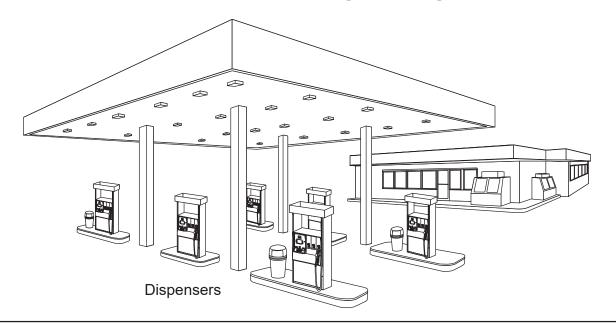
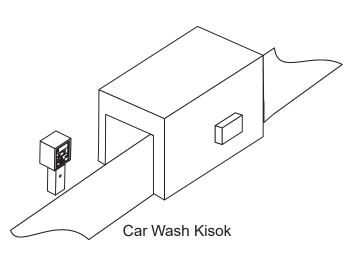
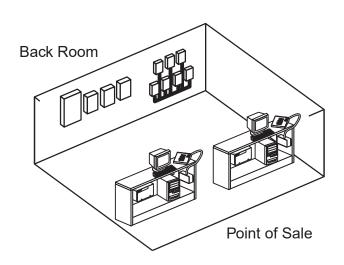
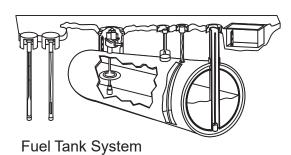
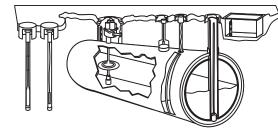
# **Gilbarco Consolidated Wiring Package**

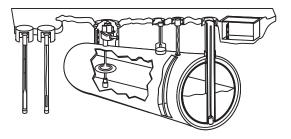












## **Document Release Information**

Section	Date	New Rev	ECR#	Comment(s)	Title
Title pg				New Release	Wiring Overview
AA				New Release	Back Room
ВВ				New Release	Point of Sale
CC				New Release	Dispensers
DD				New Release	Fuel Tank System
EE				New Release	Car Wash Kiosk

#### **Master Table of Contents**

Section Title	Section Code	Comments
Wiring Overview Drawings	AA	Contains a Consolidated Wiring Package Overview, Consolidated Wiring Package Overview Acronym Table, Consolidated Site Wiring Overview, Consolidated Block Wiring Diagram, and a 8 page Wiring Overview of a customer siteCWD -Safety & Notes - Master Electrical Drawing (1 of 8)
Back Room TOC	ВВ	Contains Back Office; High Voltage, Low Voltage, and Two Wire electrical connection information
Point of Sale	CC	Contains LAN connection information and computer electrical connection information.
Dispenser Wiring Connections(s)	DD	Contains electrical and data connection information for dispensing unit wiring.
Fuel Tank System(s)	EE	Contains electrical and date connection information for environmental and pump systems.
Car Wash Code Tracker Wiring	FF	Contains wiring information for the Car Wash Kiosk.

**Note:** Each section noted above has its own module containing all relevant information pertaining to the subject matter of that particular module and its subsequent electrical relationship to subordinate modules. Each module will be revised as a separate entity, with the title page carrying the revision letter of the highest rev level represented on this page.



Section FF	Section EE	Section DD	Section CC	Section BB	Section AA	Sheet - Title Page	Rev
New Release.	06/20	FE-350B					

#### Important Safety Information

This section introduces the hazards and safety precautions associated with installing, inspecting, maintaining or servicing this product. Before performing any task on this product, read this safety information and the applicable sections in this manual, where additional hazards and safety precautions for your task will be found. Fire, explosion, electrical shock or pressure release could occur and cause death or serious injury if these safe service procedures are not followed.

#### Preliminary Precautions

You are working in a potentially dangerous environment of flammable fuels, vapors, and high voltage or pressures. Only trained or authorized individuals knowledgeable in the related procedures should install, inspect, maintain or service this equipment.

#### **Emergency Total Electrical Shut-Off**

The first and most important information you must know is how to stop all fuel flow to the pump and island. Locate the switch or circuit breakers that shut-off all power to all fueling equipment, dispensing devices, and submerged turbine pumps (STPs).

#### **⚠** WARNING



The EMERGENCY STOP, ALL STOP, and PUMP STOP buttons at the cashier's station WILL NOT shut off electrical power to the pump/dispenser.

This means that even if you activate these stops, fuel may continue to flow uncontrolled.

You must use the TOTAL ELECTRICAL SHUT-OFF in the case of an emergency and not only these cashier station "stops."

#### Total Electrical Shut-Off Before Access

Any procedure requiring access to electrical components or the electronics of the dispenser requires total electrical shut-off of that unit. Know the function and location of this switch or circuit breaker before inspecting, installing, maintaining, or servicing Gilbarco equipment.

#### **Evacuation, Barricading and Shut-Off**

Any procedures requiring accessing the pump/dispenser or STPs requires the following three actions:







An evacuation of all unauthorized persons and vehicles Using safety tape or cones as barricades to the effected units A total electrical shut-off of that unit

#### Read the Manual

Read, understand and follow this manual and any other labels or related materials supplied with this equipment. If you do not understand a procedure, call a Gilbarco Authorized Service Contractor or call the Gilbarco Call Center at 1-800-800-7498. It is imperative to your safety and the safety of others to understand the procedures before beginning work.

#### Follow the Regulations

There is applicable information in: NFPA 30A: Automotive and Marine Service Code; NFPA 70: National Electrical Code (NEC); OSHA regulations; and federal, state, and local codes which must be followed. Failure to install, inspect, maintain or service this equipment in accordance with these codes, regulations and standards may lead to legal citations with penalties or affect the safe use and operation of the equipment.

#### Replacement Parts

Use only genuine Gilbarco replacement parts and retrofit kits on your pump/dispenser. Using parts other than genuine Gilbarco replacement parts could create a safety hazard and violate local regulations.

#### Safety Symbols and Warning Words

This section provides important information about warning symbols and boxes.

#### Alert Symbol

This safety alert symbol is used in this manual and on warning labels to alert you to a precaution which must be followed to prevent potential personal safety hazards. Obey safety

directives that follow this symbol to avoid possible injury or death.

#### Signal Words

These signal words used in this manual and on warning labels tell you the seriousness of particular safety hazards. The precautions that follow must be followed to prevent death, injury or damage to the equipment

**DANGÉR** - This signal word is used to alert you to a hazard to unsafe practice which will result in death or serious injury **WARNING** - This alerts you to a hazard or unsafe practice that could result in death or serious injury.

**CAUTION** with Alert symbol - This signal word designates a hazard or unsafe practice which may result in minor injury. **CAUTION** without Alert symbol - When used by itself, CAUTION designates a hazard or unsafe practice which may result in property or equipment damage.

#### **Prevent Explosions and Fires**

Fuels and their vapors will become explosive if ignited. Spilled or leaking fuels cause vapors. Even filling customer tanks will cause explosive vapors in the vicinity of dispenser or island.

#### No Open Flames



Open flames from matches, lighters, welding torches or other sources can ignite fuels and their vapors.

#### No Sparks - No Smoking

Sparks from starting vehicles, starting or using power tools, burning cigarettes, cigars or pipes can also ignite fuels and their vapors. Static electricity, including an electrostatic charge on your body, can cause a spark sufficient to ignite fuels and their vapors. After getting out of a vehicle, touch the metal of your vehicle to discharge any electrostatic charge before you approach the dispenser island.

#### Working Alone

It is highly recommended that someone who is capable of rendering first aid be present during servicing. Be familiar with Cardiopulmonary Resuscitation (CPR) methods if you are working with or around high voltages. This information is available from the American Red Cross. Always advise the station personnel about where you will be working, and caution them not to activate power while you are working on the equipment. Use the OSHA tag out and lock out procedures. If you are not familiar with this requirement, refer to information in the service manual and OSHA documentation.

#### Working With Electricity Safely

Be sure to use safe and established practices in working with electrical devices. Poorly wired devices may cause a fire, explosion or electrical shock. Be sure grounding connections are properly made. Make sure that sealing devices and compounds are in place. Be sure not to pinch wires when replacing covers Follow OSHA Lock-Out and Tag-Out requirements. Station employees and service contractors need to understand and comply with this program completely to ensure safety while the equipment is down.

#### Hazardous Materials

Some materials present inside electronic enclosures may present a health hazard if not handled correctly. Be sure to clean hands after handling equipment. Do not place any equipment in mouth.

#### **⚠** WARNING

This area contains a chemical known to the State of California to cause cancer.

#### **⚠** WARNING

This area contains a chemical known to the State of California to cause birth defects or other reproductive harm.



Gilbarco Veeder-Root encourages the recycling of our products. Some products contain electronics, batteries, or other materials that may require special management practices depending on your location. Please refer to your local, state, or country regulations for these requirements.

#### Emergency First Aid

### **⚠** WARNING



Gasoline ingested may cause unconsciousness and burns to internal organs.

Do not induce vomiting.

Keep airway open.
Oxygen may be needed at scene.
Seek medical advice immediately.

#### **↑** WARNING



Gasoline inhaled may cause unconsciousness and burns to lips, mouth and lungs.
Keep airway open.

Seek medical advice immediately

#### **⚠** WARNING



Gasoline spilled in eyes may cause burns to eye tissue.

Irrigate eyes with water for approximately 15 minutes Seek medical advice immediately

#### **⚠** WARNING



Gasoline spilled on skin may cause burns.

Wash area thoroughly with clear/water.

Seek medical advice immediately.

#### Informing Emergency Personnel

Compile the following information for emergency personnel: Location of accident (e.g. address, front/back of building, etc.) Nature of accident (e.g. possible heart attack, run over by car, burns, etc.)

Age of victim (e.g. baby, teenager, middle-age, elderly) Whether or not victim has received first aid (e.g. stopped bleeding by pressure, etc.)

Whether or not victim has vomited (e.g. if swallowed or inhaled something, etc.)

**IMPORTANT**: Oxygen may be needed at scene if gasoline has been ingested or inhaled. Seek medical advice immediately.

#### Lockout/Tagout

Lockout/Tagout covers servicing and maintenance of machines and equipment in which the ustart-up of the machine(s) or equipment or release of stored energy could cause injury to employees or personnel.

Lockout/Tagout applies to all mechanical, hydraulic, chemical, or other energy, but does but does not cover electrical hazards. Subpart S of 29 CFR Part 1910 - - Electrical Hazards, 29 CFR Part 1910.333 contains specific electrical hazards.

#### **Computer Programs and Documentation**

All Gilbarco Inc. computer programs (including software on diskettes and within memory chips) and documentation are copyrighted by, and shall remain the property of, Gilbarco Inc. Such computer programs and documents may also contain trade secret information. The duplication, disclosure, modification, or unauthorized use of computer programs or documentation is strictly prohibited, unless otherwise licensed by Gilbarco Inc.

#### FCC Warning

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. Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

#### **Approvals**

E165027

#### Gilbarco is an ISO 9001:2000 registered company.

#### **Underwriters Laboratories:**

		•			•
U. L. File#	Products listed with U. L.	NYFD C of A #	Product	Executive Order #	Product
MH1941	All Gilbarco pumps and dispensers that bear the U.L. listing mark.	4805	The Advantage Series and Legacy Series	G-70-52 G-70-150-AB	Balance Vapor Recovery VaporVac
MH8467	Transac System 1000 and PAM 1000	4986	Encore and Eclipse		1
E105106	Dell DHM Minitower				

#### NCWM - Certificate of Compliance:

G-SITE and Passport Systems

Gilbarco pumps and dispensers are evaluated by the National Conference of Weights and Measures (NCWM) under the National Type Evaluation Program (NTEP). NCWM has issued the following Certificates of Compliance (COC):

**New York City:** 

COC#	Product	Model #	COC#	Product	Model #	COC#	Product	Model #
02-019	Eclipse	Exx	02-026	H111B Series	AC, RAC	02-034	External Mount CRIND	CECXXXXXXX
02-020	Encore	Nxx		MPD-1 Series	AN, RAN	02-035	Dimension	Dxx
02-021	T-12C Console	PA0188, RA0188	02-027	Fixed Blender	AF, RAF, AG, RAG	02-036	Legacy	Jxxx
	T-12C Console	PA0203, RA0203		Dispenser - Low Profile	AR, RAR		G-SITE Printer (Epson)	PA0307
02-022	T-12G Console	PA0180, RA0180	02.028	Indoor Card	Q11640		G-SITE Distribution Box	PA0306
	T-15 Console	PA0189	02-028	Outdoor Card	Q11891	02 027	G-SITE Keyboard	PA0304
02-023	T-15 Controller C2	PA0211	02-029	CRIND	_	02-037	G-SITE Mini Tower	PA0301
	T-15 Controller	PA0190		TS-1000 Console	PA0240		G-SITE Monitor	PA0303
02-024	ProBlender	AU, RAU		TS-1000 Controller	PA0241		G-SITE Printer (Citizen)	PA0308
	Precision Blender	AE, RAE	02-030	Distribution Box	PA0242	02-038	C+ Meter	T19976
	Dispenser - Standard	AK, RAK		Micro-T Console	PA0250	02-039	Passport	PA0324
	Dispenser - Low Profile	AL, RAL		Meter - EC Series	PA024EC10	02-040	Ecometer	T20453
	Fixed Blender	AP, RAF		VaporVac Kits	CV			
02.025	Meter - C Series	PA024NC10	02-031	The Advantage Series	Bxx, RBxx			
02-025	Meter - C Series	PA024TC10	02-032	Trimline Series	AA, RAA			
	Salesmaker ProBlender	AB, RAB	02-033	Meter - C Series	PA024XC10			
99-165	Salesmaker Series 2/2H/4/4A	AM		MPD-A3 Series	AD, RAD			

#### **Patents**

Gilbarco Inc. products are manufactured or sold under one or more of the following U.S. patents.

#### Dispensers

4,	566,504	4,556,927	4,570,686	4,687,033	4,728,788	4,748,846	4,781,066	4,793,589	4,799,940	4,805,453	4,876,653	4,890,210	4,913,813	4,930,665
4,	934,565	4,938,054	4,938,251	4,939,730	4,967,366	4,978,029	4,986,445	5,013,434	5,029,100	5,040,577	5,083,846	5,098,179	5,099,403	5,110,010
5,	134,548	5,156,199	5,269,353	5,228,084	5,325,706	5,345,979	5,355,915	5,363,988	5,384,850	5,407,115	5,417,256	5,448,638	5,561,715	5,450,883
5,	452,750	5,464,466	5,493,315	5,501,246	5,514,933	5,515,390	5,535,130	5,542,458	5,543,849	5,546,981	5,557,084	5,571,310	5,592,979	5,602,745
5,	561,715	5,602,745	5,626,649	5,630,528	5,708,580	5,719,779	5,719,781	5,720,325	5,724,067	5,734,851	5,755,854	5,782,275	5,794,667	5,798,931
5,	803,136	5,843,212	5,857,500	5,868,179	5,871,651	5,890,520	5,898,141	5,954,080	5,956,259	5,969,691	5,971,042	5,979,705	5,980,090	5,992,395
5,	996,888	6,026,866	6,026,868	6,032,126	6,052,629	6,054,940	6,062,473	6,065,507	6,065,638	6,067,476	6,070,156	6,073,840	6,078,888	6,078,896
6,	082,415	6,085,775	6,087,954	6,092,410	6,098,879	6,102,085	6,116,505	6,119,110	6,123,118	6,149,033	6,157,871	6,170,539	6,176,421	6,184,846
6,	185,307	6,185,893	6,196,065	6,227,227	6,244,310	6,250,151	6,253,779	6,263,319	6,275,746	6,296,148	6,302,165	6,313,737	6,325,112	6,326,934
6,	336,479	6,338,369	6,347,649	6,352,176	6,357,493	6,360,137	6,363,299	6,364,206	RE35,238	D262,971	D265,092	D306,719	D309,144	D316,471
D	413,124	D413,311	D413,336	D413,337	D413,610	D413,901	D413,902	D414,192	D414,501	D414,778	D414,779	D414,780	D414,781	D414,782
D	415,166	D415,167	D415,168	D415,169	D415,170	D415,171	D415,172	D415,501	D415,777	D416,915	D416,916	D417,226	D418,523	D420,684
D	421,612	D422,285	D422,604	D426,555	D428,424	D428,897	D429,739	D429,740	D432,140	D432,548	D432,552	D433,032	D433,033	D433,034
D	433,035	D433,036	D433,037	D433,685	D433,686	D435,051	D440,579	D443,624						
P	oint of S	ale/Back (	Office Equi	pment										
4,	967,366	5,228,084	5,448,638	5,561,715	5,798,931	5,980,090	5,493,315	5,708,580	5,719,779	5,719,781	5,724,067	5,734,851	6,032,126	6,067,527

#### **Trademarks**

6.073.840 6.078.888

Non-registered trademarks	- C
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C-PAM <sup>TM</sup>	G-SITE <sup>®</sup> Lite <sup>™</sup>	Surge Management System
ECR <sup>™</sup>	Highline <sup>™</sup>	Tank Monitor <sup>™</sup>
$EMC^{TM}$	MultiLine™	TCR <sup>™</sup>
G-CAT <sup>™</sup>	Optimum <sup>™</sup> Series	Ultra-Hi <sup>™</sup>
Gilbert <sup>™</sup>	PAM <sup>™</sup> 1000	ValueLine™
G-Poll <sup>™</sup> Interface	PAM <sup>TM</sup>	
a TM	CALL DET CO. TM	

6,116,505

#### Registered trademarks

6,185,307 6,263,319 6,275,746 6,326,934 6,360,137 6,363,299 6,364,206

0		
Dimension® Series	The Advantage® Series	Eclipse <sup>®</sup>
Gilbarco <sup>®</sup>	Transac®	TRIND®
InfoScreen®	Trimline <sup>®</sup>	Passport®
Legacy®	VaporVac®	CRIND®
Making Things Better®	G-SITE®	Performer <sup>®</sup>
MPD®	Transac® System 1000	
$GOLD^{\otimes}$	Encore®	

Additional U.S. and foreign trademarks pending.

California Air Resources Board (CARB):

Other brand or product names shown may be trademarks or registered trademarks of their respective holders.

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# **Consolidated Wiring Package Overview**

Component	Sub-Components	Other Support Documentation	Comments
Point of Sale	G-Site Peripherals	MDE-3110 MDE-3111 MDE-3620 Q13251	MDE-3110 PC-Based G-SITE ® POS System Installation Manual     MDE-3111 PC-Based G-SITE ® POS System Start-Up and Service Manual     MDE-3620 Point of Sale Systems Site Preparation Manual     Computer Connections; Isolated Duplicate Receptacle Wiring (for computer power connection)     Q13251; Part NOs
Back Room	G-Site Peripherals D-Box STP Control and Dispenser Isolation Relay Box STP Isolation Box (Environmental Peripherals) Petroleum Panel Schedule TLS Power Panel (Customer) LAN wiring Istrol IQ Control Box Car Wash Controller Smart Connect Dispenser Hub Patch Panel Hub	MDE-2597 MDE-2713 MDE-2755 MDE-2755 MDE-2833P MDE-3101 MDE-3116 MDE-3620 MDE-3799 MDE-3802  Q13042 PA0306 329839-001 TLS-350  M02320 M02320 M02967 M03762  FE-321 FE-345 TLS 350  D051-330	<ul> <li>Wiring - Veeder Root and/ or equivalent</li> <li>FE-321; STP Information (detail conduit runs - how many go to a dispenser, isolation from STP &amp; variable speed SIPs in metal conduit per Mfg Specifications)</li> <li>FE-345; Encore 500 Pump (120/240/280 Vac)</li> <li>MDE-2597 Security Module Installation Manual</li> <li>MDE-2713 Universal Distrubution Box Installation Manual</li> <li>MDE-2755; STP Isolation Box Installation</li> <li>MDE-2833P</li> <li>MDE-36101; G-Site Interface Module Installation Manual</li> <li>MDE-3620; SH 21 &amp; 18 (Isolated dedicated receptiacle wiring)</li> <li>MDE-3620; SH 28 (LAN wiring, includes Madison Cable for Forcourt installation)(Pump Stop Button/Relay)</li> <li>MDE-3799 Wayne Interface Manual</li> <li>MDE-3802; Encore/Eclipse Site Preparation</li> <li>MDE-3802; Encore/Eclipse Site Preparation</li> <li>MDE-3620; SH 21 &amp; 18, Back Room wall layout reference applicable field wiring diagrams</li> <li>MDE-3116; Distribution Box Installation</li> <li>Q13042 (Notes)</li> <li>Petroleum Panel Schedule, Ref Square Dwg pg 1, Panel G</li> <li>PA0306 Circuit Board</li> <li>STP Control and Dispenser Isolation Relay Box (Part No: PA0287)(Domestic Voltage Only)</li> <li>PA0306 Installation manual; Dispenser connections to power and printed circuit board</li> <li>Isotrol 1-8R Part No: 880-047-1 (120V w/relay. (Support 2HP motor)</li> <li>Isotrol 1-8 Part No: 880-047-1 (120V w/relay. Used to control a STP variable speed device.)</li> <li>Isotrol 1-8-I Part No: 880-048-1 (240v w/relay. For international voltage.)</li> <li>Isotrol 1-8-I Part No: 880-050-1 (240v w/o relay. Same as Isotrol 1-8 but with international voltage.)</li> <li>Isotrol 1-8-I Part No: 880-050-1 (240v w/o relay. Same as Isotrol 1-8 but with international voltage.)</li> <li>329839-001 TLS-350 System Wiring Diagram (Tank Monitoring Wiring)</li> <li>M02320; Encore 500 Block Diagram</li> <li>M02967; Eclipse Block Diagram</li> <li>M02967; Eclipse Block Diagram</li> <li>M03762; Encore 500 Ultra-High Block Diagram</li> <li>TLS 350</li></ul>
Dispensers	Encore Smart Connect Passport Vapor Recovery Enviornmental Sensor	FE-340 FE-341B FE-342B FE-345 FE-348 FE-349 MDE-3816 MDE-4157G MDE-3985	FE-340; (Encore 500) SH 2; Pump & Dispenser Wiring FE-341B (Eclipse) Pump & Wiring diagrams FE-342; Encore 300 Ultra-High (not supported in this doc) FE-345; SH 2, 3 & 4; Main Junction Box, Pan Sensor wiring and conduit. FE-348; Encore Ultra-High Dispenser 120/240 Vac and Field Wiring Diagram FE-349; Field Wiring for Encore 300 Ultra-High Disp Master Encore & Legacy 120/240 Vac MDE-4157G; PassPort; contains Q13251 details MDE-4157G; Passport, install Poster connections MDE-3816; Passport Hardware Start-Up and Service Manual (not supported in this doc) MDE-3985; Encore Installation Manual
Car Wash		FE-343	Car Wash Autoattendent
Storage Tank(s)	Tank Monitor(s) (Leak Detector) STP (Subml Turbine Pump) Level Gauge Site Prep & Installation Manual (Veeder Root/Red Jacket)	576013-812c 576013-850d 576013-879 576013-893d 576013-944e 577013-435f 577013-576e 577013-614 577013-830c MDE-2537	576013-812c - MAG SUMP Sensor Installation Manual     576013-850d - Gilbarco Interface Module For TIs-350R     576013-879 - Veeder-Root Site Prep & Installation Manual     576013-893d - MDIM/LVDIM Interface Module Kits     576013-944e - Wayne / Bennett CDIMs Installation Guide     577013-435f - CDIM Installation Guide     577013-517F - Gasboy CFN Interface Module, Installation Guide     577013-576e - Tokheim DIMs Installation Guide     577013-614 - Veeder-Root DIM For TIs-350/r Systems     577013-830c Red Jacket Submersible Turbine Pump Installation, Service, & Parts Lists     MDE-2537 PAM

**Consolidated Wiring Resource Table** 

## **Subject Matter**

- 1..... Consolidated Wiring Package Overview
- 2.....Consolidated Wiring Package Overview Acronym Table
- 3 .....Consolidated Site Wiring Overview
- 4 .....Consolidated Block Wiring Diagram
- 5.....CWD -Safety & Notes Master Electrical Drawing (1 of 8)

#### **Document Release Information**

Section	Date	New Rev	ECR#	Comment(s)	
Overview 1				New Release	
2				New Release	
3				New Release	
4				New Release	
5				New Release	

GILBARCO VEEDER-ROOT

NOTE: This document does not supply local or national codes, nor does it pertain to any one specific site. For special details, reference the applicable Field Wiring Diagrams.

NOTE: The purpose of this table is to show the support documentation for each site component and subcomponent - it does not purport to be a list of the subject matter in this package.

# **Consolidated Wiring Package Overview Acronym Table**

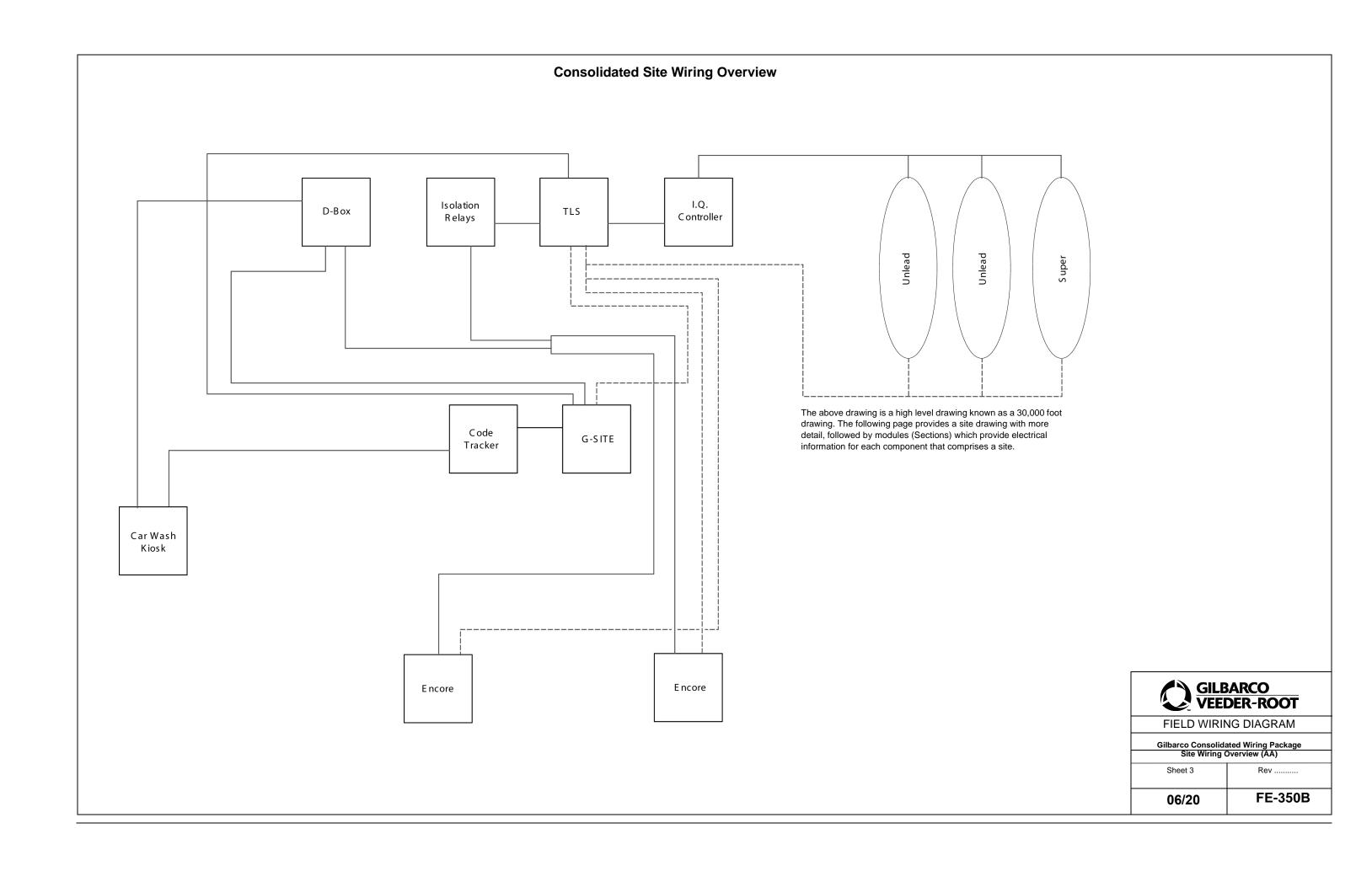
## **Acronym Table**

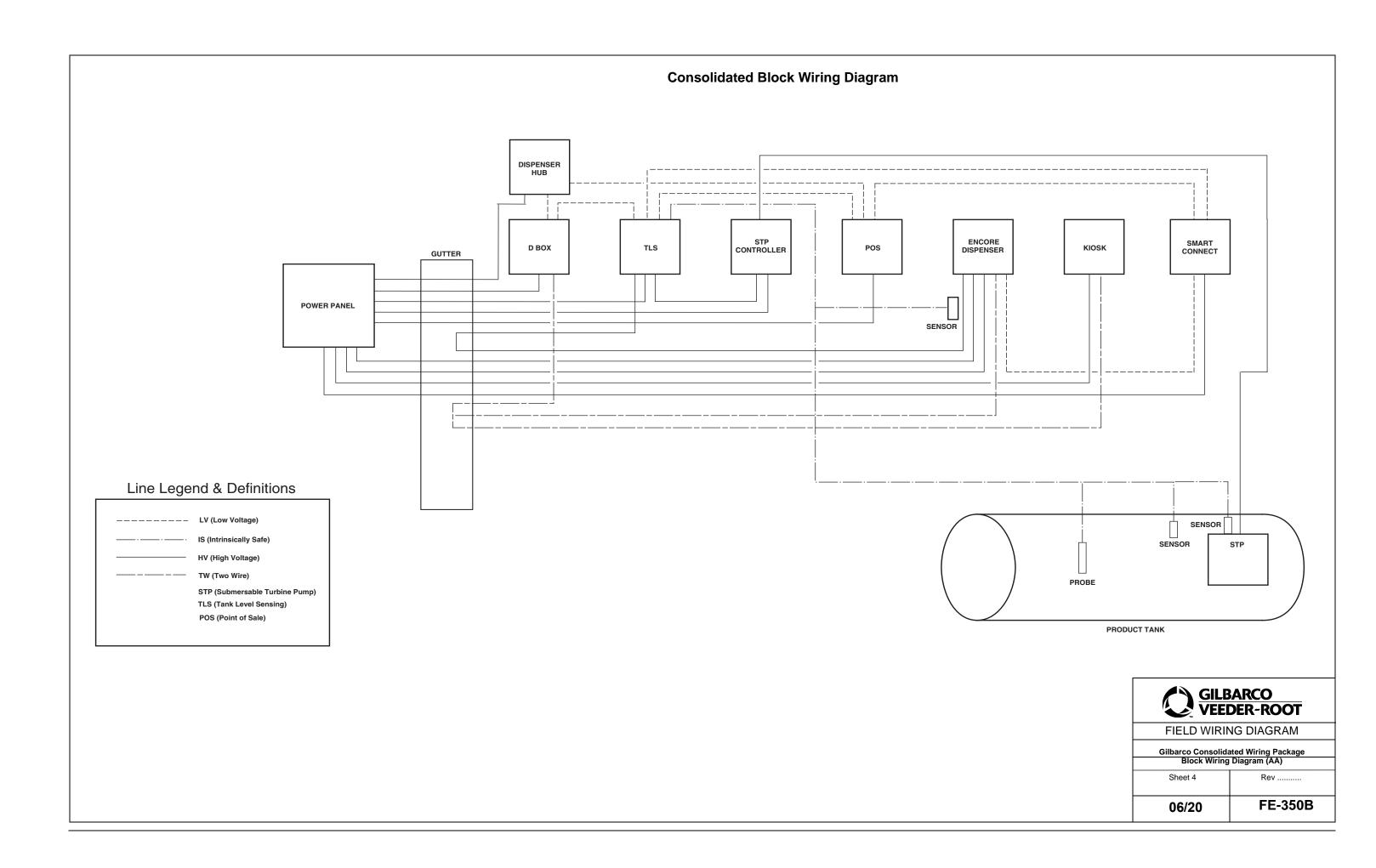
The following table contains a list of acronyms used in the following pages.

