL SERVICE MODE 34

**NOTE:** Dispensers are shipped from the factory with all fueling positions set to **SELF-SERVICE**. If some positions are to be **FULL-SERVICE**, then this programming procedure must be done before the tank prices are entered.

Using MODE 34, each fueling position can be programmed for self-service or full service operation.

In self-service operation, a hose must be authorized at the console before fuel can be dispensed. In full service operation, the hose is automatically authorized when a customer lifts the nozzle, and the sale is automatically paid out when the customer hangs the nozzle up. No operator action is required for dispensers set for full service.

To program the console, follow this procedure:

1. Enter **MODE 34**.
2. Press and HOLD the first Pump Select **NUMBER**.
3. Enter either:  
**00** for Self-Service or **01** for Full Service.
4. Press the **CHNG** button and release the Pump Select number.
5. Repeat steps 2 through 4 for each fueling position.

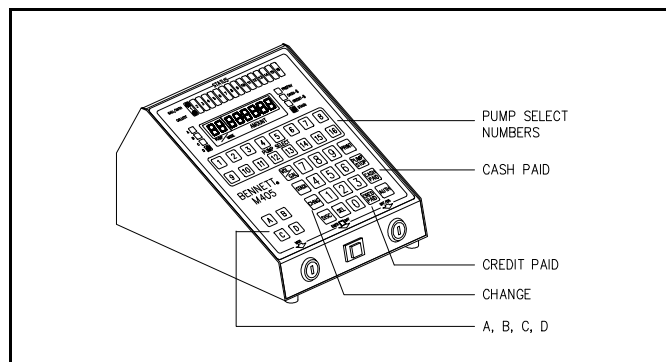


Figure 28

**NOTE:** All programming by Hose Group overrides Individual Hose programming. If a combination of programming is desired, make sure all Hose Group programming is done first.

To exit any programming **MODE**, press the **SEL** button.

## HOW TO PROGRAM PRICES\*, PRODUCT CODES & INVENTORY LEVELS BY TANK MODES 21 through 26

**NOTE: Before programming MODES 21 through 26, each hose must be assigned a tank (MODES 28 & 29). Full Service of Self-Service (MODE 34) SETTINGS MUST NOT BE CHANGED AFTER PRICE PROGRAMMING.**

Programming the console by tank is the quickest and easiest way to set prices for every fueling position and is the only way to assign a product (name) code and a declining inventory to a tank.

To operate properly, the console must be programmed with a price (tank or by individual hose) for each dispenser in use.

- Enter **MODE 21** for Tank #1
- Enter **MODE 22** for Tank #2
- Enter **MODE 23** for Tank #3
- Enter **MODE 24** for Tank #4
- Enter **MODE 25** for Tank #5
- Enter **MODE 26** for Tank #6

**NOTE: Once the desired MODE number is displayed in the MODE window, use the Product A, B, C, or D buttons at the bottom left corner of the console to assign the following information to a tank:**

- A = SELF SERVICE PRICE**
- B = FULL SERVICE PRICE**
- C = PRODUCT CODE (NAME)**
- D = DECLINING TANK INVENTORY**

1. To program the **SELF SERVICE PRICE**, press and release the **"A" product button**.

- For **SINGLE TIER** pricing:
  - a. Enter the price per gallon.
  - b. Press the CHNG button.
- For **TWO TIER** pricing:
  - a. Press the CASH PAID button.
  - b. Enter the cash price per gallon.
  - c. Press the CHNG button.
  - d. Press the CRED PAID button.
  - e. Enter the credit price per gallon.
  - f. Press the CHNG button.

2. To program the **FULL SERVICE PRICE**, press and release the **"B" product button** (If all of the fueling positions are self-service, skip this step).

Follow the same steps explained above for self service pricing to program the full service price by tank.

3. To program the **PRODUCT CODE**, press and release the **"C" product button**, and refer to the list of Product Codes below to assign the name of the fuel to the tank. If a printer is attached to the console, a list of available product codes can be printed by entering MODE 47 and pressing PRINT.

- a. Enter the 2-digit product code.
- b. Press the CHNG button.

To exit any programming **MODE**, press the **SEL** button.

4. To program the **present tank level**, press and release the **"D" product button**.

- a. Enter the measured volume amount.
- b. Press the CHNG button.

5. To change an inventory level after a fuel delivery is made, follow this procedure:

- a. Take an actual reading of the fuel in the tank after the delivery.
- b. Enter this inventory figure as explained above.

**NOTE: The console cannot add the old inventory number and the new delivery amount to arrive at the new inventory level.**

PRODUCT CODES			
00	BLANK		
01	GASOLINE	29	EXTRA UNLEADED
02	REGULAR	30	XTRA UNLEADED
03	PREMIUM	31	SUPER UNLEADED
04	SUPER	32	LEADED
05	SUPREME	33	LEADED GASOLINE
06	EXTRA	34	LEADED PREMIUM
07	XTRA	35	REGULAR LEADED
08	SILVER	36	PREMIUM LEADED
09	ULTIMATE PREMIUM	37	DIESEL
10	NO LEAD	38	AUTO DIESEL
11	MIDGRADE NO LEAD	39	HWY. DIESEL
12	SUPER NO LEAD	40	NON-HWY. DIESEL
13	LEAD FREE	41	KEROSENE
14	LEAD FREE	42	K1 KEROSENE
15	LEAD FREE PLUS	43	HYDRAULIC OIL
16	LEAD FREE EXTRA	44	JET FUEL
17	LEAD FREE XTRA	45	AVGAS
18	LEAD FREE SUPER	46	#2 HEATING OIL
19	UNLEADED	47	TURBINE OIL
20	UNLEADED GAS	48	PROPANE
21	UNLEADED REGULAR	49	CNG
22	UNLEADED EXTRA	50	METHANOL
23	UNLEADED XTRA	51	ETHANOL
24	UNLEADED PLUS	52	M85
25	UNLEADED PREMIUM	53	GASOHOL
26	UNLEADED SUPER	54	LNG
27	REGULAR UNLEADED	55	LP
28	PREMIUM UNLEADED		

6. Repeat steps 1 through 5 for all tanks in use.  
\*See **MODE 18** on page 27 to set fuel prices by individual hose.

## HOW TO SET AUDIO ALERTS (BEEPER CONTROL) MODE 30 & 31

When a button on the keypad is pressed, the console emits an audible “beep.” The console can be programmed to use this beeping to alert the operator that: a) a customer has picked up a nozzle and is requesting authorization: b) a customer has finished a delivery and the sale needs to be finalized.

