INSTALLATION
OPERATION

Wayne DRESSER

Global Century Suction Pumps and Remote Dispensers

DANGER

READ THIS MANUAL BEFORE YOU BEGIN

Dispensers have both electricity and a hazardous, flammable and potentially explosive liquid. Failure to follow the below precautions and the Warning and Caution instructions in this manual may result in serious injury. Follow all rules, codes and laws that apply to your area and installation.

SAFETY PRECAUTIONS - INSTALLATION AND MAINTENANCE

Always make sure ALL power to the dispenser is turned OFF before you open the dispenser cabinet for maintenance. Physically lock, restrict access to, or tag the circuit breakers you turn off when servicing the dispenser. Be sure to trip (close) the emergency valve(s) under the dispenser BEFORE beginning maintenance.

Make sure that you know how to turn OFF power to the dispenser and submersible pumps in an emergency. Have all leaks or defects repaired immediately.

EQUIPMENT PRECAUTIONS

Be sure to bleed all air from product lines of remote dispensers and prime suction pumps before dispensing product, otherwise, damage to the equipment may occur. Always use the approved method for lifting the dispenser. Never lift by the nozzle boot, sheet metal, valance, etc., otherwise equipment damage or personal injury may occur.

HOW TO CONTACT WAYNE

Trouble with the installation and operation of the dispenser should be referred to your authorized Wayne service personnel or Wayne Technical Support (1-800-926-3737).

INDICATORS AND NOTATIONS

DANGER	Danger indicates a hazard or unsafe practice which, if not avoided, will result in severe injury or possibly death.
WARNING	Warning indicates a hazard or unsafe practice which, if not avoided, may result in severe injury or possibly death.
CAUTION	Caution indicates a hazard or unsafe practice which, if not avoided, may result in minor injury.
NOTE:	Important information to consider, otherwise, improper installation and/or damage to components may occur.

Global Century
Suction Pumps and
Remote Dispensers

Installation & Operation

October 1999 Part No. 920336 Rev B

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Global Century Dispenser Model Designation

TD00432-B

PREFIX MAIN BODY 1ST SUFFIX 2ND SUFFIX

XXX / ABCDEF / ZZZZZZ / YYYYY

PREFIX

2 = iMeter (reserved)

MAIN BODY

G = Global

2 = Century
3 = Century High Column
7 = Century Commercial Unit

0 = Cabinet Style
2 = Column Style

0 = Standard or High Capacity - (12G/45L) or (20G/75L)
1 = (reserved)
2 = Super High Cap - 30G/120L
3 = Ultra High Cap - 40G/150L, includes LC Meter

1 = Single, Island Oriented
2 = Duo-1, Island Oriented
3 = Duo-2, Island Oriented
7 = Duo-1, Lane Oriented
8 = Duo-2, Lane Oriented
9 = Quadro, Lane Oriented

D = Dispenser - Remote
P = Pump - Self Contained

1ST SUFFIX

1 = 1 Motor with 2 Compacts
2 = High Capacity - 20G/75L
5 = 5 Button Preset (reserved)
A = Auto-On - not U.L. Listable
B = Flow Indicator
C = Canadian Unit - Temp. Comp.
E = Alcohol Densimeter - Brazil
G = Filter - Remote Models
H = Pulser Output Board - Canada
J = Hose Mast
L = Satellite- Super High Cap. (reserved)
M = Master - Super High Cap. (reserved)
P = Stop Button
R = Single Sided Unit - Lane Oriented
S = Preset - 16 Button
T = Terminal Strip (reserved)
X = Without Explosion Proof J-Box
Z4 = 220 VAC, 50 Hz
Z5 = 230 VAC, 50 Hz
Z6 = 240 VAC, 50 Hz
Z7 = 110 VAC, 50 Hz
Z8 = 240 VAC, 60 Hz

2ND SUFFIX

3 = 2 Solenoid Valves per Meter (80 LPM)
C = Contour Door
E = Export Crating
F = EMT's per Hose (reserved)
G = 3-Pole Relay
G1 = 220/380V, 3 Phase Motor
H = Hose Retractor Cable
I = ISM Duplex Computer
O = Shift Total Switch (reserved)
P = ISFS Board (reserved)
S = All Stainless Exterior Panels
W = Without Solenoids, Pump Control, or Presets (reserved)

1 INTRODUCTION

1.1 Dispensers Covered

This manual describes the installation and operation of Global Century dispensers. Global Century dispensers are designated by G2000 and G2200 model number series and have Duplex II computers.

The Global Century dispenser may be installed and operated as a stand-alone unit or as a component part of a Wayne Management Control System. This manual provides installation and operation information for Global Century series dispensers operating as stand-alone units; however, information concerning Wayne Control Systems is included where appropriate. Each side of the dispenser is referred to as a fueling point for connection to a control system. Single-sided dispensers are designated by an "R" in the model number suffix and have only one fueling point. Complete installation and operation information for the appropriate Wayne Control System can be obtained from the manuals provided with the system.

For programming the Duplex II computer on Global Century models, refer to page 17.

The model designations for the Global Century product are listed in the tables below. A description of each model is shown in Table 1-1. Optional equipment, represented by the model number suffix designations, is shown in Table 1-2. Note that 2nd suffix designations do not appear on the model number/serial number plate on the dispenser.

Table 1-1 Model Product Description

Type	Remote Dispenser	Suction Pump	Description
Island Oriented	G2001D/	G2001P/	Single: 1 product, 1 hose
	G2002D/	G2002P/	Duo 1: 1 product, 2 hoses
	G2003D/	G2003P/	Duo 2: 2 products, 2 hoses
Lane Oriented	G2007D/	G2007P/	Duo 1: 1 product, 2 hoses
	G2008D/	G2008P/	Duo 2: 2 products, 2 hoses
	G2009D/	G2009P/	Quadro: 2 products, 4 hoses

Table 1-2 Model Suffix Designations *

1st Suffix	Definition
1	1 motor and 2 compacts
2	High Capacity - 20G/75L
5	5 Button Preset
A	Auto-On (not U.L. Listable)
B	Flow Indicator
C	Canadian Unit
E	Alcohol Densimeter (Brazil only)
G	Filter (Remotes Only)
H	Pulser Output Board (Canada only)
J	Hose Mast
L	Satellite (Super High Flow)

1st Suffix	Definition
M	Master - Super High Flow
P	Stop Button
R	Single Sided Unit (Lane only)
S	Preset (16 Button)
T	Terminal Strip (in J-Box)
X	Less explosion proof J-Box
Z4	220V/50Hz
Z5	230V/50Hz
Z6	240V/50Hz
Z7	110V/50Hz
Z8	240V/60Hz

* For 2nd suffix designations, see the Global Century Model Designation chart on the opposite page.

1.2 Safety Precautions

NFPA 30A include that, "When maintenance to Class I dispensing devices becomes necessary and such maintenance may allow the accidental release or ignition of liquid, the following precautions shall be taken before such maintenance begins:

- only persons knowledgeable in performing required maintenance shall perform the work;
- all electrical power to the dispensing device and pump serving the dispenser shall be shut off at the main electrical disconnect panel;
- the emergency shut-off valve at the dispenser, if installed, shall be closed; and
- all vehicle traffic and unauthorized persons shall be prevented from coming within 20 feet (6 m) of the dispensing device.[1]"

⚠ **WARNING**

ELECTRIC SHOCK HAZARD! More than one disconnect switch may be required to de-energize the dispenser. Use a voltmeter to make sure circuits in the dispenser are de-energized. Failure to do so may result in serious injury.

1.3 Local, State and Federal Codes

All tanks (both underground and above ground), piping and fittings, foot valves, leak detectors, corrosion protection devices, wiring, venting systems, etc., must be installed in accordance with the manufacturer's instructions and in compliance with local and regional building codes and requirements pertaining to service stations (or other locations where the dispenser may be installed). Therefore, it is strongly recommended that **a licensed engineer or contractor familiar with local regulations and practices be consulted before starting installation.**

These requirements are referenced in the National Electrical Code (NFPA 70); the Automotive and Marine Service Station Code (NFPA 30A); the Flammable and Combustible Liquids Code (NFPA 30); the Code of Federal Regulation, Title 40 (Protection of Environment), Section 280 (40-CFR 280; and other codes.

1.4 Inspect The Equipment

Examine the shipment immediately upon arrival to make certain there has been no damage or loss in transit. Damaged or lost equipment must be reported to the carrier. Any damage or loss that may occur in transmit is not covered under the Wayne/Dresser Warranty.

Make sure all component parts, including keys and optional equipment, are accounted for. Check and save the Packing Slip, Bill of Landing, Invoice, and all other shipping documents.

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1. Reprinted with permission from NFPA 30A-90, Automotive and Marine Service Station Codes, Copyright ©1990, National Fire Protection Association, Quincy MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association on the referenced subject, which is represented only by the standard in its entirety.

2 SITE PREPARATION

If the dispenser is to be attached to an existing underground installation, check the installation carefully. The Wayne Division is not responsible for the improper operation of it due to accidents, abuse or faulty installation.

All equipment must be installed in accordance with all applicable regulation as described in Section 1.3.

2.1 Pipelines

Product piping must avoid the creation of vapor in the lines and deliver a minimum pressure of 25 psi at the dispenser inlet when all dispensers at the station dispensing the same product are operating. The dispenser's maximum operating pressure rating is 50 psi.

Dig a trench between the tanks and the dispenser foundation. The trench must be deep enough to place the product line at least 18 inches (46 cm) below the surface of the ground at its highest point (more in hot climates or high altitudes) and the slope upwards from the tank should be approximately 1/4 inch per foot (1 cm lift per 48 cm length). The trench should be straight as practical to avoid as many elbows and bends in the line as possible. If the distance from the tank to the dispenser is 60 feet (18.2 m) or less, 1 1/2 (I.D.) pipe may be used; if the distance is greater than 60 feet (18.2 m), use 2 inch (I.D.) pipe to lessen friction. All piping must conform to local fire regulations.

Wayne recommends using new **nonmetalic**[1] pipe and fittings for supply lines. Nonmetalic pipe is also recommended for the fill and vent lines. The pipe used for the product line must be clean. To clean it, rap it with a hammer to loosen excessive speller and dirt, and then swab it out with a rag soaked in mineral spirits. Pull the soaked rag though the pipe by attaching it to the end of a long wire. Be **careful to keep the pipe clean during its installation.** All pipe threads should be properly cut and each end of the pipe reamed. Clean the pipe of thread cutting and shavings.

To ensure tight pipe joints, wash all cutting oils off the threads and use a UL-Classified pipe joint sealing compound, suitable for use in devices handling petroleum-based products. Place the sealant on male threads only, being careful not to get excess inside the pipe or fittings when making up joints.

Use nothing but ground joint unions in underground pipe work. No gasket or pipe sealing compound is required with this type of union. We recommend the use of at least one union in the dispenser supply line for accessibility in the event of trouble developing later. This should be placed as close to the tank as possible.

1. To prevent zinc contamination of diesel fuels. It is recommended that all diesel fuel supply lines be nonmetalic, UL-Listed, and Installed per the manufacturers recommendations.

2.1 Pipelines, continued

Swing joints and universal joints, or flexible connections, should be used at the ends of all horizontal runs, such as the pipe between the dispenser and the tanks. These aid in aligning the dispenser inlets with the underground piping, and prevent leaks which might develop through the settling of the tanks or heaving of the ground from heavy traffic or frost and thaw.

Block up the sloped section of products line, when installing in the trench to avoid settling. Take particular care that the lines slope continuously upward from tanks to dispenser, otherwise vapor traps may cause erratic dispenser operation. Test the lines for leaks before backfilling.

Breakaway devices should be used at the base of the dispenser so that damage to a dispenser will not also damage the product line. Certain applications may require emergency shutoff valves as a precaution against hazards due to fires and accidents, if these valves are returned, they must be installed in accordance with the manufacturer's instructions. The automatic closing feature of the emergency shutoff valves should be tested at least once per year to ensure proper operation.

Emergency shutoff valves and breakaway devices are examples of the requirements stated in NFPA 30A, the Automotive and Marine Service Station Code. This equipment, as well as any other safety devices required by NFPA 30 and NFPA 30A, must be installed and maintained per the manufacturer's instructions.

When the dispenser has been connected and the pipe sealant is dry, the lines should be tested for leaks. Be sure to properly plug any passages to the underground tank, otherwise, over-pressurization of the tank will result in tank leaks.

- To test underground lines, apply air pressure, in accordance with required local codes. While the pressure is on the line, apply soap and water solution completely around each joint. A slight leak will bubble when the solution is applied. This test must be performed before the lines can be backfilled.
- On existing underground lines, an air pressure test can be performed by applying a soap and water solution to any visible joints in the line. To ensure a tight line, block any passages to the tank and apply air pressure to the line. Pressure should remain on the line for a least one hour with no loss in pressure, or in accordance with local codes. Also be sure to check unions and impact valves for leaks on the inlet valves under all the dispensers, not just the one being serviced.

NOTE: Be certain to check local codes concerning line testing. In some areas a hydrostatic test as well as air pressure test is mandatory.

2.2 Check Valves (Suction Pumps Only)

Suction pumps require a check valve in the product lines to stop the product from draining back into the tank. Wayne recommends that double poppet foot valves are used inside the underground tank. The foot valves should be the same size as the suction lines. Foot valves designed for handling petroleum products are equipped with a coarse mesh strainer screen, the bottom of this screen is blocked off so that the product enters the valve from the side.

Some installers prefer a double poppet check valve in the line just above the tank. If a check valve is installed at the top of the tank, the end of the suction line in the tank should be equipped with a suction pipe strainer. The suction pipe strainer is similar in construction to the bottom of the foot valve and serves the same purpose.

Examine the valve carefully and remove any blocks or other means used by the manufacturer for protecting the valve in shipping. Clean the valve thoroughly with mineral spirits, because any dirt, lint, or foreign matter between the poppet and the seat will cause it to leak. The valve should be handled carefully, not dropped or thrown around. Never clamp the body of a check valve in a vise or apply a wrench to any part other than the hexagonal end of the valve. If done, it may spring or distort the valve, causing leakage or valve sticking.

Establish the length of the suction pipe in the tank to which the check valve will be attached, keeping in mind that the bottom of the suction stub must be at least four (4) inches (10 cm) off the bottom of the tank. The type of connection at the tank opening will have some bearing on the length of this pipe. Sometimes, a tank reducing plug (double tapped bushing) is used. Wayne recommends the use of an extractable foot valve for easy and quick removal of the check valve in the tank. The importance of keeping the end of the line in the tank at least four (4) inches (10 cm) off the bottom of the tank cannot be overemphasized. Condensation is constantly occurring inside the tank and creating water on the bottom. Checking tanks regularly and keeping them clean reduces the risk of drawing water and debris into the lines and dispenser.

It is a good idea to test for leaks in both the check valve and the pipe as an assembly before installing them in the tank. Before installing the valve, pour petroleum into the check valve and pipe assembly and let it stand for an hour or two to make sure the check valve seals properly.

2.3 Connecting More Than One Pump To a Tank (Suction Dispensers)

If you intend to connect more than one suction dispenser to a tank, it is best to obtain a tank with enough openings to provide each pump with a separate suction line. Tanks used in remote systems normally require only one pump (submersible) to supply several dispensers; tanks designed specifically for suction dispensers will have additional openings.

Where a tank is equipped with only one opening for a suction pump connection, Wayne does not suggest the use of two or more pumps on one line; however, if this type of installation is unavoidable, it is very important that a swing check valve be used in each suction line branch, and that each valve be placed in the line as close as possible to the connection leading to the main suction line coming from the tank. This is necessary to prevent a pump from emptying the line leading to another pump instead of pulling the product out of the tank.

2.4 Fill Pipe

If the fill pipe is used for the insertion of the gauge (dip stick to determine the amount of product in the tank, it is important that this pipe be in a straight vertical position). The top of this pipe should be protected with a fill box so that in freezing weather, the frozen ground will not pull the tank flange loose from the tank.