Acronym	Definition
AC	Alternating Current
AGP	Accelerated Graphics Port
AIMM	AGP Inline Memory Module
ASC	Authorized Service Contractor
BIOS	Basic Input/Output System
CAT	Card Authorization Terminal
CBT	Computer Based Training
CD-ROM	Compact Disc - Read Only Memory
CD-RW	Compact Disc - Reader/Writer
CMOS	Complementary Metal Oxide Semiconductor
СОМ	Communications Port
CPU	Central Processing Unit
CRIND®	Card Reader in Dispenser
CTS	Clear To Send
DC	Direct Current
DHCP	Dynamic Host Configuration Protocol
DIMM	Dual Inline Memory Module
DNS	Domain Name Server (or Service)
DOS	Disk Operating System
DTR	Data Terminal Ready
ECC	Error Checking and Correcting
EIDE	Enhanced Integrated Drive Electronics
EMC™	Environmental Management Console
FCC	Federal Communications Commission
GPA	Graphics Performance Accelerator
GSM	Gilbarco® Security Module
GUI	Graphic User Interface
IC	Integrated Circuit
ID	Identification
IDE	Integrated Drive Electronics
IP	Internet Protocol
LAN	Local Area Network
LCD	Liquid Crystal Display
LED	Light Emitting Diode
MB	Megabyte
MOC	Major Oil Company
PC	Personal Computer
PCB	Printed Circuit Board
PCI	Peripheral Component Interconnect
PGA	Pin Grid Array
PIN	Personal Identification Number

Acronym	Definition
POS	Point of Sale
POST	Power-on self-test
RAS	Remote Access Service
RPCI	Remote PC Interface
RTS	Request To Send
RX	Receive
SVGA	Super VGA
TCP/IP	Transport Control Protocol and Internet Protocol
TFTP	Trivial File Transfer Protocol
TLS	Tank Leak Sensor
TX	Transmit
UL®	Underwriters Laboratory
UPC	Universal Product Code
UPS	Uninterruptible Power Supply
USB	Universal Serial Bus
VAC	Volts Alternating Current
VGA	Video Graphics Adapter
VRM	Voltage Regulator Module
VSAT	Very Small Aperture Terminal
WAN	Wide Area Network
WinNT	Windows NT <sup>®</sup>
WRMA	Warranty Return Material Authorization







## **CWD -Safety & Notes - Master Electrical Drawing (1 of 8)**

#### **Safety Procedures**









Dangerous environment. Highly flammable/explosive fuels and high voltage are present.

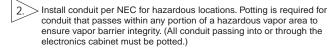
Failure to observe all safety precautions could result in serious injury or death.

Observe all safety precautions as outlined in Gilbarco's manuals.

#### Installation Procedures

Install power breakers to each circuit leading to the dispensing unit and STP. They must be capable of simultaneously disconnecting hot and neutral conductors

Note: In Canada switching neutral is contrary to the Canadian electrical code, reference part 1, rule 14-014



3. Wires -all wires are 14AWG (copper stranded) unless otherwise noted. Pump/disp. ground - wire is 12AWG (copper stranded). Power loading and distance run may require larger wire size. Wire all circuits NEC Class 1, except wiring to speaker (intercom) and call button which must be NEC Class 2. Gilbarco two-wire is NEC Class 1 and may share the main power conduit.

2-Wire: For all installations with 'new' wiring, use unshielded twisted pair (UTP) data wires for all 2-wire communications. Minimum18AWG wires may be used for 2-wire communication. Example: C&M (Wire) Corporation Part #27525, 18AWG UTP, UL and CSA recognized, oil and gas resistant. insulation rated 600V.

LAN wiring must be installed by a certified telecommunications technician in accordance with ANSI/TIA/EIA 568-B Standards and Amendments. Use only 10Base-T LAN cable having these properties: UL Listing AWM Style 21094 80 degrees C 300 volts and Vapor Test Compliant to UL Standard 87, Section 36A, Para. 22.17.

Gilbarco enginering has tested and recomends madison cable conection part number 042GA00006 for applications requiring LAN wiring to the dispensors.

> STP isolation relay boxes are required by NEC 514-6 to:
a. Allow service of one unit safely without removing power from all

Allow service of one unit safely without removing power from all dispensing equipment.

 Prevent damage to equipment from cross-phasing. Damage caused by cross-phasing is not covered by warranty.

Gilbarco STP Isolation Box PA0287 is not available for 220/230/240VAC units. (Use local supplier for Isolation Relay Boxes.) Red Jacket Isolation Box 880-049-1, 880-048-1, 880-050-1 are available for 120/240V. (Use local supplier for Isolation Relay Boxes.)

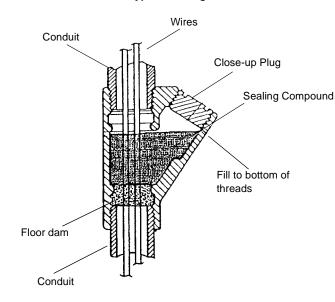
6. Do not provide service loops or leave excess wire in electronics cabinet. Cut all wire lengths to size sufficient to reach termination without stress or excess. Dress all wires neatly along surfaces so as not to obstruct access to terminations and devices. Ensure that enough electrical wire is left entering dispenser site to allow for possible absence of dispenser junction box.

7. Install a single EMERGENCY POWER CUTOFF control to remove AC power from site dispensing equipment. (The control is an additional safety feature, and not a substitute for NEC/NFPA30 circuit breaker requirements.) \* Label the EMERGENCY POWER CUTOFF switch and instruct owner to keep area clear of obstacles.

Connect insulated grounding conductor from dispenser power panel to the site grounding electrode (size per NEC).

Intrinsically-safe integrity of the installed console, sensor and probe conduites can share the same trenches with power conduits, but can not share the same conduit with any other wiring, nor can it share the same conduit with another intrinsically-safe wiring.

#### Killark Type EY Fitting



#### NOTE

Killark fittings minimize passage of vapors, gases or flames from passing from one electrical installation to another. Killark fittings must be installed according to Articles 501-5 and 502-5 of the National Electric Code for vertical runs.

#### **Electrical Rating**

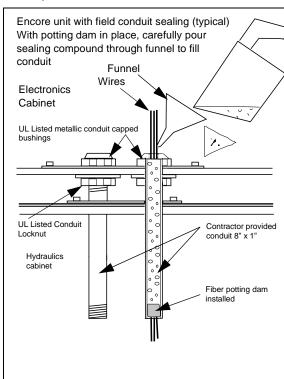
Includes all options except valance lights.

9.0 AMP @ 120 VAC 60 Hz. 4.5 AMP @ 240 VAC 50 Hz.

Gilbarco recommends the use of one 15 AMP breaker per dispenser.

Gilbarco requires valance lights be placed on a separate 15 AMP breaker.

	Active	STP Cor	nnections	S
The Encore	STP1	STP2	STP3	STP4
MPD Three-Grade	X	X	X	
MPD Four-Grade	X	X	X	X
MPD Single-Hose	X	X	X	
MPD Single-Hose +1				
Dual One-Grade				
Quad Two-Grade	X	X		
Blender Six-Hose	X	X		
Blender X+1	X	X	X	
Blender X+0	X	X		



# **№ WARNING**

Fuels vapors allowed to travel between the hydraulics and electronics cabinets presents the risk of fire or explosion. Resulting fire or explosion may lead to serious injury or death.

Never compromise the vapor barrier integrity by leaving out conduit plates or in any way leaving open holes, for example; using conduit smaller than 1" diameter. For Canadian applications do not leave out any gaskets.

Listed metallic conduit nut

Listed metallic conduit nut must be installed at top of 8" conduit for mechanical retention of potting in the event of explosion.



## **IMPORTANT**

Below is the **KEY** for the graphic six page layout showing the Master Electrical Drawing. Use the KEY below to place designated sheets in the order shown to obtain a consolidated view of the site wiring.

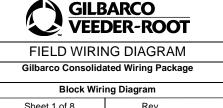
## Master Electrical Drawing Key

Safety & Notes 1	Car Wash 2	Back Room 3	Point of Sale 4
Wiring Values Table 5	Back Room Electrical Details 6	Dispensers 7	Tank w/STP 8

Wire Color Chart

Black В Wire Nut BR Brown R Red Ø Earth Ground OR Orange Encore 500 Yellow No Connection GN Green **Encore 500 Consolidated Wiring** BU Connection Blue Bundle - containing 8 pages. Violet V MV = Main Valve GΥ Gray SV = Slowdown Valve W White

**Symbols Chart** 



#### CWD - Car Wash (2 of 8)

#### **Data Wire Lengths**

Use the following table to determine maximum data wire lengths

For This Distribution Box	The Distance Between the Distribution Box and Console/Controller	
PA0133, PA0187 G-SITE™	Distribution Box and Dispenser "Total" data wire system run no more	
PA0242 Transac System 1000™	No more than 2600 ft. with 14AWG.	No more than 2600 ft. with 14AWG.
PA0261 Universal D-Box	No more than 2600 ft. with 14AWG.	No more than 2600 ft. with 14AWG.
PA0306 Distribution Box	No more than 2600 ft. with 14AWG.	No more than 2600 ft. with 14AWG.

#### Conduit

- Use minimum 3/4 inch conduit for pumps/dispensers to connect wires to the pump/dispenser junction box. Two-wire data wires can share this conduit (See model-specific wiring diagrams).
- Run all power and light wires in threaded, rigid metal conduit or in a rigid non-metallic conduit. Conduit must conform to national and local electrical codes. If you use nonmetallic conduit, it must be at least two feet underground. The last two feet of the underground run to the junction box must be rigid metal conduit or threaded steel intermediate metal conduit. Tighten all threaded conduits.
- Never share conduit or wire troughs with other manufacturers' equipment (i.e., speaker wires, etc.).
- Use separate conduit for speaker wiring. Speaker wire connection uses optional conduit outlet box (see Elevation/Footprint diagrams in specific addendum). Note: You can use the same conduit for routing power to the pump/dispenser and the two-wire data loop (Class 1 circuit). The two-wire data loop is a Class 1 circuit.
- Never rely on metal conduit to provide an equipment ground. Run a separate ground wire.
- Never use knock-out boxes or flexible conduit for installation.
- Note: Extra junction boxes added to the pump/dispenser must be listed Class 1, Div. 1, Group C and D explosion-proof.
- Use electrical fittings that are listed for Class 1, Group C and D hazardous locations as required by NFPA 30A and NFPA 70.

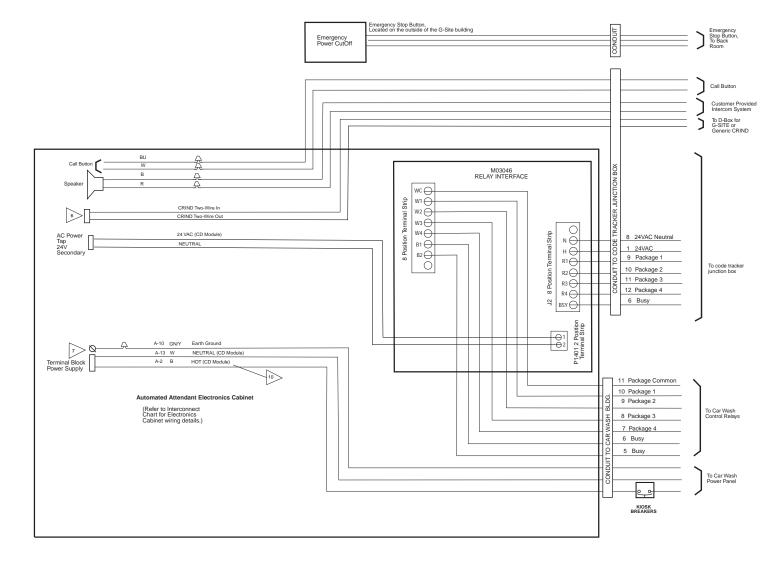
#### Wiring

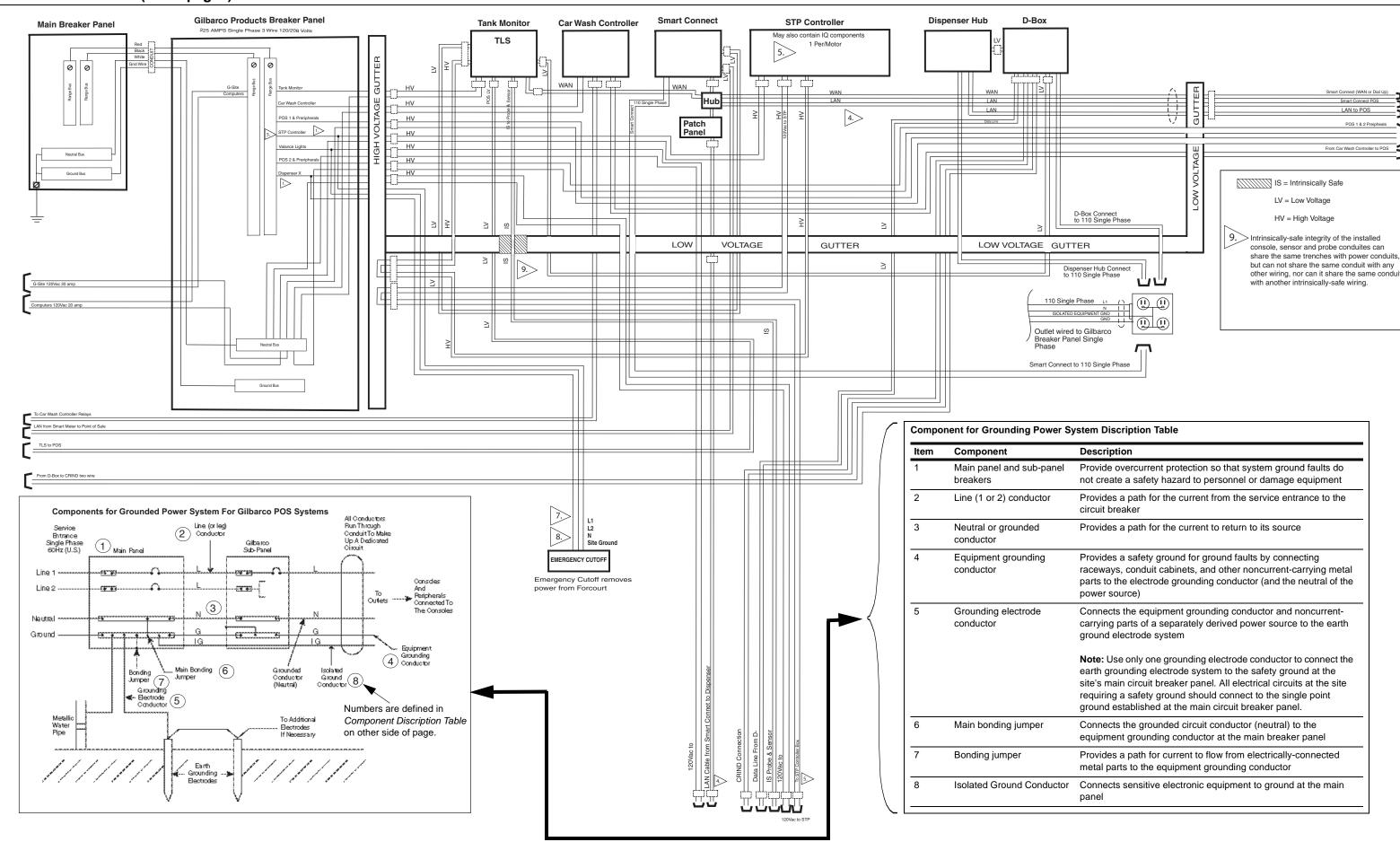
- Wire all pumps/dispensers according to NFPA 30A, NFPA 70 and applicable national, state, and local codes/ regulations.
- Wire all circuits N.E.C. Class 1 except speaker (intercom) circuit which must be N.E.C. Class 2. Install speaker (intercom) circuit in separate conduit.
- Use stranded gas and oil resistant copper wire rated for 300 volts (up to 240VAC source) and 80°C.
- Leave two to three feet of wire out of conduit for junction box connection.
- · Place dispensers on the same phase.

Note:If Gilbarco isolation box is installed, dispensers are not required to be on the same phase.

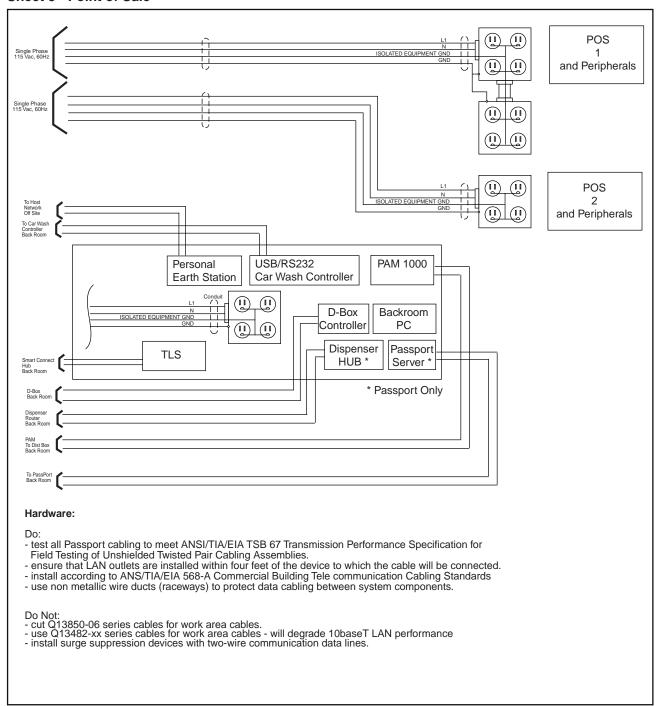
- Use listed wire nuts for all connections. Do not use just electrical tape.
- Pull spare wires for future use.
- Protect conduit ends and wire from water or damage.

Note: For additional Car Wash electrical wiring information refer to the Car Wash Section of this document.





#### **Sheet 3 - Point of Sale**



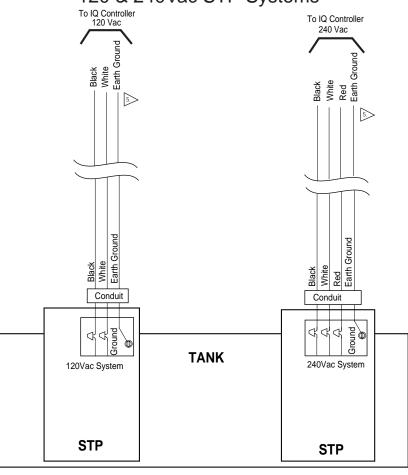
#### **Red Jacket Pump Specs**

				Voltage Fluctuation Range				Windi	ng Resistance	(Ohms)	
UMP Model No.	НР	Hz	РН	Min.	Max.	Max. Load Amps	Locked Rotor Amps	Black- Orange	Red- Orange	Black-Red	Capacitor Kit (µF)
AGUMP75S1, UMP75U1	3/4	60	1	200	250	6.5	22	2.9 - 3.6	14.9 - 18.2	17.7 - 21.9	410164-001 (17.5)
AGUMP150S1, UMP150U1	1-1/2	60	1	200	250	10.5	42	2.0 - 2.5	11.6 - 14.2	13.5 - 16.8	410164-002 (25)
X3AGUMP150S1, X3UMP150U1	1/1/2	60	1	200	250	10.5	42	2.0 - 2.5	11.6 - 14.2	13.5 - 16.8	410164-002 (25)
AGUMP200S1-3, UMP200U1-3	2	60	1	200	250	11.4	47	1.4 - 1.7	2.5 - 3.2	3.8 - 5	410164-003 (40)

		1	r —	T		T .	r				
				Fluct	Voltage Fluctuation Range			Windir	ng Resistance	(Ohms)	
UMP Model No.	НР	Hz	PH	Min.	Max.	Max. Load Amps	Locked Rotor Amps	Black- Orange	Red- Orange	Black-Red	Capacitor Kit (μF)
AGUMP75S3-3, UMP75U3-3	3/4	50	1	200	250	5.8	18.6	3.6 - 4.5	20.4 - 25	23.9 - 29.6	410164-001 (17.5)
AGUMP150S3-3, UMP150U3-3	1-1/2	50	1	200	250	10	34.5	2.5 - 3.1	11.5 - 14	13.9 - 17.2	410164-002 (25)
X4AGUMP150S3, X4UMP150U3	1-1/2	50	1	200	250	10	34.5	2.5 - 3.1	11.5 - 14	13.9 - 17.2	410164-002 (25)
AGUMP75S17-3, UMP75U17-3	3/4	50	3	342	457	2.2	11	25.8- 32.4	25.8- 32.4	25.8- 32.4	
AGUMP150S17-3, UMP150U17-3	1-1/2	50	3	342	457	3.8	15.8	13.1 - 16.4	13.1 - 16.4	13.1 - 16.4	
X4AGUMP150S17, X4UMP150U17	1-1/2	50	3	342	457	3.8	15.8	13.1 - 16.4	13.1 - 16.4	13.1 - 16.4	

Required power supply rating for 60Hz, 1 phase motors is 208 - 230 Vac. For 50 Hz, 1 phase motors, required rating is 220 - 240 Vac. 3 phase motors required rating is 380 - 415 Vac.

## 120 & 240Vac STP Systems



# System Communications Wiring RS-232 Tank Gauge Passport Server Passport Router Client Disp Hub Smart Connect

## **CWD -Wiring Values Chart - Master Electrical Drawing - Page 5 of 8**

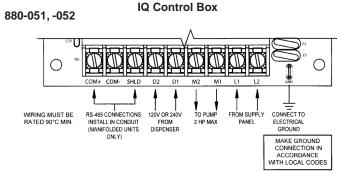
## Wiring Values Table

Equipment	Voltage	Amperage	Wire Type/Brand	Comments
<b>Dispenser</b> Dispenser Vapor Vac Disp	110Vac 220Vac 110Vac	20		
Controller	110	15		
TANKS Probes/ Sensors	LV		3 wire #14 to 18 AWG based/sensor R/P 8760	Stranded copper, class one circuit, shielded cable rated <100pf/ft. Use according to environment (Carol C2534 or Belden 88760, 8760, or 8770, no splices). Weatherproof boxes. See notes for wire size less than #14 (sht 6, Tanks/Sensors) Separate conduit for Probe and Sensors
Power Wiring	120 or 240Vac		Conduit: 3/4, 1 or 1 1/4" IPS conduit or direct burial cable 14AWG or larger	#14AWG for 120 or 240Vac from power panel to console (line, neutral and chassis grd). #12AWG copper for barrier grd. #14AWG copper for 120Vac from power panel to pump sense module, mechanical disp. interface mod, or wireless PLLD cont. mod.
STP Motor		20		
2hp STP (4 inch)	110Vac			
2 hp STP (4 inch)	240Vac			
Pumps Op in Manifold		10	22AWG Min, Two wire, twisted pair configuation	Pump Wiring Values chart, ref CWD - Point of Sale Sheet 3 - See Chart
Canopy Valance Lights/ Breakers	120Vac	15	14AWG	Junction Box supplied by contractor.
LAN	LV			
Intercom Sys	LV			Dedicated LAN cable. Wires to be run in separate conduit (NEC Class 2)
Smart Connect	LAN		Madison 042GA00006 Category 5	LAN Cable - Contractor supplied LAN Hub punchdown block.
G-Site	120	20		Separate circuits for each POS station, computer and power box solutions disp control, duct detector, etc

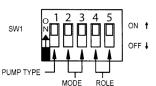
## G Panel

Panel:	nel: "G" 120/208 volts		120/208 volts Type: Square "D"			Maintype: M.L.O.					
225	5 AMPS	S 1 Phase 3 Wire			Style: N	00D442L225CU			* * * Bottom Fed * * *		
Style	Note	Load Directory	Volt	AMPS	CKT NO r	CKT NO	AMPS	Volt	Load Directory	Note	Style
00B	Χ	Tank Monitor (TLS - 350)	120	20	$\Box$ - $\Box$ -		20	120	Dispenser #1	D, S	00BSWN
					$\square$ $\neg$ $\neg$	<u> </u>			Space for Switched Neutral	D, S	00BSWN
00B	X, IG	G-SITE #1 Station	120	20	5 - 4		20	120	Dispenser #2	D, S	00BSWN
					[7_ <b>/</b> ]	<u> </u>			Space for Switched Neutral	D, S	00BSWN
00B	X, IG	G-SITE #2 Station	120	20	9	10	20	120	Dispenser #3	D, S	00BSWN
						12			Space for Switched Neutral	D, S	00BSWN
00B	X, IG	G-SITE #3 Station	120	20	13 - \	14	20	120	Dispenser #4	D, S	00BSWN
					15 -	16			Space for Switched Neutral	D, S	00BSWN
00B	X, IG	Computer	120	20		18	20	120	Dispenser #5	D, S	00BSWN
					19	<u> </u>			Space for Switched Neutral	D, S	00BSWN
					21	22	20	120	Dispenser #6	D, S	00BSWN
00B	Х	Controller	120	20	23	24			Space for Switched Neutral	D, S	00BSWN
00B	P, L	Powerbox Solutions Dispenser Control	120	15	25	26	20	120	Dispenser #7	D, S	00BSWN
00B	Х	Phone Board	120	20		28			Space for Switched Neutral	D, S	00BSWN
					29 -	<u> </u>	20	120	Dispenser #8	D, S	00BSWN
00B	Х	Duct Detector	120	20	31	32			Space for Switched Neutral	D, S	00BSWN
					33	34	20	120	Data Distribution Box	X, IG	00B
					35 -	36	20	120	Spare	Х	00B
					37	38	20	120	Dispenser #9 (Diesel)	D, S	00BSWN
00BSWN	D, S	Space for Switch Neutral			39	40			Space for Switched Neutral	D, S	00BSWN
00BSWN	D, S	Dispenser #10 (Diesel)	120	20	41	42					

## CWD - Back Room Electrical Details (6 of 8 Pages)



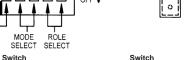
#### SW1 - Switch Settings for Mainifolded System





Unit 2

Unit 4

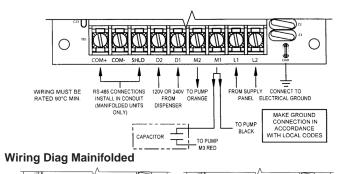




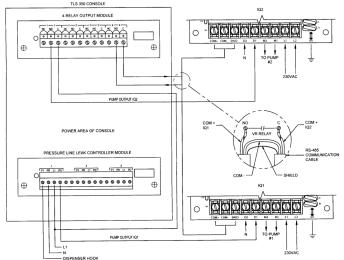


on off

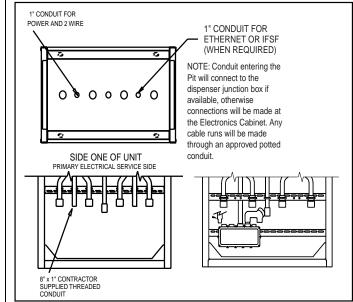
#### 880-058, -059



#### Pump Type Standard X Series Manifold Alternating off on Manifold Direct



## **Dispenser Junction Box Electrical Foot Print**



Ensure that J2 and J3 jumpers are properly positioned (J2 matching dispenser signal voltage and J3 Normal position). (Pump protection monitoring is not available in this position.)

Manifolded PLLD mode allows interfacing with an ATG console. This mode has special communication wiring requirements, ref. drawing above for IQ with manifolded PLLD systems.

Mainifolded Direct mode allows for a primary pump to initiate all dispensing events and secondary pumps to help when required. The control box is set as Unit 1 (switch 4 & 5 on) is the Primary.

For Initial Calibration and Troubleshooting, reference Red Jacket Manual No: D051-330 Rev E.

#### **Control Box Voltages:**

The control box is designed to operate from 200 to 250Vac. Always refer to the pump installation instruction manual for the correct supply voltage. Typical pump ratings are 208 to 240Vac.

#### Dispenser signal terminals:

D1 and D2 are not polarity sensitive and can accept 120V or 240V signals. For tandem installations, wire all signals to all the controllers.