This audio alert can be set for a repeating beep, a single beep, or no beep at all. A repeating beep is the default setting from the factory.

**MODE 30 - This MODE controls how the console beeps whenever a call light flashes, indicating a request for authorization.**

*To change the CALL audio alert (beeper), follow this procedure:*

1. Enter **MODE 30**.
2. Press the number **0** for a repeating beep.  
Press the number **1** for a single beep, or  
Press the number **2** for no beep.
3. Press the **CHNG** button.

**MODE 31 - This MODE controls how the console beeps whenever a collect light flashes indicating a nozzle hang-up**

*To change the COLLECT audio alert (beeper), follow this procedure:*

1. Enter **MODE 31**.
2. Press the number **0** for a repeating beep.  
Press the number **1** for a single beep, or  
Press the number **2** for no beep.
3. Press the **CHNG** button.

## HOW TO SET THE CONSOLE TIME CLOCK AND DATE MODE 35 AND MODE 36

The console has an internal time clock, allowing it to print the correct time and date on all receipts and reports. The time may periodically need to be changed to accommodate seasonal adjustment, such as Daylight Savings Time, or initially if the console is installed in a time zone other than Eastern Standard Time.

*To set the time, follow this procedure:*

1. Enter **MODE 35**.

**NOTE: The time must be entered in military time. For example: To set the time for 9:00 AM, enter 0900. To set the time for 9:00 PM, enter 2100. Time will appear in standard format on receipts and reports.**

2. Enter a four digit number for the time.  
Example: 0900 (9:00 AM)
3. Press the **CHNG** button.

*To set the date, follow this procedure:*

1. Enter **MODE 36**.

**NOTE: The date must be entered as a six digit number in the following format: MM:DD:YY. For example, to set the date as January 1, 1995, enter 010195; for November 23, 1995, enter 112395.**

2. Enter a six digit number for the date.
3. Press the **CHNG** button.

## PRINT PROGRAMMED DATA REPORT MODE 37

If a printer is installed, this printout will confirm data programmed into the console’s memory, and that the dipswitches are set correctly. A printer can be ordered at any time to allow printing of MODE instructions, reports, and receipts.

*To exit any programming MODE, press the SEL button.*

## MODE DEFINITIONS IN NUMERICAL SEQUENCE

### MODES 1 THROUGH 16 - FUELING POSITION DISPLAY

The current money amount for sales in progress, or waiting to be finalized for each fueling position is displayed when the corresponding PUMP SELECT button is pressed. Hold the VOL button while a fueling position is displayed to view the volume amount for the sale.

### MODE 17 - VIEW THE LAST PAID OUT SALE

The console can display the money and volume amounts for the last paid out sale.

*To display the last paid out sale, follow these steps.*

1. Select **MODE 17**.
2. Press and HOLD the desired Pump Select number.
  - a. While holding the Pump Select number, press the **VOL** button to display the volume amount for that sale.
3. Repeat step 2 as needed.

**NOTE: The same information can be printed by selecting the desired fueling position, and pressing print. The printer will always print the last paid out sale.**

### MODE 18 - SET PRICES BY FUELING POSITION AND PRODUCT HOSE

~~Programming prices in this MODE does not allow totals according to grades. Setting the tank to product hose in MODE 28 or 29, then programming the prices by tank in MODES 21 through 26 (see page 25) will allow the full reporting capability of the console to be used.~~

*To set prices by fueling position and product hose, follow this procedure:*

#### SINGLE TIER

1. Select **MODE 18**.
2. Press and HOLD the desired Pump Select number.
3. Press and release the corresponding product (A,B,C,D) button.
4. Enter the price per gallon for the product hose desired on the data entry keys.
5. Press the **CHNG** button.
6. Repeat steps 3 through 5 for all product hoses at that fueling position.
7. Release the Pump Select number.
8. Repeat steps 2 through 7 for each fueling position.

#### TWO TIER

1. Select **MODE 18**.
2. Press and HOLD the desired Pump Select number.
3. Press and release the corresponding product (A,B,C,D) button.
4. Press the **CASH PAID** button.
5. Enter the cash price per gallon for the product hose desired on the DATA ENTRY keys.
6. Press the **CHNG** button.
7. Press the same product button again.
8. Press the **CRED PAID** button.
9. Press the **CHNG** button.
10. Repeat steps 3 through 5 for all product hoses at that fueling position.
11. Release Pump Select button.
12. Repeat steps 2 through 11 for each fueling position.

### MODES 19 AND 20 - NOT USED AT THIS TIME

### MODES 21 THROUGH 26 - SET PRICES, PRODUCT CODES, AND INVENTORY LEVELS BY TANK

~~The programming instructions for these MODES can be found on page 25.~~

### MODE 27 - PRINT DECLINING TANK INVENTORY BALANCE

~~The volume levels of the fuel tanks at the station can be entered into the console's memory by pressing the "D" product button while in MODES 21 - 26. See instructions on page 25. The console will then subtract from these levels as sales are completed, and at anytime a Declining Tank Inventory report can be printed by selecting MODE 27 and pressing the PRINT button. This report will print the amount of fuel left in each tank.~~

REMEMBER: The console does not add fuel to the present tank levels following a product delivery. The new tank levels must be measured, then entered as a total into the console's memory.

### MODE 28 - ASSIGN PRODUCT HOSES TO A TANK BY INDIVIDUAL FUELING POSITIONS

~~This MODE allows the assignment of each fueling position (single and multi-hose pumps/dispensers) and product hose to a tank. When controlling single hose fueling positions (including mechanical), or a combination of single and multiple hose fueling positions, use MODE 28. See page 24 for programming instructions for MODE 28.~~

*To exit any programming MODE, press the **SEL** button.*

---

### **MODE 29 - ASSIGN PRODUCT HOSE GROUPS TO A TANK**

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MODE 29 programs all of the "A" product hoses of every fueling position to the same tank, all of the "B" product hoses to another, and so on. Use MODE 29 only if all fueling positions are MPD's, and all are plumbed the same way. If all of the "like" product hoses are not the same, use MODE 28. See page 24 for MODE 29.