2.5 Venting

The tank must be vented, Wayne recommends conforming to the rules of the National Fire Protection Association (NFPA). It is important that this vent line slopes slightly upward from the tank, avoiding traps or pockets, and this line should be equipped with swing joints to prevent its breaking due to settling or freezing. The top of the vent line should be at least 12 feet (366 cm) above the ground and at least 5 feet (152 cm) away from chimneys, windows or other openings. The vent outlet should be protected to minimize the possibility of blockage due to insects, nests, etc.

3 INSTALLING THE DISPENSER

A concrete foundation should be provided for the dispenser. Do not pour concrete around product or electrical risers.

Do not leave any loose dirt inside the bottom of the dispenser. Dirt and dust blown around by the motor fan or by the motion of the pulleys is likely to get attached to the V-Link belts and cause excessive wear on the belts.

Vertical supply risers and electrical conduits should be located in accordance with the installation drawings for the appropriate model. Proper height must be maintained to avoid undue stress on the dispenser. To install the dispenser, complete the following steps:

Step 1 Remove the dispenser from its shipping carton. This should have already been done when the equipment was inspected—refer to Section 1.4, *Inspect The Equipment*.

Step 2 Unlock and remove the dispenser doors by removing one screw on the bottom of the hinged doors, lifting them straight up to clear the base, and then pulling them forward.

Step 3 Remove the shippings discs from the inlet unions.

NOTE: Before performing the following steps, refer to the installation illustration (Figure B-1) in Appendix B for retrofit sites or installation illustration (Figure B-2) in Appendix B for new site installations.

CAUTION

When handling the dispenser, lift only by the base or main chassis. Do not lift by the nozzle boot, hose outlet, operating lever or any external panels, this may result in dispenser damage and/or personal injury.

Step 4 Using a Forklift raise the dispenser up even with the island and slide the dispenser onto the island. Position the dispenser on the island in accordance with the dimensions shown on the appropriate engineering drawing in Appendix B.

Step 5 Make all piping and conduit connections and anchor the dispenser to the island using anchor bolts. The base of dispenser is provided with two bolt hole slots (3/4 inch by 1 1/2 inches) for anchoring the dispenser to the island.

Step 6 (a) Make electrical connections as shown on appropriate engineering instruction drawing in Appendix B and verify that electrical power source(s) match the component electrical ratings shown in Tables 3-1 and 3-2.

NOTE: Wayne recommends employing a qualified licensed electrician for all wiring. A hazardous liquid is being handled, therefore, it is extremely important to ensure that all wiring is in accordance with the local rules, regulations, and codes discussed in Section 1.3, *Local, State and Federal Codes*.

(b) If the dispenser model being installed does not have a junction box in the hydraulics cabinet, the conduit must be installed with a union to mate with the existing conduit that comes from the splice box in the electronic head. This existing conduit is located just below the vapor barrier. All field wiring (including optional DATA wires) from the underground conduit must be continuous in length to reach the splice box, therefore, a minimum of 5 ft. additional wiring must be pulled when installing the field wiring. Electrical connections (wire nuts, etc.) can **NOT** be made in the hydraulics cabinet on this model. **If this instruction can not be met, the optional explosion proof Junction Box Kit will be required (part no. 1-921128-KIT).**

CAUTION

Wires must be marked (labeled) within six (6) inches (15 cm) prior to entering the conduit union and also in the splice box to avoid component damage or shock hazard caused by incorrect wiring connections.

(c) If the dispenser will be operated by a Wayne Control System, make the DATA wire connections as illustrated in the appropriate engineering drawing. These DATA wires are not required for full service (stand-alone) dispenser operations, however, if a Wayne Control System will be installed at a later time, the DATA wires should be run at initial installation.

NOTE: If the optional DATA wires are run, they should not be physically connected to the DATA terminals in the dispenser junction box or left open ended in the dispenser splice box. Instead, they should be properly terminated individually using wire nuts.

Table 3-1 Component Electrical Ratings

Component	Electrical Ratings
Suction Pump Motor - Standard Capacity	1 1/2 HP, 50 Hz, 230V, 1 Phase 1 1/2 HP, 60 Hz 230V, 1 Phase 1 1/2 HP, 50/60 Hz, 220V, 3 Phase 1 1/2 HP, 50/60 Hz, 380V, 3 Phase 3/4 HP, 50/60 Hz, 115/230V. 1 Phase
Suction Pump Motor - High Capacity	1 HP, 50 Hz, 230V, 1 Phase 1 HP, 60 Hz, 230V, 1 Phase 1 HP, 50/60 Hz, 220V, 3 Phase 1 HP, 50/60 Hz, 380V, 3 Phase 3/4 HP, 50/60 Hz, 115/230V. 1 Phase
Ballast Transformer Options	110 VAC, 2 × 23W, 50/60 Hz 220 VAC, 2 × 23W, 50/60 Hz

3.1 Submersible Pump Controls

Remote dispensers allow the use of a relay to interface to the submersible pump motor. Potter and Brumfield relay No. PRD7AYO in a Listed magnetic motor controller assembly is recommended. Relay specifications are listed in Table 3-2

A maximum of 24 fueling points may be connected to a single PRD7AYO relay; other relays may have different limitations. All dispensers operating the same pump control relay must be connected to the same circuit breaker which may require multiple submersible pump control relays for a submersible pump. All dispensers must be wired to the same phase.

Ensure the submersible pump receives its power from its own separate Submersible Pump Circuit Breaker as illustrated in the Typical Site Wiring Diagram 7151-C in Appendix B.

Table 3-2 Submersible Pump Relay Specifications

Coil. (120V)	Control Voltage	120 VAC, 50/60 Hz
	Coil Resistance	290 Q (Ohms)+ 15%
	Pull-in Characteristics	Current — 0.085 Amp
		Voltage — 75 VAC
	Drop-out Characteristics	Current — 0.085Amp
		Voltage — 55 VAC
Coil (240V)	Control Voltage	240 VAC, 50/60 Hz
	Coil Resistance	1100 Ω (Ohms) ± 15%
	Pull-in Characteristics	Current — 0.043 Amp
		Voltage — 204.0 VAC
	Drop-out Characteristics	Current — 0.043 Amp
		Voltage — 144.0 VAC
Contact Rating	25 Amps @ 240 VAC	
	20 Amps @ 277 VAC	
	1 HP @ 120/240 VAC	

3.2 Multiple Dispenser Wiring

A primary requirement in dispenser installation wiring is to provide a means for disconnecting all power connections, including the neutral, to the dispensers for safe shutdown and servicing of the units. Each dispenser can be provided with a separate control Power Circuit Breaker.

If this is not desirable or practical, several dispensers can be grouped together and tied to the same Control Power Circuit Breaker as illustrated in Typical Site Wiring Diagram 7151-C in Appendix B. A group of dispensers would then consist of all the dispensers and associated Submersible Pump Control Relay coils supplied by the same Control Power Circuit Breaker.

When more than one dispenser within the group activates the same submersible pump, the Relay Select lines may be tied together at the Submersible Pump Control Relay Coil terminal up to a maximum of 12 connections (24 fueling points). Where more than 12 connections activate the same submersible pump, additional relays should be used and the contacts paralleled as illustrated in 7151-C, found in Appendix B. In larger installations, dispensers can be separated into multiple groups.

⚠ **WARNING**

Electric Shock Hazard! No connections (including neutral) may be shared between groups of dispensers. A separate Control Power Circuit Breaker must be provided for each group. Failure to do so may result in serious injury.

3.3 Hose Installation

Hose assemblies should be UL Listed and installed in accordance with the manufacturer's instructions. To ensure a proper joint, wash all cutting oil off the threads and use a UL-classified gasoline-resistant pipe joint sealing compound. Place the compound on male threads only; be careful not to get any excess compound inside fittings. Install one end of the hose to the dispenser outlet; secure according to the instructions of the sealing compound and hose manufacturers. Install the swivel end of the hose or other swivels to the nozzle according to the manufacturer's instructions.

NFPA code requires a Listed emergency breakaway device, designed to retain liquid on both sides of the breakaway point, must be installed on each hose dispensing Class I liquids; these devices must be installed and maintained per the manufacturer's instructions. Refer to your state and local codes for breakaway device requirements that apply to your installation.

⚠ **WARNING**

Use only Listed hoses and nozzles. Continuity must be present between the dispenser outlet and nozzle spout to prevent static discharge while fueling. Continuity must be checked for each outlet/hose assembly to insure that the nozzle is grounded. Failure to do so may result in a hazardous condition that could cause serious injury.

3.4 Bleeding Product Lines (Remote Dispenser)

Make sure the power to the appropriate submersible pump is **OFF**.

NOTE: To avoid severe damage to the dispenser, all air and air pockets must be bled from the product trunk lines before attempting to dispense product.

To bleed air from a trunk line, remove the pipe plug from the safety impact valve on the dispenser farthest from the storage tank.

Attach a flexible hose to the pipe plug opening in the safety impact valve. Energize the appropriate submersible pump and allow the air to bleed out of the trunk line into a test can until product flows into the test can. De-energize the submersible pump and replace the pipe plug. Repeat the procedure for each product and each trunk line.

3.5 Priming Suction Pumps

Suction pumping units must be primed before their initial operation; it is not advisable to run any type of internal gear pump dry during the priming process. Insert a small quantity of light-grade oil (1/2 pint or 1/4 liter) through the priming plug in the pumping unit before starting the pump for the first time(Figure 3-1).

3.6 Above Ground Storage Tanks

When installing Wayne suction pumps in locations with above ground tanks and a pressure regulator valve, a pipe plug with an orifice (Wayne part number 129881) must be added into the pumping unit for optimum performance. Refer to the drawing Figure 3-1 that shows where to add the pipe plug.

Above ground tank installations with a pressure regulator valve may not allow the pumping unit to generate enough vacuum to keep the air chamber from over filling with fuel and allowing it to discharge from the vent. The addition of this orifice plug will prevent this problem.

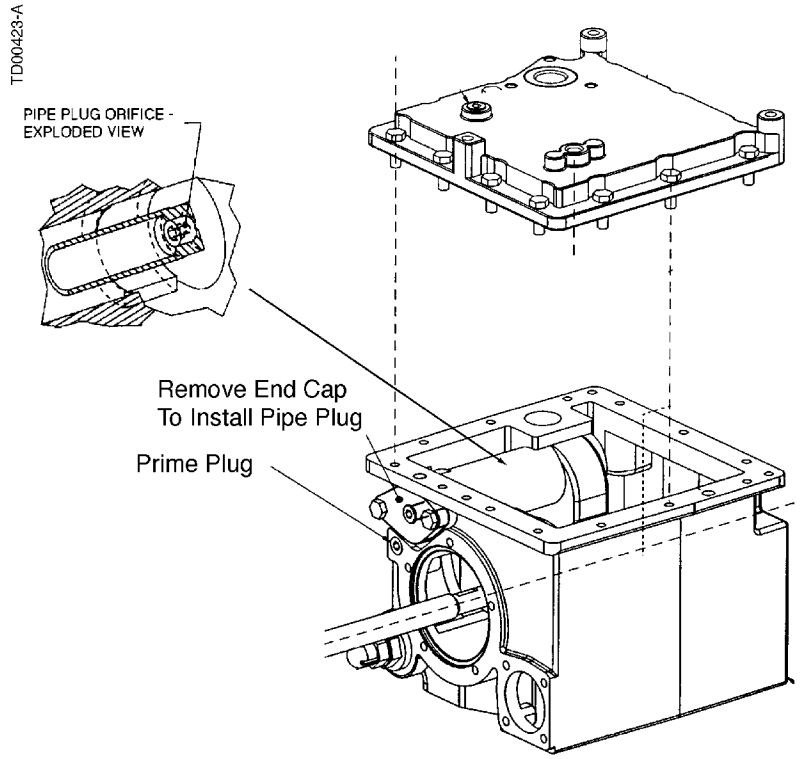


Figure 3-1 Location of Pipe Plugs in Pumping Unit. *The pipe plug is only required for above ground storage tanks.*

4 START-UP PROCEDURE

Power should be **OFF**. Always turn the dispenser control power circuit breaker **OFF** before accessing the inside of the dispenser.

4.1 Hose Position Coding

In order to set up the dispenser properly, the installer has to understand hose position coding. Unit Prices and Totals are given in hose position order; for an example of hose position coding see Figure 4-1. When viewing the dispenser from the junction box side, the "X" hose position is always the hose on the far left. The "X" hose position for the other side is always directly opposite.

- Single and Duo 1 models have only position "X".
- Duo 2 and Quadro models have two positions, "X" and "Y".

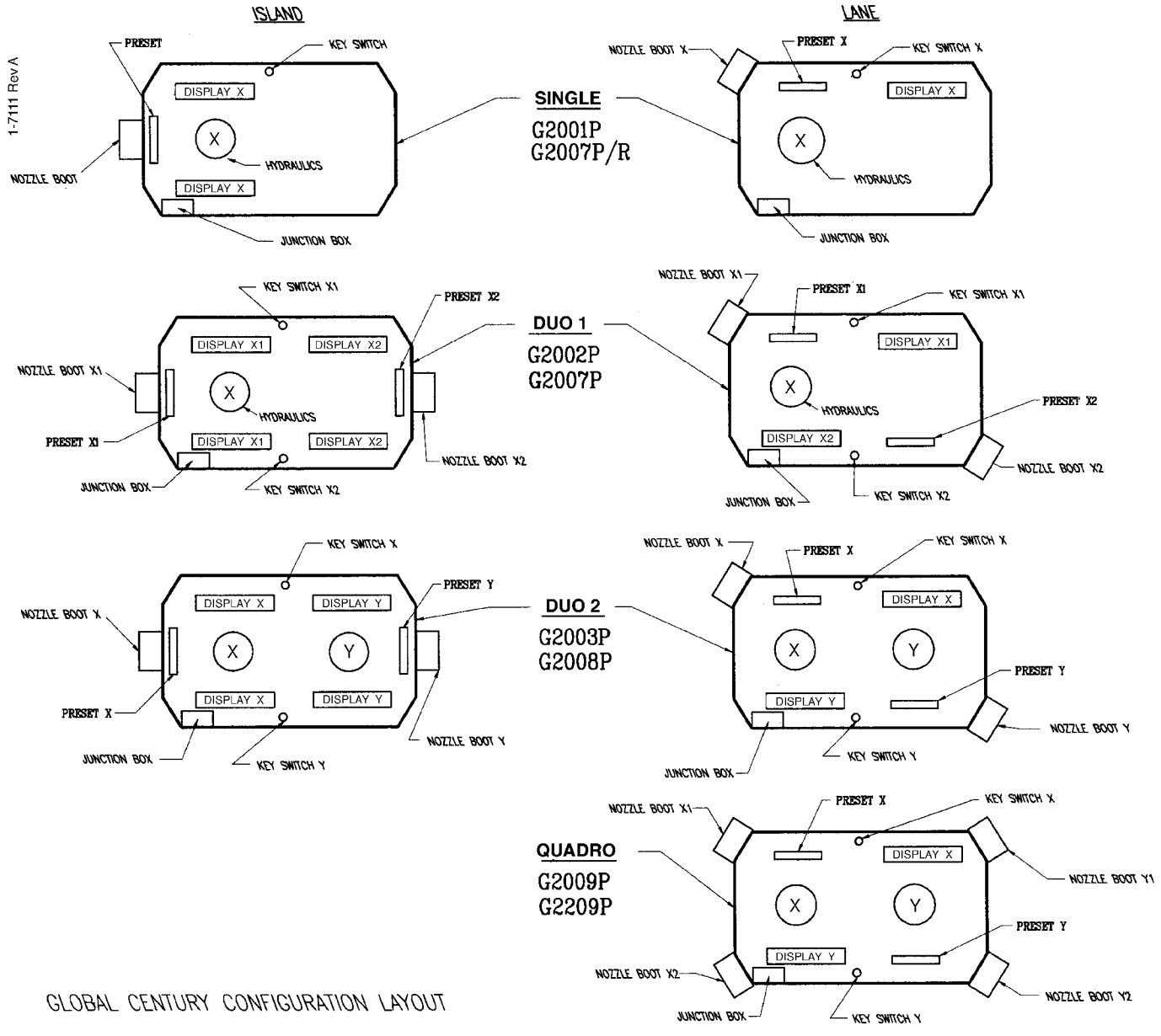


Figure 4-1 Hose Position Coding for Global Century Series. *Hose positions are critical for unit price programming from a system.*

4.2 Nozzle Switch Check

Check the operation of the nozzle switch as follows:

1. Authorize dispenser and remove the nozzle from the nozzle boot. Lift the nozzle hook lever fully upward to make sure the switch turns ON. An ON switch will be indicated by the unit price displays of the unselected products going OFF or displaying dashes.
2. Lower the Lift-to-Start lever to the down position and check that the switch turns OFF. An OFF switch is indicated by the unit price displays of the unselected products coming back ON.