#### **Pumps Operating in Manifolded Configuration:**

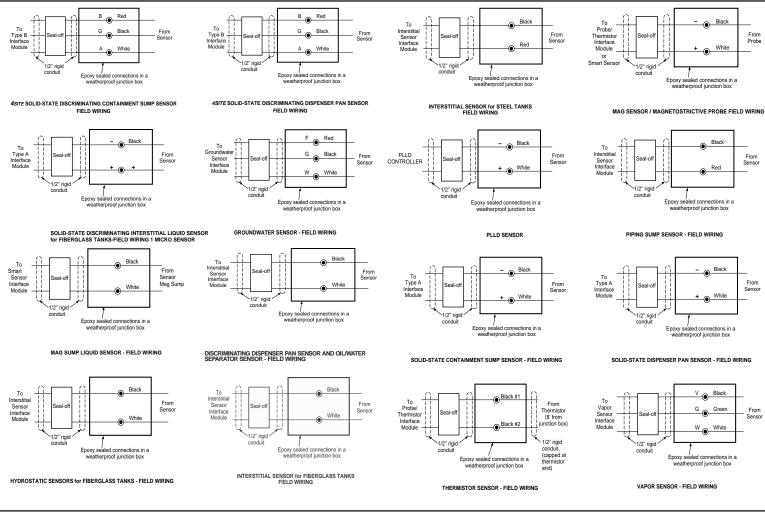
require a two conductor, twisted pair with shield (min. 22AWG) connected to COM+, COM-, and SHIELD terminals of TB1. Daisy chain communications cable to all controllers as shown above. Use of Belden 9462 or equivalent is acceptable. The RS-486 link between pump controllers is not intended to connect to other pump electronic equipment such as Prolink, CPT, or other ATG devices. This cable must be installed into a conduit.

#### **Setup Switches and Calibrations:**

For connection, setup and calibration instructions consult the documentation that was shipped

Setup Switches Settings, reference Setup Switch Chart in IQ Control Box document (RJ D051-

#### Sensor Field Wiring (Ref sheet 6; Envirnmental Sensor Panel - Back Room)



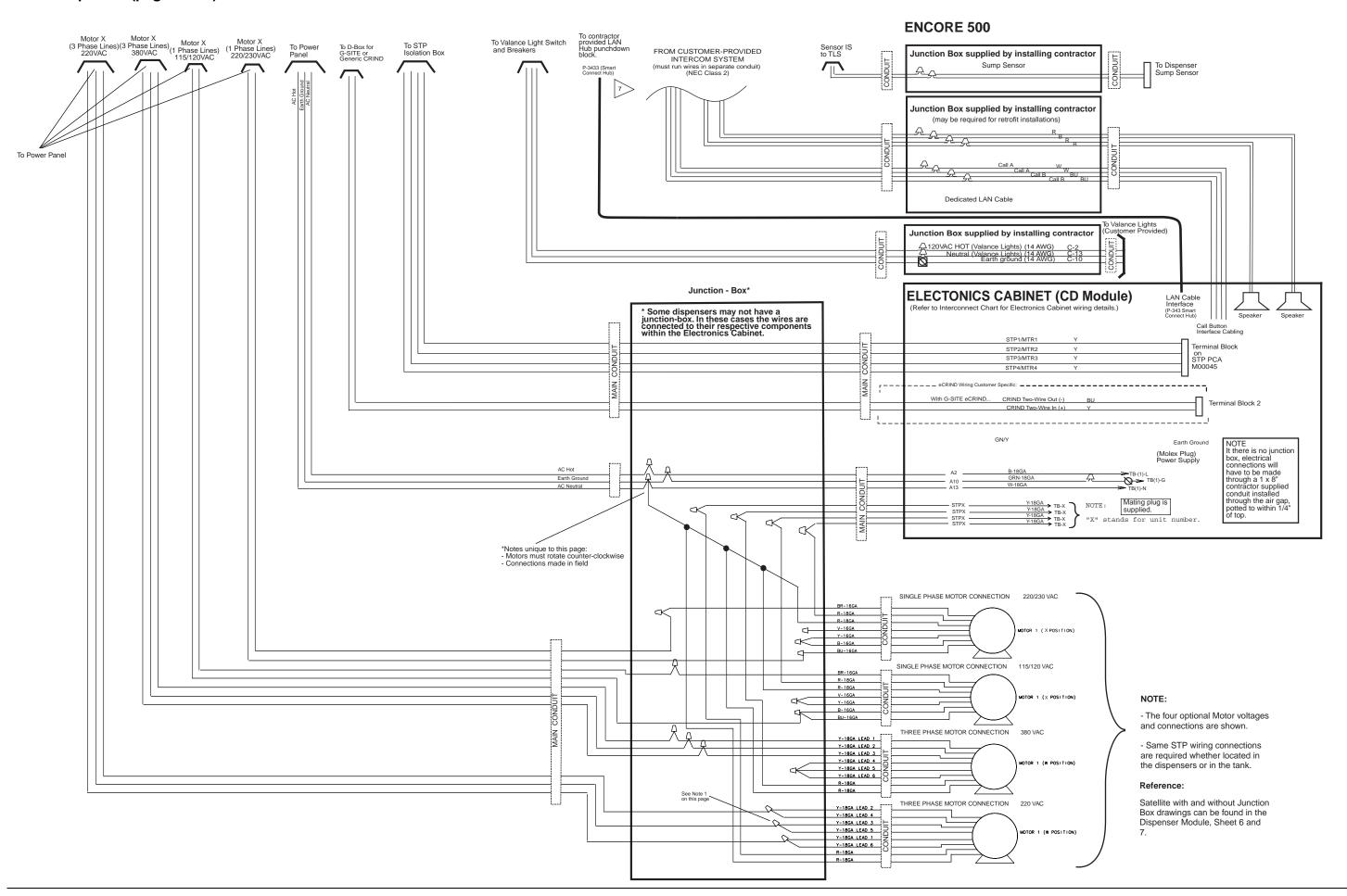
Note: Controller boxes with relays installed have contacts rated DPST 30A, 240V, 50/60 Hz. See figure above for relative electrical

Note: This device is not compatible with Red Jacket Control Box 880-042-5. If such a device exists, replace it with ISOTROL 1-8-i that has the on board relay. Compatible of this device with Control Box Models 880-041-5, 880-045-5 and 880-046-5 assumes that they have been installed and wired accoording to their diagrams.

For Satellite applications refer to the Dispenser Section of this document, "Encore 500 Ultra-High Dispensers Master and Satellite 120/240 Vac Wiring Diagrams 3 of 4.

For additional Probe and Sensor Information, reference the - Fuel Tank Section

## CWD - Dispenser (page 7 of 8)



## CWD -Tanks (page 8 of 8)

#### Sheet 6 - Tanks/Sensors

#### Probes and Sensors Wiring Requirements:

· Color coded two wire #14-#18 AWG stranded copper wire (class one circuit) shielded cable rated at less than 100 picofarad per foot and of material suited to the envionment (Carol C2534 or Belden 88760, 8760 or 8770) regardless of conduit material and not to exceed 1,000 ft in length intrinsic safety requirements) and containing no splices.

Alternate wire where approved by local authority, 22 AWG wire - Belden 88761 or compreable, with the following provisions
- Wire run of less than 750 feet

- Capacitance does not exceed 100 pF/foot
- Inductance does not exceed 0.2uH/foot

Total cable length of all intrinsicaly safe devices per installation must not exceed 22.000 feet.

- Shielded cable must be used in all installations.
- Sealed 1/2, 3/4, 1, or 1-1/4 inch I.P.S. conduit or direct burial cable (knockouts for 3/4, 1, or 1-1/4 inch I.P.S. conduit are provided in the ntrinsically safe area of the console for probe and sensor wiring.

Sensor and Proble conduits can share the same trenches with power conduits, but can not share the same conduit with any other wiring or any other intrinsically safe wiring.

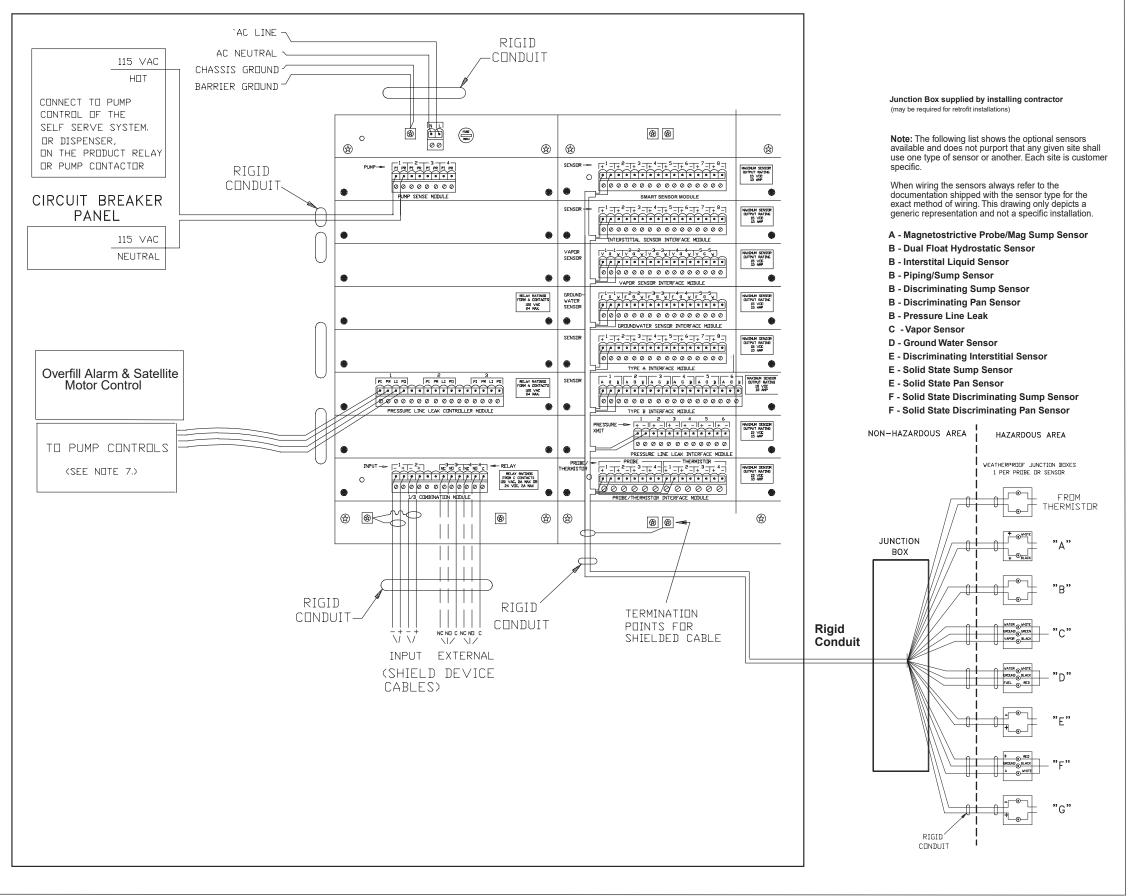
#### Power Wiring:

- At least #14 AWG (or larger) for 120 or 240 Vac from the power panel to the console being used for line, neutral and chassis ground. · #12 AWG copper wire for barrier ground.
- #14 AWG copper wire for 120 Vac from power panel to Pump Sense Module, Mechanical Dispenser Interface Module, or Wireless PLLD
- #12 AWG copper wire for 240 Vac from power panel to a Wireless PLLD AC Interface Module.

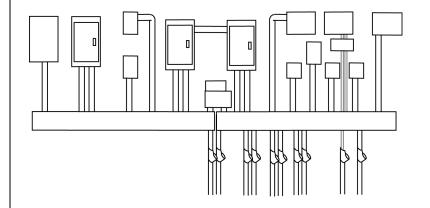
#### Sensor & Probe Junction Boxes:

-Weatherproof electrical junction boxes (16 cubic inches min) - gasketed cover with sealing compound, required at the end of each probe and sensor

#### Environmental Sensor Panel - Back Room (Ref Sensor Field Wiring Sheet 4)



## **Back Room TOC**

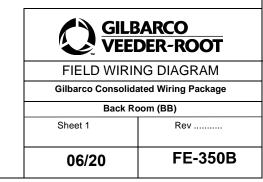


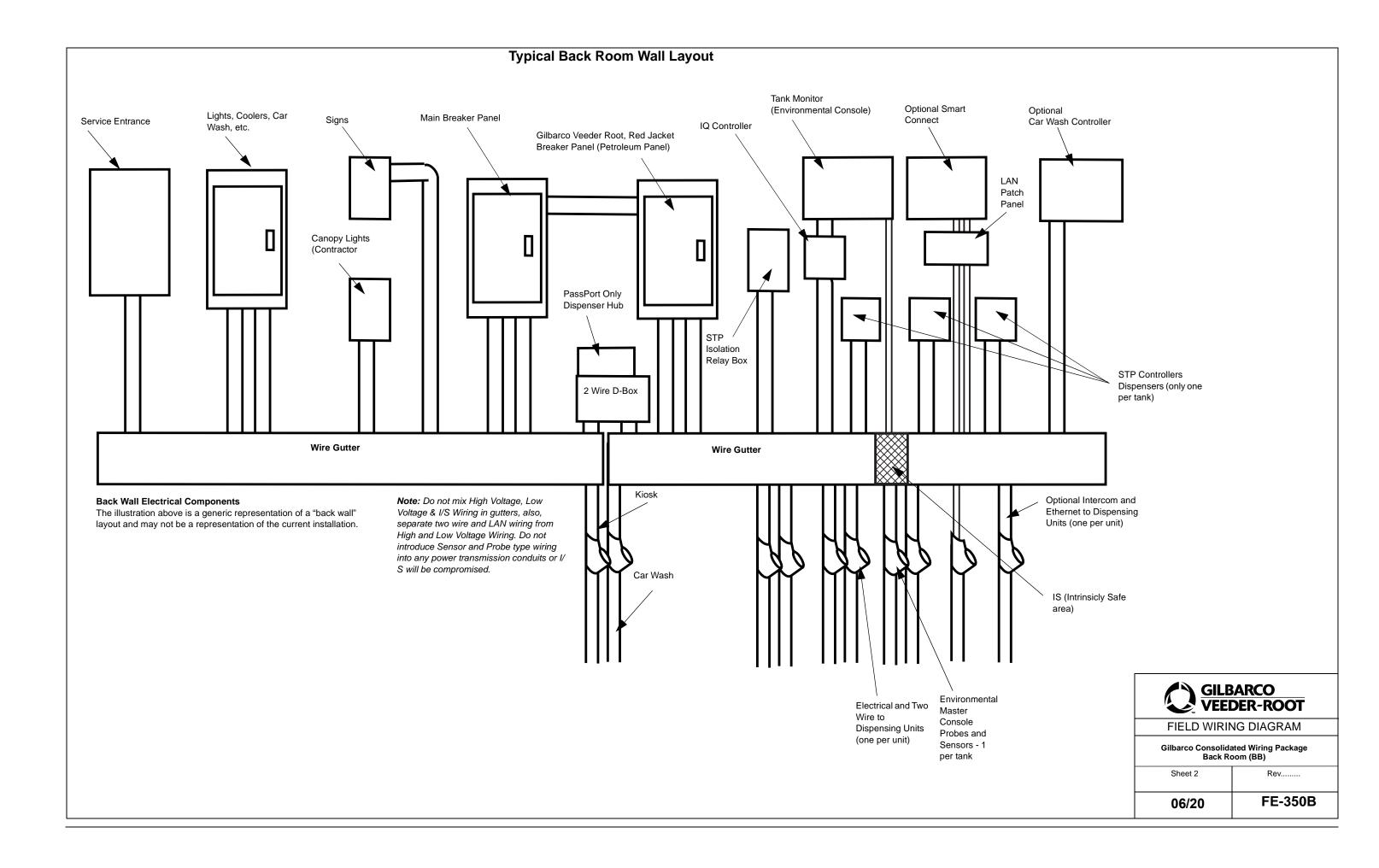
#### **Document Release Information**

Sect	Date	Rev	ECO#	Comment(s)	Title
BB				Initial Rel	Back Room Wiring Connections
BB				Initial Rel	Back Room Wall Layout (G-Site)
BB				Initial Rel	Components for Grd Pwr Sys POS
BB				Initial Rel	Petroleum Panel
BB				Initial Rel	TLS-350 Tank Monitoring Wire Sys 1
BB				Initial Rel	TLS-350 Tank Monitoring Wire Sys 2
BB				Initial Rel	STP Isolation Relay Box

#### **Subject Matter**

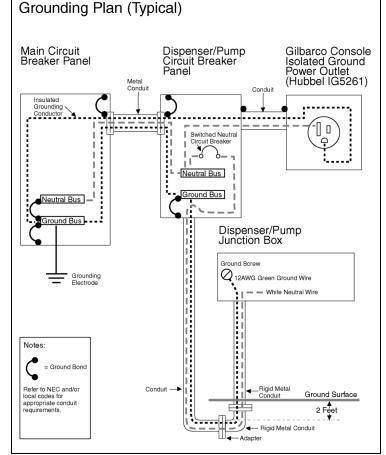
- 1..... Back Room Wiring Connections
- 2.....Typical Back Room Wall Layout
- 3 .....Typical Site Grounding Requirements
- 4 .....Encore Electrical Requirements
  5 .....Smart Connect LAN Requirements
- 6 .....Gilbarco Products Panel
- 7 .....TLS-350 Tank Monitoring Wiring System 1 of 3
- 8 .....TLS-350 Tank Monitoring Wiring System 2 of 3
- 9 ...TLS-300 & 350 Tank Monitoring Wiring System 3 of 3
- 10 ....Brown Box (Square D Company) 1 of 10
- 11 ....Brown Box (Square D Company) 2 of 10
- 12 ....Brown Box (Square D Company) 3 of 10
- 13 ....Brown Box (Square D Company) 4 of 10
- 14 ....Brown Box (Square D Company) Tank Monitoring/Pump Wiring 5 of 10
- 15 ....Brown Box (Square D Company) Tank Monitoring/Pump Wiring 6 of 10
- 16 ....Brown Box (Square D Company) Tank Monitoring/Pump Wiring 7 of 10
- 17 ....Brown Box (Square D Company) Tank Monitoring/Pump Wiring 9 of 10
- 18 ....Brown Box (Square D Company) Tank Monitoring/Pump Wiring 10 of 10





## **Typical Site Grounding Requirements**

ltem	Component	Description
1	Main panel and sub-panel breakers	Provide overcurrent protection so that system ground faults do not create a safety hazard to personnel or damage equipment
2	Line (1 or 2) conductor	Provides a path for the current from the service entrance to the circuit breaker
3	Neutral or grounded conductor	Provides a path for the current to return to its source
4	Equipment grounding conductor	Provides a safety ground for ground faults by connecting raceways, conduit cabinets, and other noncurrent-carrying metal parts to the electrode grounding conductor (and the neutral of the power source)
5	Grounding electrode conductor	Connects the equipment grounding conductor and noncurrent- carrying parts of a separately derived power source to the earth ground electrode system
		Note: Use only one grounding electrode conductor to connect the earth grounding electrode system to the safety ground at the site's main circuit breaker panel. All electrical circuits at the site requiring a safety ground should connect to the single point ground established at the main circuit breaker panel.
6	Main bonding jumper	Connects the grounded circuit conductor (neutral) to the equipment grounding conductor at the main breaker panel
7	Bonding jumper	Provides a path for current to flow from electrically-connected metal parts to the equipment grounding conductor
8	Isolated Ground Conductor	Connects sensitive electronic equipment to ground at the main panel



#### Conduit

- Use minimum 1 inch conduit for The Encore<sup>®</sup> Series and 3/4 inch conduit for all other pumps/dispensers to connect wires to the pump/dispenser junction box. Infoscreen<sup>™</sup> and two-wire data wires can share this conduit (See model-specific wiring diagrams).
- Run all power and light wires in threaded, rigid metal conduit or in a rigid non-metallic conduit. Conduit
  must conform to national and local electrical codes. If you use nonmetallic conduit, it must be at least two feet
  underground. The last two feet of the underground run to the junction box must be rigid metal conduit or
  threaded steel intermediate metal conduit. Tighten all threaded conduits.
- Never share conduit or wire troughs with other manufacturers' equipment (i.e., speaker wires, etc.).
- Use separate conduit for speaker and LAN wiring. Speaker wire connection uses optional conduit outlet box (see Elevation/Footprint diagrams in specific addendum).

Note: You can use the same conduit for routing power to the pump/dispenser and the two-wire data loop (Class 1 circuit). The two-wire data loop is a Class 1 circuit.

- Never rely on metal conduit to provide an equipment ground. Run a separate ground wire.
- Never use knock-out boxes or flexible conduit for installation.

Note: Extra junction boxes added to the pump/dispenser must be listed Class 1, Div. 1, Group C and D explosion-proof

 Use electrical fittings that are listed for Class 1, Group C and D hazardous locations as required by NFPA 30A and NFPA 70.

#### Wiring

- Wire all pumps/dispensers according to NFPA 30A, NFPA 70 and applicable national, state, and local codes/ regulations.
- Wire all circuits N.E.C. Class 1 except speaker (intercom) and LAN circuits which must be N.E.C. Class 2. Install speaker (intercom) and LAN circuits in separate conduit.
- Use stranded gas and oil resistant copper wire rated for 300 volts (up to 240VAC source) and 80°C.
- Leave two to three feet of wire out of conduit for junction box connection.
- Place all dispensers on the same phase.

Note:If Gilbarco isolation box is installed, dispensers are not required to be on the same phase.

- Use listed wire nuts for all connections. Do not use tape.
- Pull spare wires for future use.
- Protect conduit ends and wire from water or damage.

#### Grounding

NFPA 70 requires that you connect the following to system ground:

- Consoles -Relay control boxes
- Pumps and dispensers-Circuit breaker panel
- Submerged turbine pumps-Electronic leak detectors

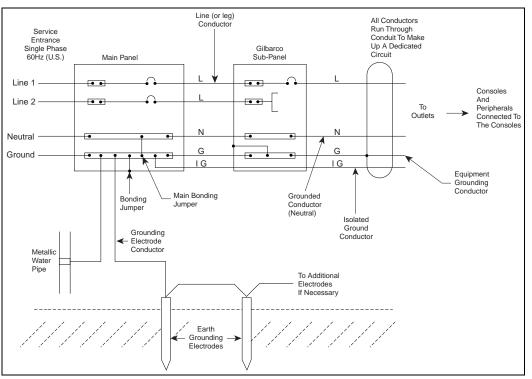
Gilbarco requires that you connect each pump/dispenser to an equipment grounding conductor located in the conduit per NFPA 70, Article 250. The following applies to ground conductor:

- Gilbarco recommends using ground wire no smaller than 12AWG. A larger wire may be required per NFPA 70, Article 250.
- Use wire with green or green and yellow striped insulation.
- Connect to green grounding screw in junction box or designated connection in the electrical cabinet for units without junction boxes.
- Ground the providing power under NFPA 70, Article 250.
- Bond the main circuit breaker panel neutral bus to an approved grounding electrode.

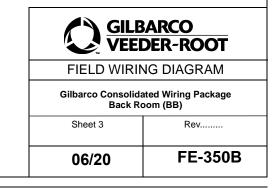
#### **Data Wire Lengths**

Use the following table to determine maximum data wire lengths

For This Distribution Box	The Distance Between the Distribution Box	The Distance Between the Distribution Box and POS
PA0261 Universal D-Box	No more than 2600 ft. with 14AWG.	No more than 2600 ft. with 14AWG.
PA0306 Distribution Box	No more than 2600 ft. with 14AWG.	No more than 2600 ft. with 14AWG.



Ref: MDE-2833 pgs 9 & 10



#### **Electrical Requirements**

Prepare sites according to NFPA 30A, NFPA 70, and applicable national, state and local codes/regulations Use licensed electricians to make all electrical connections

- Use a dedicated circuit/phase system. Wire all electronic units to the same power leg.
- Use an earth ground for circuits.
- Mount all circuit breaker panels and relay boxes securely to the wall.
- Use UL recognized/approved components and/or
- Recommended voltages for pumping units are 220VAC- single phase or 380VAC- 3 phase.
- Route product wiring to protect from damage, using conduit as required.

Note: Pumping units require higher load levels than dispensers. See FE-344 and FE-345 for details.

#### **Emergency Power Cutoff Switch**

## **DANGER**



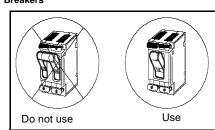
Spills and collisions expose highly flammable and explosive fuels. Failure to install and use an Emergency Power Cutoff could result in severe injury or

> Observe all safety precautions in this and other manuals.

- NFPA 30A and Gilbarco require that you install one or more emergency power cutoff switches.
- An emergency power cutoff switch is a single control that removes AC power to all island equipment (pumps/dispensers, STPs, canopies, lights, and so
- Make the emergency power cutoff switch accessible, label it clearly and install it away from any hazard that may occur at the pumps/dispensers. Do not install cutoff switches more than 100-feet away from the pumps/dispensers.
- Show all employees where the emergency power cutoff switch is located and how to use it. Remind

Do not use E-STOP, ALL-STOP, or PUMP STOP keys on Gilbarco console/cash registers to shut off pump/ dispenser power. These keys do not remove AC power and do not always stop product flow.

#### Circuit Breakers



- Install a dedicated UL/CUL/CSA listed switchedneutral breaker to each circuit leading to a pump/ dispenser or dispenser and STPs. It must be able to disconnect hot and neutral conductors simultaneously. Single-pole breakers with handle ties shall not be permitted. Ref. NEC 514.11
- Use only UL/CUL/CSA listed circuit breaker panel as appropriate for that area

#### **Encore Electrical Requirements**

- Install circuit breakers away from the pumps/dispensers. They must be readily accessible and clearly marked
- Install a separate circuit breaker for each STP (dispenser models) or each pump motor (self-contained models)
- Install one circuit breaker for each pump/dispenser or small island group to allow powering down of pump/dispenser for service.

#### STP Control Relay Boxes for Dispensers

- Install a separate control relay for each STP.
- Do not use the dispenser relay to power the STP. Combined STP Control Relay/Isolation Relay boxes are recommended.

#### STP Isolation Relays for Electronic Dispensers

STP isolation relays provide electrical isolation between dispensers and prevent damage from cross phasing. Refer to MDE-2755 Gilbarco STP Control and Dispenser Isolation Relay Box PA0287 Installation and FE-321 Gilbarco STP Isolation Relay Box PA0287 Field Wiring

Note: For 3 phase STP, use isolation relay at the input of the 3 phase STP control box.

- Gilbarco requires installation of STP isolation relays in addition to STP control relays.
- Use isolation relays for each STP control line at each dispenser or dispenser grouping on a single circuit breaker.
- Route neutral wire to the control relays from the dispenser circuit breaker (see field wiring dia-
- Combined STP Control Relay/Isolation Relay boxes are recommended.

#### Conduit

Gilbarco recommends that a spare conduit be run for future high speed communications. See "LAN Wiring" on page 15. for details.

- Use 1-inch trade size rigid aluminum conduit with the Encore and Eclipse pumps/dispensers to connect wires to the pump/dispenser, InfoScreen® and two-wire data wires can share power wiring conduit (See model-specific wiring diagrams).
- Use separate 1-inch conduit for eCRIND® LAN wiring or intercom wiring or call buttons
- Use threaded, rigid metal conduit or a rigid nonmetallic conduit for applications below the pump dispenser to carry electrical wires. Conduit must conform to national and local electrical codes. If you use nonmetallic conduit, it must be at least 2feet underground. The last 2-feet of the underground run to the junction box must be rigid metal conduit or threaded steel intermediate metal conduit. Tighten all threaded conduits.
- Use of galvanized pipe is acceptable as an alternative to black iron pipe, when black iron pipe is spec-
- Never share conduit or wire troughs with other manufacturers' equipment (for example, speaker wires, canopy lights.).

Note: You can use the same conduit for routing power to the pump/dispenser and the two-wire data loop (Class 1 circuit). The two-wire data loop is a Class 1 circuit.

- Never rely on metal conduit to provide an equipment ground. Run a separate ground wire.
- Never use knock-out boxes or flexible conduit for

**Note**: Extra junction boxes added to the pump/ dispenser must be listed Class 1, Div. 1, Group C and D explosion-proof.

- Use electrical fittings that are listed for Class 1, Group C and D hazardous locations as required by NFPA 30A and NFPA 70.
- A seal-off 'Y' fitting (example: Killark® Type EY) must be installed on all units as a first connection where conduit leaves the ground.

For high speed communications information, Reference LAN Wiring"

- Wire all pumps/dispensers according to NFPA 30A, NFPA 70 and applicable national, state, and local codes/ regulations.
- Wire all circuits N.E.C. Class 1 except speaker (intercom) circuit which must be N.E.C. Class 2. Install speaker (intercom) circuit in separate 1-inch conduit.
- Use stranded gas and oil resistant copper wire rated for 300 volts (up to 240VAC source) and
- In the main conduit, for communications use only twisted-pair, two wire data pairs. Do not use shielded twisted pair.
- Unshielded twisted pair wire is required for two wire communication wiring for new installations. Previously wired stations may continue to use tested existing non-twisted pair wiring, that has been short and continuity tested and passed, twisted pair is recommended for existing wired stations for all geographic regions experiencing higher than national average lightening strikes.
- Leave 6 to 8-feet of wire out of conduit for connection to dispenser.
- Place dispensers on the same phase.

Note: If Gilbarco isolation relay box is installed, dispensers are not required to be on the same phase.

- Use listed wire nuts for all connections. Do not use
- Pull spare wires for future use
- Protect conduit ends and wire from water or dam-Seal-off 'Y' fitting(s) must be potted after all wires
- are run to termination points. For additional wiring notes and requirements consult the

FE-340 Field Wiring Diagrams - Encore Series Dis-

- pensers 120/240 VAC FE-341 Field Wiring Diagrams - The Eclipse Series
- Dispensers 120/240 VAC FE-342 Field Wiring Diagrams - The Encore 300 Field Engineering Diagram
- FE-344 Field Wiring Diagrams The Encore 300 Pumps 120/240/380 VAC FE-345 Field Wiring Diagrams - The Encore 500
- Pumps 120/240/380 VAC as appropriate for the model(s) to be installed.