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### **MODE 30 AND 31 - BEEPER SETTINGS FOR THE CALL AND COLLECT**

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The console acknowledges a button on the keypad being pressed by emitting an audible beep. The console can be programmed to use this sound to alert the operator that either a customer has lifted the nozzle and is requesting authorization or a customer has finished fueling and the sale needs to be finalized. The call and collect beeps can be changed from a repeating beep (default) to a single beep, or no beep at all. See page 26.

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### **MODE 32 - SPECIFY PUMP TYPE**

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For the console to operate properly, each fueling position must be defined by programming the correct code number into the console's memory. **This is the first and most important step in programming the console.** See page 23 for the setup sequence and MODE 32 instructions.

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### **MODE 33 - IS NOT USED AT THIS TIME**

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---

### ~~**MODE 34 - PROGRAM SELF OR FULL SERVICE OPERATION BY FUELING POSITION**~~

---

IMPORTANT! If some positions are to be set to full service operation, this procedure must be done before tank prices are entered. See page 24 for MODE 34 instructions.

---

### **MODE 35 AND 36 - SET/DISPLAY THE TIME AND DATE**

---

The console has an internal time clock that allows it to print the correct time and date on all receipts and reports. The time may periodically need to be changed to accommodate seasonal adjustments, such as Daylight Savings Time, or initially if the console is installed in a time zone other than Eastern Standard Time. See page 26 for instructions to set the time or the date in the console.

---

### **MODE 37 - PRINT PROGRAMMED DATA REPORT**

---

~~If a printer is installed, this printout will confirm data programmed into the console's memory, and that the dipswitches are set correctly. A printer can be ordered at any time to allow printing of MODE instructions, reports, and receipts.~~

---

### **MODE 38 - MANUAL OR AUTOMATIC RECEIPT PRINTING**

---

The console can be programmed for manual or automatic receipt printing. In normal operation (manual receipt printing), a receipt is printed by selecting a fueling position number, and pressing the PRINT button. This action will always generate a receipt for the last sale that was paid out on that fueling position.

When the console is programmed for automatic receipt printing, the console automatically prints a receipt as a sale is finalized (when the operator presses CRED PAID or CASH PAID) for a postpay sale, or when a prepay or full service sale is completed.

*To set the console for automatic or back to manual receipt printing, follow this procedure:*

1. Enter **MODE 38**.
2. Enter the number **00** for manual printing, or **01** for automatic receipt printing.
3. Press the **CHNG** button.

---

### **MODE 39 - SET VALVE SLOWDOWN FOR MECHANICAL PUMPS/DISPENSERS ONLY**

---

~~The valve slowdown point is designed to slow the delivery rate of fuel to a speed that allows the console to deauthorize a hose when it reaches the preset, or prepaid amount (set by the operator) mechanical pumps only (the slowdown point for electronic dispensers cannot be set in the 405 console).~~

The amount set in MODE 39 (01 to 99, expressed in pennies) determine how far in advance the console will turn off the main valve to slow the rate of fuel. This solves the problem of preset or prepay sales overrunning the predetermined amount by a few pennies. The console is shipped from the factory set at 15 (cents before the end of sale). If sales overrun, the slowdown point amount needs to be increased, typically by the amount of the overrun.

EXAMPLE: If the value entered in step 2 below is "15" and a prepaid amount of \$5.00 is authorized on a mechanical dispenser, the dispenser will slow down at \$4.85 and shut off at \$5.00. With "30" entered in MODE 39, the dispenser will slow down at \$4.70 and shut off at \$5.00.

*To set or change the valve slow down point of mechanical dispensers only, follow this procedure:*

1. Enter **MODE 39**.
2. Enter a number between 01 and 99.
3. Press the **CHNG** button.

*To exit any programming **MODE**, press the **SEL** button.*

---

**MODE 40 - CHANGE SHIFTS**

---

MODE 40 resets the totals for present shift to zero, moves those totals to the previous shift, and prints the report.

*To change shifts:*

1. Select **MODE 40**.
2. Press and HOLD the **CHNG** button.

---

**MODE 41 - MANAGER'S REPORT**

---

The manager's report is similar to the present shift report. It can be printed, or printed, then reset to zero.

*To print the manager's report, follow these steps:*

1. Select **MODE 41**.
2. Press the **PRINT** button.

*To print the manager's report, then reset it to zero, follow these steps:*

1. Select **MODE 41**.
2. Press the **CHNG** button.

---

**MODES 42 AND 43 - CUSTOMIZE REPORT PRINTOUTS**

---

The console stores a wide variety of totals for the shift and manager's reports that summarize the volume of fuels dispensed and their corresponding money amounts. The user can customize the reports to print the information in any order desired or not at all.

The console comes set from the factory to print all of the information on both shift and manager's reports.

*To customize the reports, follow these steps:*

1. Select the desired mode:  
MODE 42 = SHIFT REPORTS  
MODE 43 = MANAGER'S REPORT
2. Enter the desired single digit code numbers in the order they should appear on the customized reports. (The digits will shift from right to left on the AMOUNT side of the display).  
1 = STATION TOTALS  
2 = TANK ACTIVITY  
3 = GRADE ACTIVITY  
4 = PUMP TOTALS

3. Press the **CHNG** button.

EXAMPLE:

If the SHIFT REPORTS should print GRADE ACTIVITY, TANK ACTIVITY, then PUMP TOTALS, but not STATION TOTALS, MODE 42 would show "\_\_\_\_324" in the AMOUNT side of the display.

If STATION TOTALS was the only information desired on the MANAGER'S REPORT, MODE 43 would show "\_\_\_\_1" in the right most position in the AMOUNT side of the display.

*To exit any programming MODE, press the SEL button.*

Again the reports can print the above information in any order desired.

---

**MODES 44 THROUGH 46 - NOT USED**

---

---

**MODE 47 - PRINTS LISTS OF AVAILABLE TANK PRODUCT CODES**

---

Use the list of available product codes to assign a name to the fuel dispensed. The product codes of the fuel tanks at the station can be entered into the console's memory by pressing the "C" product button while in MODES 21 through 26. See instructions for MODES 21 through 26 on page 25 to program the product codes to a tank.