4.3 Option Setting Sequence

This section provides option programming instructions to be used. Determine beforehand which options are to be changed and make sure that the proposed changes are consistent with the available options for the particular dispenser model (see Table 4-1 for Century model option settings).

Computer options fall into four categories as follows:

1. Specified options are those which are dictated by the dispenser model number. Incorrect operation may occur if an option in this category is not set correctly.
2. Non specified options are those that are not specified and may be altered to suit customer preference and local requirements. There are default values for the non specified options; these values are typical and should be checked against local requirements.
3. Hidden options are those that cannot be viewed or altered from their default settings.
4. Service-only options consists of options 2, 4, and 97; these options can only be entered if a security switch is used to enter option programming.

4.3.1 Procedures For Option Programming

There are two procedures which can be used to enter option programming in the Duplex II computer. The first procedure simply enters the option programming sequence and can be used to change any option except *Service-only* options. See Figure 4-2 for location of the dispenser function switches.

The second procedure sets a security switch to enable service personnel to change all options including the *Service-only* options.

4.3.2 Entering Option Programming

In order to enter option programming without setting the security switch perform the following steps:

Step 1 Cycle (turn and release) the key type Position Select switch.

Step 2 Set fueling point to "00". A fueling point number of 00 renders both sides of the dispenser inoperative and sets the Money display (on both sides) to all dashes. To set the fueling point number, press and hold the Totals push-button. The least significant (lowest) digit of the unit price display will cycle from 0 to 9. If the Totals push-button is released and pressed and held again, then tens digit will cycle from 0 to 9. Release the Totals push-button when 00 is displayed, then push and release the Price Jog push-button.

NOTE: If the Price Jog button is not pushed within 2 seconds of releasing the Totals push-button, the dispenser will not enter the Option Programming Mode.

Step 3 When the Price Jog push-button is pushed and released, the display in the unit price window will show "OP01" to indicate that you have entered the option programming mode and selected option 01.

Once the unit price display is showing OPO1 option programming has been entered and you may begin changing or viewing the options as necessary.

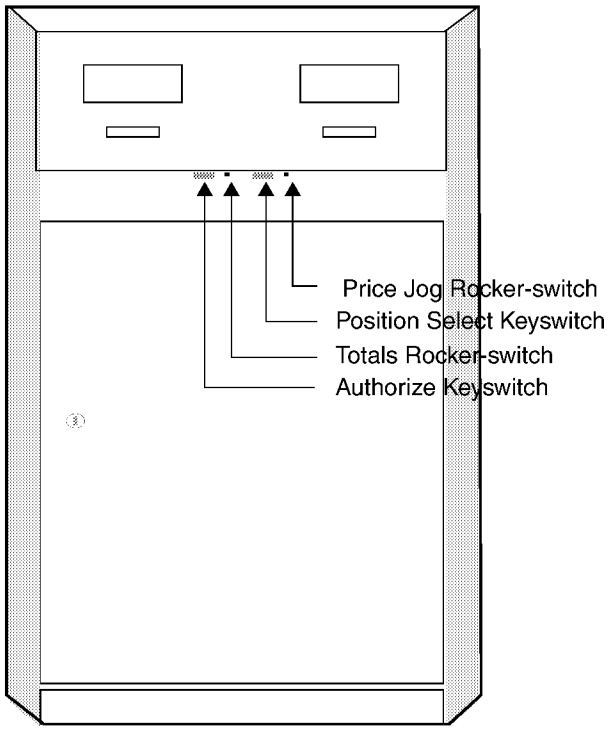


Figure 4-2 Location of the Dispenser Function Switches.

4.3.3 Changing Option Programming

Once the option programming sequence is entered, select the option to be viewed and change the programmed data by using the following procedures (option settings for the Century model dispensers are listed in Table 4-1).

Step 1 Push and release the Price Jog push-button to increment the unit price display to the desired programming option. As the Price Jog push-button is pushed the unit price display(s)) will first show OP01, then OP02, OP03, OP99.

NOTE: If the data setting for any option is changed from the default setting, the display will blink on and off as long as the altered option is viewed (the display will continue to blink when option 02, the macro setting, is viewed. The altered option and option 02 will stop blinking if the data is changed back to the default setting.

Step 2 Once the desired option is displayed, push Totals push-button in order to change the data programmed into that option.

Step 3 After completing option entries, turn and hold Price Jog push-button until Option 98 is displayed.

Step 4 Release and push the Price Jog push-button again and Option 99 will be displayed. Press the Totals push-button to select appropriate data.

NOTE: Option 99 is the last option in the option programming procedure. The default data setting for Option 99 is 01; however, to exit this function, you may set the data to either 02 (exit options and do not save new settings), or "03" (exit options and save new settings). If you do not change the Option 99 data setting to 02 or 03, then cycle will start again at Option 01 when you turn the Price Jog switch.

Step 5 You can now exit the option programming sequence (assuming that you set the data to 02 or 03 in Option 99) by turning the Price Jog push-button once more. Check that the original fueling point is displayed in the unit price display(s) and turn the Price Jog push-button to return to the normal display.

NOTE: If you allow 30 seconds to pass without making an entry, when you are in option programming mode, the computer will revert to normal mode and any changes which have been made will be lost.

Table 4-1 Option Settings For Century Model Dispensers

Programming Options		Rev 6 International Enhanced S/W 884112-001 rev B		Rev 8 U.S. Domestic Enhanced S/W 883633-002 rev A	Rev 9 ISM Enhanced S/W 886166-001 rev B
		Duplex Comm	SC-82 Comm	Duplex Comm	Duplex Comm
02	Marco Settings	11	12	00	00
03	Pump Configuration	7	9	7	7
04	Gallons/Liters	2	2	1	2
05	Nozzle Configuration	1	1	1	1
06	Fueling Points	2	2	2	2
07	Unit Prices	1	1	1	1
08	Cash/Credit Selection	2	2	2	2
09	Cash/Credit Selection Restriction	1	1	1	1
10	Totals Format	1	1	1	1
11	Valve Delay	3.0	3.0	3.0	3.0
12	Timeout if No Pulses	300	300	300	300
13	Nozzle Delay	1	1	1	1
14	Money Decimal	2	2	2	2
15	Volume Decimal	2	2	2	2
16	Unit Price Decimal	3	3	3	3
17	Money Totals Location	1	1	1	1
18	Cash Factor	1	1	1	1
19	Cash Digits	2	2	1	2
20	Far Right Money Digit 1's/5's	1	1	1	1
21	Sales Display Format on Authorize	1	1	1	1
22	Prepay/Preset Overrun	2	2	1	2
23	Valve Sequence	2	2	2	2
24	U/P Reversal	1	1	1	1
25	Push To Start	1	1	1	1
26	Totals Code Display	1	1	1	1
27	Digit Display Format	1	1	1	1
28	C/C Switches	1	1	1	1
29	Flash U/P	1	1	3	1
30	Blank U/P	1	1	1	1

Table 4-1 Option Settings For Century Model Dispensers (Continued)

Programming Options		Rev 6 International Enhanced S/W 884112-001 rev B		Rev 8 U.S. Domestic Enhanced S/W 883633-002 rev A	Rev 9 ISM Enhanced S/W 886166-001 rev B
		Duplex Comm	SC-82 Comm	Duplex Comm	Duplex Comm
31	Beep Until Authorize	1	1	1	1
32	Grade Unit Price LED Indication	1	1	1	1
33	Volume Ration Limit	00	00	00	00
34	Call on Push to Start	1	1	1	1
35	Cash/Credit Confirmation	1	1	1	1
36	Sub Pump Relay Control	1	1	1	1
37	Inhibit Vista Actuator Assy LEDs	1	1	1	1
38	One EMT per Product or Meter	1	1	1	1
40	Money Volume Default	1	1	1	1
41	Money Volume Sale	1	1	1	1
42	Fill or Dashes on Fill	1	1	1	1
43	Preset Required	1	1	1	1
44	First Money Digit Entry	4	4	4	4
45	First Volume Digit Entry	3	3	3	3
46	Volume Precut Off	.57	.57	.15	.57

4.4 Authorizing The Dispenser

The dispenser must be authorized before it will dispense product. In stand-alone operation, not connected to a control system, the Authorize toggle keyswitch is used to authorize the dispenser.

The Authorize switch may be left in the **ON** (full-service) position, in which case the dispenser will automatically authorize every time a sale is completed. The Authorize switch may also be used to authorize the dispenser one time (only) by turning the switch to the **ON** (full service) position and back to the **OFF** (self service) position (the nozzles must be in their boots for this to work). The dispenser will operate one time following this sequence. To avoid this one-time authorize condition when changing the Authorize switch from **ON** (full service mode) to **OFF** (self service mode), remove a nozzle from the nozzle boot and run it through a full reset, then return the nozzle to the nozzle boot.

Programming in the control system will determine the use of the Authorize switch in console control; refer to the appropriate systems manual.

4.5 Price Setting

Unit prices must be set manually at the dispenser for stand-alone operation. The following procedure should not be used if the dispenser is connected to a Management Control System, because prices set with a Management Control System will override the manually set prices. Refer to the operating procedures provided with the Management Control System for a complete description of unit price setting when using these systems.

NOTE: The nozzle(s) must be in the nozzle boot(s) to set prices.

The closure of the Position Select key switch (turn and release) will enable the Price Jog push-button to set unit price (the first closure will set the first unit price). Refer to Table 4-2 and Table 4-3 for price selection.

1. The first closure of the Price Jog push-button (press and hold) causes the least significant digit (commonly tenths of cents position) of the unit price to cycle.
2. The digit will cycle 0 through 9 until the switch is released. Each successive closure of the Price Jog push-button will select and then increment the next most significant (higher) digit.

Table 4-2 Unit Price Selection - Single

Price Jog Switch Closure	Unit Price Digit Selected
First Closure	Least Significant Digit (Commonly Tenths Of Cents)
Second Closure	Next Most Significant (Higher) Digit (Commonly Cents)
Third Closure	Next Most Significant (Higher) Digit (Commonly Tens Of Cents)
Fourth Closure	Next Most Significant (Higher) Digit (Commonly Dollars)

Table 4-3 Unit Price Selection - Duo 2

Position Select Switch Closure	Single Price Dispenser Position
First Closure	Unit Price Position "X"
Second Closure	Unit Price Position "Y"
Third Closure	Original Sale Display Returns
Fourth Closure	
Fifth Closure	

4.6 Totals Sequence

Each fueling point of the dispenser maintains electronic totalizers for the money and volume.

Totals automatically advance approximately every ten seconds after initial closure of the Totals push-button. Subsequent closure of the Totals push-button also advances totals. The dispenser computer retains totalizer data; the dispenser may be turned OFF at night or for servicing without affecting totalizer readings.

Refer to Tables 4-4 and 4-5 for totalizer readings. Note that the table shows factory default readings for dispensers operating in stand-alone mode.

Activate the Totals push-button and record the electronic money and volume totals. Read and record the Mechanical Totalizer. All initial totalizer readings must be given to the station manager to maintain accurate accounting.

Table 4-4 Totalizer Readings (Indication Displayed) - Single

Totals Switch Closure	Totals Displayed	Indication Displayed
First Closure	Money Totals Position "X"	C1
Second Closure	Volume Totals Position "X"	PR1
Third Closure	Total Money All Products	CC

Table 4-5 Totalizer Readings (Indication Displayed) - Duo 2

Totals Switch Closure	Totals Displayed	Indication Displayed
First Closure	Money Totals Position "X"	C1
Second Closure	Volume Totals Position "X"	PR1
Third Closure	Money Totals Position "Y"	C2
Fourth Closure	Volume Totals Position "Y"	PR2
Fifth Closure	Total Money All Products	CC

4.7 Fuelling Point I.D. (Pump Number)

The following instructions apply only to installations with a Management Control System connected to each fueling point. Each "side" of the dispenser represents a fueling point with one (Duplex II) computer servicing both sides; a single-sided dispenser will have only one fueling point. Each fueling point must be identified by a number for communication with a Management Control System.

The Position Select key switch is used to enter the fueling point setting mode. The Totals push-button sets the fueling point number. To set the fueling point number:

Step 1 Turn and release the Position Select key switch.

Step 2 To read the fueling point number, press and release the Totals push-button.

Step 3 To set the fueling point number, press and hold the Totals push-button. The least significant (further right) digit of the Unit Price display will cycle 0 through 9. If the Totals push-button is released and pressed and held again, the tens digit will cycle from 0 through 9. Release the Totals push-button when the Correct fueling point number is displayed.

NOTE: Each fueling point may be set to a unique number from 1 to 24.

Step 4 Turn the Position Select key switch until the original sale display returns. Repeat the process for each side.

4.8 Restarting After Power Failure

After loss of power, the display accurately displays the amount of the sale, in money and volume, for approximately 15 minutes. When power is restored, all sales information return to the displays. Any sales in progress will be ended.

If the dispenser does not operate properly when power is restored (does not deliver product, or does not reset), record both the money and volume shown on the display and do the following:

Step 1 Make sure all nozzles on the side are in their nozzle boots.

Step 2 Remove the nozzle from the nozzle boot. The dispenser should operate normally. If the dispenser does not resume normal operation, try cycling power as described in the next section.

4.9 Cycling Power To Clear Faults

If a fault in the dispenser is detected by the computer, an error message will be displayed in the sale display. **Be sure to make a note of the displayed error message.** It may be possible to restart the dispenser by the following sequence:

Step 1 Make sure all nozzles are properly seated in the nozzle boot.

Step 2 Turn the control power circuit breaker **OFF** for approximately five seconds. Turn the control power circuit breaker **ON**.

Step 3 Remove the nozzle from the nozzle boot. The dispenser should operate normally.

If it is not possible to restart the dispenser using this procedure, or if an error continues to be displayed, consult appropriate service personnel. Be certain to give the service personnel the amount at which the dispenser stopped and the exact error message, if any.

4.10 Fault Detection And Reporting

4.10.1 Introduction

The purposes of the fault detection and reporting circuits in the Duplex II computer are as follows:

- Monitor the operation of the dispenser.
- Identify a fault when it occurs.
- Categorize the severity of the fault.
- Take appropriate action depending upon the severity of the fault.

4.10.2 Clearing Faults

Once the cause of a fault is corrected the fault can be cleared from the display of the dispenser by cycling power to the computer or by entering option 99. If the problem is corrected but power is not cycled or option 99 is not entered the fault code will continue to be displayed.

4.10 Fault Detection And Reporting, continued

4.10.3 Fault Status Descriptions

When a fault is detected, the Duplex II Computer records the Fault Status number (1,2 or 3). The Fault Status number indicates the action resulting from the fault as follows:

1. Error Code, error codes shut down the affected side of the dispenser until power is cycled or option 99 is entered.
2. Hydraulic Code, hydraulic codes shut down the affected hydraulic system on the specific side of the dispenser until power is cycled or option 99 is entered.
3. Service Code, service codes do not affect the operation of the dispenser but are displayed in option 01.