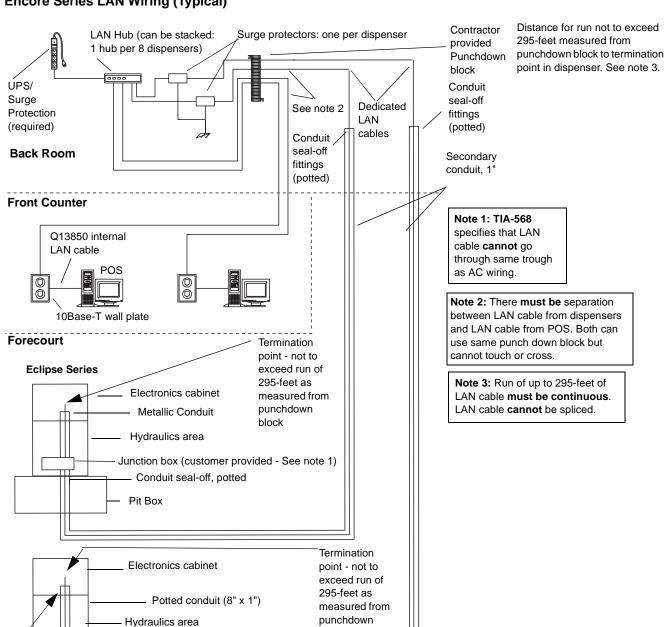
#### Data Wire Lengths

Use the following table to determine maximum data wire

Metallic Conduit

### **Encore LAN Requirements**

#### **Encore Series LAN Wiring (Typical)**

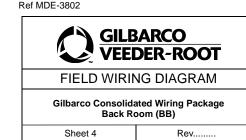


block

Conduit seal-off, potted

Pit Box

Ref MDE-3802



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#### LAN Wiring

#### **LAN Conduit**

Gilbarco recommends use of 1-inch rigid metallic conduit and fittings for LAN cable(s). This will allow up to two speakers and two call/stop buttons per side, plus ethernet

**NOTE:** Terminate conduit in dispenser containment pan consistent with all national and local electrical codes.

#### LAN Cable

Gilbarco requires use of only 10Base-T cable as specified in this document. Gilbarco specified cable must be used to permit issuance of a Certificate of Conformance and/or warranty. Use of other type cables may also create a hazardous situation.

## **⚠** Danger



Petroleum vapors may migrate inside cable insulation between conductors and sheathing of various cables, including 10Base-T cable. Vapors may ignite, leading to serious injury or death.

Use only 10Base-T LAN cable specified by Gilbarco.

Cable has these properties: Safety Certification: UL Listing AWM Style 21094 80 degrees C 300 volts. Vapor Test: Compliant to UL Standard 87, Section 36A, Para. 22.17

#### **Installing Connector and Making LAN Cable**

- Locate jack J3433/M04216B003 plug on the M03893A001 SMART Connect Interface Board
- Remove the P3433 plug for installation on the LAN cable.

**Note:** The P3433 plug is mounted on the J3433 jack and is part of the M03893A001 SMART Connect Interface Board.

- In the dispenser, locate the LAN cable extending through the conduit into the electronics section of the dispenser.
- To determine the final length of the data cable, temporarily route the data cable in the dispenser to J3433 on M03893A001 SMART Connect Interface Board. Do not secure cable in place at this time.
- Using the proper cutting tool, cut the LAN cable to the appropriate length to connect to J3433 as measured.

## **▲** CAUTION

In the next step, be very careful when stripping the outer insulation jacket. The jacket will be difficult to strip because it is molded to the inner leads.

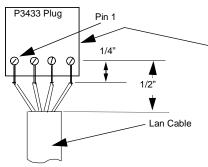
- Using the proper stripping tool, remove 1/2-inch of the exterior insulation jacket from the end of the LAN cable.
- Identify each of the four leads in the LAN cable by their color codes (orange/white, orange, green/ white, green).

- After identification and using the proper stripper (for 22 gage wire), strip 1/4-inch of insulation jacket from each of the four leads.
- Mount the four leads of the LAN cable in the P3433 plug using the following table and the diagram below and secure using a small screwdriver.

#### **Connection Table**

Standard	TIA/EIA 568A	TIA/EIA 568B
Pin 1	Orange/White	Green/White
Pin 2	Orange	Green
Pin 3	Green/White	Orange/White
Pin 4	Green	Orange

## Mounting the M04216B003 Connector on the Data Cable



10. At the M03893A001 SMART Connect Interface Board, connect the J3433 plug to J3433 jack.

#### **Cable Ordering Information:**

Manuf.	Pt No	Supplier
Madison Cable Corporat ion	042GA00006	Graybar 1200 Grecade Street Greensboro NC 27408 Phone: 336-275-6543 Fax: 336-275-9314 Toll Free: 800-933-9441

#### **LAN Installation Personnel and Procedures**

#### IMPORTANT NOTICE

A copy of the ANSI/TIA/EIA TSB 67 certification of conformance from the wiring personnel must be provided to the ASC before the site can be commissioned. The certificate is part of the documentation that must be on file at the installation site. A certification of the field test will be required at equipment start-up. Contact Gilbarco with any questions regarding this procedure.

LAN wiring must be installed by certified telecommunications technicians in accordance with ANSI/TIA/EIA 568-A Commercial Building Telecommunication Cabling Standards (and Amendments). Installing technician must read and understand the following:

### **Smart Connect LAN Requirements**

#### **Document** ANSI/IEEE 142-Recommended Practice for 1991 Grounding of Industrial and Commercial Power Systems (IEEE Green Book) ANSI/IEEE 1100 Recommended Practice for Powering and Grounding Sensitive Electronic Equipment (IEEE Emerald Book) ANSI/TIA/ Transmission Performance EIATSB67 Specification for Field Testing of Unshielded Twisted Pair Cabling Systems ANSI/TIA/EIA568-A Commercial Building

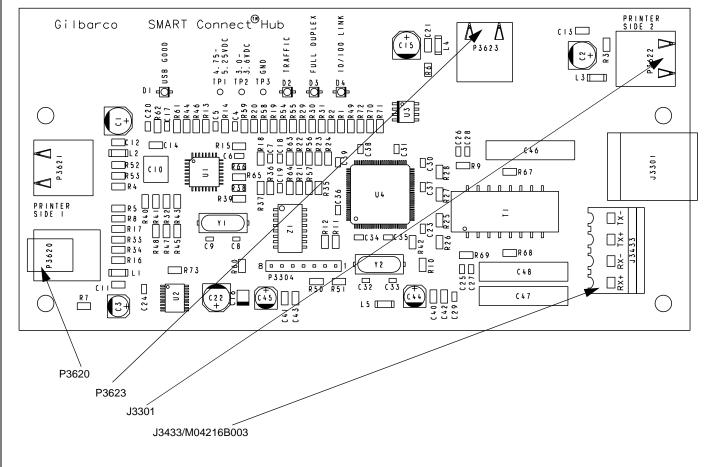
Telecommunication Cabling

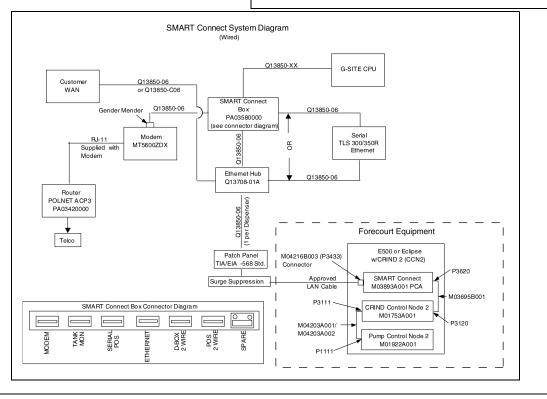
Standards (with amendments)

**Note:** Smart Connect Box in dispenser, other end of cable goes to the back room.

**CBTC Standards** 

Note: Smart Connect cable passes straight through Junction Box to Electrical Cabinet (near Control Node).





Ref MDE-3985E, MDE-4246

GILBARCO
VEEDER-ROOT

FIELD WIRING DIAGRAM

Gilbarco Consolidated Wiring Package
Back Room (BB)

Sheet 5 Rev........

06/20 FE-350B

#### **Gilbarco Products Panel**

Panel:	"G"	120/208 volts			Тур	e: Squa	re "D"	1		Maintype: M.L.O.					
22	5 AMP	S 1 Phase 3 Wire		Style: N00D442L225CU				* * * Bottom Fed * * *							
Style	Note	Load Directory	Volt	AMPS	CKT NO			CKT NO	AMPS	Volt	Load Directory	Note	Style		
00B	Х	Tank Monitor (TLS - 350)	120	20		$\vdash$	$H_{\sim}$	2	20	120	Dispenser #1	D, S	00BSWN		
					3 —	$\vdash$	$H_{\sim}$	<u> </u>			Space for Switched Neutral	D, S	00BSWN		
00B	X, IG	G-SITE #1 POS Station	120	20	5	$\vdash$	$H_{\sim}$	<u> </u>	20	120	Dispenser #2	D, S	00BSWN		
					7	$\vdash$	$H_{\sim}$	8			Space for Switched Neutral	D, S	00BSWN		
00B	X, IG	G-SITE #2 POS Station	120	20	9 —	$\vdash$	$H_{\sim}$	<u> 10</u>	20	120	Dispenser #3	D, S	00BSWN		
					11	$\vdash$	$H_{\sim}$	12			Space for Switched Neutral	D, S	00BSWN		
00B	X, IG	G-SITE #3 POS Station	120	20	13 —	$\vdash$	$H_{\sim}$	<u> 14</u>	20	120	Dispenser #4	D, S	00BSWN		
					15	$\mathcal{H}$	$H_{\sim}$	16			Space for Switched Neutral	D, S	00BSWN		
00B	X, IG	Computer	120	20	17 —	$\mathcal{H}$	$H_{\sim}$	<u> </u>	20	120	Dispenser #5	D, S	00BSWN		
					19 —	$\vdash$	$H_{\sim}$	<u> </u>			Space for Switched Neutral	D, S	00BSWN		
					21	$\vdash$	$H_{\sim}$		20	120	Dispenser #6	D, S	00BSWN		
00B	Х	Controller	120	20	23	$\vdash$	$H_{\sim}$	24			Space for Switched Neutral	D, S	00BSWN		
00B	P, L	Powerbox Solutions Dispenser Control	120	15	25	$\vdash$	$H_{\sim}$	<u> 26</u>	20	120	Dispenser #7	D, S	00BSWN		
00B	Х	Phone Board	120	20	27 —	$\vdash$	$H_{\sim}$	<u>\</u>			Space for Switched Neutral	D, S	00BSWN		
					29 —	$\vdash$	$H_{\sim}$	Ъ 30	20	120	Dispenser #8	D, S	00BSWN		
00B	Х	Duct Detector	120	20	31 —	$\vdash$	$H_{\sim}$	<u> </u>			Space for Switched Neutral	D, S	00BSWN		
					33 —	$\vdash$	$H_{\sim}$	<u> </u>	20	120	Data Distribution Box	X, IG	00B		
					35	$\vdash$	$H_{\sim}$	<u> 36</u>	20	120	Spare	Х	00B		
					37	$\vdash$	$H_{-}$	<u> 38</u>	20	120	Dispenser #9 (Diesel)	D, S	00BSWN		
00BSWN	D, S	Space for Switch Neutral			39	$\vdash$	+	40			Space for Switched Neutral	D, S	00BSWN		
00BSWN	D, S	Dispenser #10 (Diesel)	120	20	41 _	$\vdash$	$\vdash$	42							

#### NOTES (AC Wiring for POS equipment):

SURGE MANAGEMENT PANEL FOR CONSOLES/CONTROLLERS/PERIPHERALS & GILBARCO DISTRIBUTION BOXES:

- 1 Connect only Gilbarco Veeder Root Product peripherals in Petroleum Panel.
- 2 Third wire ground must be a continuous run from the Petroleum sub panel to the wall receptacles. REFER TO INDIVIDUAL INSTALLATION MANUALS. DO NOT USE Conduit as the safety ground.
- 3 DO NOT CONNECT any noise generating equipment such as intercoms, compressors, motors, televisions, two-way radios, microwave ovens, electronic safes, lotto machines, fluorescent lights or any other non-dispenser type devices in Dispenser Sub-panel.
- 4 Two-wire data lines from the distribution box to pumps and dispensers may occupy the same conduit as pump and dispenser AC wiring. For additional information, reference the MDE-2833 Pump and Dispenser Site Preparation Manual
- 5 Run conduit for all POS power wiring, rigid metal conduit is recommend, however if non metallic conduit is used, do not route conduit near sources of interference, such as compressor wiring, fluorescent lights, STPs or in walls, overhead or underground.

#### **NOTES (Miscellaneous Wiring Guidelines):**

1 Use a dedicated wiring trough for Gilbarco wiring - separate other equipment wiring from circuits within the same wiring trough.

#### NOTES G-Site, Transac System 1000, and PAM 1000 Systems:

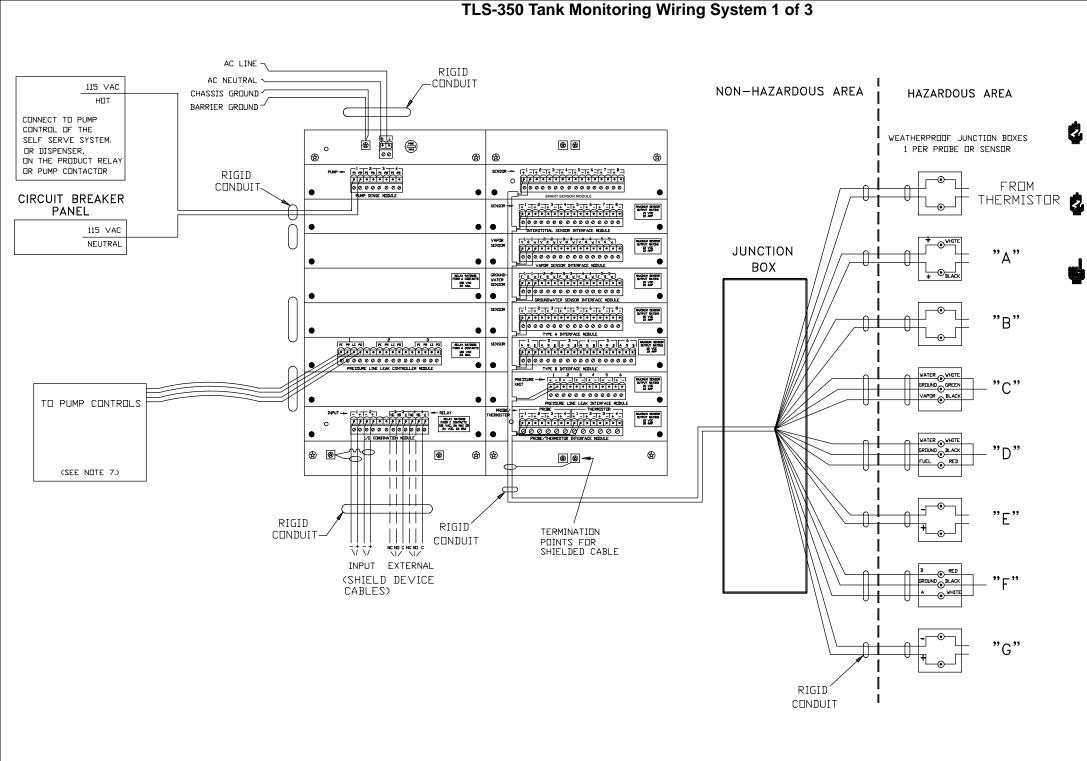
 Do not install surge suppression devices with two-wire communication data lines.

#### NOTES (Circuit Breakers):

1 Use UL-listed circuit breakers (not to exceed 20 amps) and boxes, Single Pole (preferred), or Double Pole only if required by local codes.

Ref Q13042





IMPORTANT: THIS IS A CONTROL DRAWING ONLY AND DOES NOT REFLECT THE ACTUAL LOCATIONS OF CONDUIT ENTRY (SEE NOTE 7 BELOW).

YEEDER-ROOT REQUIRES THAT ANYONE INSTALLING OUR EQUIPMENT MUST BE LEVEL I CERTIFIED. FOR MORE INFORMATION REGARDING THE HOME STUDY INSTALLERS COURSE CONTACT 860-651-2762.

WARNING: IN INSTALLATION AND USE OF THIS PRODUCT, COMPLY WITH THE NATIONAL ELECTRICAL CODE; FEDERAL, STATE AND LOCAL CODES. IN ADDITION, TURN OFF POWER AND TAKE OTHER NECESSARY PRECAUTIONS DURING INSTALLATION, SERVICE AND REPAIR TO PREVENT PERSONAL INJURY, PROPERTY LOSS AND EQUIPMENT DAMAGE.

WARNING: DISCONNECT ALL POWER BEFORE MAKING ANY CONNECTIONS TO PREVENT DEATH, SERIOUS INJURY, EXPLOSION, OR ELECTRICAL SHOCK. MONITOR MUST NEVER BE OPERATED UNLESS THE FRONT COVER IS CLOSED OVER THE BARRIER TERMINALS IN THE INTRINSICALLY SAFE AREA.

1. INTRINSICALLY SAFE WIRING
BONDED CONDUIT MEANS THAT THE METALLIC SECTIONS OF CONDUIT ARE
PERMANENTLY JOINED TO FORM AN ELECTRICALLY CONDUCTIVE PATH THAT WILL
ASSURE ELECTRICAL CONTINUITY, AND THAT THE CONDUIT HAS THE CAPACITY
TO CONDUCT SAFELY, ANY CURRENT LIKELY TO BE IMPOSED.

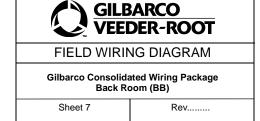
a) Bonded & Non-Bonded Conduit — The Wires Between the Monitor and Each Probe/Sensor Location must be #14, #16 or #18 awg stranded Copper Wires Within a shielded cable. Shielded cable must be rated at less than 100 Picofarad Per Foot and Must be Manufactured with a material suitable for the environment, such as carol™ c2534 or belden 88760 or 8760.

- 2. CONNECT THE BARRIER GROUND TO THE EARTH GROUND BUS AT THE POWER DISTRIBUTION PANEL WITH #12 AWG (OR LARGER) CONDUCTOR.
- 3. DENOTES FIELD WIRING CONNECTION USING WATERPROOF CONNECTORS SUPPLIED WITH THE PROBE(S) AND SENSOR(S).
- 4. INTRINSICALLY SAFE WIRING SHALL BE INSTALLED IN ACCORDANCE WITH ARTICLE 504-20 OF THE NEC, ANSI/NFPA 70.
- 5. TO MAINTAIN INTRINSIC SAFETY, PROBE/SENSOR WIRING MUST BE INSTALLED WITH EITHER SEALED CONDUIT OR DIRECT BURIAL METHODS.

  REFER TO "DIRECT BURIAL CABLE INSTALLATION", MANUAL NO. 576013-858.
- 6. ELECTRICAL RATING POWER INPUT 120 VAC, 50/60 HZ, 100 VA MAXIMUM.
- 7. THIS DOCUMENT IS NOT TO BE USED AS A SUBSTITUTE FOR SPECIFIC EQUIPMENT INSTALLATION MANUALS. FOR INSTALLATION DETAILS USE THE RESPECTIVE MANUAL:

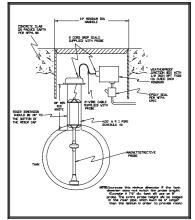
TLS-350(R) 576013-879 PLLD 576013-902 WPLLD 576013-923

Veeder-Root Ref 329839-001

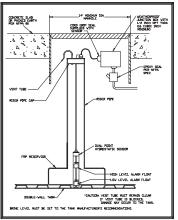


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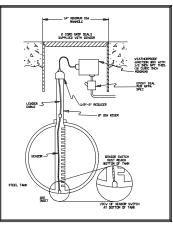
## TLS-350 Tank Monitoring Wiring System 2 of 3



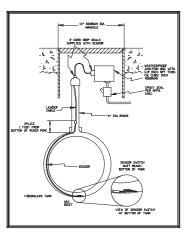
MAGNETOSTRICTIVE PROBE TO JUNCTION BOX "A"



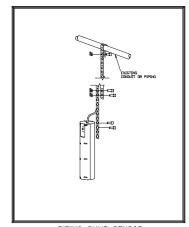
DUAL FLOAT HYDROSTATIC SENSOR TO JUNCTION BOX "B"



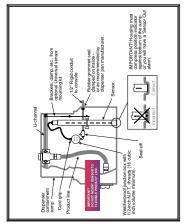
INTERSTITIAL LIQUID SENSOR TO JUNCTION BOX "B"



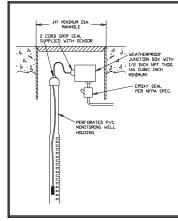
INTERSTITIAL LIQUID SENSOR TO JUNCTION BOX "B"



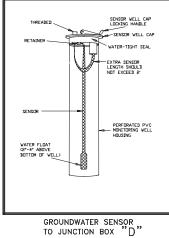
PIPING SUMP SENSOR TO JUNCTION BOX "B"

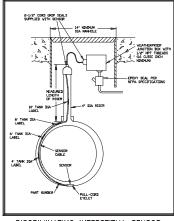


MAG SUMP SENSOR TO JUNCTION BOX "B"

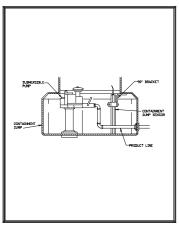


VAPOR SENSOR TO JUNCTION BOX "C"





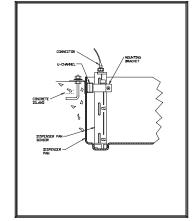
DISCRIMINATING INTERSTITIAL SENSOR TO JUNCTION BOX "E"



SOLID STATE SUMP SENSOR TO JUNCTION BOX "E"



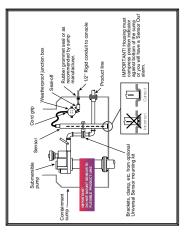
SOLID STATE DISCRIMINATING
SUMP SENSOR
TO JUNCTION BOX "F"



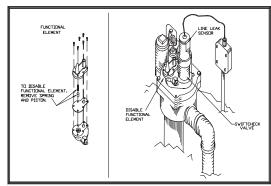
SOLID STATE
PAN SENSOR
TO JUNCTION BOX "E"

DISCRIMINATING PAN SENSOR TO JUNCTION BOX "B"

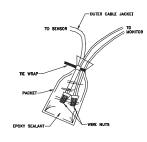
SOLID STATE DISCRIMINATING PAN SENSOR TO JUNCTION BOX "F"



MAG SUMP SENSOR TO JUNCTION BOX "B"



PRESSURIZED LINE LEAK DETECTOR TO JUNCTION BOX "G"



EPOXY SEALANT FOR TWO-WIRE CONNECTIONS

Note, use three wire type kits for three wire connections

Veeder Root Ref 329839-001



FIELD WIRING DIAGRAM

Gilbarco Consolidated Wiring Package Back Room (BB)

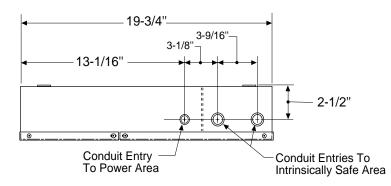
Sheet 8

Rev.....

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## TLS-300 & 350 Tank Monitoring Wiring System 3 of 3

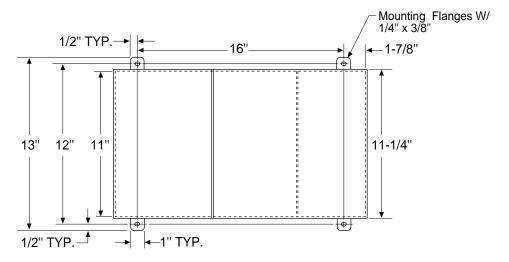
#### **TLS-300 Tank Monitoring Wiring System**



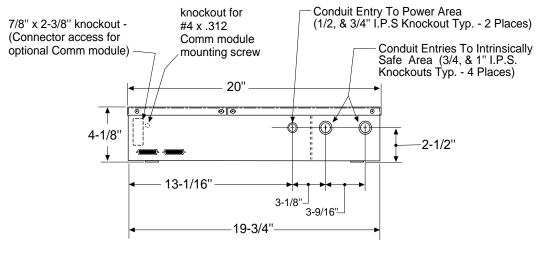
#### ONLY USE PREFORMED KNOCKOUTS

To remove a knockout, insert a flat head screwdriver into the slot in the center of the knockout and gently move the screwdriver up and down to remove the inner knockout, or left and right to remove the middle knockout. Keep up this movement until the connecting tabs break off. To remove the outer or largest knockout, use pliers to break out the remaining large ring.

#### **TOP VIEW**



#### **FRONT VIEW**



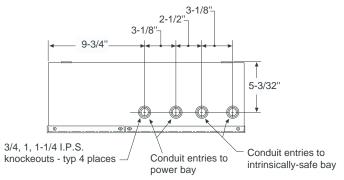
#### **BOTTOM VIEW**

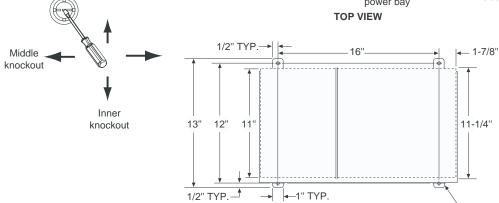
Install metal conduit (3/4, 1, or 1-1/4" I.P.S.) between the console and the power panel. The adjoining figures show the four designated knockouts (2 on top and 2 on the bottom) through which power wiring can be safely enter the consoles.

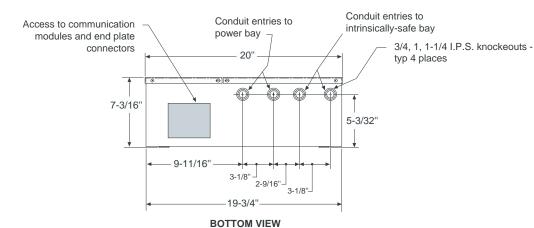
## **TLS-350 Tank Monitoring Wiring System**

#### ONLY USE PREFORMED KNOCKOUTS

To remove a knockout, insert a flat head screwdriver into the slot in the center of the knockout and gently move the screwdriver up and down to remove the inner knockout, or left and right to remove the middle knockout. Keep up this movement until the connecting tabs break off. To remove the outer or largest knockout, use pliers to break out the remaining large ring.







**FRONT VIEW** 

TLS-350/ProMax/EMC Console Dimensions and designated Conduit Knockouts

Install metal conduit (3/4, 1, or 1-1/4" I.P.S.) between the console and the power panel. The adjoining figures show the four designated knockouts (2 on top and 2 on the bottom) through which power wiring can be safely enter the consoles.

Veeder Root Ref 576013-879, Site Prep and Install Manual, pg 9 to 11



Sheet 9

Mounting flanges w/ 1/4" x 3/8"

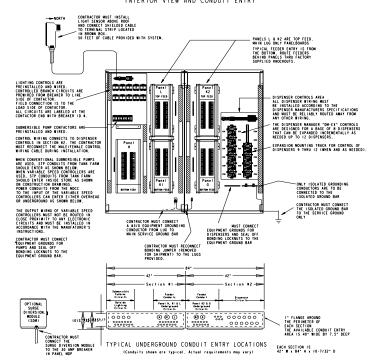
slotted hole - typ 4 places

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## Brown Box (Square D Company) 1 of 10

DESCRIPTION

#### DETAIL - MDCC CABINET LAYOUT INTERIOR VIEW AND CONDUIT ENTRY



- PANEL SCHEDULE NOTES
   CIRCUIT IS PREWIRED BY P.B.S. TO ITS POINT OF UTILIZATION WITHIN THE P.B.S. PANEL.
   CIRCUIT REQUIRES A SWITCHED NEUTRAL BREAKER.

- CIRCUIT REQUIRES AN ISOLATED REQUIRED BY ACTION OF CONTROL RESOLATED RESOL
- PREWIRED FROM BREAKER TO TERMINAL STRIP MARKED BY BREAKER
  1.D. NUMBER (NON-CONTROLLED).
- CONTRACTOR WIRES DIRECTLY TO THE BREAKER.
- CONTACTOR IS CONTROLLED BY THE LIGHTING CONTROLLER CHANNEL #1. BRANCH CIRCUITS ARE PREWIRED FROM BREAKER TO LINE SADE OF CONTACTOR. FIELD CONNECTION IS TO LOAD SIDE TERMINALS OF CONTACTOR.

- CONTACTOR IS CONTROLLED BY THE LIGHTING CONTROLLER CHANNEL #5 BRANCH CIRCUITS ARE PREWIRED FROM BREAKER TO LINE SIDE OF CONTACTOR. FIELD CONNECTION IS TO LOAD SIDE TERMINALS OF CONTACTOR.
- MOTOR OVERLOAD PROTECTION IS TO BE AN INTEGRAL TO MOTOR OF ROVIDED BY OTHERS. MOTOR OVERLOAD PROTECTION IS NOT PROVIDED BY P.B.S.
  CIRCUIT REQUIRES A GROUND FAULT (GFCI) BREAKER.
- SHUNT TRIP BREAKER REQUIRED. ALL SHUNT TRIP COILS ARE TO BE PREWIRED TO TERMINAL BLOCKS (LABELED 'ST-H' & 'ST-N') LOCATED IN THE TOP OF CABINET
- CONTACTORS WILL BE CONTROLLED BY A REMOTE MOUNTED WALL SWITCH WHICH WILL BE FIELD WIRED TO P.B.S. CABINET AND TERMINATED TO TERMINAL BLOCKS LABELED "SW" BRANCH CIRCUITS ARE PREWIRED FROM BREAKER TO LINE SIDE OF CONTACTOR. FIELD CONNECTION IS TO LOAD SIDE TERMINALS OF CONTACTOR.
- CONTACTOR IS CONTROLLED BY THE SWITCH IN THE CASHIER CONTROL PANEL. BRANCH CIRCUITS ARE PREWIRED FROM BREAKER TO LINE SIDE OF CONTACTOR FIELD CONTACTOR. IS TO LOAD SIDE TERMINALS OF CONTACTOR.
- SPL CIRCUIT REQUIRES A BREAKER LOCKING DEVICE THAT CAN BE PADLOCKED

... SPECIAL NOTE ... WHEN BREAKER LOCKING DEVICES ARE FACTORY INSTALLED, THEY SHOULD BE INSTALLED WITH THE BREAKER IN THE FOFT POSITION FOR SHIPMENT. IT IS THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO REMOVE THE LOCKING DEVICE, EMERGIZE THE CIRCUIT, AND INSTALL THE LOCKING DEVICE IN THE "ON" POSITION AT THE JOBSITE.