---

**MODE 48 AND 49 - NOT USED**

---

---

**MODE 50 - SPECIFY ACCUMULATING TOTALS TYPE BY FUELING POSITION**

---

The ACCUMULATING TOTALS, displayed in MODES 51 through 54 and printed in MODE 57, are expressed in both money and volume amounts, and represent a grand total of all sales combined. These totals can be assembled by using one of two methods. The user can choose the console accumulating method (default), where the console maintains the totals by adding individual sale amounts, or the pump totalizer method where the console retrieves the totals stored at the pump/dispenser.

If the user chooses the console accumulating method, there are at least three ways the user can maintain the accumulating totals.

1. The user can enter the MECHANICAL TOTALIZER readings, and avoid having to manually record the readings at the pump/dispenser. The console will add the sale amounts (money and volume) to the readings input as sales are completed to approximate the readings on the mechanical totalizers.

**NOTE: On mechanical fueling positions, the volume amounts are calculated by dividing the number of pulses received from the money pulser by the price per gallon programmed in the console's memory. The readings on the totalizers should be read and verified against the console on a regular basis, and any differences should be corrected.**

2. The user can enter the ELECTRONIC TOTALIZER readings. The console will add the sale amounts (money and volume) to the readings input as sales are completed to match the readings on the electronic totalizers. Again, the user can avoid having to manually record the readings at the pump/dispenser.
3. The user can choose to not input any totals into the console's memory, allow the totals to start at zero, and accumulate.

- The accumulating totals can be reset to zero (excluding the TANK ACTIVITY shown on the MODE 57 printout) at any time by following the instructions for MODES 51 through 54 on this page.

If the user sets the console to read the pump/dispenser's electronic totalizers, the totals cannot be reset, and the amounts displayed in MODES 51-54 and printed on the MODE 57 report are determined by the pump/dispenser.

*To select the Console or Pump/Dispenser accumulating method for each fueling position, follow this procedure:*

- Enter **MODE 50**.
- Press and HOLD the Pump Select number desired.
- Enter the desired two digit code:  
  
00 = Console accumulating  
01 = Pump/Dispenser accumulating
- Press the **CHNG** button.

**NOTE: Electronic dispenser accumulating totals are not resettable through the console. Check the electronic dispenser manual for instructions.**

- Release the Pump Select button.
- Repeat steps 2 through 5 as needed.

#### **MODES 51 THROUGH 54 DISPLAY ACCUMULATING MONEY AND VOLUME TOTALS**

~~These MODES allow the operator to enter the mechanical or electronic readings as they appear at the pump/dispenser by individual fueling position and product hose. The console stores accumulating totals, up to ten digits, for both money (\$9,999,999.990) and volume (9,999,999.999). The money total uses only two digits to the right of the decimal, but the volume uses three. The console can display a limited amount of digits in the amount side of the window, so the accumulating money totals have been divided as follows:~~

#### **MODE 51 - MONEY TOTAL (LAST 5 DIGITS)**

~~The money amounts shown are the tens of dollars, dollars, dimes, and pennies for a maximum value of 99 dollars and 99 cents.~~

~~EXAMPLE: If the money total was \$5,864.32, the total displayed in MODE 51 would be "64.320."~~

#### **MODE 52 - MONEY TOTAL (FIRST 5 DIGITS)**

The money amounts shown are the million, hundred-thousands, ten-thousands, thousands, and hundred of dollars for a maximum value of 9 million, 999 thousand, 9 hundred dollars.

EXAMPLE: If the same money total from above is used (\$5,864.32) the total displayed in MODE 52 is "00058".

#### **MODE 53 - VOLUME TOTAL (LAST 5 DIGITS)**

The volume amounts shown are the tens of gallons, gallons, tenths, hundredths, and thousandths of gallons, for a maximum value of 99 gallons and 999 thousandths.

EXAMPLE: If the volume total was 5,864.325 gallons, the total displayed in MODE 53 would be "64.325."

#### **MODE 54 - VOLUME TOTAL (FIRST 5 DIGITS)**

The volume amounts shown are the million, hundred-thousands, ten-thousands, thousands, and hundreds of gallons, for a maximum value of 9 million, 999 thousand, 9 hundred gallons.

EXAMPLE: If the same volume total from above is used (5,864.32 gallons) the total displayed in MODE 54 is "00058."

*To input the totalizer readings, use the above examples and follow these steps.*

**NOTE: The totalizer readings can be input only if the console method was chosen in MODE 50.**

- Turn the Manager key ON.
- Select the desired MODE:  
MODE 51 (Last 5 Digits - \$ Total)  
MODE 52 (First 5 Digits - \$ Total)  
MODE 53 (Last 5 Digits - Volume Total)  
MODE 54 (First 5 Digits - Volume Total)
- Press and HOLD the Pump Select number.
- Press and release the A, B, C, or D product button. (Use the A button for all single product fueling positions.)
- While still holding the Pump Select number, enter the corresponding totalizer reading for the MODE, fueling position, and product hose selected.
- Press the CHNG button, then release the Pump Select button.
- Repeat steps 4 and 5 for each product hose at that fueling position.
- Release Pump Select button.
- Repeat steps 2 through 6 for each fueling position as needed.

*To exit any programming MODE, press the SEL button.*



---

**RESET MODES 51 THROUGH 54 ACCUMULATING MONEY AND VOLUME TOTALS TO ZERO**

---

If the console accumulating method was chosen in MODE 50, the money portions of the accumulating totals, MODES 51 and 52 can be reset to zero separately from the volume portions of the accumulating totals, MODES 53 and 54.

*To reset the money portion of the accumulating totals to zero, follow this procedure:*

1. Select the desired MODE:
  - 51 or 52 = \$ TOTAL
  - 53 or 54 = VOLUME TOTAL
2. Press and HOLD the 0 button.
3. Press the **CHNG** button.
4. Repeat steps 1 through 3 as needed.

*To view the accumulating total readings, follow these steps:*

1. Select the desired MODE:
  - 51 = last 5 digits \$ TOTAL
  - 52 = first 5 digits \$ TOTAL
  - 53 = last 5 digits VOLUME TOTAL
  - 54 = first 5 digits VOLUME TOTAL
2. Press and HOLD the desired Pump Select button.
3. Press and release the corresponding product (A, B, C, D) button.
4. Read the information for the MODE, fueling position, and product hose selected.
5. Repeat steps 3 and 4 for all product hoses at that fueling position.
6. Release Pump Select button.
7. Repeat steps 2 through 6 for each fueling position as needed.