The Fault Status column in Table 4-6 identifies the default status which is assigned to each Code. When more than one number is shown in the Fault Status column, it indicates that the status of that Fault Code is alterable. An asterisk next to a number indicates the default value for the Fault Code.

For example, fault code 08 (Time Out Limit) has three numbers, 1/2/3, in the fault code column. Therefore, you are given the option of assigning a status 1 (Error Code), 2 (Hydraulic Code), or 3 (Service Code) to Fault Code 08.

Table 4-6 Fault Code Status and Descriptions

Code	Fault Code	Description
03	1/2/3*	Unit has overrun prepay/preset amount.
04	1*	ROM checksum error.
05	1/2/3*	Pulser error. (Set if jitter count exceeds limit).
06	1/3*	Illegal current sensed in valve or relay output circuit.
08	1/2/3*	Time out limit has been exceeded.
09	1*	Five (5) consecutive no pulse time outs.
10	1/2/3*	Reverse pulse limit has been exceeded.
11	1*	Corrupted option data. the pump will not restart until option 99 is set to 03. Cycling power will not reset this error.
12	3*	Corrupted totals data; the totals were reset to zero.
13	3*	Corrupted unit price data; the unit prices were reset to zero.
14	1/2/3*	Forward pulses from illegal pulser exceeds limit. **
15	1/2/3*	Jitter pulses from illegal pulser exceeds limit. **
16	1/2/3*	Reverse pulses from illegal pulser exceeds limit. **

Note: An asterisk (*) in the Fault Code column indicates the default values.

4.10 Fault Detection And Reporting, continued

4.10.4 Fault Reporting

When the computer detects a fault, the sale currently in progress may be shut down. Depending on the fault code status, the sale may not be shut down and, on the next reset, a fault code will be displayed. The fault code is displayed only for the affected side of the dispenser. In addition to the displayed fault code, a transaction counter number is also displayed. The transaction counter number can be used as a troubleshooting aid to determine on which sale an error occurred and if that particular error is related to the reported problem. This fault code, along with the new transaction counter number, will have a format similar to that in Figure 4-3.

The transaction counter has a range of 00000 - 59999 and then rolls over to 00001. Each side of the dispenser has a transaction counter. When Option 01 is entered the current transaction number for side 1 is shown in the Sale Money Display. The value of side 2 transaction counter (if two fueling points) is shown in the Sale Volume Display. See Figure 4-4 for an example. Pushing the Totals button while the transaction values are displayed causes entry into the Fault Code History Display Mode. See Figure 4-5 for an example. As shown the transaction number is displayed for each side along with the fault code for that transaction number. The first fault code displayed is the most recent.

Pushing the Totals button cycles through the fault codes. This mode will display the last 16 fault codes detected by the dispenser's computer since the last RAM clear (not 16 per side but 16 total for that computer).

In order to reset the dispenser after a fault, the initial problem must be corrected and power to the computer cycled or Option 99 is entered. Until these conditions are satisfied the fault code will continue to be displayed at the end of the reset cycle.

4.10.5 Totalizer Sequence Code Display

The last fault code detected is displayed on the applicable side of the dispenser when the totalizer read sequence is initiated unless:

Option 26 = 02 (Disable), or, since the last fault code was detected, Option 99 has been entered or power has been cycled.

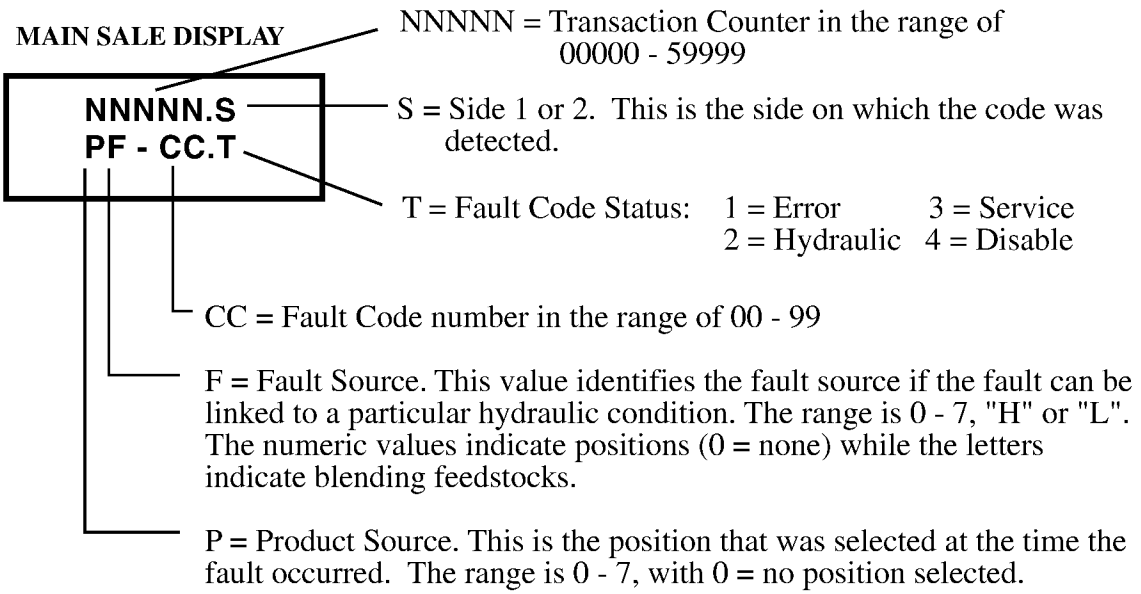


Figure 4-3 Fault Code Display. *The fault code will have a format similar to that shown.*

4.11 Dispensers With Preset Option

Dispensers may be equipped with an optional preset keypad. The preset keypad allows the customer or attendant to enter the amount of product that they wish to dispense. For complete operation instructions of the preset option, see Appendix A.

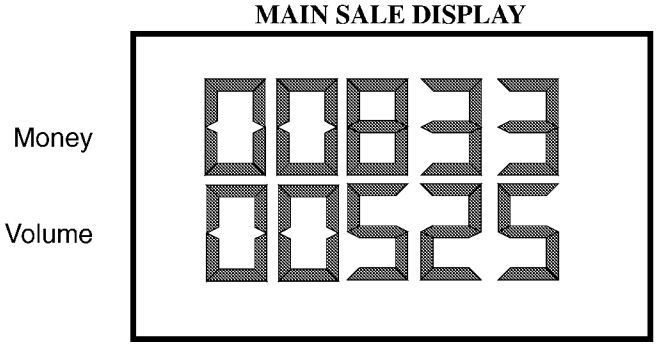


Figure 4-4 Main Sale Display Showing Transaction Counters. *The transaction number for Side 1 of the dispenser is shown in the Money Display and the transaction number for Side 2 is shown in the Volume Display.*

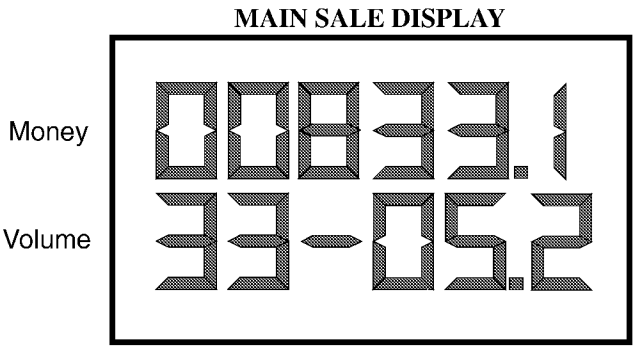


Figure 4-5 Main Sale Display Showing Transaction Counter and Fault Code. *In this example, Fault Code 05 occurred on transaction number 00833 on Side 1 of the dispenser (the junction box side).*

4.12 Meter Check

While the dispensers leave the factory properly adjusted, rough handling in transit or special installation conditions can change this. Therefore, before placing the dispenser in operation, these items must be checked and adjusted.

Deliver a measured amount of product into a test can. If meter adjustment is required, break or cut the seal wire on the top of the meter. The adjustment knob is located on the top of the meter; see Figure 4-6. If the test can reads low, lift the adjustment knob and turn it clockwise; if the test can reads high, lift the adjustment knob and turn it counter-clockwise, in each case viewing the knob from the top of the meter. The lower portion of the knob is hexagonal and, in a normal position, that portion of the knob is inserted in the output shaft assembly. There are 18 vertical notches within the shaft, therefore, as the adjustment is made, the knob can be felt to click over the leading edge of the notches. Each notch is equivalent to a correction of approximately one cubic inch in five gallons (1 cu cm per 11.55 liters). After the meter has been adjusted and brought within tolerance, replace the seal wire and seal by pinching the lead lock on the wire.

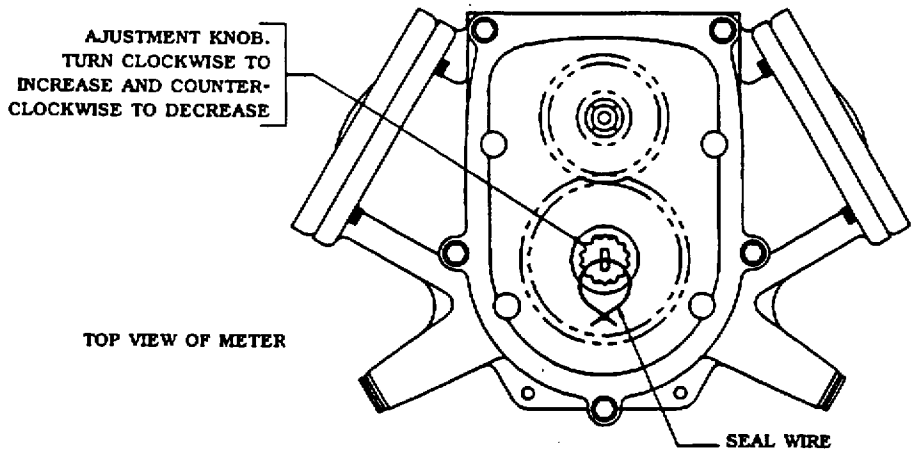


Figure 4-6 Meter Adjustment.

4.13 V-Link Belt Adjustment

Adjustments to the V-Link belt on suction pump models should be performed in accordance with the V-Link belt installation Manual, Part Number 920057.

4.14 Adjusting Compact Pumping Unit

The pumping unit in suction dispensers should be checked and, if required, adjusted; see Figure 4-7. If there is not enough delivery pressure, the pump will deliver product slowly. If the pump puts out too much pressure, delivery of product will not increase, but increased noise and wear will result, and an unnecessary load will be put upon the motor. The motor is thermally protected and automatically shuts off when overloaded.

Step 1 Before deciding a pump adjustment is necessary, check and clean the strainer. To clean the pumping unit strainer, remove the strainer cover and clean the strainer with compressed air. Strainers often require cleaning frequently at station start-up, as materials such as pipe sealant and dirt are flushed from the lines; after start-up, only occasional cleaning should be necessary.

Step 2 Install a pressure gauge in the priming port after removing the priming plug, and check to see if the relief valve pressure is in the 18 to 20 psi range (123.4 to 137.1 kPa, or 1.26 to 1.41 kg/cm2) for standard capacity and in the 32 to 36 psi range (164.6 to 178.2 kPa, or 1.68 to 1.82 kg/cm2) for high capacity units. The maximum field adjustment possible does not exceed 50 psi.

Step 3 To adjust the relief valve pressure, remove the adjustment cap and turn the screw inward (clockwise) to increase pressure, or back off the screw (counter-clockwise) to decrease pressure.

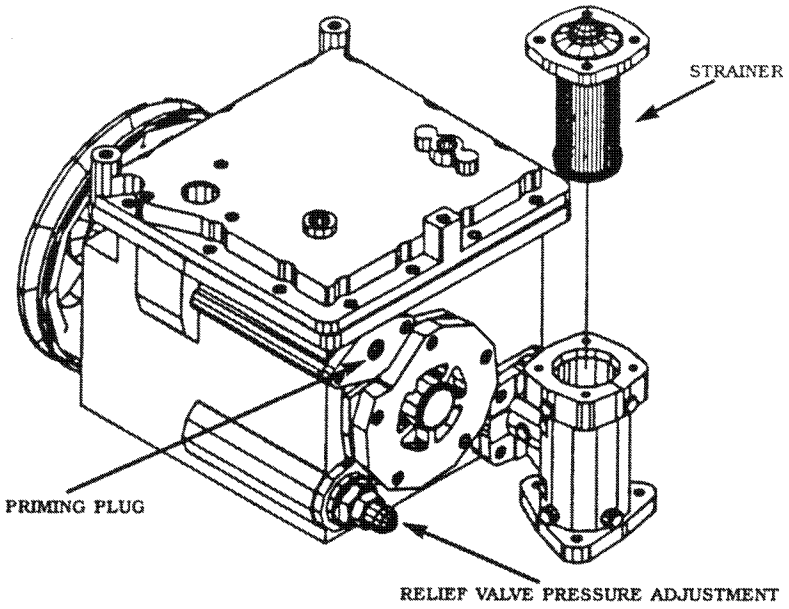


Figure 4-7 Compact Pumping Unit.

4.15 Fluorescent Lights

If the dispenser is lighted, turn on the light circuit breaker and ensure that all of the fluorescent lights operate correctly. Replace any fluorescent light bulbs that fail to illuminate.

4.16 Totalizer Readings

There is a seven digit mechanical volume totalizer located inside the nozzle boot. Read and record the mechanical totalizers; see Figure 4-8 for an example. The initial readings must be given to the station manager in order to maintain accurate station totals.

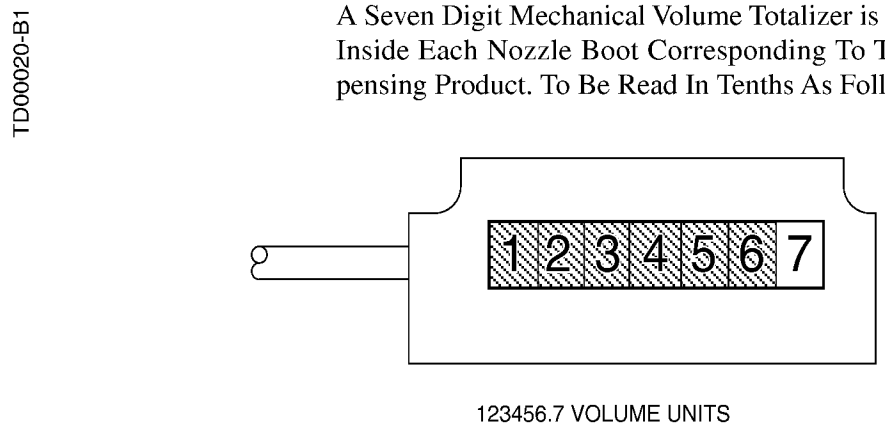


Figure 4-8 Mechanical Totalizer.

5 OPERATION

5.1 Introduction

The dispensers have one or two inlets and one or two outlets (depending on model). Each side of the dispenser represents a fueling point.

The dispenser is equipped with one unit price per nozzle. Unit price must be set to operate. If the dispenser is connected to a Management Control System, each dispenser must have a unique fueling point number set for communication with a Management Control System.

Select the desired product. The dispenser is turned on by removing the nozzle from the nozzle boot and lifting the operating lever (the lever is not lifted with the Auto-On models). The sales display will show 8s, blank and then reset to zero.

The pump motor starts at the end of the reset cycle and the solenoid valves open approximately 3-5 seconds later.

Completing the sale, lower the operating lever, replace the nozzle in the nozzle boot and the pump motor will be switched OFF.

5.2 Hazardous Zone Areas

It is important to know the Hazardous Zone area around the dispenser as shown in Figure 5-1 and Figure 5-2.