#### PANELBOARD LAYOUI

PAN	NEL:	"MDP"	120/208	VOL TS	TYPE:	I-LINE			MAINTYPE: M.L.O		
		800 AMPS	3 PHASE	4 WIRE	STYLE	HCW14508			•••BOTTOM FED•••	•	
STYLE	NOTE		TORY	VOL T	AMPS CKT	CKT	AMPS VO	LT	LOAD DIRECTORY	NOTE	STYLE
02H	X	PANEL 'G" (Q222100BCH) (DISC	. I OF 6)	208		朱丑	225 2	8 PANEL *	KI" E DISCONNECT 4 OF 6)	X X	02H 02H 02H
LA LA	X	PANEL "H"		208	300		225 2	8 PANEL *	K2*	X X	02H 02H
LA FH	X	(SERVICE DISCONNECT	2 OF 6)			公哥			E DISCONNECT 5 OF 6)	X X	02H 02H
FH FH	X	TVSS (SDMCT80KP3PH) (SERVICE DISCONNECT		208	30 蔣公	<u> </u>			E DISCONNECT 6 OF 6)	X	02H 02H
PANEL "	MDP "	IS OFFERED AS A LIN	IE ITEM OPTI	ION #EXMB	0228004 - 800A I	ILO 22K AND	IS ENCI	OSED IN A	REMOTE MOUNTED NEMA	A TYPE 3R EN	LOSURE . • •
							N III		MAINTYPE: M.L.O		
PAN	NEL:	"KI"	120/208	VOLTS	TYPE:	SQUARE "D	, .		MAINITPE: M.L.O		
PAI		"KI" 225 AMPS	120/208 3 PHASE			SQUARE "L : NGOD442L			***BOTTOM FED***		
STYLE	NOTE	225 AMPS	3 PHASE	4 WIRE	STYLE	NQOD442L	225CU	LT	***BOTTOM FED***	NOTE	STYLE
STYLE	NOTE X,L	225 AMPS  LOAD DIRECT STAND MERCHANDISER	3 PHASE	4 WIRE	STYLE	NGOD442L	225CU	0 (2) COF	***BOTTOM FED***  LOAD DIRECTORY  FEE WARMER	NOTE X	QOB
STYLE 008 008 008	NOTE	225 AMPS  LOAD DIRECT ISLAND MERCHANDISER WHR-2	3 PHASE	4 WIRE VOLT	STYLE  AMPS CKT NO 20 1 20 3	CKT NOOD 442L	225CU  AMPS VC	0 (2) COF 0 COFFEE	LOAD DIRECTORY  FEE WARMER WARMER FFFF REFWER	NOTE	008 008 008
\$TYLE	MOTE X, L X	225 AMPS  LOAD DIRECT STAND MERCHANDISER WHR-2  GOURNET ICE SYSTEM	3 PHASE	4 WIRE VOLT 120 208	STYLE  AMPS CKT NO 20 3 20 3 20 7	CKT NOOD 442L	225CU  AMPS VC 20 1 20 1 20 1 20 1	0 (2) COF 0 COFFEE 0 AUTO CO	LOAD DIRECTORY  FEE WARMER WARMER FFEE BREWER FFEE BREWER	NOTE X X X X X	008 008 008 008
\$TYLE	NOTE X, L X X X	225 AMPS  LOAD DIRECT ISLAND MERCHANDISER WHR-2	3 PHASE	4 WIRE VOLT	STYLE  AMPS CKT NO 20 1 20 3 20 5 20 7	CKT NOOD 442L	225CU  AMPS VC 20 1 20 1 20 1 20 1 20 1	0 (2) COF 0 COFFEE 0 AUTO CO 0 AUTO CO	LOAD DIRECTORY  FEE WARMER WARMER FFEE BREWER FFEE BREWER AFFITE MERCH	NOTE X X X X X X	008 008 008 008 008
\$17LE 00B 00B 00B 00B 00B 00B	NOTE X, L X X X X X	225 AMPS  LOAD DIRECT USLAND MERCHANDISER WHR-2  GOURNET ICE SYSTEM FCB MACHINE	3 PHASE	4 WIRE VOLT 120 208 120 208	STYLE  AMPS CKT NO 20 1 20 3 20 5 30 9	CKT NO 2 2 4 4 6 8 10 12	225CU  AMPS VC 20 1 20 1 20 1 20 1 20 1	0 (2) COF 0 COFFEE 0 AUTO CO 0 AUTO CO	LOAD DIRECTORY  FEE WARMER WARMER FFEE BREWER FFEE BREWER AFFITE MERCH	NOTE   X   X   X   X   X   X   X   X   L   X   X	008 008 008 008 008
STYLE 008 008 008 008 008 008 008	MOTE X, L X X X X X	225 AMPS  LOAD DIREC  ISLAND MERCHANDISER  WHR-2  GOURMET ICE SYSTEM FCB MACHINE  SODA TOWER	3 PHASE	4 WIRE  VOLT 120 208 120 208	STYLE  AMPS CKT NO 20 1 20 3 20 7 30 9 11 20 113	CKT NOOD 4 4 2 L	225CU  AMPS VC 20 II	20 (2) COFFEE 20 AUTO CO 20 AUTO CO 20 AUTO CO 20 (4) CIG 20 GOURMET	LOAD DIRECTORY  FEE WARNER WARMER FFEE BREWER FFEE BREWER ARETIE MERCH. ICE SYSTEM	NOTE   X   X   X   X   X   X   X   L   X   X	008 008 008 008 008 008
STYLE 008 008 008 008 008 008 008 00	MOTE X, L X X X X X X X	225 AMPS  LOAD DIREC  ISLAND MERCHANDISER WHR-2  GOURMET ICE SYSTEM FCB MACHINE  SODA TOWER (2) CARBONATORS	3 PHASE	4 WIRE  VOLT  120 208  120 208  120 120 120 120	STYLE  AMPS CKT NO 20 1 20 3	CKT NO 2 2 4 6 8 10 12 12	225CU  AMPS VC 20 II	20 (2) COFFEE 20 AUTO CO 20 AUTO CO 20 AUTO CO 20 (4) CIG 20 GOURMET	LOAD DIRECTORY  FEE WARNER WARMER FFEE BREWER FFEE BREWER ARETIE MERCH. ICE SYSTEM	NOTE   X   X   X   X   X   X   X   X   L   X   X	008 008 008 008 008 008 008
\$17LE 008 908 908 908 908 908 908 908	MOTE X, L X X X X X	225 AMPS  LOAD DIREC  ISLAND MERCHANDISER WHR-2  GOURMET ICE SYSTEM FCB MACHINE  SODA TOWER  LO21 CARBONATORS  SODA TOWER ICE CUBER	3 PHASE	4 WIRE    VOLT   120   208   120   208   120   120   120   208   208   2	STYLE  AMPS CRT NO 20 1 20 3 5 20 3 7 20 13 20 13 20 13 20 13 20 13 20 13 20 13	CKT NOOD 442L  CKT NO 2 4 6 8 10 12 14 16 18 20	225CU  AMPS VC 20   1	20 (2) COF 0 COFFEE 0 AUTO CO 0 AUTO CO 0 (4) CIG 0 GOURMET 0 GLASS D 0 GLASS D 0 GLASS D	LOAD DIRECTORY  FEE WARMER  WARMER  FFEE BRIWER  FFEE BRIWER  FFEE BRIWER  FFEE BRIWER  FFEE BRIWER  OOR FREEZER  OOR FREEZER  OOR FREEZER	NOTE   X   X   X   X   X   X   X   X   X	008 008 008 008 008 008 008 008 008
\$17LE 008 008 008 008 008 008 008 00	MOTE X, L X X X X X X X X X	225 AMPS  LOAD DIRECT ISLAND MERCHANDISER WHR-2 GOURNET ICE SYSTEM FCB MACHINE SODA TOWER C2) CARBONATORS SODA TOWER ICE CUBER BAKERY CASE	3 PHASE	4 WIRE    VOLT   120   208   120   208   120   208   120   208   120   208   120   120   208   120   1	STYLE  AMPS CAT 20 1 20 3 20 3 20 3 20 1 20 1 20 1 20 15	CKT NOOD 442L  CKT NO  2  4  6  8  10  12  14  16  18  20  22  22  22	225CU  AMPS VC 20 11 20 12	20 (2) COF 20 COFFEE 20 AUTO CO 20 AUTO CO 20 (4) CIG 20 GOURMET 20 GLASS D 20 GLASS D 30 GLASS D 40 GLASS D 50 FROZEN 20 ATM MAC	LOAD DIRECTORY  FEE WARMER WARMER  FEE BREWER  FEE BREWER  AREITE MERCH.  ICE SYSTEM  OOR FREIZER  OOR FREIZER  DOOR FREIZER  DOOR FREIZER  DOOR FREIZER  DOOR FREIZER	NOTE   X   X   X   X   X   X   X   X   X	008 008 008 008 008 008 008 008 008 008
\$17LE \$00B	MOTE X, L X X X X X X X X X X X	225 AMPS  LOAD DIRECT ISLAND MERCHANDISER WHR-2 GOURMET ICE SYSTEM FCB MACHINE SODA TOWER (2) CARBONATORS SODA TOWER ICE CUBER BAKER CASE CAPPUCCINO DISPENSER	3 PHASE	4 WIRE    VOLT   120   208   120   208   120   208   120   208   120   1	STYLE  AMPS CRT  NO 20 1 20 3 30 9 20 13 20 13 20 13 20 13 20 17 20 17 20 21 20 21	CRT NOOD 442L  CRT NO	225CU  AMPS VC 20 I	20 (2) COF 20 COFFEE 20 AUTO CO 20 AUTO CO 20 (4) CIG 20 GOURMET 20 GLASS D 20 GLASS D 20 GLASS D 20 FROZEN 20 ATM MAC	LOAD DIRECTORY  FEE WARMER  FEE WARMER  FFEE BRIWER  FFEE BRIWER  AREITE WERCH.  ICE SYSTEM  OOR FEELER  OOR FEELER	NOTE   X   X   X   X   X   X   X   X   X	008 008 008 008 008 008 008 008 008 008
\$TYLE QOB QOB QOB QOB QOB QOB QOB QOB	X, L X X X X X X X X X X X X X	LOAD DIRECT STAND WERCHANDISER WHRE'S GOUBERT ICE SYSTEM ICE MACHINE SODA TOBER ICE CUBER SATEVACIONES CAPPUCCINO DISPENSER HOT LEA.	3 PHASE	4 WIRE    VOLT   120   208   120   208   120   120   208   120   1	STYLE  AMPS CAT 20 1 20 3 20 3 20 3 20 1 20 1 20 1 20 1 20 1 20 1 20 1 20 1	NGOD 442L  CRT NO  2  4  6  8  10  11  16  18  20  22  24  24  26	225CU  AMPS VC  20   1	(2) COF Q COFFEE O AUTO CO Q AUTO CO Q (4) CIG O GOURNET O GLASS D O GLASS D O FROZEN O ATM MAC O (2) COOLER	LOAD DIRECTORY  FEE MANNER MAN	NOTE   X	008 008 008 008 008 008 008 008 008 008
STYLE  OOB  OOB  OOB  OOB  OOB  OOB  OOB  O	X L X X X X X X X X X X X X X X X X X X	225 AMPS  LOAD DIRECT ISLAND WERCHANDISER WHR 2 GOURNET ICE SYSTEM FCB MACHINE SODA TOWER (2) CARBONATORS SODA TOWER ICE CUBER BAKERY CASE CAPPUSC NO DISPENSER COFFEE OFFEE OFFEE OFFEE	3 PHASE	4 WIRE    VOLT   120   208   120   1	STYLE  AMPS CRT NO 20 1 20 1 20 15 20 15 20 15 20 15 20 15 20 15 20 25 20 25 20 25	CRT NO NO 442L  CRT NO NO 44	225CU  AMPS VC  20   1	20 (2) COF 20 COFFEE 20 AUTO CO 20 AUTO CO 20 (4) CIG 20 GOURMET 20 GLASS D 20 GLASS D 20 GLASS D 20 FROZEN 20 ATM MAC	LOAD DIRECTORY  FEE MANNER MAN	NOTE   X	008 008 008 008 008 008 008 008 008 008
\$17LE 90B 90B 90B 90B 90B 90B 90B 90B	MOTE X, L X X X X X X X X X X X X X X X X X X X	225 AMPS  LOAD DIRECT SHAP2  GOURNET LCE SYSTEM FOR MACHINE SOBA TORE (2) CARBONATORS SOBA TORE LCE CUBER BAKERY CASE CAPPUCC IND DISPESSER HOT TERMENTER HOT TERMENTER	3 PHASE	4 WIRE    VOLT	STYLE  AMPS CKT NO 20 1 3	CRT NO 0D 442L  CRT NO 0 2	225CU  AMPS VC 20   1   20   2   2   2   2   2   2   2   2	COLUMN   C	LOAD DIRECTORY FFE MANUER MANUER FFE MANUER MANUER FFE	NOTE	008 008 008 008 008 008 008 008 008 008
\$17LE 00B 00B 00B 00B 00B 00B 00B 00	MOTE X, L X X X X X X X X X X X X X X X X X X X	225 AMPS  ISLAND MERCHANDISER WHR-2  GOURNET LEE SISTEM FCE MACHINE SODA TOWER 20 CARRONATORS SODA TOWER 21 CARRONATORS SODA TOWER CAPPICCINO DISPENSER CAPPICCINO DISPENSER COTTEA	3 PHASE	4 WIRE    VOLT   120   208   120   120   208   120   1	STYLE  AMPS CRT  AMPS CRT  20 1  20 1  20 1  20 1  20 1  20 1  20 12  20 12  20 12  20 23  20 23  20 23  20 23  20 23  20 23  20 23  20 23  20 23  20 23	CRT NOOD 442L  CRT 1  A0	225CU  AMPS VC  20   1   20   2   2   2   2   2   2   2   2	C	LOAD DIRECTORY FFE MANUER MANUER FFE MANUER MANUER FFE	NOTE   X	008 008 008 008 008 008 008 008 008 008
\$171E \$08 \$08 \$08 \$08 \$08 \$08 \$08 \$08	NOTE X, L X X X X X X X X X X X X X X X X X X X	225 AMPS  ISLAND MERCHARDISER WHIR-2 GOURNET ICE SYSTEM FCB MACHINE 121 CARBONATORS 122 CARBONATORS SODA TOMER ICE CUBER BAKERY CASE CAPPUCKINO DISPENSER HOT TEA FCC TEE BRIMER HEATED HOLD ING UNIT	3 PHASE	4 WIRE    VOLT   120   208   120   208   120   208   120   1	STYLE  AMPS C6T  20 1	NOOD 442L  CRT  NO  2  2  3  10  12  14  16  18  22  22  22  22  24  26  28  30  30  30	225CU  AMPS VC  20   1  20   1  20   1  20   1  20   1  20   1  20   1  20   1  20   1  20   1  20   2  0   2	(2) COFFE	LOAD DIRECTORY FEE WASHER  ANGELE FIELD BEFEE FIELD BE	NOTE   X   X   X   X   X   X   X   X   X	008 008 008 008 008 008 008 008
\$17LE 00B 00B 00B 00B 00B 00B 00B 00	MOTE X, L X X X X X X X X X X X X X X X X X X X	225 AMPS  ISLAND MERCHANDISER WHE 2  COURNET LEE SISTEM FCE MACHINE SODA TOWER 20 CARRONATORS SODA TOWER 21 CARRONATORS SODA TOWER CAPPICCINO DISPENSER CAPPICCINO DISPENSER COTTEA	3 PHASE	4 WIRE    VOLT   120   208   120   120   208   120   1	STYLE  AMPS CRT	CRT NOOD 442L  CRT 1  AC 2	225CU  AMPS VC  20 I  20 I	C	LOAD DIRECTORY FFE MANUER MANUER FFE MANUER MANUER FFE	NOTE   X	008 008 008 008 008 008 008 008
\$17LE \$008	NOTE X, L X X X X X X X X X X X X X X X X X X X	225 AMPS  ISLAND MERCHANDISER WHR-2  COURNET TEE SYSTEM FCE MACHINE SODA TOWER CID CARROWATORS SODA TOWER SODA TO	3 PHASE TORY	4 WIRE    VOLT   120   208   120   208   120   208   120   1	STYLE  AMPS C6T  20 1	NOOD 442L  CRT  NO  2  2  3  10  12  14  16  18  22  22  22  22  24  26  28  30  30  30	225CU  AMPS VC  20   1	C	LOAD DIRECTORY FEE WASHER  ANGELE FIELD BEFEE FIELD BE	NOTE   X   X   X   X   X   X   X   X   X	008 008 008 008 008 008 008 008

PANEL	;	٠		12	20/208	VOLTS		TYPE:	SOUARE	"D"		MAINTYPE: M.L.O.		
		225	AMPS	3	PHASE	4 WIRE		STYLE	: NQOD442	L225C	IJ	***TOP FED***		
STYLE NO	ÞΤΕ		LOAD DIR	ECTORY		VOL T	AMPS	CKT NO -	CKT	AMPS	VOL T	LOAD DIRECTORY	NOTE	STYLE
QOB :	x	LIGHT	ING-SALES			120	20	T-~	<u> </u>	20	120	LIGHTING-EXTERIOR	1	QOB
008	X	LIGHT	ING-SALES			120	20	T3-~	$\sim$	20		LIGHTING-EXTERIOR		908
QOB :	XП	LIGHT	ING-SALES			120	20	15-~1	$\sim$ - $\epsilon$	20	120	BUILDING-SIGN		QOB
Q0B :			ING-SALES			120	20	T7-74	P~-81	20		BUILDING-SIGN		008
QOB :	X	LIGHT	ING-NONSALES			120	20	9-~	- <del>- 10</del> 1	20	120	AIR/WATER UNIT	X	QOB
QOB :			-RESTROOMS/EF			120	20	<u>₩</u> ~	- TZ	20	208	DOWNLIGHT CANOPY	2	QOB
QOB :			ING-WALK-INS			120	20	113-~	<u> </u>				2	QOB
OOB X			-EMERGENCY/EX			120	20	15-~	<u>-</u> -√-⊒6	20	208	DOWNLIGHT CANOPY	2	QOB
QOB			ING - CANOPY I			120	20	117-~	<u> </u>				2	008
Q0B			ING - CANOPY I			120	20	119-~	-T- 20	20	208	DOWNLIGHT CANOPY	2	QOB
QOB		LIGHT				120	20	21-~					2	QOB
Q0B		LIGHT				120	20	23-~		20		LIGHTING-CANOPY FASCIA		908
Q0B			ING CANOPY			120	20	25-24	26	15		POWERBOX LIGHTING CONTROLS	P,L	QOB
QOB			ING · CANOPY			120	20	27-~	<del>次</del>	20	208	LIGHT-SITE PARKING	3	QOB
QOB			ING - CANOPY I	FASCIA		120	20	29-24	- 30				3	QOB
QOB			ENT SIGN			120	20	131-~	P1\- <u>32</u>	20	208	LIGHT-SITE PARKING	3	008
QOB	$\perp$	MONUM	ENT SIGN			120	20	33-2	24				3	QOB
QOB :		SPARE				120	20	35-~	文 <u>3</u> 4 文 36	20	208	LIGHT-SITE PARKING	3	OOB
QOB			ING - CANOPY			120	20	37-24	38				3	008
OOB			ING-FASCIA SI			120	20	39-~	40	20	120	SPARE	X	QOB
QOB	ιТ	LIGHT	ING-FASCIA SI	SN .		120	20	111-~	42	20	1 120	SPARE	1 X	QOB

PANEL:	"н"	120/208	VOLTS		TYPE:	SOUARE	"D"		MAINTYPE: M.L.O.		
	400 AMPS	3 PHASE	4 WIRE		STYLE:	NQOD442	L 400CI	IJ	•••BOTTOM FED•••		
STYLE NOT	LOAD D	IRECTORY	VOL T	AMPS	CKT NO	CKT NO	AMPS	VOL T	LOAD DIRECTORY	NOTE	STYLE
OOBVH X	ROOFTOP UNIT-1		208	60	玉郑	太子	40	208	ISLAND MERCHANDISER REM. COND.	X	QOBVH QOBVH
GOBVH X					玉分	<b>₩</b>	20	208	ICE CUBER REM. COND.	X	QOBVH QOBVH
OOBVH X	ROOFTOP UNIT-2		208	60	段組	<u>~ ₩</u>	20 20	120	SPARE SPARE	X	QOBVH QOBVH
GOBVH X GOBVH X	SPARE SPARE SPARE		120 120 120	20 20 20	公群	送講	30	208	COOLER REM. COND.	X	GOBVH GOBVH
JODIN X	OT ARC		150		語公	<del>不認</del>	60	208	WHR-I	Î X	QOBVH QOBVH
GOBVH D.N	VARIABLE CONTROLL	ER I	208	20		24 26 28 30	20	120	SPARE	X	QOBVH QOBVH
GOBVH D.M GOBVH D.M GOBVH D.M GOBVH D.M	VARIABLE CONTROLL	ER 2	208	20	議会	$\stackrel{\stackrel{?}{\sim}}{\stackrel{32}{32}}$					
GODYII D.R	Tromi WE7				#35	<u> </u>	20	120	VACUUM CONTROLLER DIESEL	D.M	QOBVH
					41-~	42				D.M	QOBVH

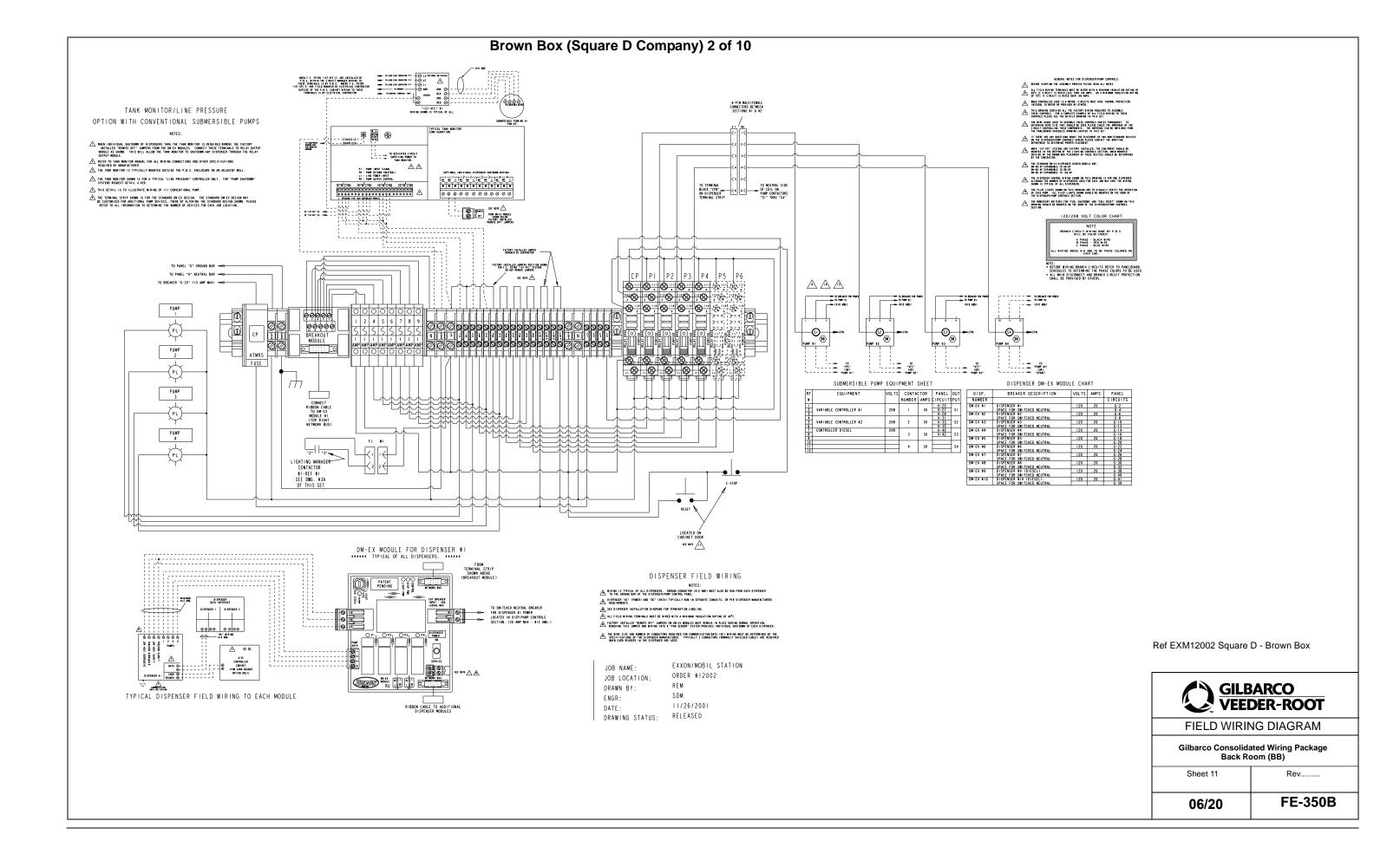
Note: the above is a typical layout and may not exactly reflect the customer installation.

PAI	NEL:	"K2"	120/208	VOL TS		TYPE:	SQUARE	"D"		MAINTYPE: M.L.O.		
		225 AMPS	3 PHASE	4 WIRE		STYLE:	NOOD442	2L 225C	U	***TOP FED***		
TYLE	NOTE	LOAD DIREC	TORY	VOL T	AMPS	CKT NO	CKT NO	AMPS	VOL T	LOAD DIRECTORY	NOTE	STYLE
юв	X	2 DOOR FREEZER		120	20	<del>     </del>	<u>√</u> 2	20	120	SPARE	X	QOB
ЮB	X	MICROWAVE OVEN		120	20	13-24	$\sim 4$	20	120	SPARE	X	QOB
юв	X	FOOD DISPENSER		120	20	T5-24	<b>├</b> ~_€	20	120	SPARE	X	QOB
ЮВ	X	SPARE		120	20	$\overline{\Sigma}$	\\?\_ <u>\@</u>					
ЮΒ	X	SPARE		120	20	T9-24	<u>~_10</u>					
08	X	SPARE		120	20	11112	₩ <u>₩</u>					
	_						K-I					
	-						₩重	20		DOOR HEATER	X	OOB
0B 0B	X	HOT DOG GRILL AUTOMATIC DOOR		120	20 20		<del>\\ \\ \\</del> <del>\\</del> <del>\\</del> <del>\\</del> <del>\\</del> <del>\\</del> <del>\\</del>	20	120	DOOR HEATER SECURITY SYSTEM	_ X	QOB QOB
OB OB	1 7			120	20	먉겄	~ <del>- 5</del>	20	120	RECEPT, -EXTERIOR/RTU/TIMER	- 5	QOB
UB	- *	RECEPT-STOREFRONT		120	20	123-5-7	~ 24	20	120	DOOR HEATER	- 0	QOB
	_			-		185	~ <del>26</del>	20	120	RECEPT PHONE / POS	X.1G	QOB
_	-			-		157~~	<u> </u>	20	120	RECEPT REGISTER/G-SITE	X, 1G	QOB
	_			-		25	<u> </u>	20		RECEPT REGISTER	X.16	GOB
	<del>                                     </del>					37-~	<u> </u>	20		RECEPT, -COMPUTER	x. iG	QOB
	_			-		133-~	- <del>34</del>	20	120	RECEPT OFFICE	x. iG	QOB
				$\overline{}$		135-~	<u> </u>	20		RECEPT CONV/RR	- X	QOB
						137-~	- <del>38</del>	20	120	RECEPT SAFE I	X	QOB
ов	X.IG	RECEPT REGISTER G-S	ITE	120	20	39-~	- <u>40</u>	20	120	RECEPT SAFE 2	X	QOB
	1		-	1.0		<u>₩</u> ~	<u> </u>	20		RECEPT, -LOTTERY	l x	QOB

PAI	NEL:		20/208 PHASE	VOLTS 3 WIRE			SQUARE NGOD42L	-		MAINTYPE: M.L.O. •••BOTTOM FED•••		
STYLE	NOTE	LOAD DIRECTORY	•	VOL T	AMPS	CKT NO _	CKT NO	AMPS	VOL T	LOAD DIRECTORY	NOTE	STYLE
908	Х	TANK MONITOR (TLS-350)		120	20	$\Box$		20		DISPENSER #1	D,S	OOBSWN
QOB	X IG	G-SITE #1 STATION		120	20	+-74	~ <del>-</del>	20	120	SPACE FOR SWITCHED NEUTRAL DISPENSER #2	D.S D.S	QOBSWN QOBSWN
						<u> </u>				SPACE FOR SWITCHED NEUTRAL	D.S	QOBSWN
OOB	X,IG	G-SITE #2 STATION		120	20	<u>₩</u> 2	\ <del>\`</del> #	20		DISPENSER #3 SPACE FOR SWITCHED NEUTRAL	D,S	QOBSWN QOBSWN
QOB	X.IG	G-SITE #3 STATION		120	20	13-~	~ <del>-  4</del>	20		DISPENSER #4	D.S	QOBSWN
						形分	\\ <u>=</u>			SPACE FOR SWITCHED NEUTRAL	D,S	OOBSWIN
QOB	Y IG	COMPUTER		120	20	116-22	<u> </u>	20		DISPENSER #5 SPACE FOR SWITCHED NEUTRAL	D.S D.S	QOBSWN QOBSWN
	A, 10					21-~		20	120	DISPENSER #6	D,S	COBSWN
QOB QOB	PI	CONTROLLER POWERBOX SOLUTIONS DISP		120	20 15	133-CH	- 24	20		SPACE FOR SWITCHED NEUTRAL	D.S	QOBSWN QOBSWN
QOB	P,L	PHONE BOARD	CONTROL	120	20	<del>₹</del> ☆	<u> </u>	20		DISPENSER #7 SPACE FOR SWITCHED NEUTRAL	D.S	QOBSWN
						29-~	<u>-√-30</u>	20	120	DISPENSER #8	D,S	COBSWN
QOB	X	DUCT DETECTOR		120	20	<u>₩</u> ☆	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	20		SPACE FOR SWITCHED NEUTRAL DATA DISTRIBUTION BOX	D.S	QOBSWN
	_	<u> </u>		-		35 -	$\frac{34}{36}$	20	120	SPARE SPARE	X, IG	Q08
						T37-^~4	38	20		DISPENSER #9 (DIESEL)	D.S	QOBSWN
OOBSWN		SPACE FOR SWITCHED NEUTR DISPENSER #10 (DIESEL)	AL	120	20	₹ ☆	△ 49			SPACE FOR SWITCHED NEUTRAL	D,S	OOBSWN
GODZEN	0.5	I DI SPENSER BIO (DIESEL)		120	20	141 - 9	P - 42				_	

Ref EXM12002 Square D - Brown Box

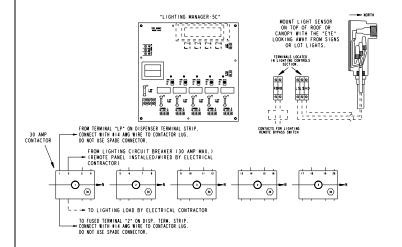




## Brown Box (Square D Company) 3 of 10

OUTSIDE LIGHTING CONTROL WIRING DETAIL

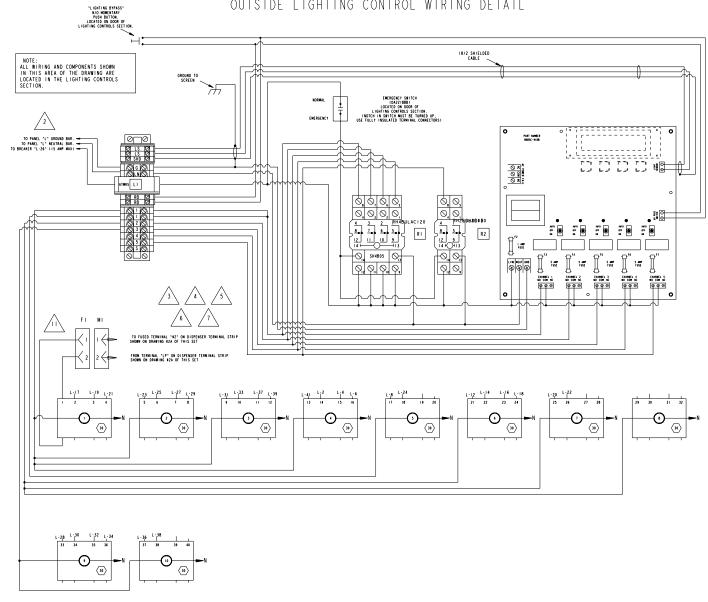
#### OUTSIDE LIGHTING CONTROL DETAIL



9 ALL DASHED LINES REPRESENT FIELD WIRING.

LIGHTING CONTROLLER , SENSOR, CONTACTOR COILS, AND WIRING TO TERMINAL STRIPS FURNISHED BY P.B.S. TYPE AND NUMBER OF CONTACTOR WILL VARY BETWEEN LOCATIONS.