---

**MODES 55 AND 56 - ARE NOT USED**

---



---

**MODE 57 - ACCUMULATING TANK AND GRADE ACTIVITY, AND HOSE TOTAL READINGS REPORT**

---

This MODE delivers a report that shows an accumulating totals report when the PRINT button is pressed. The user can define the information printed by reading the definitions and instructions for MODE 50 and MODES 51 through 54.

---

**MODES 58 AND 59 - ARE NOT USED**

---

*To exit any programming **MODE**, press the **SEL** button.*

---

**MODES 60 THROUGH 66 - DISPLAY PRESENT SHIFT TOTALS**

---

The 60's MODES display the totals for the sale that are completed during the present/current shift totals.

**NOTE: To print these totals on a report, select MODE 67 for the current shift, then press the PRINT button.**

The following is a list of the current SHIFT MODES and their description:

MODE 60	Total cash and credit sales for all fueling
MODES 61 and 62	NO LONGER USED
MODE 63	Total volume dispensed for all fueling positions and product hose levels.
MODE 64	Total of the cash and credit sales according to individual grades
MODE 65	The time the current shift started
MODE 66	The date the current shift started.

*To view the totals reading for an individual fueling position and product hose, follow these steps:*

1. Select the desired MODE.
  - MODE 60 = Cash and credit total
  - MODE 63 = Volume total
2. Press and HOLD the desired Pump Select number.
3. Press and release the corresponding product (A, B, C, D) button.
4. Read the information for the MODE, fueling position, and product hose selected.
5. Repeat steps 3 and 4 for all product hoses at that fueling position.
6. Release Pump Select number.
7. Repeat steps 2 through 6 for each fueling position.

*To display money and volume by grade, follow these steps:*

1. Select MODE 64.
2. Hold the desired tank number on the DATA ENTRY keys. The amount shown is in money.
3. While holding the tank number, press and HOLD the VOL button to display the volume total for the tank selected.
4. Repeat steps 2 and 3 as needed.

---

**MODE 67 - PRINTS THE CURRENT SHIFT TOTAL REPORT**

---

This report can be printed at any time to check the current shift sales data of the fuel dispensed.

---

**MODES 68 AND 69 - ARE NOT USED**

---

---

**MODES 70 THROUGH 76 - DISPLAY PREVIOUS SHIFT TOTALS**

---

The 70's MODES display the previous shift totals in the same format explained for MODES 60 through 66. This information can be printed in MODE 77.

---

**MODE 77 - PRINTS THE PREVIOUS SHIFT TOTAL REPORT**

---

This report can be printed at any time to review the previous shift sales data of the fuel dispensed.

---

**MODES 78 THROUGH 86 - ARE NO LONGER USED**

---

---

**MODES 87 - PRINTS THE SECOND PREVIOUS SHIFT TOTALS**

---

This report can be printed at any time to review the second previous shift sales data of the fuel dispensed.

---

**MODES 88 THROUGH 96 - ARE NO LONGER USED**

---

---

**MODES 97 - PRINTS THE THIRD PREVIOUS SHIFT TOTALS**

---

This report can be printed at any time to review the third previous shift sales data of the fuel dispensed.

---

**MODE 98 - PROGRAM THE RECEIPT HEADER INFORMATION (iDP 3530 Citizens Printer)**

---

The printer can be programmed with up to four lines (A, B, C, & D) for a custom receipt header. While programming the header, the corresponding status lights on the console show which line is being edited. The left most digit in the Amount side of the window shows the position within the line, and the two right most digits show the Character Code. See the Character Code list on the next page for the code numbers that can be used to program a message.

**HINT: Before you program a message, write down the complete header with the corresponding two digit code written immediately below each letter for each of the four header lines. Use the grid on the next page to plan a message.**

*To program the header, follow this procedure:*

1. Enter **MODE 98**. Line A, Position 1 of the header is displayed. To move to the other lines, press the B, C, or D button and the light comes on for that line.
2. Repeatedly pressing the **A, B, C, or D** buttons toggles between large characters (line light blinks) and regular size character (line light stays on). The maximum number of characters is 38 per line for regular size letters and 19 for large size letters.
3. Repeatedly pressing the **PUMP STOP** button alternates from the header printing black (prepay, cash, and credit lights OFF), to printing red (prepay, cash, and credit light ON).
4. Enter characters using the two digit codes in the chart to the right. Press the **AUTH** button after each code is entered to advance to the next position on the line. Press the **AUTH** button without entering a two digit code leaves a space (00) between words on that line.
5. After all lines have been programmed, press the **CHNG** button to save the header in the console's memory and cause the header to print on receipts and reports.
6. Header printing on receipts may be discontinued by pressing the **DISC** button while in MODE 98. To resume printing the receipt header, press the **CHNG** button while in MODE 98.

To test the header you have just programmed, put the Manager's key switch in the OFF (vertical) position, and press Pump Select #1 (or any other number) and press PRINT. A receipt prints. Check the header for errors. If necessary reenter MODE 98 and make corrections.

*To exit any programming **MODE**, press the **SEL** button.*

**MODE 99 - PRINT LIST OF AVAILABLE MODES**

Select MODE 99 and press the PRINT button to print a list of available MODES and their descriptions. Select any other MODE and press the PRINT button and details, or instructions for that MODE will print.

**LIST OF CODES & CHARACTER  
CODE = CHARACTER**

00 = SPACE	19 = @	38 = I
01 = 1	20 = ,	39 = J
02 = 2	21 = .	40 = K
03 = 3	22 = !	41 = L
04 = 4	23 = ?	42 = M
05 = 5	24 = ;	43 = N
06 = 6	25 = :	44 = O
07 = 7	26 = “	45 = P
08 = 8	27 = ‘	46 = Q
09 = 9	28 = [	47 = R
10 = 0	29 = ]	48 = S
11 = (	30 = A	49 = T
12 = )	31 = B	50 = U
13 = -	32 = C	51 = V
14 = /	33 = D	52 = W
15 = #	34 = E	53 = X
16 = {	35 = F	54 = Y
17 = }	36 = G	55 = Z
18 = &	37 = H	

LINE A

LINE B

LINE C

LINE D

**REMEMBER:** If large size letters are used, the console can accept up to 19 letters per line.  
If regular size letters are used, 38 letters per line

To exit any programming **MODE**, press the **SEL** button.