5.3 Portable Tanks and Containers

Portable containers of 12 gallons (45 liters) or less shall not be filled while they are in or on a motor vehicle. Filling portable containers, especially when they are sitting on a non-conductive surface such as a floor mat or a plastic bedliner in the back of a pick-up truck, can present a possible safety hazard and should be avoided as so stated in the following WARNING:

⚠ **WARNING**

FIRE HAZARD! The flow of gasoline through the dispenser nozzle can produce static electricity, which can cause a fire if gasoline is pumped into an ungrounded gasoline container. To avoid static buildup and the possible resulting serious injury:

- Place approved container on the ground. Do not fill the container in the vehicle or truck bed.
- Keep the nozzle in contact with the can or container while filling. Do not use an automatic pump handle (latch-open) device.

5.4 Health Note

Be advised that petroleum fuel and fuel vapors can damage your health.

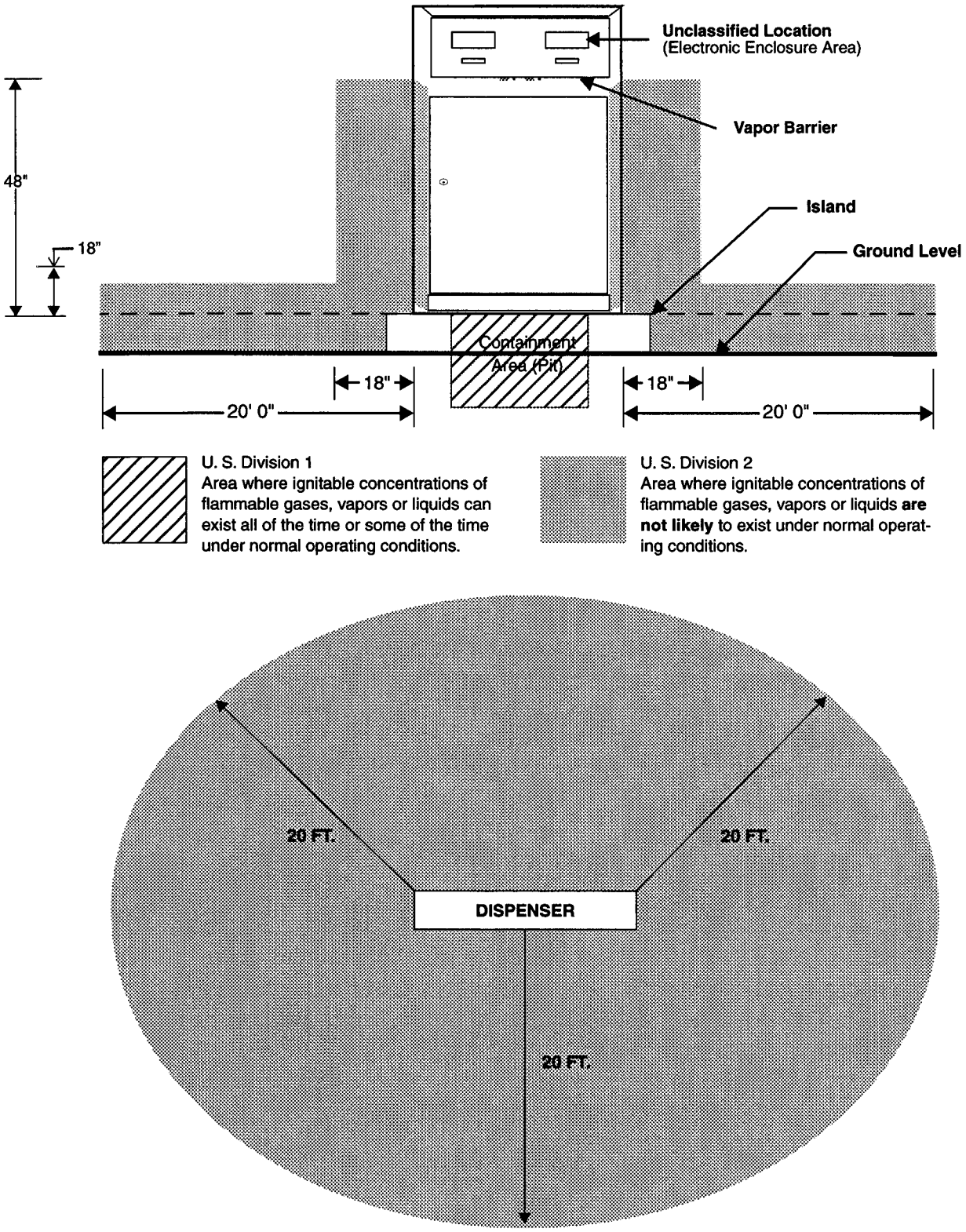


Figure 5-1 U.S. Hazardous Zone Diagram. *Front and Top views showing horizontal and vertical distances.*

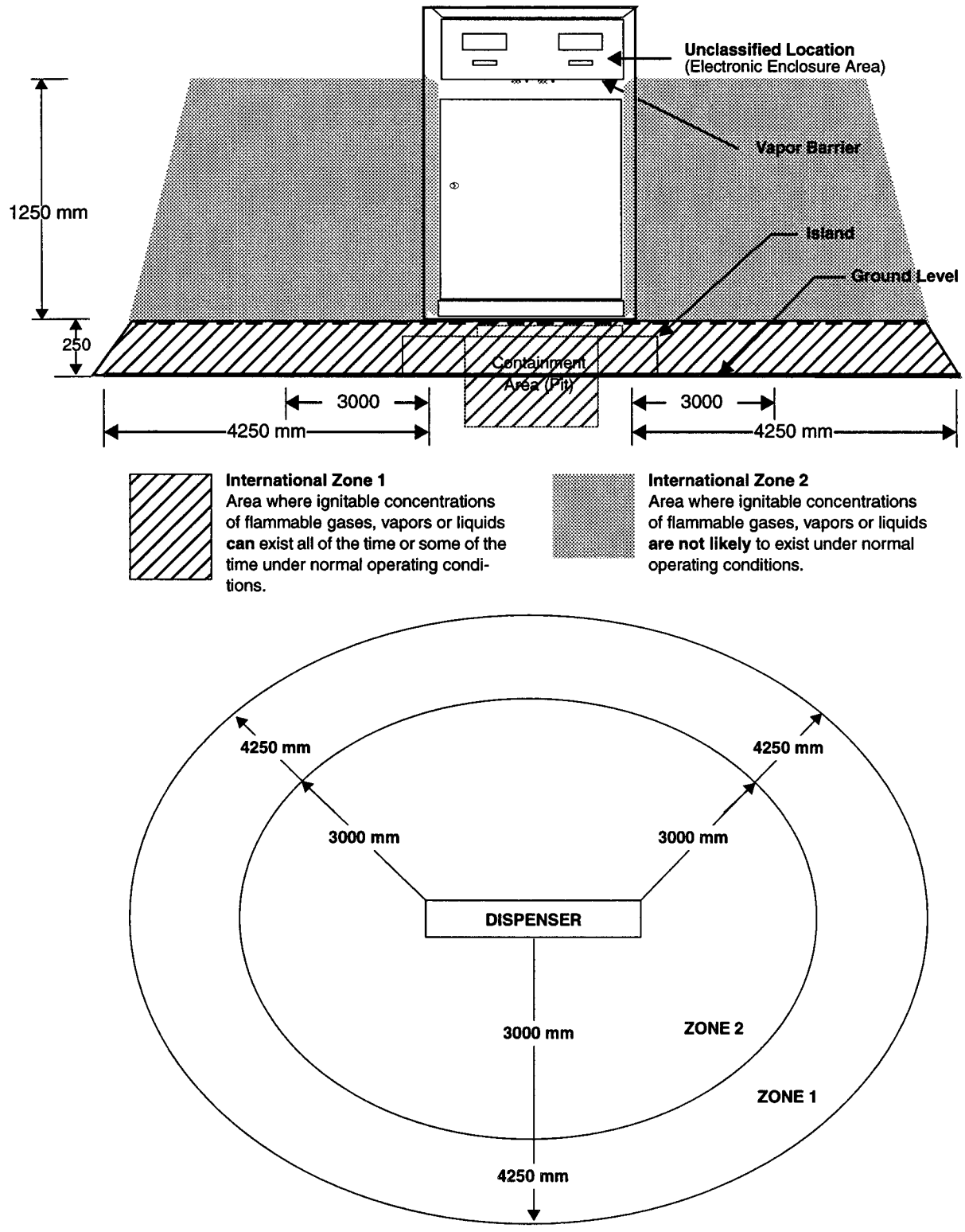
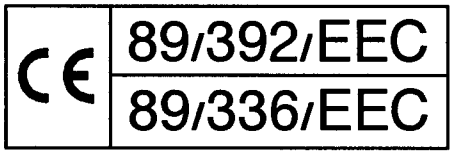


Figure 5-2 INTERNATIONAL Hazardous ZONE Diagram. *Front and Top views showing horizontal and vertical distances which are most common but may vary depending on country or jurisdiction.*

5.5 European Community Conformity Identification



5.6 Setting Unit Prices

Refer to Section 4.5, *Price Setting* for information and procedures on how to perform this task.

5.7 Authorizing The Dispenser

Refer to Section 4.4, *Authorizing The Dispenser* for information and procedures on how to perform this task.

5.8 Totals Readings

Refer to Section 4.6, *Totals Sequence* for information and procedures on how to perform this task.

5.9 Preset Operation

In order to preset a sale perform the flowing steps:

Step 1 Enter preset currency/volume.

Step 2 Remove the nozzle from the nozzle boot and, if Lift-to-Start, lift the operating lever.

Step 3 Once the sale is complete, lower the operating lever (if Lift-to-Start) and replace the nozzle in the nozzle boot.

Step 4 The preset readies itself for a new sale.

NOTE: For additional information on the Preset Operation, refer to Appendix A.

5.10 Clearing Error Codes

Once the cause of an error is corrected the error can be cleared from the display of the dispenser by cycling power to the computer. Depending on the Status of the error, the dispenser may continue operating and will log the error code in the Option 01 Code History Display. Refer to Section 4.10, *Fault Detection And Reporting* for more information.

5.11 How To Get Service On Your Dispenser

Trouble with the operation of the dispenser should be referred to your local Wayne authorized service personnel or call the Wayne Help Desk at **1-800-289-2963**.

5 PREVENTIVE MAINTENANCE

5.1 Water Damage

It is recommended that the following precautions be taken to prevent water from getting inside the dispenser:

If it is necessary to clean the dispenser, wipe it off with a damp cloth. Do not spray the dispenser with water.

Do not use abrasive cleaners on the bezel. Use only mild soap and water with a soft cloth. Do not use gasoline or other petroleum based products to clean the dispenser.

Before removing the top cover, wipe off any water lying over the dispenser so it will not run inside when the top cover is removed.

Care must be taken to prevent rain from getting inside if the bezels must be removed during rainy weather.

5.2 Maintenance Guidelines

A correctly installed dispenser, given proper maintenance attention, will seldom require emergency service.

- Check the dispenser for internal and external leaks regularly. Check nozzles, swivels, hoses, and joints for leaks and wear. Have all defects repaired immediately.
- Test the tank for water regularly. Water in petroleum is not only a source of engine trouble, but will also cause damage to the dispenser.
- Do not abuse the hose by stretching it to reach an automobile. This will cause early failure at the couplings.
- A dirty strainer screen will slow down the delivery of petroleum. If the underground installation is a new one, it may be necessary to clean the strainer screen two or three times the first few days of operation to remove debris and pipe sealant. After this, occasional cleaning is all that should be required.

NOTE: Before removing the fuel filter or strainer assembly turn off the circuit breaker for the pump.

1. The strainer is removed for cleaning by unfastening the cap; see Figure 6-1. Place a container under the cap to catch the petroleum and sediment. Wash the screen in gasoline and dislodge lint and other foreign particles with compressed air. Check for leakage after reinstalling.
2. All keylock cylinders and locking mechanisms should be periodically checked and lubricated.

NOTE: Replacement fuel filters can be obtained from the vendor or from Wayne Division, Dresser Industries, Inc.

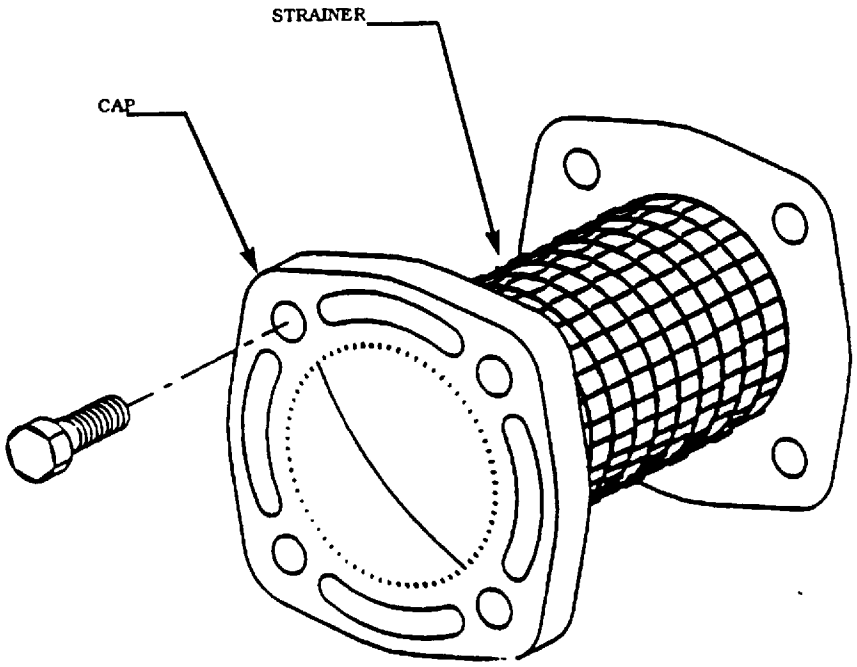


Figure 5-1 Strainer Assembly.

APPENDIX A - OPERATION OF THE PRESET

A.1 Introduction

Dispensers with the preset option will have a preset keypad assembly installed in them (see Figure A-1). This option allows the customer, or attendant, to input the amount of product desired, either in volume or money, prior to the beginning of the sale. The following sections describe typical operational scenarios using the preset option.

The preset assembly cannot authorize a dispenser. In order for the dispenser to operate the dispenser must be authorized either by a control system or by the self-serve/attend switch at the dispenser. Even if a preset selection is made the dispenser will not reset until it receives an authorize signal.

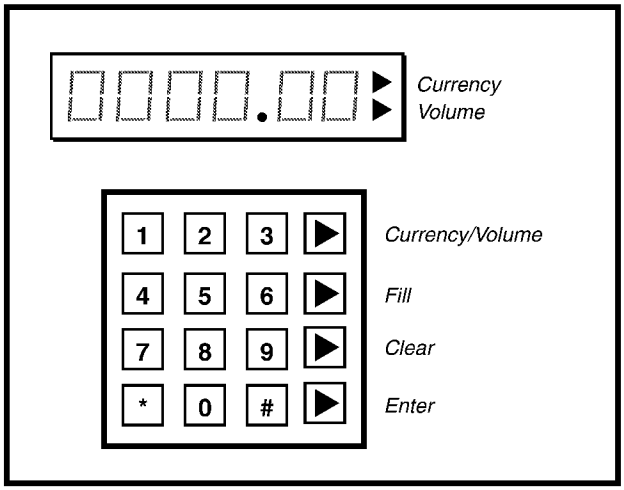


Figure A-1 Preset Keypad Assembly. *The Preset may be installed either to the left or right of the dial face. If the dispenser has CAT's, the Preset will have to be on the right.*

A.2 Preset Currency Sale

In order to preset a currency sale perform the following steps.

1. The preset will default to the currency mode; therefore, when the customer approaches the dispenser the "Currency" arrow will be lit on the preset display.
2. Enter, on the numeric keypad, the monetary value of product desired.
3. Press the "Enter" key (this step is optional).