INSTALLER CONTRACTOR NOTE. DO NOT REMOVE TOPPER LIGHTING CONTROL WIRES. DO NOT CONNECT ANY OTHER CIRCUITS TO THIS CONTACTOR POLE.



#### LIGHTING CONTROL EQUIPMENT SHEET

7.	RF	EQUIPMENT	VOL TS	CONTAC	CTOR	PANEL	OUT
	#			NUMBER	AMPS	CIRCUITS	PUT
	ш	TOPPER LIGHTING					
	2	LIGHTING - CANOPY FASCIA	120	1	30	L-17	١,
	3	LIGHTING - CANOPY FASCIA	120	1	30	L-19	' '
	4	LIGHTING - CANOPY FASCIA	120			L-21	
	5	LIGHTING - CANOPY FASCIA	120			L-23	
	6	LIGHTING - CANOPY FASCIA	120	2	30	L-25	١,
	7	LIGHTING - CANOPY FASCIA	120	۷ .	30	L-27	1 '
	8	LIGHTING - CANOPY FASCIA	120			L-29	
	9	MONUMENT SIGN	120			L-31	
	10	MONUMENT SIGN	120	3	30	L-33	١.
	111	LIGHTING-CANOPY FASCIA	120	3	30	L-37	1
	12	LIGHTING-FASCIA SIGN	120			L-39	1
	13	LIGHTING-FASCIA SIGN	120			L-41	
	14	LIGHTING - EXTERIOR	120	4	٠,,	L-2	١.
	15	LIGHTING - EXTERIOR	120	4	30	L-4	1
	16	BUILDING - SIGN	120			L-6	
	17	BUILDING - SIGN	120			L-8	
	18	LIGHTING-CANOPY FASCIA	120	5	30	L-24	١,
	19			) >	30		١'
	20						
	21	DOWNLIGHT CANOPY	208			L-12	
	22				١,,	L-14	١.
	23	DOWNLIGHT CANOPY	208	6	30	L-16	2
	24					L-18	i
	25	DOWNLIGHT CANOPY	208			L-20	
	26			7	30	L-22	,
	27			'	30		۱ ۲
	28						
	29						
	30			8	30		١٠
	31				30		2
	32						
	33	LIGHT - SITE PARKING	208			L-28	
	34	•		9	٠,	L-30	3
	35	LIGHT - SITE PARKING	208	, ,	30	L - 32	3
	36					L-34	
	37	LIGHT - SITE PARKING	208			L-36	
	38		''	١	١,,	L - 38	١,
	39			10	30		3
	40						

OVERCURRENT PROTECTION FOR EACH LIGHTING CIRCUIT TO BE CONTROLLED BY THE P.B.S. "LIGHTING MANAGER" IS PROVIDED BY OTHERS. THIS OVERCURRENT PROTECTION SHALL BE LIMITED TO 30 AMPS MAXIMUM FOR EACH CIRCUIT UNLESS OTHERWISE SPECIFIED.

CONTROL FUSE "LI" FOR LIGHTING CONTROL POWER MUST BE "5 AMPS". REPLACE WITH THE SAME TYPE RATING AND FUSE.

ALL CONTACTORS CONTROLLED BY THE P.B.S. 5-CHANNEL SHOULD BE WIRED MIDEPENDENTLY FROM EACH CONTACTOR TO THE OUTPUT TERMINAL BLOCK INTERFACE. CONTACTORS 12 THRU IS TO BE CONTROLED BY ES RELAY AND JUMPERED FROM ONE TO THE OTHER.

THE WIRES FROM ALL CONTACTORS MUST BE NUMBERED AT THE OUTPUT TERMINAL BLOCK INTERFACE.

BEFORE WIRING ANY BRANCH CIRCUITS TO THE LUGS ON THE LIGHTING CONTACTORS REFER TO THE PANELBOARD SCHEDULE DRAWING IN THIS SET TO DETERMINE WHAT COLOR WIRE TO USE FOR EACH CIRCUIT. (SEE COLOR CODE CHART)

ALL CONTROLLED OUTSIDE LIGHTING CIRCUIT WIRES SHOULD BE TAGGED ON THE LINE SIDE BRANCH WIRE WITH THE CIRCUIT BREAKER NUMBER AT W.A. BROWN USING WIRE-TIE LABELS.

#### 120/208 VOLT COLOR CHART

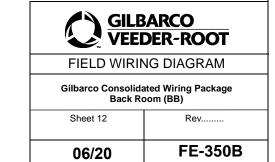
BRANCH CIRCUIT WIRING DONE BY P.B.S. WILL BE COLOR CODED! ALL WIRING ABOVE #10 AWG TO BE PHASE COLORED ON EACH END.

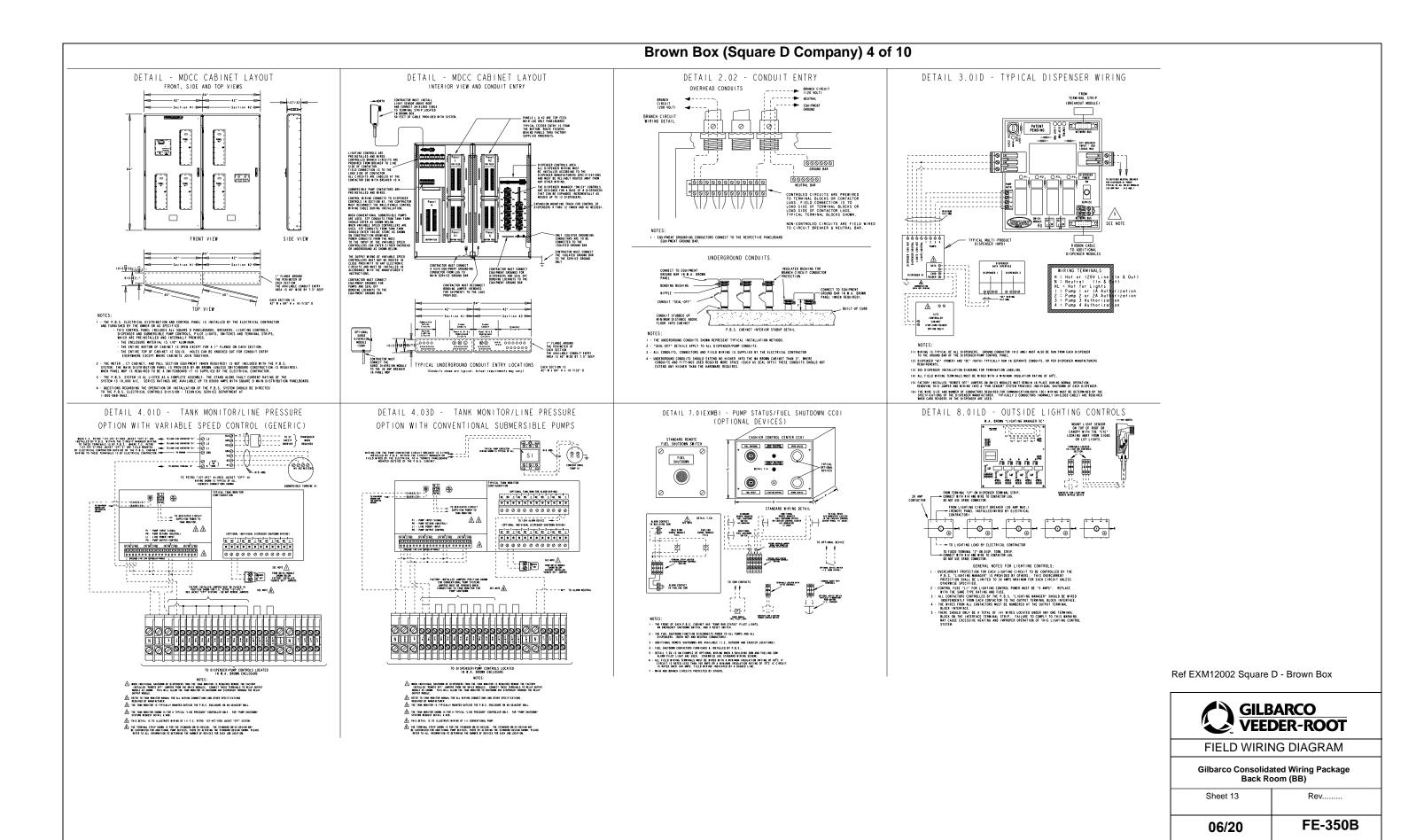
- NOTE:

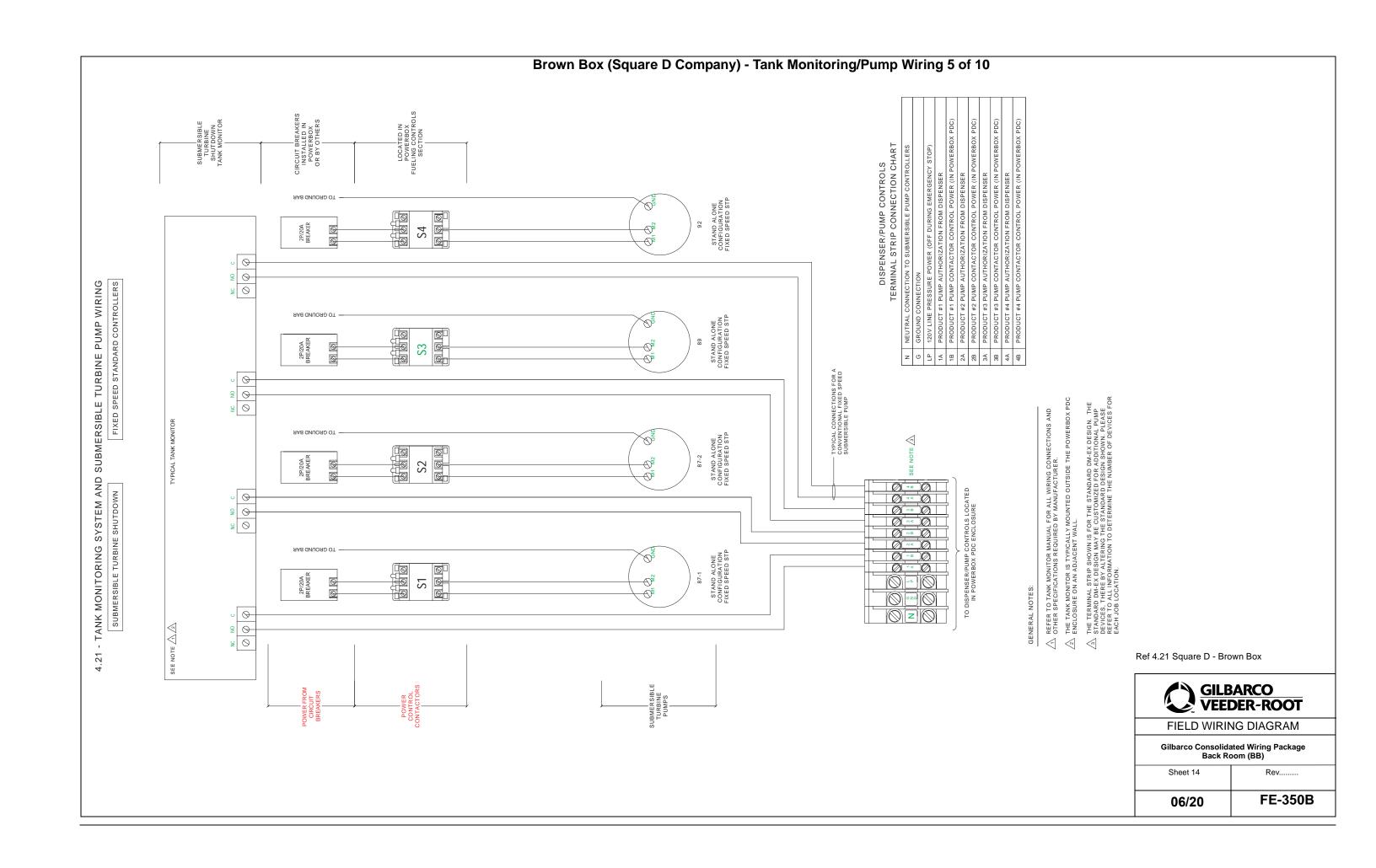
  \* BEFORE WIRING BRANCH CIRCUITS REFER TO PANELBOARD SCHEDULES TO DETERMINE THE PHASE COLORS TO BE USED.

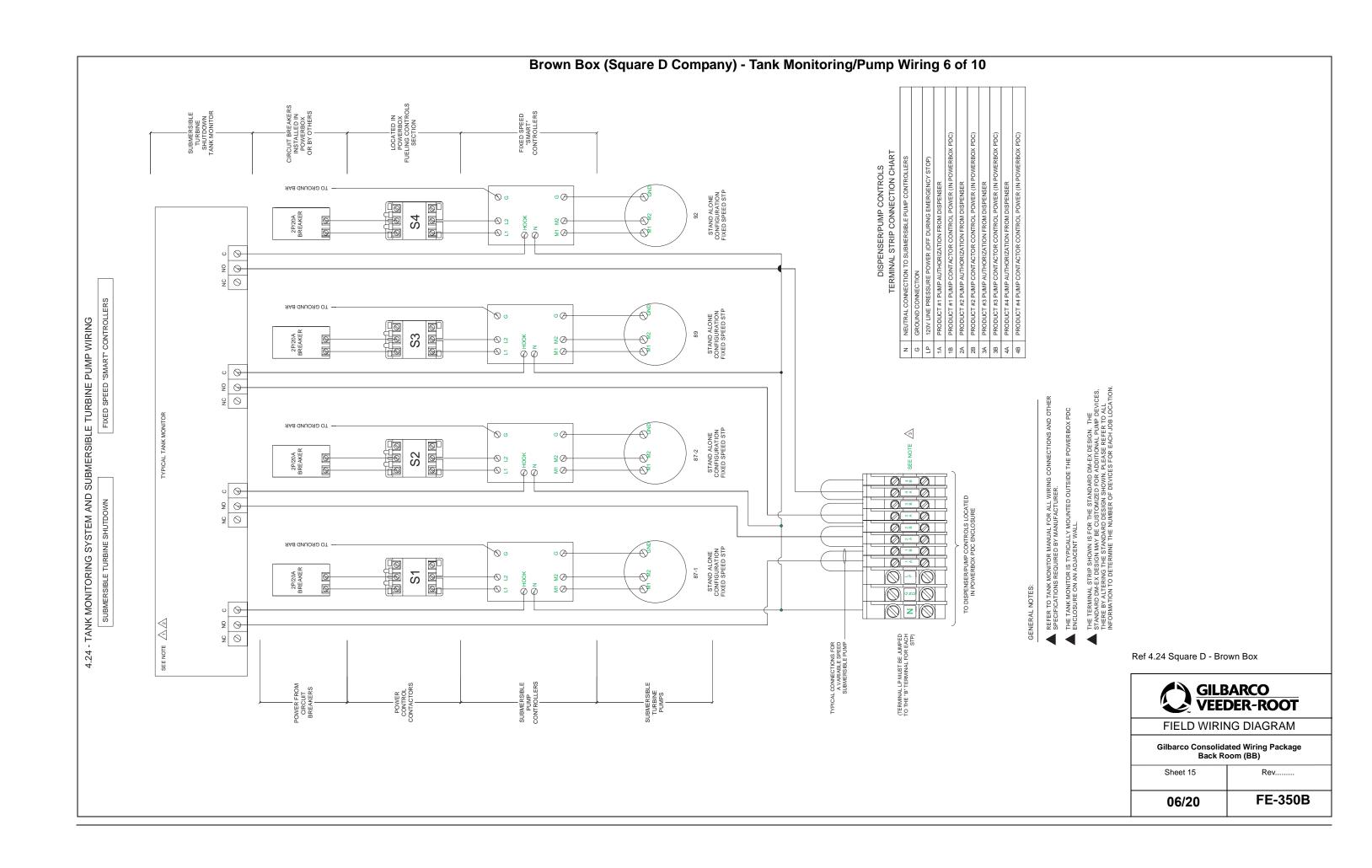
  \* ALL MAIN DISCONNECT AND BRANCH CIRCUIT PROTECTION SHALL BE PROVIDED BY OTHERS.