## HOW TO OPERATE THE CONSOLE

The console is set at the factory to allow prepay sales, postpay sales, and single tier pricing on all pumps; stacking is disallowed. It is configured as ordered with either 8 or 16 fueling positions. The user can change the dipswitches to disallow or allow these options as described on page 20. A sale can be **postpay** (customer pays after dispensing fuel), **prepay** (customer pays a money amount for fuel before dispensing and the pump shuts off at this amount) or **preset/postpay** (the amount of the sale is preset, but customer pays after dispensing fuel). The operating method for each type of sale is explained below:

**REMINDER:** To enter a MODE on the console, press and HOLD the **SEL** button while entering the MODE number on the keypad. When the MODE number appears, release the **SEL** button. This explanation is not repeated each time a MODE is entered in this manual.

**NOTE:** the console cannot authorize a pump if it is in a previous mode. Press the **SEL** button until the Pump/Mode window shows 00.

All sales are displayed in money. Press the **VOL** button to display gallons.

### HOW TO AUTHORIZE A POSTPAY SALE (Self-Service)

Postpay means the amount of fuel dispensed is up to the customer. The operator only authorizes the sale, and at the end of the sale, the operator collects the money amount for the sale and presses one of the paid buttons.

When the customer picks up the hose and turns on the handle, the call light (Ref. #1, Figure 29) flashes above the fueling position number and the audio beep (if set) sounds. See MODES 30 and 31 for programming beeper settings, page 26.

To Authorize:

- Press the Pump Select **NUMBER** (Ref. #2, Figure 29).
- Press the **AUTH** button (Ref #3, Figure 29).
- The flashing light becomes constant when the pump is authorized.

When the customer turns the handle off and returns the nozzle to the holder, the collect light (Ref. #4, Figure 29) flashes below the fueling position number and the audio beep sounds. The sale is waiting to be finalized.

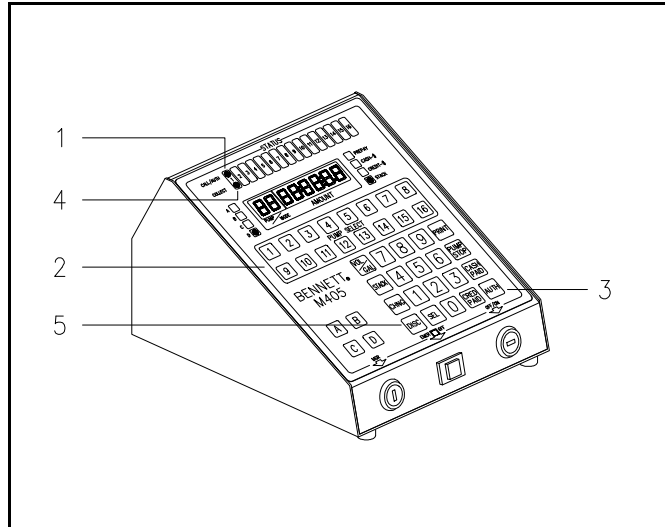


Figure 29

To complete the Sale:

- Press the Pump Select **NUMBER**.
- After receiving the money for the sale, press the **CASH PAID** or **CRED PAID** button.

**NOTE:** To toggle between a cash price and credit price before completing the sale, press the **DISC** (Ref #5, Figure 29) button.

- If an optional printer is present, press **PRINT** for a manual customer receipt (or if automatic receipt printing is set, the printer creates a receipt).

**TO STOP PUMPING AT ALL FUELING POSITIONS:** Press the desired **PUMP SELECT** button, then press the **PUMP STOP** button. The customer must return the hose to the pump before the fueling position can be reauthorized.

---

## HOW TO AUTHORIZE A PRESET SALE

In a preset sale a customer requests a specific amount of fuel before pumping, and the operator sets the fueling position for that amount by using the DATA ENTRY buttons, then presses the AUTH button. The customer does not pay any money, and the operator does not press a paid button. The console will stop the fuel delivery at the preset amount, and the customer must pay the operator before the sale can be completed.

*To Authorize:*

- Press the Pump Select **Number**.
- Enter the \$ amount of the sale on the DATA ENTRY keypad.
- Press the **AUTH** button.

The Customer can now pump the preset amount. When the customer turns the handle off and returns the nozzle to the holder, the collect light flashes below the fueling position number and the audio beep sounds.

*To Complete the Sale:*

- Press the Pump Select **Number**.
- After receiving the money for the sale, press the **CASH PAID** or **CRED PAID** button.

**NOTE: To toggle between a cash price and credit price before completing the sale, press the DISC button.**

- If an optional printer is present, press **PRINT** for a manual customer receipt (or if automatic

## HOW TO AUTHORIZE A PREPAY SALE (Self-Service)

In a prepaid sale the customer pays for a specific amount of fuel before pumping, and the operator sets the fueling position for that amount, presses one of the PAID buttons, then the AUTH button.

The console authorizes the fueling position, and when the prepaid amount is reached, stops the fuel delivery. No further steps are made by the operator. When the customer hangs the nozzle up, the sale is completed.

*To Authorize:*

- Press the Pump Select **NUMBER**.
- Enter the \$ amount of the sale on the DATA ENTRY keypad.
- Press either the **CASH PAID** or **CRED PAID** button
- Press the **AUTH** button.

*If the customer does not receive the full prepaid amount:*

- Press the **CHNG** button to see the refund due.
- Press **CASH PAID** or **CRED PAID** button to complete the transaction.
- Press the Pump Select **NUMBER** and the **PRINT** button for a customer receipt, if optional printer is present.

---

## HOW TO STACK A SALE

The console is shipped with the stacking memory feature disallowed (See Page 20). If the console has been reset to allow stacking memory, the operator can authorize a sale for a second customer while waiting for the first customer to pay. The STACK light flashes if the fueling position selected has a sale in the stacked position. Press the **STACK** button to view the stacked sale, and the light stays on. Press **STACK** again to toggle to the current sale.

*To Authorize a Second Sale before finalizing the first sale:*

- Press the Pump Select **NUMBER** for the sale to be put in memory.
- Press the **AUTH** button.

*To Finalize a Stacked Sale in Memory:*

- Press the **STACK** button. The STACK light flashes. The \$ amount appears in the display.
- Press the **CASH PAID** or **CRED PAID** button to complete the transaction.