NOTE: The "Enter" function is to signal the software that keyboard entry has been completed. This function can be done three ways:

4. Pressing the "Enter" key after keying in a value.
5. Lifting the nozzle after keying in a value.
6. Waiting six seconds after the last numerical entry is made.

A.2 Preset Currency Sale, continued

In either case, the function locks the keyboard and allows only the "Clear" key to function. The "Clear" key can be used to clear the preset controller if the customer desires to change the preset value.

The "Enter" function is not necessary if the unit is operating in the "no preset required" mode. In this case, if "flow" is started before either of the aforementioned "enter" methods has been invoked, the system locks the keyboard and looks to see if a preset value has been entered. If no preset entries were made the pump will not automatically shut off. If a value had been entered prior to "flow", the pump will automatically shut off at that value.

1. Remove the nozzle from the nozzle boot and reset the dispenser. If you want to change the preset amount, press "Clear" before fuel flows and enter the new amount.
2. Once the sale is complete replace the nozzle in the nozzle boot, and the preset readies itself for a new sale.

A.3 Preset Volume Sale

In order to preset a volume sale perform the following steps:

Step 1 The preset will default to the currency mode; therefore, when the customer approaches the dispenser the "Currency" arrow will be lit on the preset display. Press the "Currency/ Volume" key to change the preset to the volume mode.

Step 2 Enter the volume amount desired.

Step 3 Press the "Enter" key (this step is optional).

NOTE: See "Note" in section B.2.

Step 4 Remove the nozzle from the nozzle boot and reset the dispenser. If you want to change the preset amount, press "Clear" before fuel flows and enter the new amount.

Step 5 Once the sale is complete replace the nozzle in the nozzle boot, and the preset readies itself for a new sale.

A.4 Fill-Up

In order to fill a tank using the preset perform the following steps:

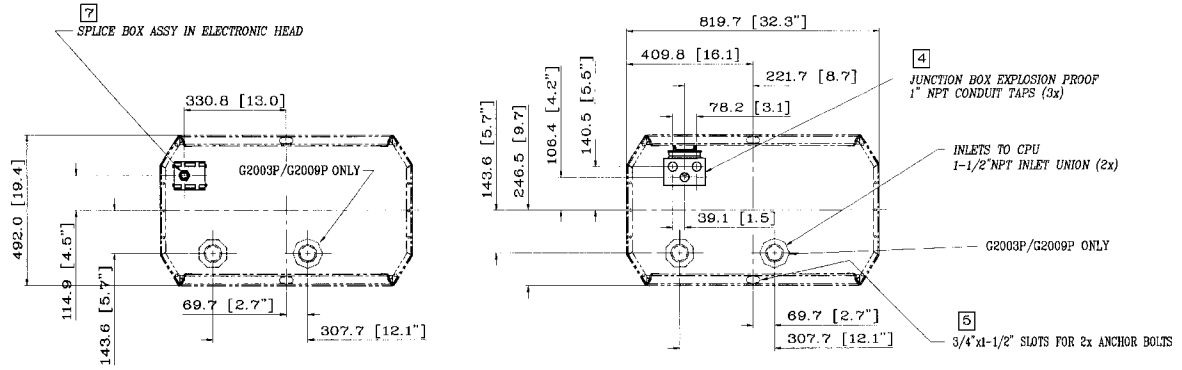
1. The preset will default to the currency mode; therefore, when the customer approaches the dispenser the “Currency” arrow will be lit on the preset display.
2. Press the “Fill” button on the preset.
3. Remove the nozzle from the nozzle boot and reset the dispenser. If you want to enter a preset currency or volume amount, press “Clear” before fuel flows and enter the amount.
4. Once the sale is complete replace the nozzle in the nozzle boot, and the preset readies itself for a new sale.

APPENDIX B ENGINEERING DRAWINGS

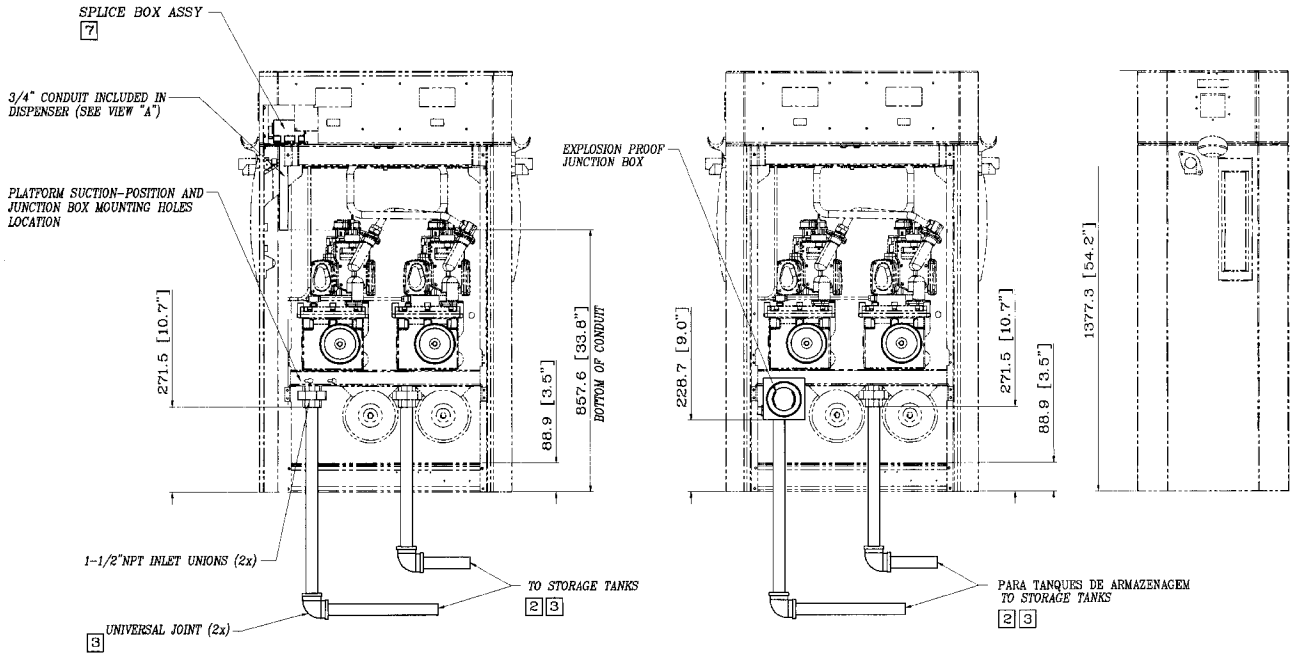
Appendix B contains engineering drawings for reference when installing and configuring dispensers.

The following drawings are included in this Appendix:

- Figure B-1, *63-7133-C Installation Instruction - Global Century Suction Models*
- Figure B-2, *64-7133-C Installation Instruction - Global Century Remote Models*
- Figure B-3, *1-6621-D Wiring Diagram - Standard Capacity*
- Figure B-4, *1-6622-D Wiring Diagram - High Capacity*
- Figure B-5, *1-6623-D Wiring Diagram - Standard Capacity With Solid State Relay*
- Figure B-6, *1-6624-D Wiring Diagram - High Capacity With Solid State Relay*
- Figure B-7, *7151-C Typical Dispenser Site Wiring Diagram*
- Figure B-8, *1-7212-C Installation Wiring Diagram - G2002P and G2003P - High Capacity*



BASE DIMENSIONS G2001P/G2002P/G2003P/G2007P/G2009P



DISPENSER WITHOUT EXPLOSION PROOF JUNCTION BOX

DISPENSER WITH EXPLOSION PROOF JUNCTION BOX

NOTES:

1- ALL PIPING AND ELECTRICAL INSTALLATIONS MUST CONFORM TO ALL APPLICABLE REGULATIONS INCLUDING NFPA30, FLAMMABLE & COMBUSTIBLE LIQUIDS CODE; NFPA30A, AUTOMOTIVE & MARINE SERVICE STATION CODE; NFPA70, NATIONAL ELETRICAL CODE.

2- PIPING FROM TANK TO DISPENSER SHOULD SLOPE UPWARDS, AVOIDING AIR OR LIQUID TRAPS.

3- USE UNIVERSAL JOINTS AT DISPENSERS TO ALLOW FOR GROUND MOVEMENT.

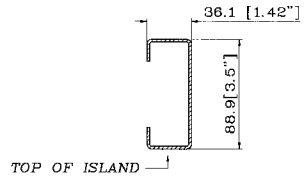
4- CONDUIT TAPS SHOWN ARE PROVIDED. ANY OR ALL MAY BE USE TO MAKE ELECTRICAL CONNECTIONS TO DISPENSER.

5- FIRMLY MOUNT THE DISPENSER TO THE ISLAND USING THE ANCHOR BOLT LOCATIONS PROVIDED.

6- EMERGENCY SHUTOFF VALVES AND BREAKAWAY DEVICES ARE EXAMPLES OF REQUIREMENTS STATED IN THE NFPA30A, AUTOMOTIVE & MARINE SERVICE STATION CODE. THESE, AS WELL AS ANY OTHER SAFETY DEVICES REQUIRED BY NFPA30 & 30A, MUST BE INSTALLED AND, MAINTAINED PER THE MANUFACTURER'S INSTRUCTIONS.

7- DISPENSERS THAT DO NOT HAVE AN EXPLOSION PROOF JUNCTION BOX IN THE HYDRAULIC CABINET AREA. ALL DISPENSER WIRES AND FIELD WIRE CONNECTIONS SHALL BE TERMINATED INSIDE THE SPLICE BOX PROVIDED. THESE WIRES MUST BE LABELED AND IDENTIFIED PER DISPENSER WIRING DIAGRAM AT LEAD ENDS AND 30" FROM THE LEAD ENDS.

8- SEE CHART FOR MOTOR VOLTAGES LIMITS.



SECTION THRU BASE

MODEL G2003P SHOWN

MOTOR VOLTAGE LIMITS

PHASE	NOMINAL VOLTAGE	HERTZ	VOLTAGE RANGE
1 PH	115 / 230 V	50/60	92 - 127 / 184 - 253
3 PH	220 V	50/60	176 - 242
3 PH	380 V	50/60	304 - 418
3 PH	220 / 380 V	50/60	176 - 242 / 304 - 418

LTR/LTR	NUMERO/NO.	DESCRIÇÃO / DESCRIPTION	REVISADO/REV BY	DATA/DATE	VERIFICADO/VIS BY	DATA/DATE
C	6934	REDESENHADO COM ALTERAÇÕES DIVERSAS / REDRAWING WITH CHANGE VARIOUS	JMA	13/08/99		
B	6792	REDESENHADO / REDRAWN	JMA	20/05/99		

REVISIONS

SUCTION MODELS

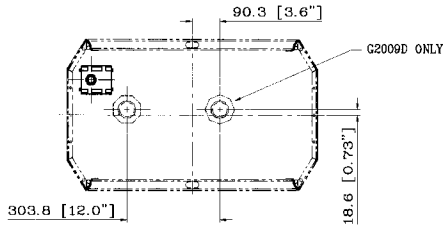
WAYNE DIVISION
Dresser Industries, Inc
Austin Markham Rio Salisbury

INSTALLATION INSTRUCTION
GLOBAL CENTURY
SUCTION MODELS

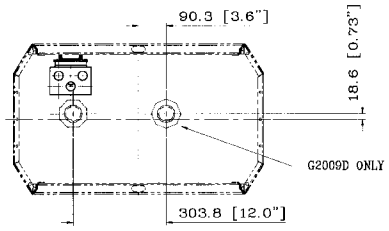
SIZE	DRAWING NO.	REV
A1	63-7133-C	C

SCALE S/E SHT 01 OF 01

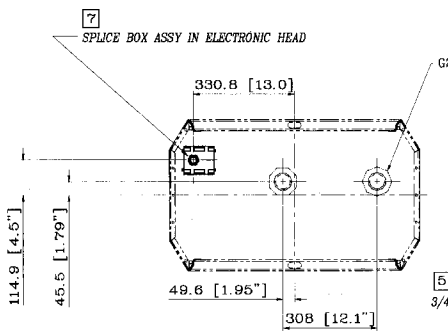
Figure B-1 63-7133-C Installation Instruction - Global Century Suction Models.



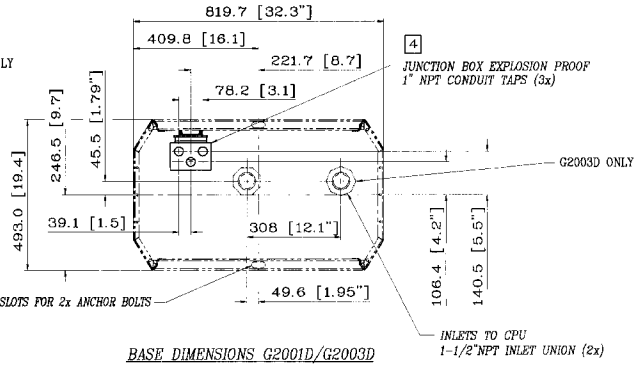
BASE DIMENSIONS ONLY FOR G2002D/G2007D/G2009D



BASE DIMENSIONS ONLY FOR G2002D/G2007D/G2009D



BASE DIMENSIONS G2001D/G2003D



BASE DIMENSIONS G2001D/G2003D

NOTES:

1- ALL PIPING AND ELECTRICAL INSTALLATIONS MUST CONFORM TO ALL APPLICABLE REGULATIONS INCLUDING NFPA30, FLAMMABLE & COMBUSTIBLE LIQUIDS CODE; NFPA30A, AUTOMOTIVE & MARINE SERVICE STATION CODE; NFPA70, NATIONAL ELETRICAL CODE.

2- PIPING FROM TANK TO DISPENSER SHOULD SLOPE UPWARDS, AVOIDING AIR OR LIQUID TRAPS.

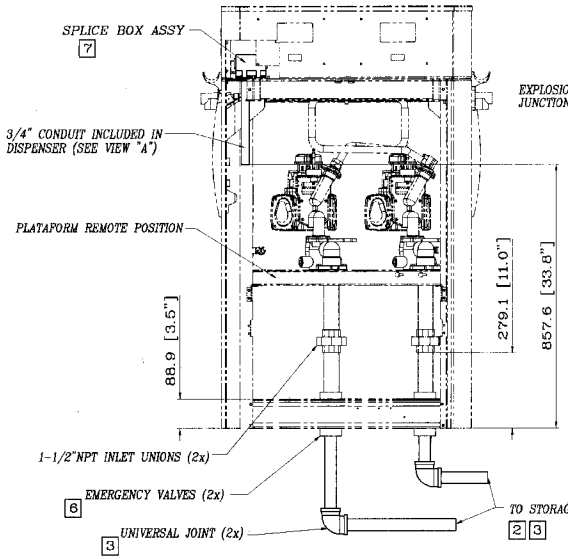
3- USE UNIVERSAL JOINTS AT DISPENSERS TO ALLOW FOR GROUND MOVEMENT.

4- CONDUIT TAPS SHOWN ARE PROVIDED. ANY OR ALL MAY BE USE TO MAKE ELECTRICAL CONNECTIONS TO DISPENSER.

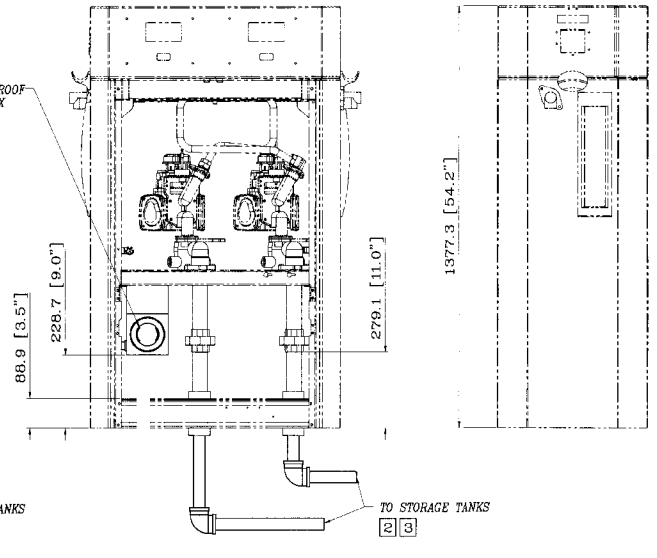
5- FIRMLY MOUNT THE DISPENSER TO THE ISLAND USING THE ANCHOR BOLT LOCATIONS PROVIDED.