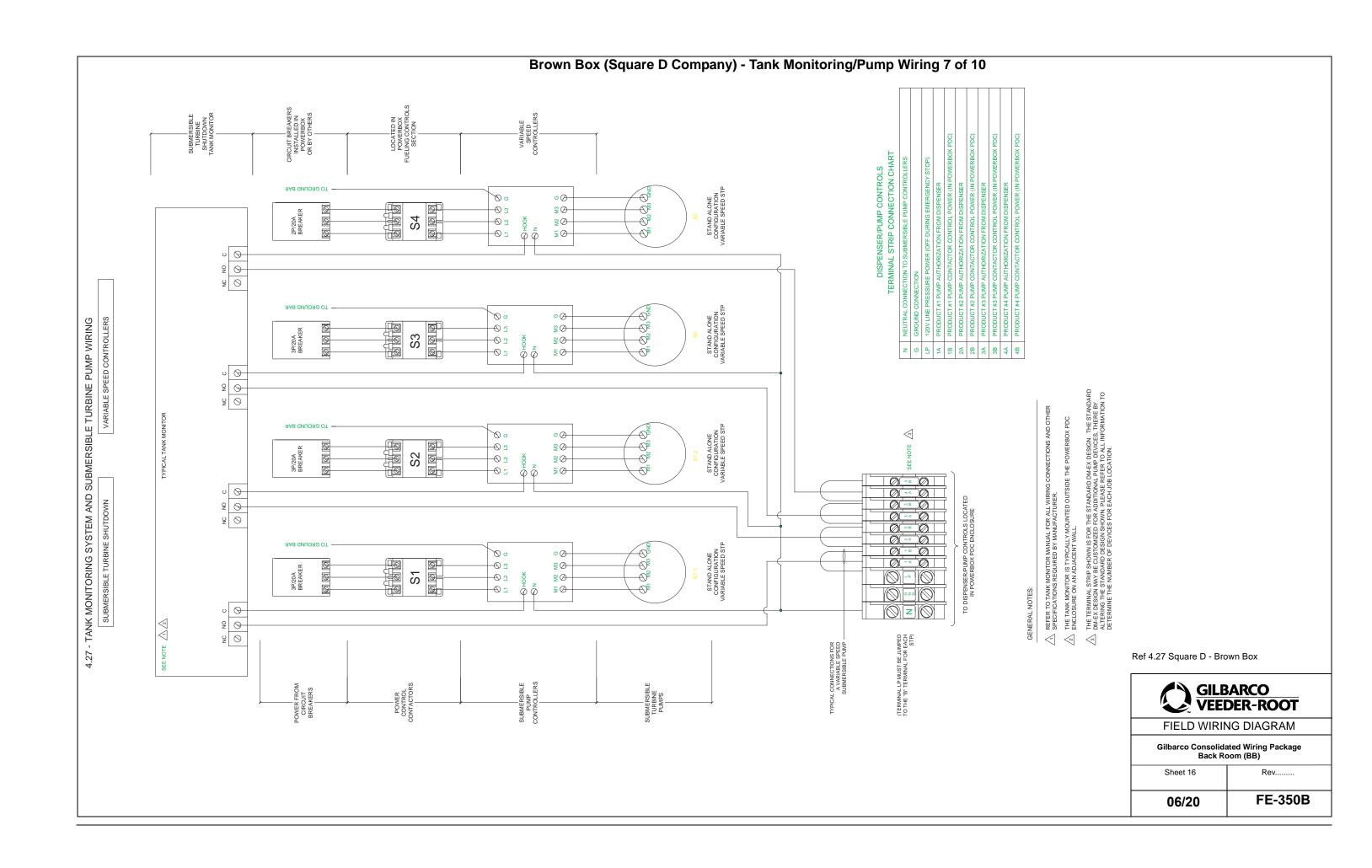
#### Ref EXM12002 Square D - Brown Box

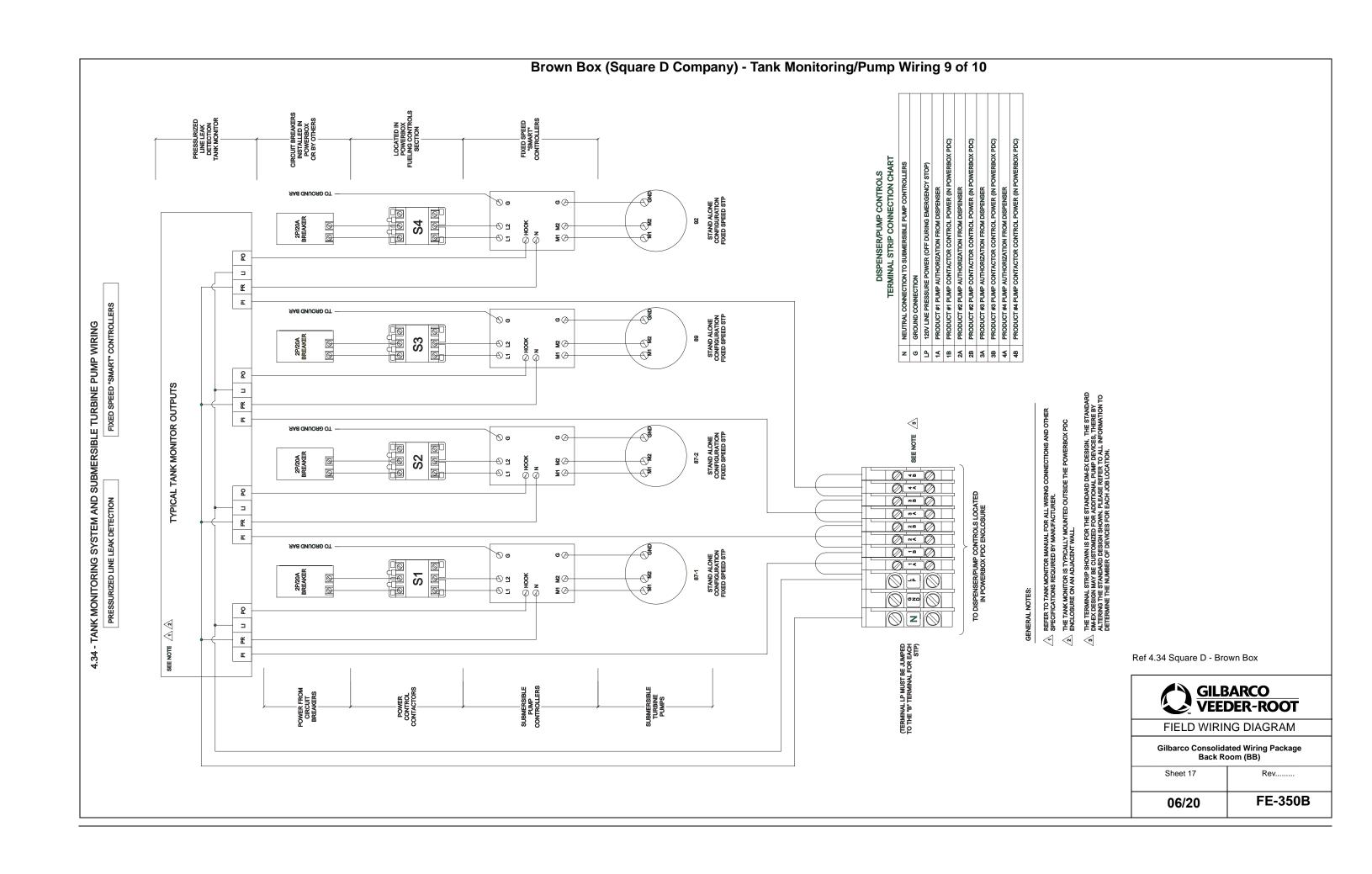


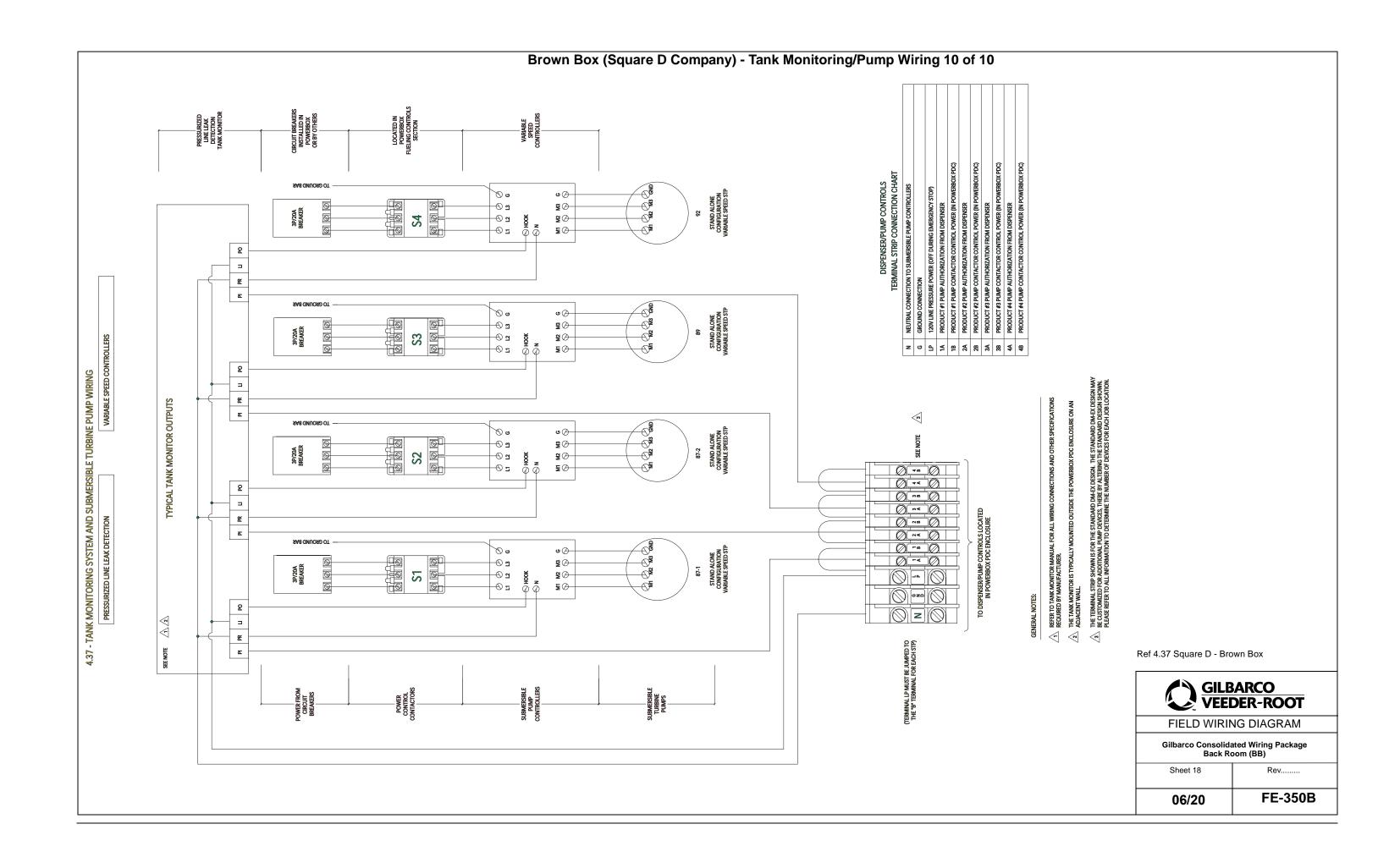


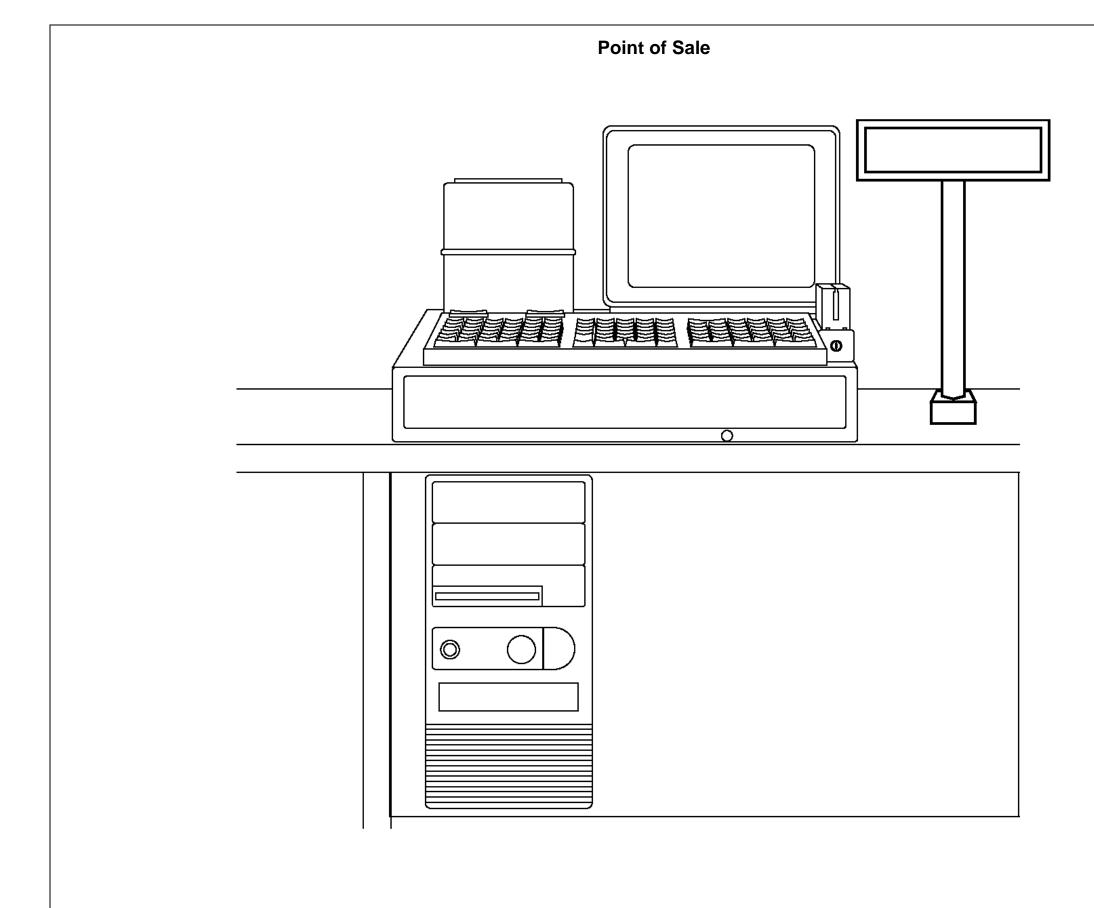










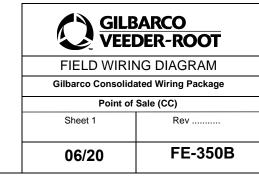


#### **Document Release Information**

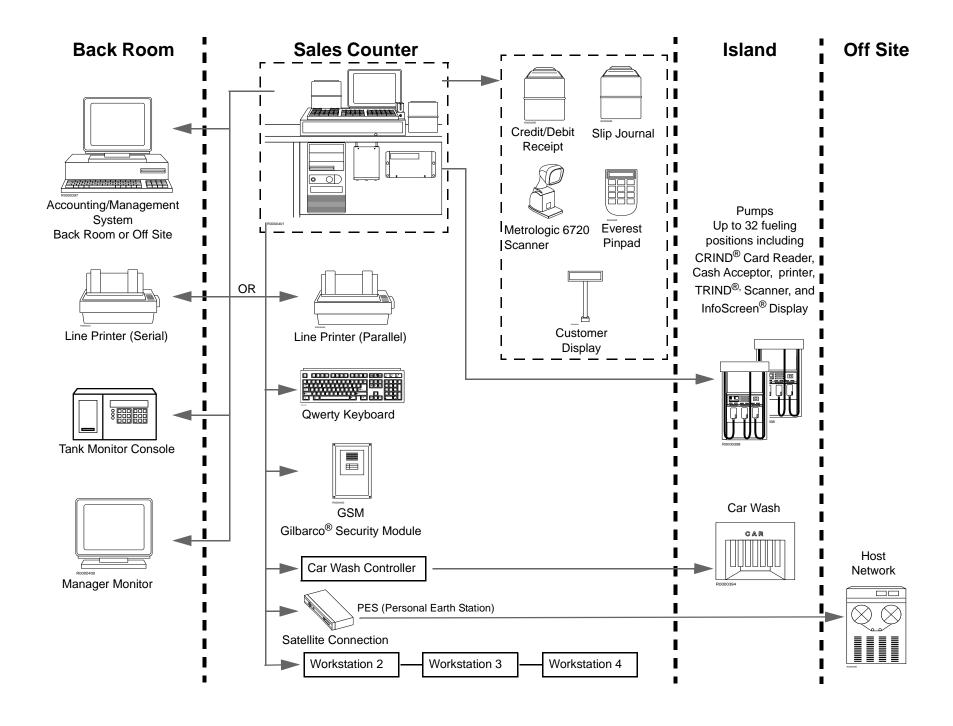
		New			
Sect	Date	Rev	ECO#	Comment(s)	Title
СС				New Release	Title Page
СС				New Release	PC Based POS
СС				New Release	PassPort POS LAN -SMW
СС				New Release	PassPort POS LAN - CCMW
СС				New Release	PassPort Comb Work Station
СС				New Release	PassPort POS IBM Hardware Mgmt
СС				New Release	POS Dedicated Gnd Wiring
СС				New Release	POS Dedicated Gnd Wiring for (PassPort)

#### **Subject Matter**

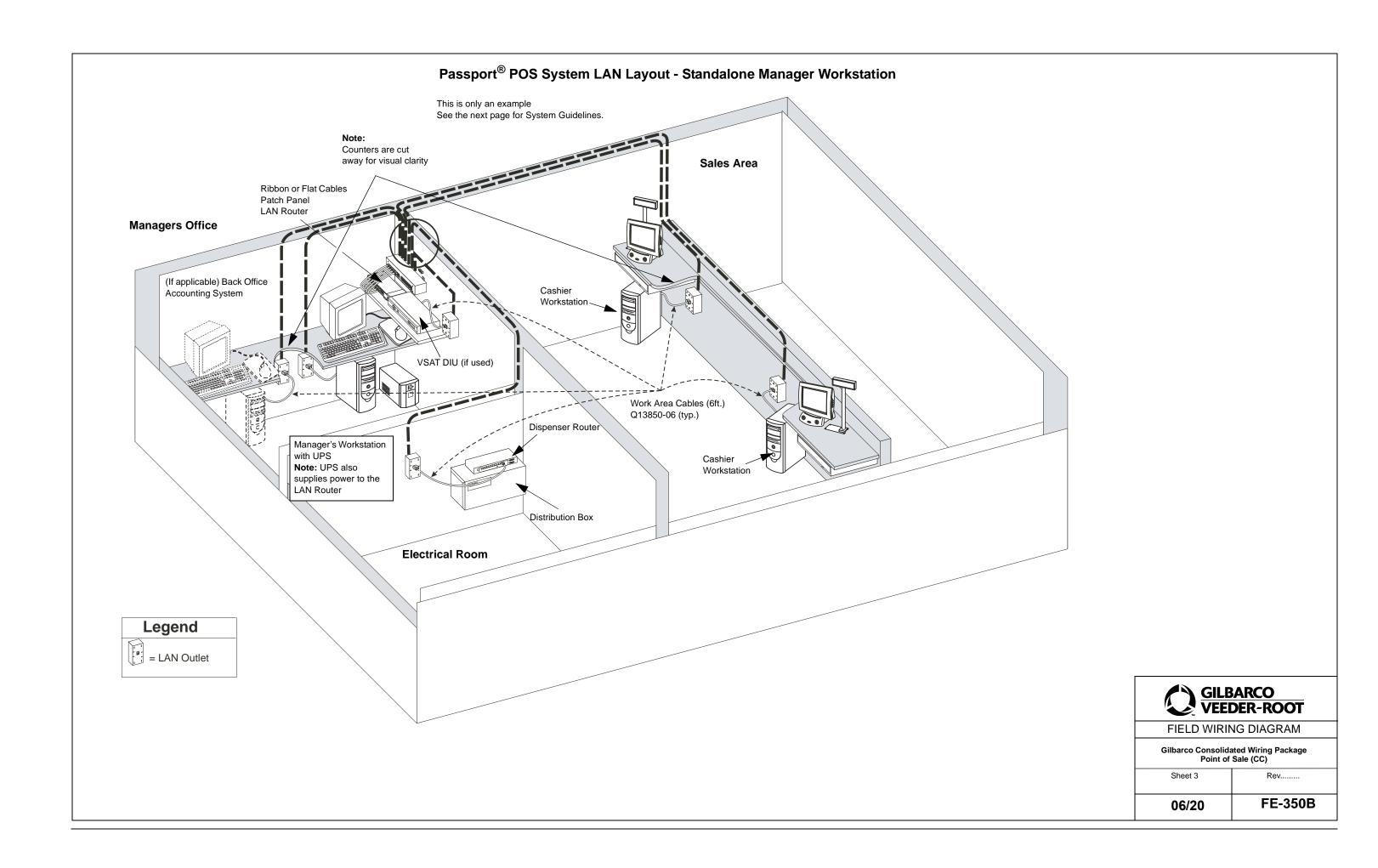
- 1 Point of Sale Wiring Connections
- 2 "PC-Based POS System Configuation
- 3 "Passport® POS System LAN Layout Standalone Manager Workstation
- 4 "Passport® POS System LAN Layout Combined Cashier/Manager Workstation
- 5 "Passport® POS Combined Cashier/Manager Workstation Electrical Component Layout
- 6 "Passport® POS IBM Hardware Setup for Manager Workstation
- 7 "Wiring and Dedicated Ground for Isolated Ground Receptacles (POS)
- 8 "Wiring and Dedicated Ground for Isolated Ground Receptacles POS" (PassPort)



## **PC-Based POS System Configuation**

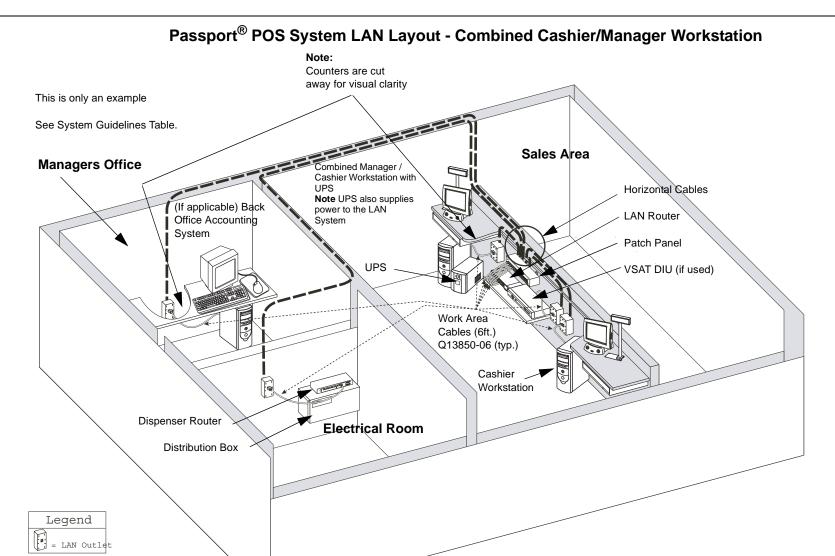






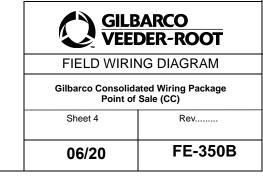
# Guidelines- Passport System LAN Layout - Combination Cashier/Manager Workstation

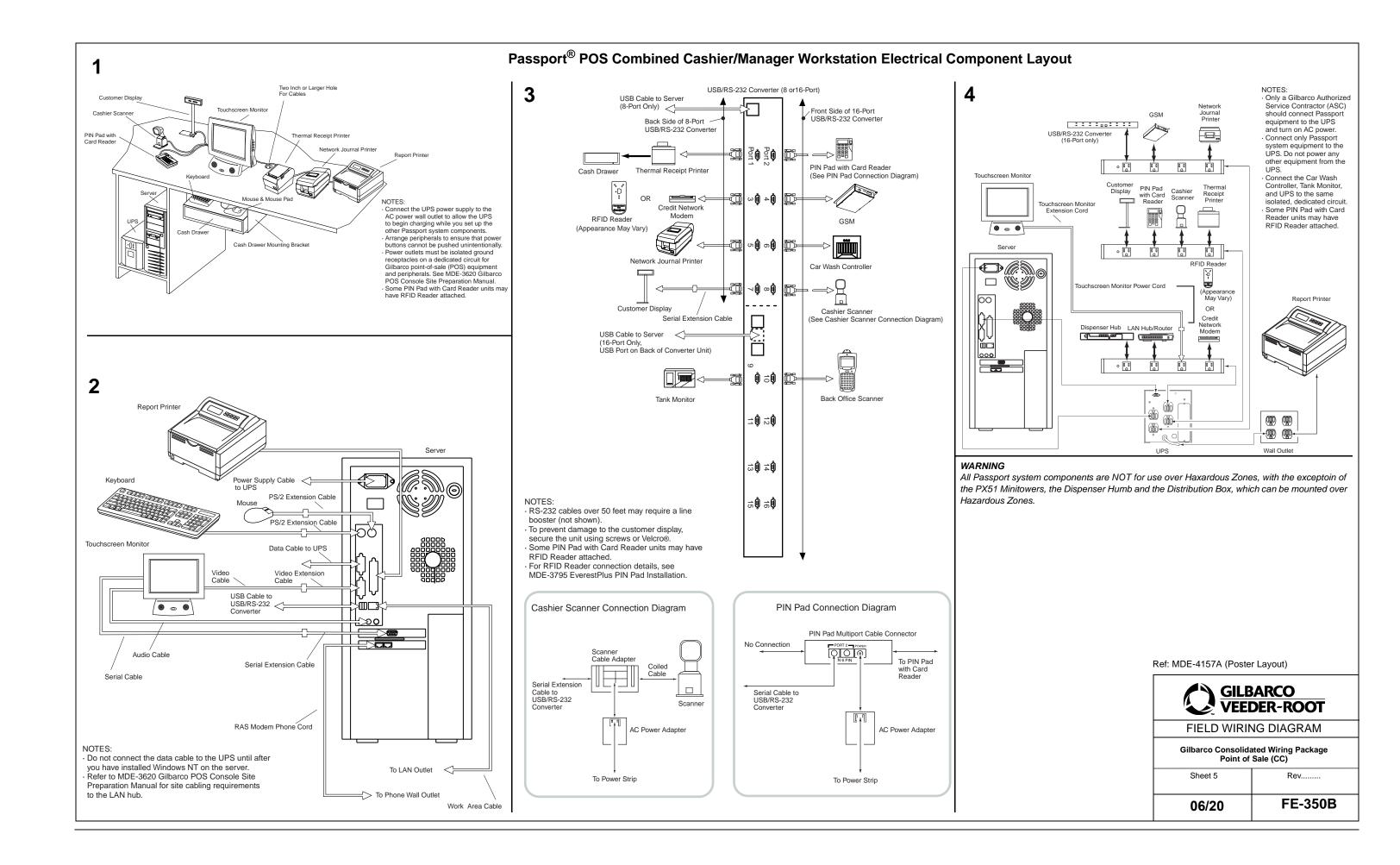
Guideline	Description
Field test all Passport system work area cabling.	Field test all Passport system work area cabling to ensure it meets ANSI/TIA/EIA TSB 67 Transmission Performance Specification for Field Testing of Unshielded Twisted Pair Cabling Assemblies.
Do <i>not</i> cut Q13850-06 work area cables.	Do not rework Q13850-06 cables in the field.
Do <i>not</i> use Q13482-xx series cables for Work Area cables.	Q13482-xx series cables will degrade 10baseT LAN performance.
Comply with the Commercial Building Telecommunication Cabling Standards.	Install the Passport system work area wiring in accordance with ANSI/TIA/EIA 568-A Commercial Building Telecommunication Cabling Standards (and Amendments) and ANSI/TIA/EIA 569-A Commercial Building Standards for Telecommunications Pathways and Spaces (and Amendments).
Install the Passport system LAN Router within two feet of the site patch panel.	Refer to "Passport System LAN Layout - Standalone Manager Workstation" or "Passport System LAN Layout - Combined Cashier/Manager Workstation".
Install the Passport system LAN Router.	Refer to "Passport System LAN Layout - Standalone Manager Workstation" or "Passport System LAN Layout - Combined Cashier/Manager Workstation".
Do <i>not</i> install surge suppression devices with two-wire communication data lines.	N/A
LAN outlet location	The LAN outlets should be placed within four feet of each device (Server, Client, etc.) that connects to the LAN.



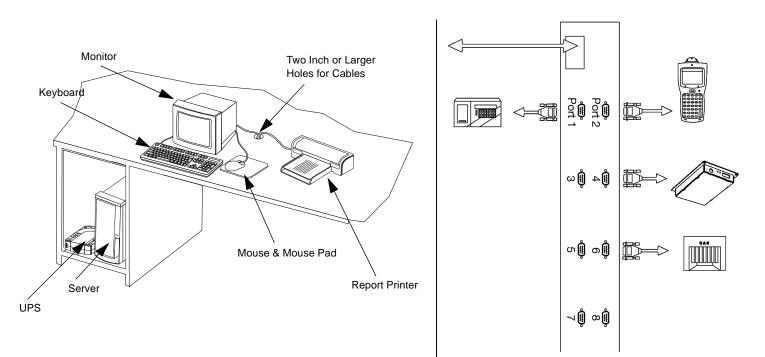
#### **Pump Stop Relay**

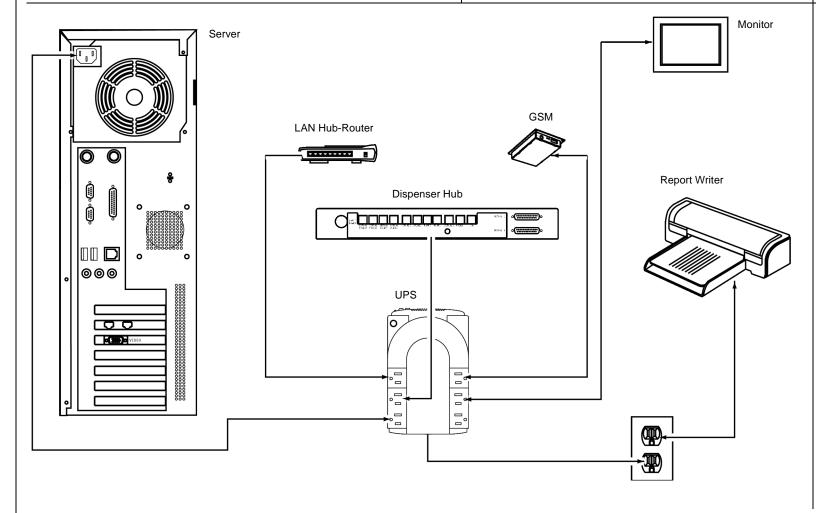
Name	Part Number	Device Description
STP Control & Dispenser Isolation Relay Box	PA0287	Domestic voltage only
Isotrol 1-8R	880-047-1	120v w/relay. Does support 2HP motor
Isotrol 1-8	880-049-1	120v w/o relay. Used to control a STP variable speed device
Isotrol 1-84-1	880-048-1	240v w/relay. For international voltage
Isotrol 1-8-1	880-050-1	240v q/o relay. Same as Isotrol 1-8 but with international voltage.





#### Passport® POS IBM Hardware Setup for Manager Workstation





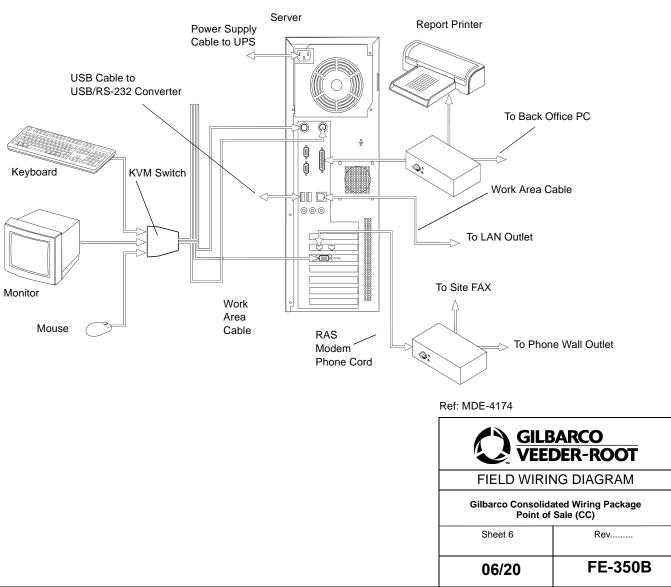
#### **WARNING**

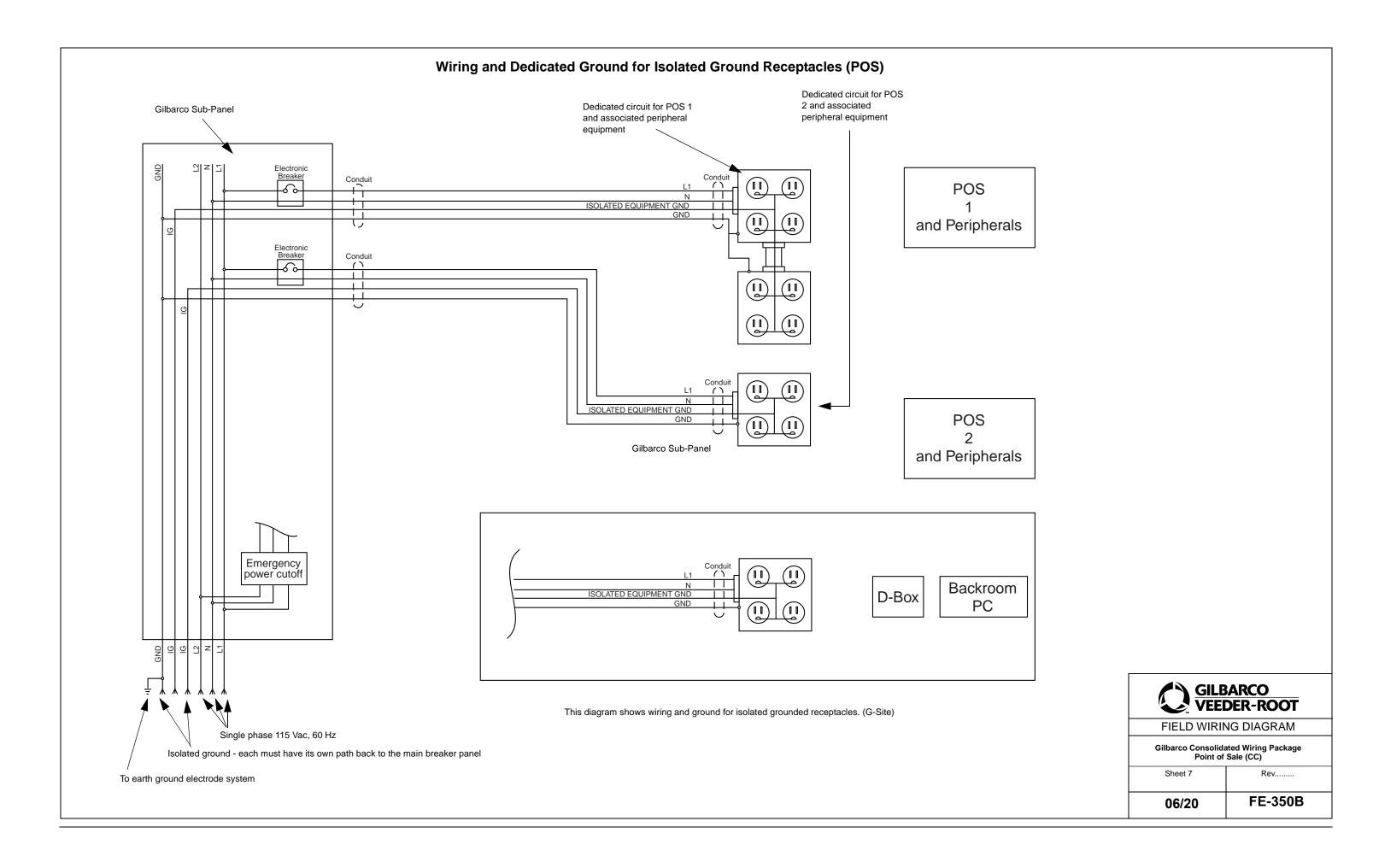
All Passport system components are NOT for use over Hazardous Zones, with the exceptoin of the PX51 Minitowers, the Dispenser Humb and the Distribution Box. These specific items can be mounted over Hazardous Zones.

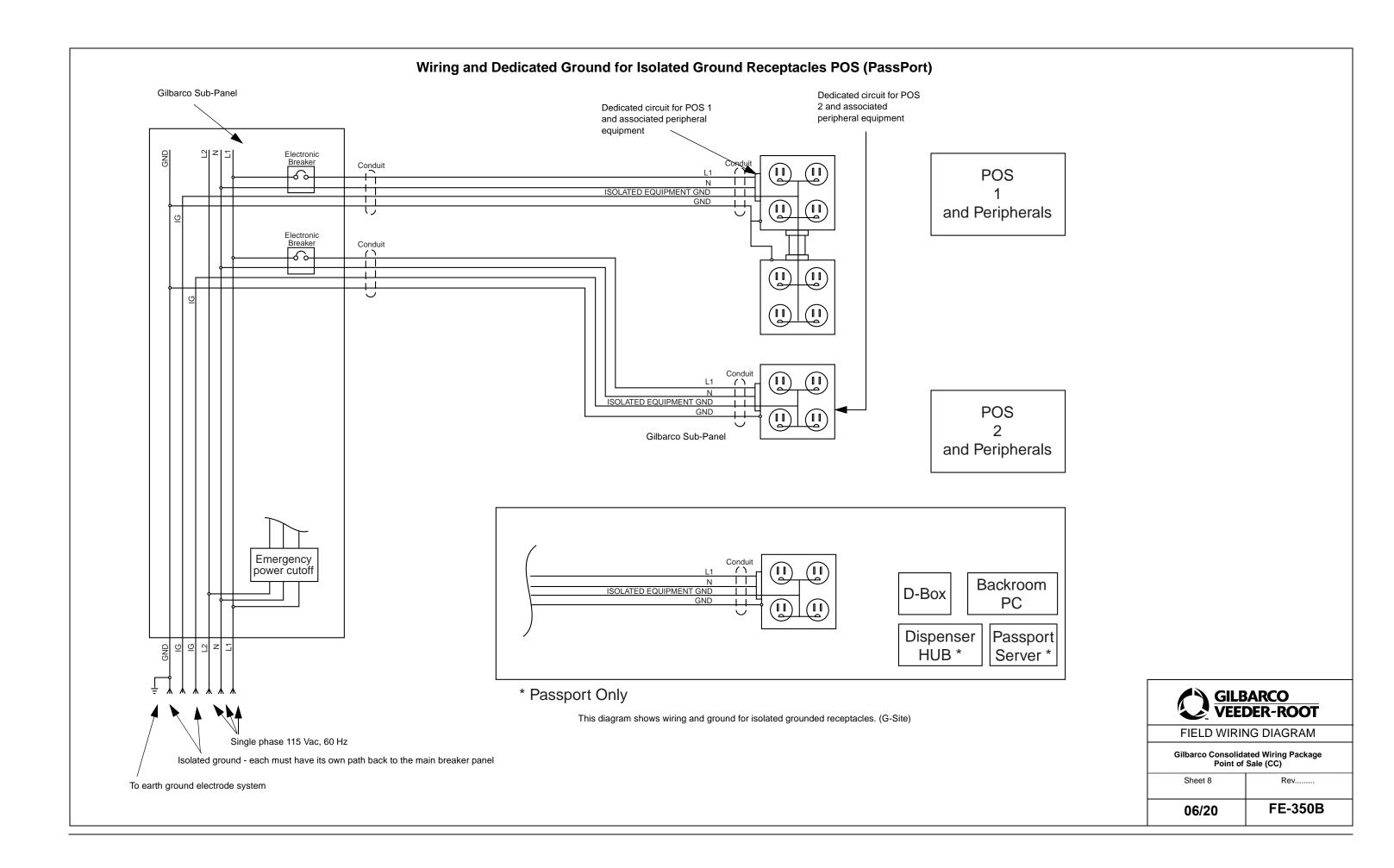
#### **CAUTION**

Connect only Passport system equipment to the UPS. Do NOT power any other equipment from the UPS. Power outlets must be isolated ground receptacles on a dedicated circuit for Gilbarco POS equipment and peripherals.

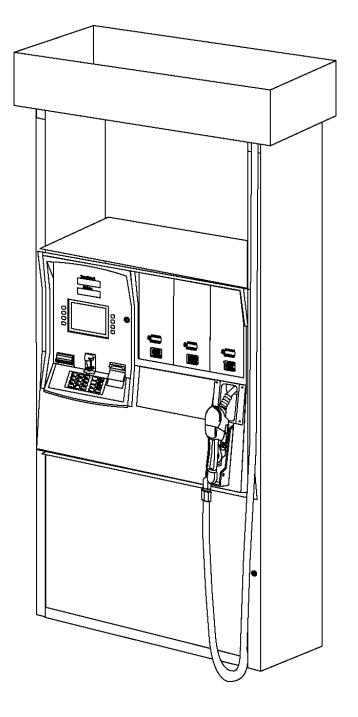
Follow the manufacturer's instructions for setting up the UPS. Connect the UPS battery before plugging in the Passport system devices. Only a Gilbarco Authorized Service Contractor (ASC) should connect Passport equipment to the UPS and turn on AC power.