*To Exit a Stacked Sale in Memory:*

With a hose selected in the Pump/Mode window,

- Press the **STACK** button to alternate the display between a stacked sale and the current sale. With the desired sale shown in the display, close the sale in the normal manner by,
- Pressing the **CASH PAID** or **CRED PAID** button to complete the sale.

**NOTE: If the collect light flashes and the preset sale shows “.00,” press the STACK button to display the sale. Press CASH PAID or**

## HOW TO VIEW THE PREVIOUS PAID OUT SALE MODE 17

- Enter **MODE 17**.
- Press and HOLD the Pump Select **NUMBER** to be viewed. The \$ amount will appear.
- To see volume in gallons, press and HOLD the Pump Select **NUMBER** and press the VOL/GAL button.
- Press the **SEL** button to resume normal operation.

## HOW TO CHANGE SHIFTS MODE 40

This resets the totals for the present shift to zero, moves those totals to the previous shift, and prints a report.

*To perform a shift change, follow this procedure:*

1. Enter **MODE 40**.
2. Press and HOLD the **CHNG** button until 00 replaces 40 in the Pump/Mode window.

If an optional printer is present and on line, a shift report will automatically be printed.

## HOW TO PRINT/RESET THE MANAGER'S REPORT MODE 41

The manager's report prints a total of sales. The report starts with the first completed sale and ends at the time the report is printed and reset to zero. It can be printed, or printed and then reset to zero at any time.

*To print the manager's report without resetting the totals to zero, follow this procedure:*

1. Select **MODE 41**.
2. Press the **PRINT** button.

*To print the manager's report, then reset the totals to zero, follow this procedure:*

1. Select **MODE 41**.
2. Press the **CHNG** button.

## HOW TO READ ACCUMULATING MONEY and VOLUME TOTALS MODE 51 - 54

The console stores accumulating totals, up to ten digits, for both money (\$9,999,999.990) and volume (9,999,999.999 gallons). The money total uses only two digits to the right of the decimal, but the volume total uses three.

**NOTE: The console displays a limited number of digits in the Amount window, so two modes must be entered to read a total larger than five digits. (First five digits and last five digits.)**

**To print the ACCUMULATING TOTALS displayed in MODES 51 through 54, select MODE 57 and press the PRINT button.**

*To read the accumulating totals for each hose, follow the steps below:*

1. Enter **MODE 51** for displaying the last five digits of a Money total.  
Enter **MODE 52** for displaying the first five digits of a Money total.  
Enter **MODE 53** for displaying the last five digits of a Volume total.  
Enter **MODE 54** for displaying the first five digits of a Volume total.
2. Press and HOLD the Pump Select **NUMBER** for the pump to be read.
3. If the dispenser is a multi-product unit, with the Pump Select **NUMBER** still depressed:  
Press hose **A, B, C** or **D** to read or record the data for each hose. The light status button will light for the hose selected.

See the additional explanation below to take a money or volume reading.

**MODE 51** - gives the last five digits or least significant digit money reading.

For example, if the money total was \$5,864.325, the number that appears when MODE 51 is entered are "64.325." See Figure 30.

**MODE 52** - gives the first five digits or most significant digit money reading.

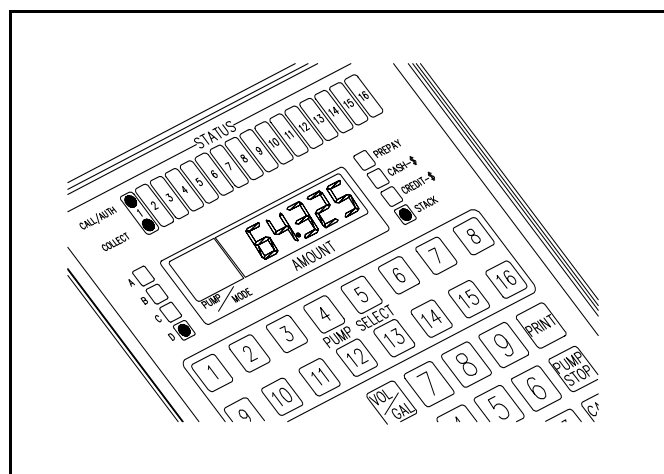
In the example given above, the numbers that appear when MODE 52 is entered are "00058." See Figure 31.

**MODE 53** - gives the last five digits or least significant digit volume reading.

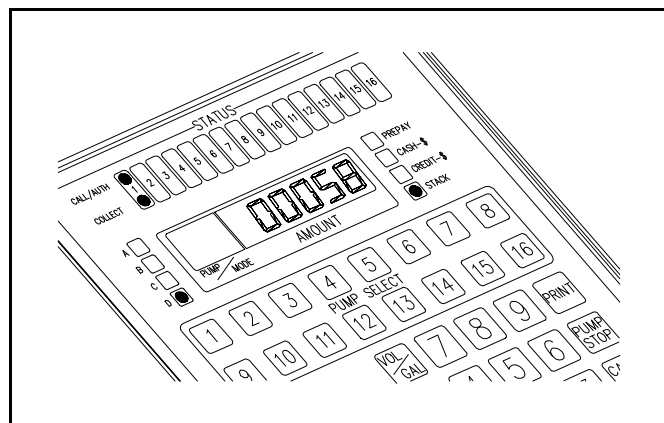
For example, if the volume was 5864.325 gallons, the numbers that appear when MODE 53 is entered are 64.325.

**MODE 54** - gives the first five digits or most significant digit volume reading.

As in the example above, the numbers that appear when MODE 54 is entered are 00058.



**Figure 30**



**Figure 31**

## HOW TO READ PRESENT SHIFT TOTALS MODE 60 THROUGH 96

The 60's MODES display the totals for the sale that are completed during the present/current shift.

**NOTE: To print these totals on a report, select MODE 67 for the current shift, then press the PRINT button.**

The following is a list of the CURRENT SHIFT MODES and their description.

<b>MODE 60</b>	Total cash and credit sales for all fueling positions
<b>MODE 61 AND 62</b>	No longer used.
<b>MODE 63</b>	Total volume dispensed for all fueling positions and product hose levels.
<b>MODE 64</b>	Total of the cash and credit sales according to individual grades.
<b>MODE 65</b>	The time the current shift started.
<b>MODE 66</b>	The date the current shift started.