6- EMERGENCY SHUTOFF VALVES AND BREAKAWAY DEVICES ARE EXAMPLES OF REQUIREMENTS STATED IN THE NFPA30A, AUTOMOTIVE & MARINE SERVICE STATION CODE. THESE, AS WELL AS ANY OTHER SAFETY DEVICES REQUIRED BY NFPA30 & 30A, MUST BE INSTALLED AND, MAINTAINED PER THE MANUFACTURER'S INSTRUCTIONS.

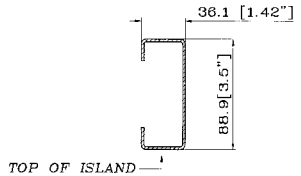
7- DISPENSERS THAT DO NOT HAVE AN EXPLOSION PROOF JUNCTION BOX IN THE HYDRAULIC CABINET AREA. ALL DISPENSER WIRES AND FIELD WIRE CONNECTIONS SHALL BE TERMINATED INSIDE THE SPLICE BOX PROVIDED. THESE WIRES MUST BE LABELED AND IDENTIFIED PER DISPENSER WIRING DIAGRAM AT LEAD ENDS AND 30" FROM THE LEAD ENDS.



DISPENSER WITHOUT EXPLOSION PROOF JUNCTION BOX



DISPENSER WITH EXPLOSION PROOF JUNCTION BOX



SECTION THRU BASE

MODEL G2003D SHOWN

REMOTE MODELS

C	6934	REDESENHADO COM ALTERAÇÕES DIVERSAS / REDRAWN WITH CHANGE VARIOUS	JMA	13/08/99
B	6752	REDESENHADO / REDRAWN	JMA	20/05/99
ALTER./ER	NUMERO/NO.	DESCRIÇÃO / DESCRIPTION	REVISADO/REV BY	DATA/DATE

MODIFICAÇÕES / REVISIONS

WAYNE DIVISION
Dresser Industries, Inc
☐ Austin ☐ Markham ☒ Rio ☒ Salisbury

INSTALLATION INSTRUCTION
GLOBAL CENTURY
REMOTE MODELS

SIZE	DRAWING NO.	REV
A1	64-7133-C	C

SCALE S/E SHT 01 OF 01

Figure B-2 64-7133-C Installation Instruction - Global Century Remote Models.

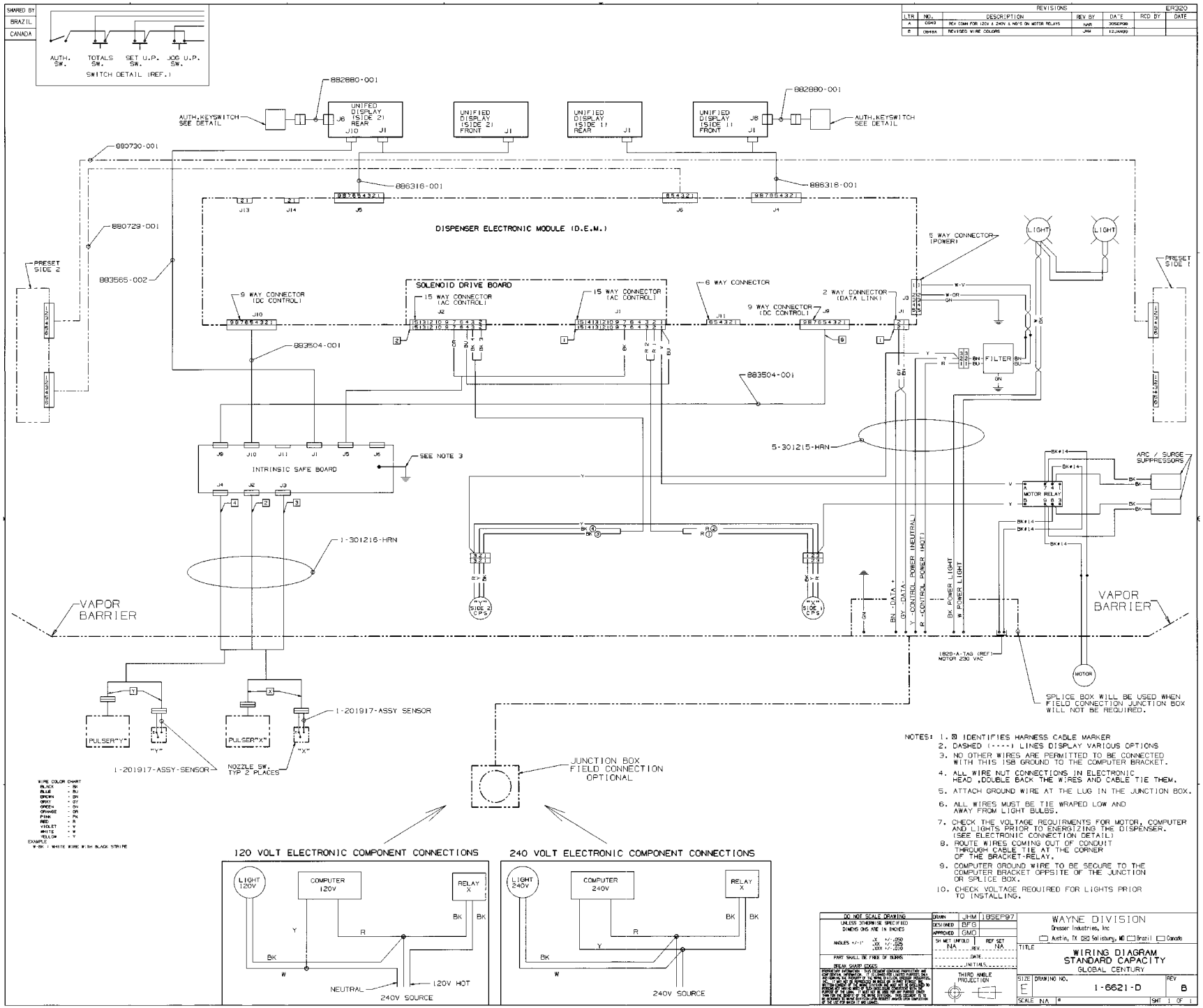


Figure B-3 1-6621-D Wiring Diagram - Standard Capacity.

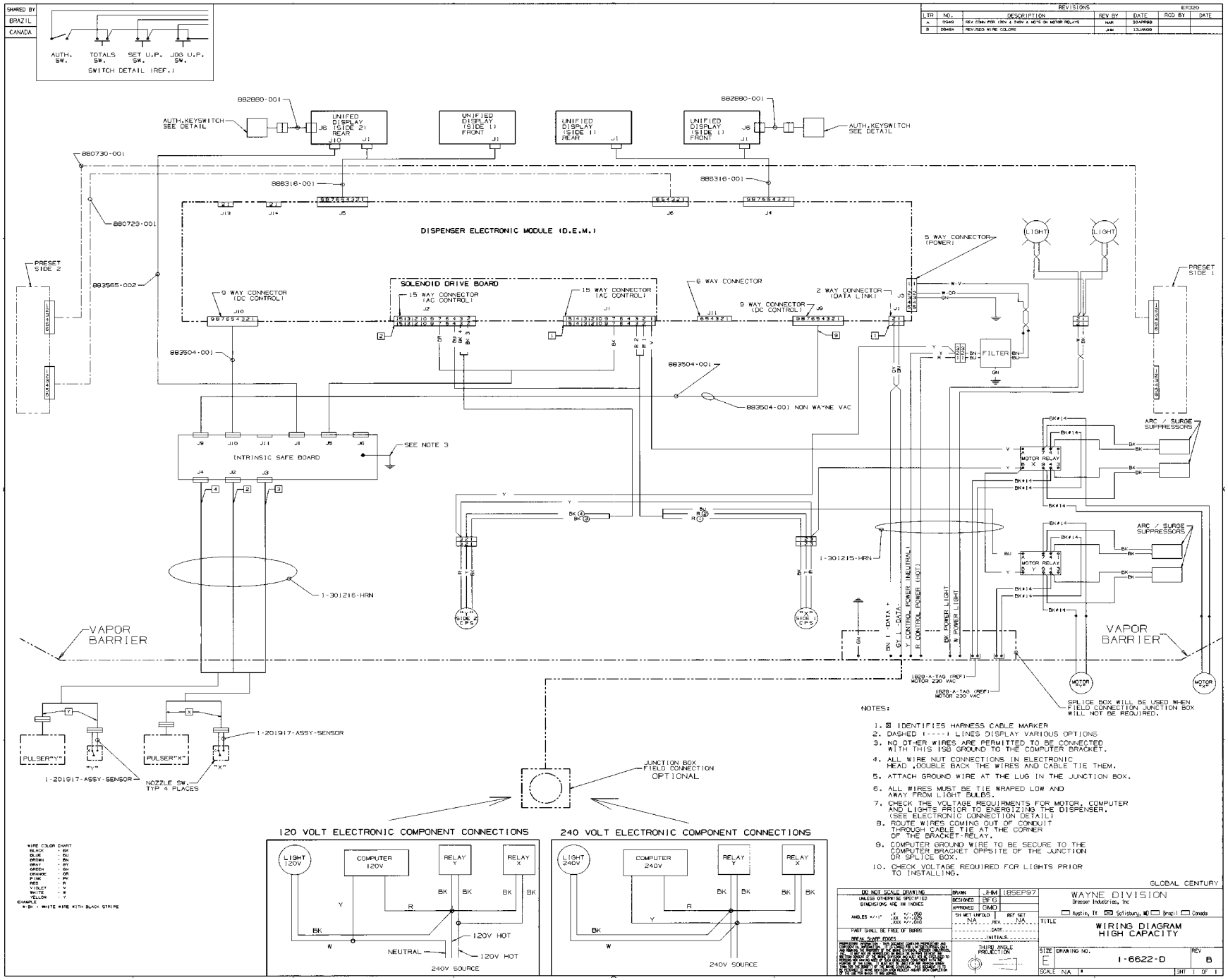


Figure B-4 1-6622-D Wiring Diagram - High Capacity.

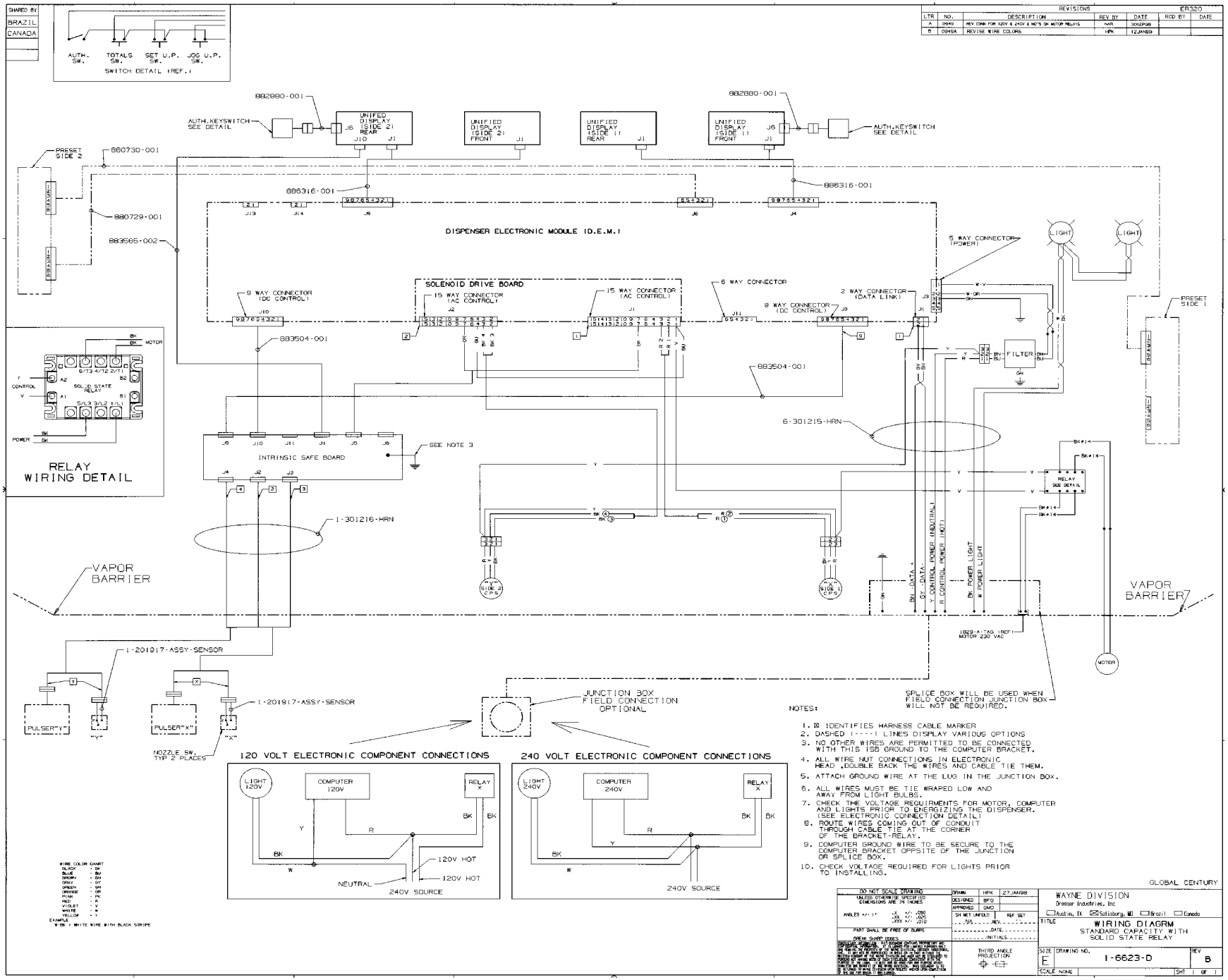


Figure B-5 1-6623-D Wiring Diagram - Standard Capacity With Solid State Relay.