*To view the totals reading for an individual fueling position and product hose, follow this procedure:*

1. Select the desired MODE.  
MODE 60 = cash and credit total  
MODE 63 = volume total
2. Press and HOLD the desired Pump Select button.
3. Press and release the corresponding product (A, B, C, D) button.
4. Read the information for the MODE, fueling position and product hose selected.
5. Repeat steps 3 and 4 for all product hoses at that fueling position.
6. Release Pump Select button.
7. Repeat steps 2 through 6 for each fueling position.

*To display money and volume by grade, follow this procedure:*

1. Enter **MODE 64**.
2. Press and HOLD the tank number on the DATA ENTRY keys.
3. While holding the tank number, press and hold the VOL button to display the volume total for the tank selected.
4. Repeat steps 2 and 3 as needed.

## HOW TO DISPLAY THE PREVIOUS SHIFT TOTALS

The 70's MODES display the previous shift totals in the same format explained for MODES 60 through 66. This information can be printed in MODE 77.

## HOW TO PRINT REPORTS

### HOW TO PRINT THE TANK INVENTORY REPORT

Select MODE 27 and press the PRINT button.

### HOW TO PRINT THE PROGRAMMED DATA REPORT

Select MODE 37 and press the PRINT button.

### HOW TO PRINT THE ACCUMULATING TOTAL REPORT

Select MODE 57 and press the PRINT button.

### HOW TO PRINT THE CURRENT SHIFT TOTAL REPORT

Select MODE 67 and press the PRINT button. This report can be printed at any time to check the current shift sales data of the fuel dispensed.

### HOW TO PRINT THE PREVIOUS SHIFT TOTAL REPORT

Select MODE 77 and press the PRINT button. This report can be printed at any time to review the previous shift sales data of the fuel dispensed.

### HOW TO PRINT THE SECOND PREVIOUS SHIFT TOTALS

Select MODE 87 and press the PRINT button. This report can be printed at any time to review the second previous shift data of the fuel dispensed.

### HOW TO PRINT THE THIRD PREVIOUS SHIFT TOTALS

Select MODE 97 and press the PRINT button. This report can be printed at any time to review the third previous shift data of the fuel dispensed.





## WARRANTY REGISTRATION

An example of the Warranty Registration Card is shown below. Each piece of Bennett equipment is registered at the factory. This card assures the Owner of complete WARRANTY STATUS registration.

Return the completed Warranty Registration Card to BENNETT PUMP COMPANY, Broadway and Wood Streets, Muskegon Hts., MI 49444 within 5 working days of installation.

If the warranty Registration Card is not received and recorded at BENNETT, Status of Warranty may be difficult to establish.

### WARRANTY REGISTRATION CARD

*A separate registration card must be filled out for each piece of equipment at the site including the I.C. box and the console*

Model No.: \_\_\_\_\_ Date of Installation: \_\_\_\_\_

Equipment Serial No.: \_\_\_\_\_ Hose Number(s): \_\_\_\_\_

Bennett Invoice No.: \_\_\_\_\_ Bennett Invoice Date: \_\_\_\_\_

Site Name: \_\_\_\_\_ Site Phone: (    ) \_\_\_\_\_

Site Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Owned By: \_\_\_\_\_

Installed By: \_\_\_\_\_

Sold By: \_\_\_\_\_

Serviced By: \_\_\_\_\_

**WARRANTY REGISTRATION must be completed and mailed to  
BENNETT Pump Company, Muskegon, Michigan at time of installation**

Please read the complete Bennett Warranty Statement on the inside back cover of this manual.

### WARRANTY SERVICE

The Access M405 is serviced by unit exchange. The exchange units are the console, a cable, and the interconnect board.

If the console or interconnect board fail during the warranty period, return the item to: **Bennett Pump Company, 2716 Discovery Drive, Raleigh, NC 27604-1850**. The item will be repaired and returned.

**Note to End Users:** Authorized Bennett Distributors can replace the console or interconnect board on site while repairs are being made at the factory.

### WARRANTY RENEWAL

At the end of the warranty period, the console can be shipped to the factory for reconditioning and renewal of the warranty. To take advantage of this service, follow this procedure:

1. Call the Bennett Order Entry Department at 1-800-678-7705 and request a Return Authorization number (RA).
2. Bennett will recondition the unit and renew the warranty.
3. The unit will be returned and an invoice will be issued for the amount of reconditioning.

# BENNETT®

## LIMITED WARRANTY

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

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

### Pumps and Dispensers - 2300 & 2400 Series

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

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

### Pumps and Dispensers - All Other Models

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

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

### Dispensers with factory installed Card Acceptor or Cash Acceptor

Dispensers with a factory installed Dispenser Card Acceptor will be warranted for defective parts, travel and labor for 12 months from the date of installation or 18 months from the date of original invoice, whichever comes first, except the receipt printer which is warranted for parts, travel and labor for the first ninety (90) days from the date of installation or 180 days from date of original invoice, whichever comes first.

### Field Retrofitted Card Acceptor or Cash Acceptor

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

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

### Model 310 Pump Controllers

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

### Model 405 Console and Printer

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

- Exceptions are printer assemblies which are warranted for parts only for ninety (90) days from installation or 180 days of original invoice, whichever comes first.
- Consumable items such as printer ribbons and paper are not warranted. The use of consumable items not specified by Bennett will void the printer warranty.

### Model 410 and 430 Console and Printers

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

- Exceptions are printer assemblies which are warranted for parts only for ninety (90) days from installation or 180 days of original invoice, whichever comes first.
- Consumable items such as printer ribbons and paper are not warranted. The use of consumable items not specified by Bennett will void the printer warranty.

### Business Systems

Business System products that are manufactured by Bennett Pump Company are warranted for parts, labor and travel for 12 months from the date of installation or 18 months of original invoice, whichever comes first.

- Exceptions are Printer Assemblies and equipment produced by original

### Business Systems

Business System products will be supported through a fee based third party maintenance contract. "Depot Parts only" warranty may apply and should be handled directly with the original manufacturer.

### Software

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

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

### Upgrade Kits

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

### Spare Parts

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

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

### General Exclusions

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

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

The material included in this Manual is accurate at the date of publication. The intent of this manual is to assist.  
If further assistance is required, please contact the Bennett Technical Services Department

**BENNETT®**

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