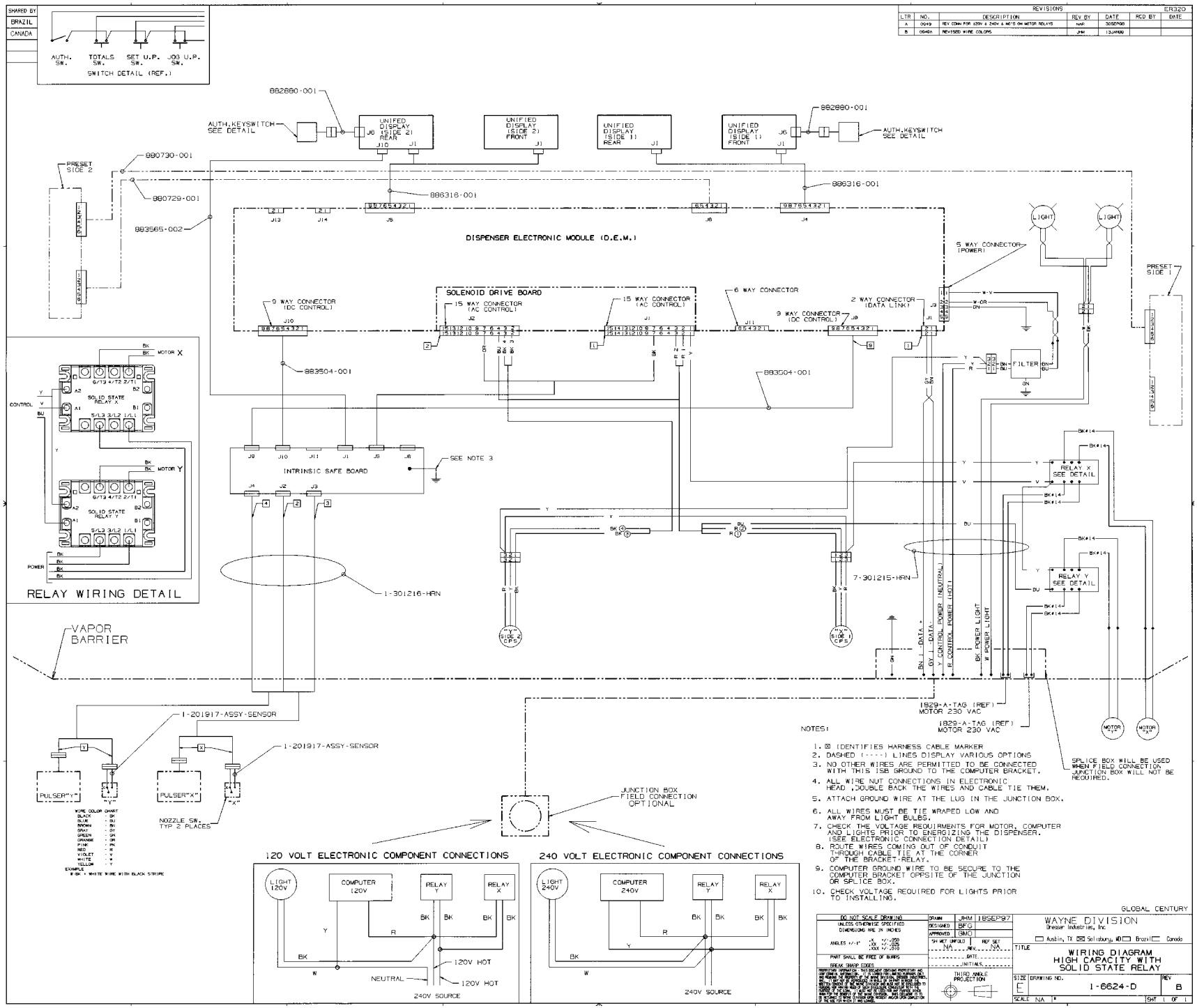
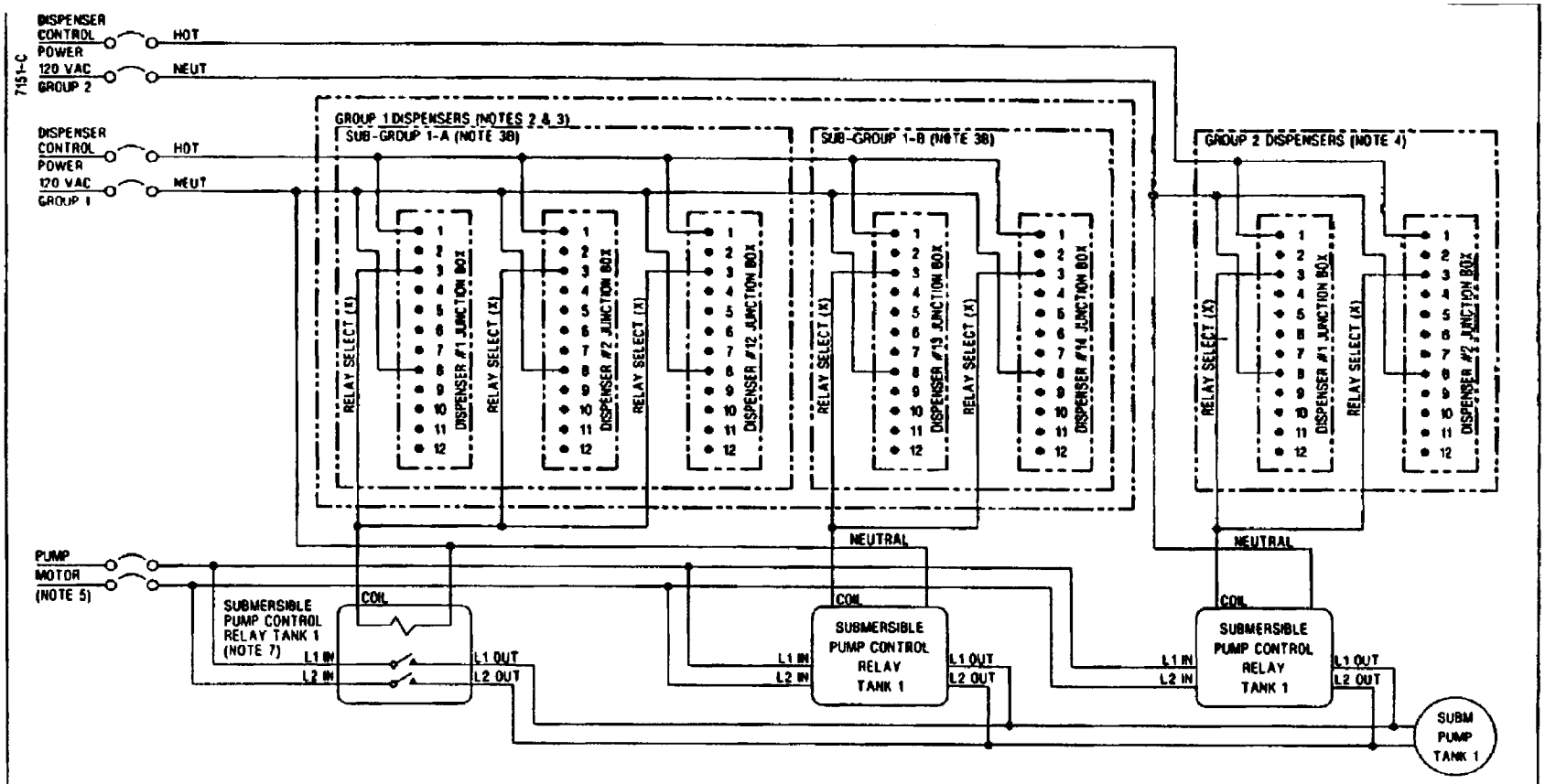


Figure B-6 1-6624-D Wiring Diagram - High Capacity With Solid State Relay.



NOTES:

1. Only Tank 1 Relay Select Lines (X) are shown. Refer to appropriate dispenser Installation Wiring Diagram for additional Relay Select Line details.
2. A Group of Dispensers consists of all the dispensers and associated Submersible Pump Control Relay Coils supplied by the same dispenser Control Power Circuit Breaker.
3. SINGLE GROUP OF DISPENSERS
   A. If more than one Relay Select Line within the Group activates the same Submersible Pump, they may be commoned at the Relay Coil Terminal (COIL) up to a maximum of 12 Relay Select Lines.
   B. Where more than 12 Relay Select Lines activate the same Submersible Pump, additional relays should be used and the contacts paralleled (as shown in Sub-Groups 1-A & 1-B).
4. MULTIPLE GROUPS OF DISPENSERS
   A. If dispensers are separated into more than one group, it is essential that the single group requirements are maintained for each group.
   B. WARNING: NO CONNECTIONS (INCLUDING NEUTRAL) ARE PERMITTED BETWEEN GROUPS (AFTER THE CIRCUIT BREAKERS). A SEPARATE CONTROL POWER CIRCUIT BREAKER MUST BE PROVIDED FOR EACH GROUP. THE CONTROL POWER CIRCUIT BREAKER FOR EACH GROUP MAY BE CONNECTED TO EITHER LINE SUPPLY LEG.
5. A separate circuit breaker must be provided for each Submersible Pump.
6. All equipment to be installed in accordance with the National Electrical Code (NFPA 70) and the Automotive and Marine Service Station Code (NFPA 30A).
7. Remote dispensers require a relay to interface to the Submersible Pump Motor. A Potter and Brumfield PRD7AY0 Relay in a UL Listed Magnetic Motor Controller Assembly is recommended. A maximum of 12 dispensers (24 Fueling Points), may be connected to a PRD7AY0 relay. Other relays may have different limitations.
8. All equipment to be grounded per National Electrical Code requirements.

Figure B-7 7151-C Typical Dispenser Site Wiring Diagram.

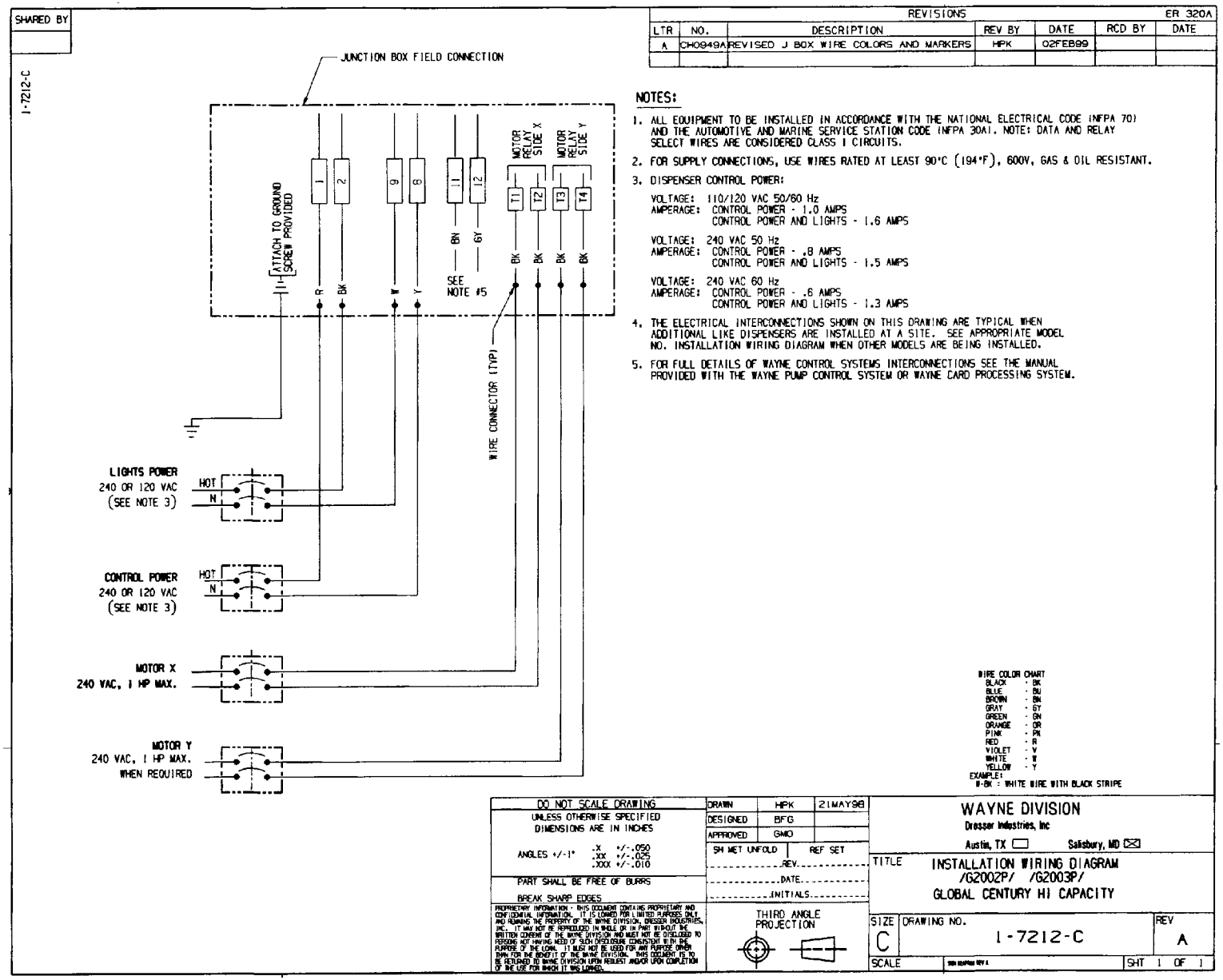


Figure B-8 1-7212-C Installation Wiring Diagram - G2002P and G2003P - High Capacity.

INSTALLATION & OPERATION MANUAL

Global Century
Suction Pumps and Remote Dispensers

- Written and illustrated by S. G. Martin
- Review and technical assistance by B. F. Girjis
- This manual was produced using Adobe® FrameMaker® on a Power Macintosh® 8100/80
- Page design uses Times and Helvetica Fonts
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- Art was produced using Aldus® Freehand® and Adobe® PhotoShop®

Wayne Division, Dresser Industries, Inc., is located at 124 West College Ave., Salisbury, MD 21804.
Wayne Division's general telephone number is (410)-546-6600.
The Documentation fax number is (410)-546-6753.

WARRANTY AND LIMITATION OF REMEDY AND LIABILITY

Seller warrants that new products and parts of its own design and manufacture when shipped, will be of good quality and will be free from defects in material and workmanship and will conform to applicable specifications. Work, when performed by Seller, will meet applicable work requirements. No warranty is made with respect to used or rebuilt equipment and with respect to products not manufactured by Seller. Seller's only obligation shall be to assign to Buyer, at the time of sale, whatever warranty Seller has received from the manufacturer. Items such as but not limited to lamps, electric motors, hoses, nozzles, hose swivels and safety impact valves are included in the category referred to in the previous sentence. Seller's recommendations with respect to the operation of Seller's equipment are advisory only and are not warranted. All claims under this warranty must be made in writing immediately upon discovery and, in any event, within twenty-four (24) months from date of start-up, if a product is involved, or from completion of the applicable work, if work is involved, or thirty (30) months from date of invoice (whichever shall occur first). (Provided however, that with respect to the Wayne Plus system, 2400 system, DL series dispensers, and card readers, all claims must be made in writing within twelve (12) months from date of start-up. With respect to receipts/totals printers, and any other printers or printing mechanisms, all claims must be made in writing within ninety (90) days from date of start-up. Wayne Vista dispenser external metal panels will be free from defects due to rust and/or corrosion for a period of forty-eight (48) months from date of dispenser start-up.) Defective and nonconforming items must be held for Seller's inspection and returned to the original f.o.b. point upon request. Seller's warranty on service parts, whether new or reconditioned, is ninety (90) days from the date of installation, or twelve (12) months from date of invoice, whichever first occurs. THE FOREGOING IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES WHATSOEVER, EXPRESSED, IMPLIED AND STATUTORY, INCLUDING WITHOUT LIMITATIONS, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS.

Upon Buyer's submission of a claim as provided above and its substantiation, Seller shall, at its option either (I) repair or replace its product or work at the original f.o.b. point or location of purchase products and/or parts or (II) refund an equitable portion of the purchase price.

THE FOREGOING IS SELLER'S ONLY OBLIGATION AND BUYER'S EXCLUSIVE REMEDY FOR BREACH OF WARRANTY AND, EXCEPT FOR GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, THE FOREGOING IS BUYER'S EXCLUSIVE REMEDY AGAINST SELLER FOR ALL CLAIMS ARISING HEREUNDER OR RELATING HERETO WHETHER SUCH CLAIMS ARE BASED ON BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORIES. BUYER'S FAILURE TO SUBMIT A CLAIM AS PROVIDED ABOVE SHALL SPECIFICALLY WAIVE ALL CLAIMS FOR DAMAGES OR OTHER RELIEF, INCLUDING BUT NOT LIMITED TO CLAIMS BASED ON LATENT DEFECTS. IN NO EVENT SHALL BUYER BE ENTITLED TO INCIDENTAL OR CONSEQUENTIAL DAMAGES. ANY ACTION BY BUYER ARISING HEREUNDER OR RELATING HERETO, WHETHER BASED ON BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORIES, MUST BE COMMENCED WITHIN ONE (1) YEAR AFTER THE CAUSE OF ACTION ACCRUES OR IT SHALL BE BARRED.

NOTE: "This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense."

Wayne Division, Dresser Industries Inc., P.O. Box 1859, Salisbury, MD 21802-1859, (410) 546-6600

Part No. 920336 Rev B **200/10/99**

920336 B