#### **Dispenser Wiring Connections**

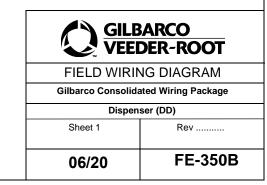


#### **Document Release Information**

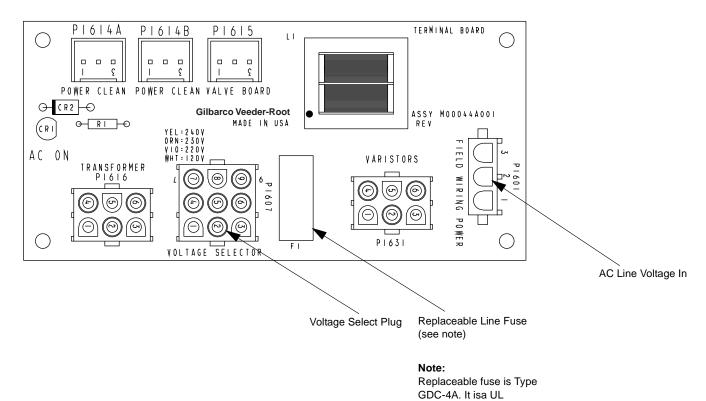
Section Date	New Rev	ECO#	Title(s)
DD	New Release		Title Page (Dispenser Wiring Connections)
DD	New Release.		Terminal Block & Programmable Plug
DD	New Release.		Encore Junction Box & Canopy Light
DD	New Release.		Encore Foot Print
DD	New Release.		Master/Satellite Wiring Diagram With Junction Box
DD	New Release.		Master/Satellite Wiring Diagram Without Junction Box

#### **Subject Matter**

- 1 ..... Dispenser Wiring Connections
- 2 ..... Dispenser Terminal Block & Programmable Plug
- 3 ..... Dispenser Encore Junction Box & Canopy Light
- 4 ..... Dispenser Encore Foot Print
- 5 ..... Dispenser Master/Satellite Wiring Diagram With Junction Box
  6 ..... Dispenser Master/Satellite Wiring Diagram Without Junction Box



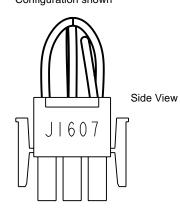
#### **Dispenser - Terminal Block & Programmable Plug**



**Board Connections and Cables** 

Connector#	via Cable	to Board	at Connector#
P1601 (3 pin)	M00153A1001	Field Wiring Power	Field wiring on terminal block
P1607	None - Plug In	Voltage Program Plug:  • M00488A115 (115VAC)  • M00488A220 (220VAC)  • M00488A230 (230VAC)  • M00488A240 (240VAC)	9 Pin
P1614A (3 pin)	M00630A003 (Encore) M00630A004 (Eclipse)	Side 1 Backlight, Ballast & Heater via J1614C to P1614C on M01103A001 cable	3 pin series
P1614B (3 pin)	M00630A003 (Encore) M00630A004 (Eclipse)	Side 2 Backlight, Ballast & Heater via J1614C to P1614C on M01103A001 cable	3 pin series
P1615 (3 pin)	M00625A001 to J1206/ P1206 connection to M01006A001 cable	Transformer Card Reader Heater Sub-Assembly M00293A001     M00059A00X Steering Valve Driver PCA	1. N/A 2. P1206 (3 pin)
P1616 (6 pin)	Multiple Colored Wires	Primary on Power Supply	
P1631 (6 pin)	None - Plug In	Varistor Assembly:  • M00487A115 (115 Volt application)  • M00487A230 (115 Volt application)  • M00487A231 (115 Volt application)	6 pin Plug In

#### M00488A115 Configuration shown



**Bottom View** 

#### Voltage/Plug Designation

For This Voltage	Use This Plug	
115	M00488A115	
220	M00488A220	
230	M00488A230	

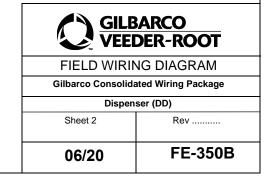
#### **Jumper Configuration**

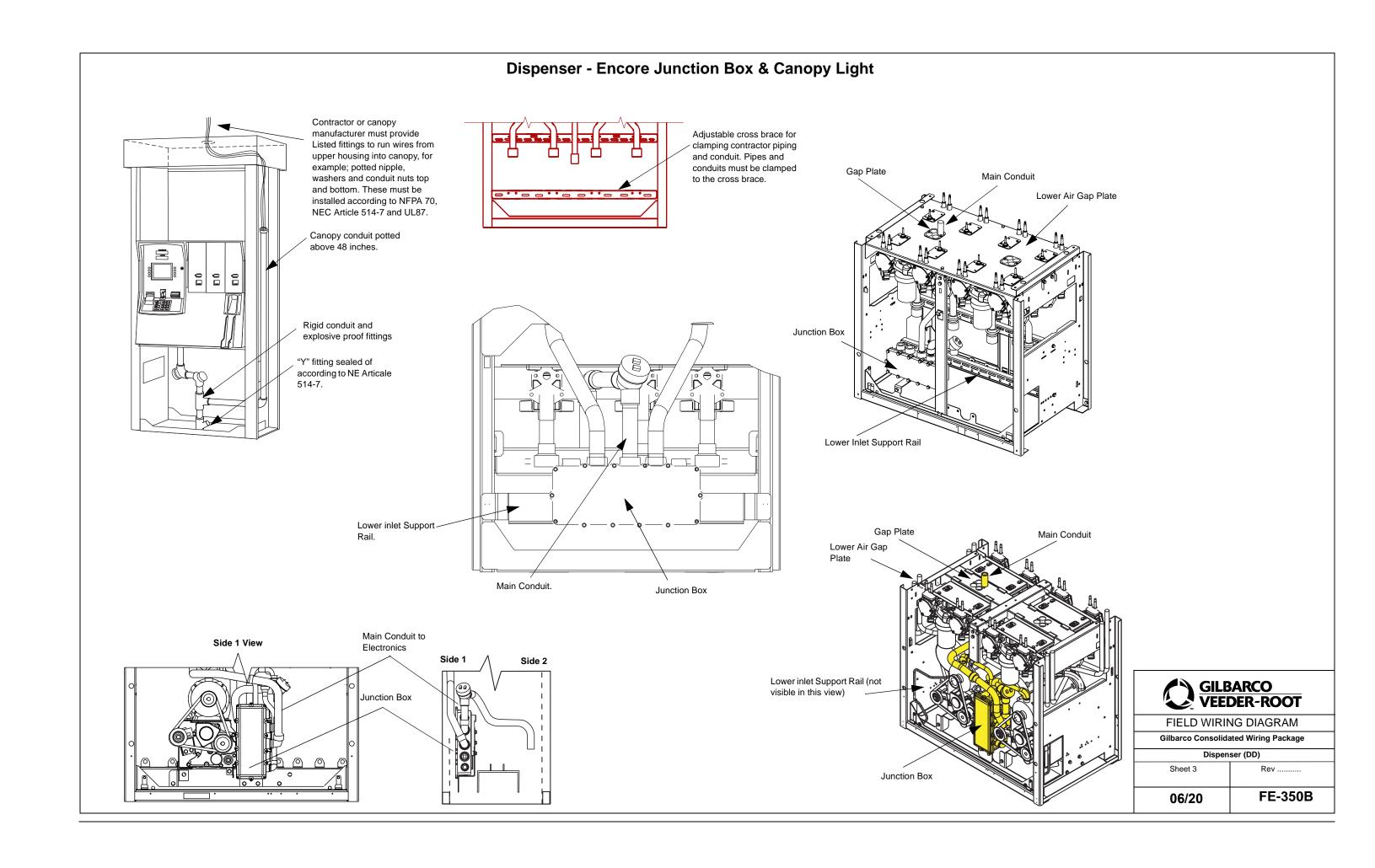
This Plug	With This Voltage configuration	This Terminal	<b>Connects To This Terminal</b>
M00488A115	115	1	3
	-	5	6
		8	2
M00488A220	220	1	7
		5	2
M00488A230	230	1	4
	-	5	2

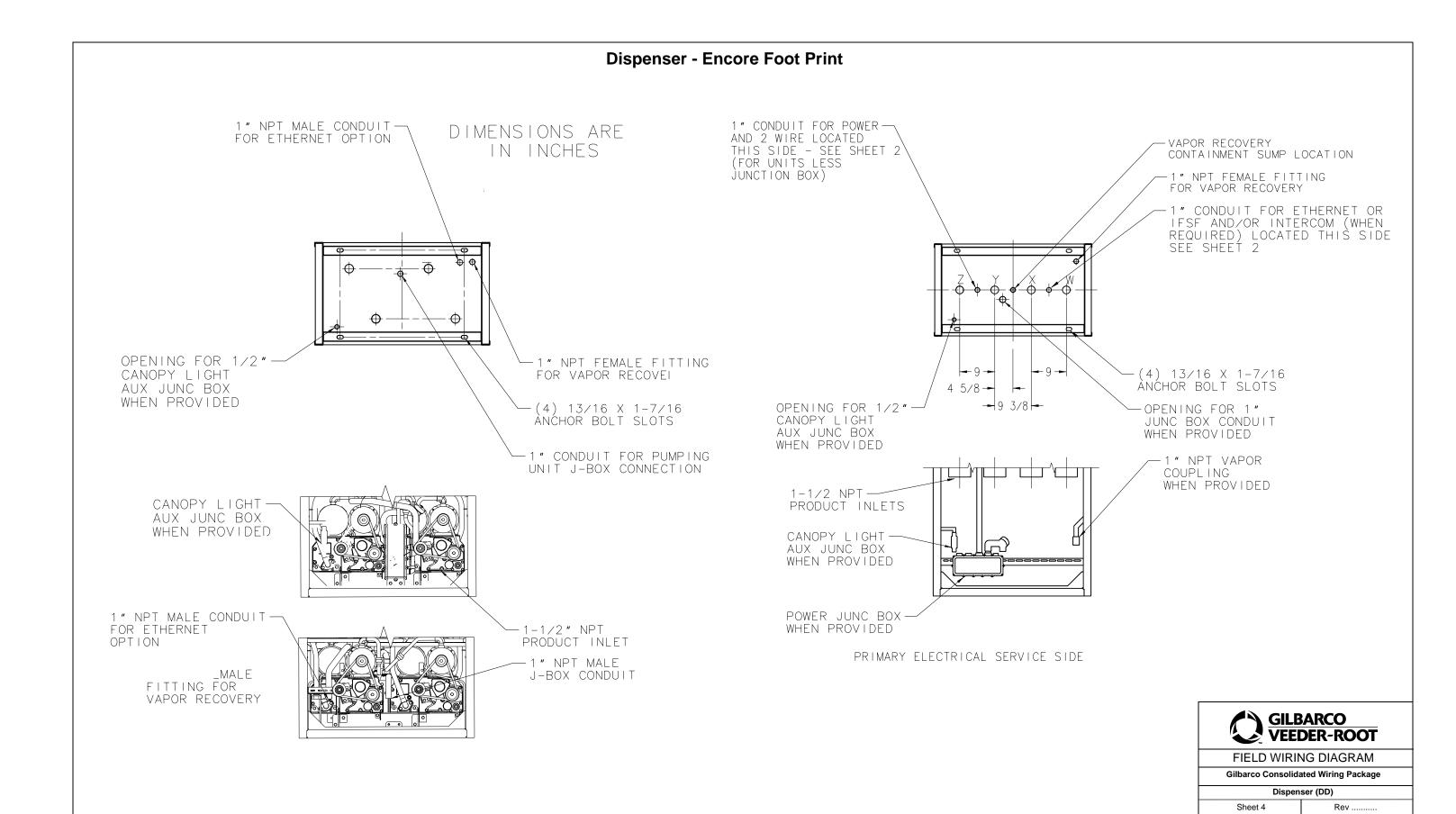
recongnized 4 Amp. Slow Blow, 5 x 20mm.

#### NOTE:

M00488AXXX Voltage Select Plug
The Encore 500 main power supplies use a voltage select
plug to determine power supply AC voltage input. Voltage
select plugs are not included and must be ordered
separately. Voltage select plugs may also be reused from
other power supplies or terminal block PCAs as long as it
is configured correctly. Use the table to determine the
correct voltage select plug.

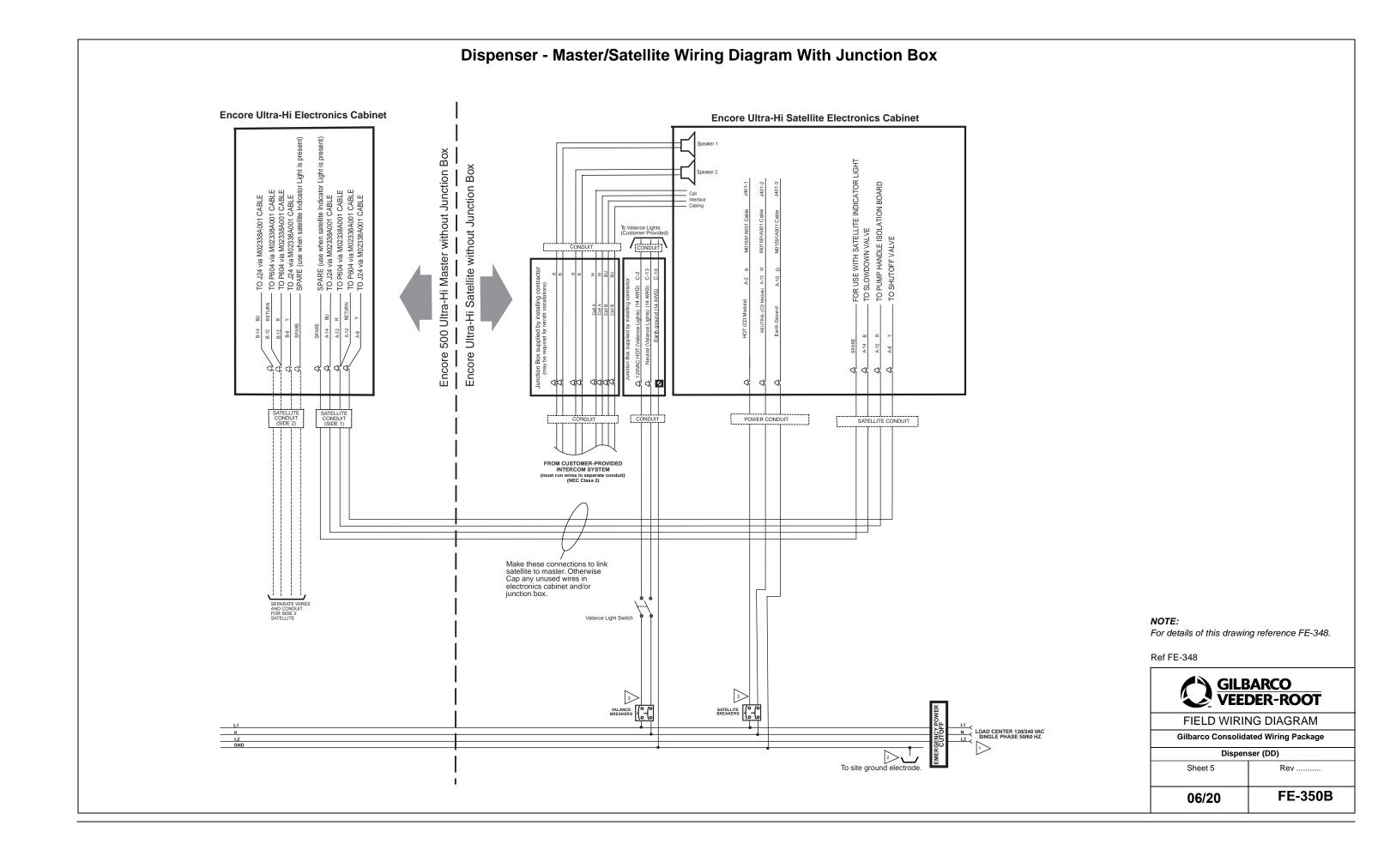


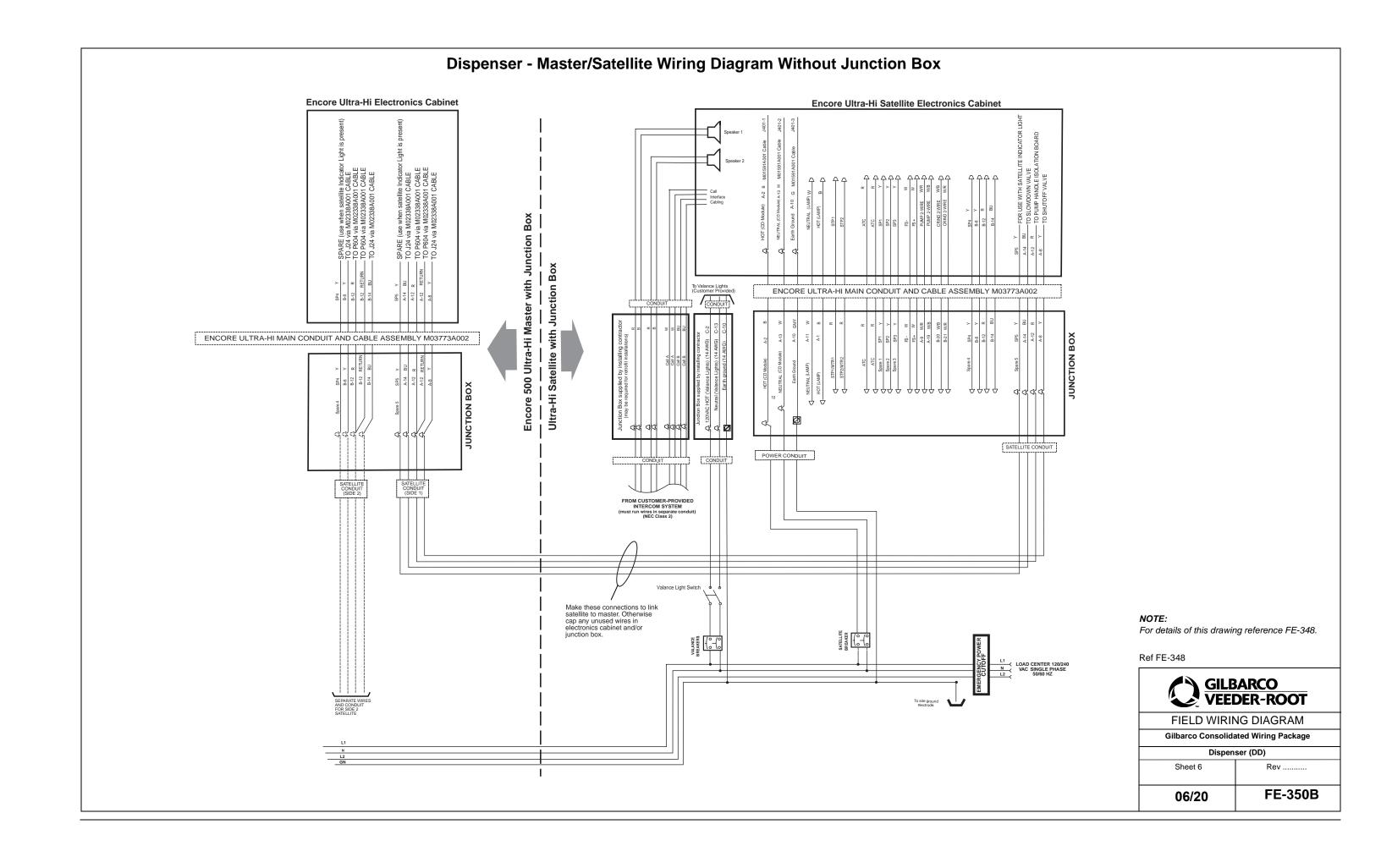




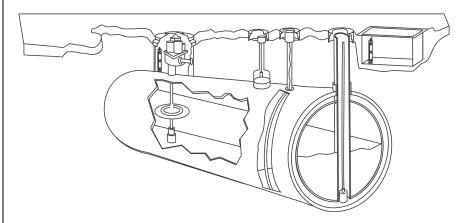
FE-350B

06/20





#### **Fuel Tank System**



#### **Subject Matter - Fuel Tank System**

- 1 ......TLS-300 Permissible Console Input/Output Connections
- 2 ......Wiring the Console TLS-300/350/ProMax/EMC Consoles
- 3 .......Sensor Installation Interstitial, MicroSensor & Hydrostatic Single Float
- 4 ......Sensor Installation Sump/Pan
- 5 ......Sensor Installation Probe & Sensor Field Wiring
- 6 ......Probe and Sensor Field Wiring Wiring TLS-300
- 7...... Probe and Sensor Field Wiring Probe & Thermistor & 3 Probe / 3 Sensor Interface Module
- 8 .....Eight Sensor Input (Smart Sensor)
- 9...... Sensor Field Wiring -350 Type A & B Module
- 10....... Sensor Field Wiring 350 Ground Water & Vapor Sensor Interface
   Modules
- 11 ....... Sensor Field Wiring 350 Ground Water & Vapor Sensor Interface
   Modules
- 12.....350 PowerWiring Relay Modules
- 13 .......Probe and Sensor Field Wiring Module Type ID Wiring Table
- 14 .....IQ Control Box
- 15 ......PLLD Controller Module and Transducer-to-Controller Module Wiring
- 16 ......PLLD Red Jacket Maxxum Big-Flo 3-Phase Wiring
- 17.....PLLD Red Jacket Maxxum Big-Flo Single & 3-Phase Wiring
- 18 .......PLLD System and Pump Control Diagram & Manifold Product Lines for both Non Red Jacket Relay & For Red Jacket Relay Control Box
- 19 .......PLLD System and Pump Control Diagram for Gilbarco Dispenser Isolation

  Box
- 20 ......PLLD Manifold Product Lines Dual FE Petro IST-VFC Controllers
- 21 ......PLLD Manifold Product Lines Dual Red Jacket IQ Controllers
- 22 ........4 Inch Submersible Petroleum & AG Pumps Abbr, Syn & Elect Service Info pa 1
- 23......4 Inch Submersible Petroleum & AG Pumps pg 2
- 24......4 Inch Submersible Petroleum & AG Pumps IQ Control Box pg 3
- 25 .......4 Inch Submersible Elect Service Info Petroleum & AG Pumps pg 4
- 26 ......Quantum™ 4 Inch Submersible Pumps pg 1
- 27 ......Quantum™ 4 Inch Submersible Pumps pg 2
- 28 ......Quantum™ 4 Inch Submersible Pumps pg 3
- 29 .......Quantum™ 4 Inch Tandem Submersible Pumps pg 4
- 30 ......Big-Flo® Hgh Capacity Gasoline Pumps pg 1
- 31 ......Big-Flo® Hgh Capacity Gasoline Pumps pg 2
- 32 .......6 Inch Submersible Petroleum & AG Pumps pg 1
- 33 ......6 Inch Submersible Pumps pg 3

- 33 ......6 Inch Submersible Pumps pg 3
- 34 ......6 Inch Submersible Pumps pg 3
- 35 .......6 Inch Submersible Pumps Dual Manifold pg 4
- 36 .......6 Inch Submersible Pumps Dual Manifold pg 5
- 37.....ISOTROL™ 1-8 Control Box pg 1
- 38......TLS-350R Interface Module RJ-45 Connection
- 39.....Gasboy CFN Interface Module
- 40......DIM For TLS-350/R Systems
- 41..........CDIM Gilbarco Transac system 1000 POS Universal Dist Box Interface
- 42........CDIM AutoGas® 510 CRIND Controller with Current Loop Interface
- 43.......CDIM POS AutoGas® 510 CRIND Controller with Serial Interface
- 44......CDIM AutoGas® 510 CRIND Controller
- 45......CDIM AutoGas® 510 CRIND Controller
- 46......CDIM AutoGas® 507 CRIND Controller
- 47.....MDIM/LVDIM Interface Module
- 48.....DIM Setup Values
- 49.....MDIMLVDIM Interface Wiring Diagram of Mechanical Dispenser Applications
- 50......MDIMLVDIM Interface Mechanical Dispenser Applications using 7874 Series Pulser/Totalizer
- 51......MDIMLVDIM Interface Wiring to PetroVend System2 Controller
- 52......MDIMLVDIM Interface Wiring to Kraus Micon & Gasboy or Tokyhelm Electronic Dispensers
- 53.....Tokheim DIMs
- 54 ......Tokheim DIMs 67/98 to the Tokheim Console
- 55 .......CDIMs Wayne / Bennett CAB Installation
- 56......CDIMs Wayne / Bennett Connecting Wayne CAB to Disp D-Box

#### **Document Release Information**

New

Section	Date	Rev	ECO#	Title
EE		New Rel		TLS-300 Permissible Console Input/Output Connections
EE		New Rel		Wiring the Console - TLS-300/350 ProMax EMC
EE		New Rel		Sensore Installation-Interstitial, MicroSensor & Hydrostatic Single Float
EE		New Rel		Sensor Installation - Sump/Pan
EE		New Rel		Sensor Installation - Probe & Sensor Field
EE		New Rel		Probe & Sensor Field Wiring - Wiring TLS-300/ProPlus/ EMC Basic Console & I/O
EE		New Rel		Probe & Sensor Field Wiring - Probe & Thermistor & 3 Probe / 3 Sensor Interface Module
EE		New Rel		Eight Sensor Input (Smart Sensor)
EE		New Rel		Sensor Field Wiring -350 Type A & B Module
EE		New Rel		Sensor Field Wiring - 350 Ground Water & Vapor Sensor Interface Modules
EE		New Rel		Sensor Field Wiring - 350 Ground Water & Vapor Sensor Interface Modules
EE		New Rel		350 PowerWiring - Relay Modules
EE		New Rel		Probe and Sensor Field Wiring - Module Type ID Wiring Table
EE		New Rel		IQ Control Box
EE		New Rel		PLLD Controller Module and Transducer-to-Controller Module Wiring
EE		New Rel		PLLD Red Jacket Maxxum Big-Flo 3-Phase Wiring
EE		New Rel		PLLD Red Jacket Maxxum Big-Flo Single & 3-Phase Wiring
EE		New Rel		PLLD System and Pump Control Diagram & Manifold Product Lines for both Non Red Jacket Relay & For Red Jacket Relay Control Box

EE	New Rel	PLLD System and Pump Control Diagram for Gilbarco Dispenser Isolation Box		
EE	New Rel	PLLD Manifold Product Lines - Dual FE Petro IST-VFC Controllers		
EE	New Rel	PLLD Manifold Product Lines - Dual Red Jacket IQ Controllers		
EE	New Rel	4" Submersible Petroleum & AG Pumps Abbr, Syn & Elect Service Info		
EE	New Rel	4" Submersible Petroleum & AG Pumps pg 2		
EE	New Rel	4" Submersible Petroleum & AG Pumps - IQ Control Box		
EE	New Rel	T' Submersible Elect Service Info Petroleum & AG Pumps		
EE	New Rel	Quantum™ 4" Submersible Pumps		
EE	New Rel	Quantum™ 4" Submersible Pumps		
EE	New Rel	Quantum™ 4" Submersible Pumps		
EE	New Rel	Quantum™ 4" Tandem Submersible Pumps		
EE	New Rel	Big-Flo® Hgh Capacity Gasoline Pumps		
EE	New Rel	Big-Flo® Hgh Capacity Gasoline Pumps		
EE	New Rel	6" Submersible Petroleum & AG Pumps		
EE	New Rel	6" Submersible Pumps		
EE	New Rel	6" Submersible Pumps		
EE	New Rel	6" Submersible Pumps - Dual Manifold		
EE	New Rel	6" Submersible Pumps - Dual Manifold		
EE	New Rel	ISOTROL™ 1-8 Control Box		
EE	New Rel	TLS-350R Interface Module - RJ-45 Connection		
EE	New Rel	Gasboy CFN Interface Module		
EE	New Rel	DIM For TLS-350/R Systems		
EE	New Rel	CDIM Gilbarco Transac system 1000 POS - Universal Dist Box Interface		
EE	New Rel	CDIM AutoGas 510 CRIND Controller with Current Loop Interface		
EE	New Rel	CDIM POS AutoGas 510 CRIND Controller with Serial Interface		
EE	New Rel	CDIM AutoGas 510 CRIND Controller		
EE	New Rel	CDIM AutoGas 510 CRIND Controller		
EE	New Rel	CDIM AutoGas 507 CRIND Controller		
EE	New Rel	MDIM/LVDIM Interface Module		
EE	New Rel	DIM Setup Values		
EE	New Rel	MDIMLVDIM Interface - Wiring Diagram of Mechanical Dispenser Applications		
EE	New Rel	MDIMLVDIM Interface - Mechanical Dispenser Applications using 7874 Series Pulser/Totalizer		
EE	New Rel	MDIMLVDIM Interface - Wiring to PetroVend System2 Controller		
EE	New Rel	MDIMLVDIM Interface - Wiring to Kraus Micon & Gasboy or Tokyhelm Electronic Dispensers		
EE	New Rel	Tokheim DIMs		
EE	New Rel	Tokheim DIMs - 67/98 to the Tokheim Console		
EE	New Rel	CDIMs Wayne / Bennett CAB Installation		
EE	New Rel	CDIMs Wayne / Bennett Connecting Wayne CAB to Disp D-Box		
		4N CIL PARCO		



#### **TLS-300 Permissible Console Input/Output Connections**

#### **National Electric Code**

The following information is for general reference and is not intended to replace recommended National Electric Code (NEC) procedures. It is important for the installer to understand that electrical equipment and wiring located in Class 1, Division 1 and 2 installations shall comply with the latest appropriate Articles found in the National Electric Code (NFPA 70) and the Automotive and Marine Service Station Code (NFPA 30A).

#### Wire Type:

Shielded Cable for all probes and sensors regardless of conduit material or application. (Shielded cable must be rated less than 100 picofarad per foot and be manufactured with a material suitable for the environment, such as Carol™ C2434 or Belden™ 88760, 8760, or 8770.

**Note:** Throughout this section, when mentioning cable or wire being used for probe and sensor to console wiring, it will be referring to shielded cable.

#### Wire Length:

Improper system operation could result in undetected potential environmental and health hazards if the probe or sensor-to-console wire exceeds 1,000 feet. Wire runs must be less than 1,000 feet to meet intrinsic safety requirements.

#### Splices:

Gilbarco Veeder-Root recommend no splices between a sensor or probe junction box and the console. Each splice degrades signal strength and could result in poor system performance.

#### Wire Gauges - Color Coded:

Shielded Cable, Sensor to console should be #14-#18 AWG stranded copper wire and installed as a Class 1 circuit. Alternative copper wire, when approved by the local authority having jurisdiction, 22AWG wire such as Belden 88761 may be suitable in installation with the following provisions:

- Wire run is less than 750 feet
- Capacitance does not exceed 100pF/foot
- Inductance does not exceed 0.2uH/foot

Total cable length of all Intrinsically Safe devices per installation must not exceed 22,000 feet.

#### Power Wiring

Wires carrying 120 or 240 Vac from the power panel to the console should be #14 AWG (or larger) copper wire for line, neutral and chassis ground (3); and #12 AWG copper wire for barrier ground.

Wires carrying 120 Vac from power panel to a Pump Sensor Module, Mechanical Dispenser Interface Module, or Wireless PLLD Controller module should be #14 AWG copper wire.

Wire carrying 240 Vac from power panel to a Wireless PLLD AC Interface module should be #12 AWG copper wire.

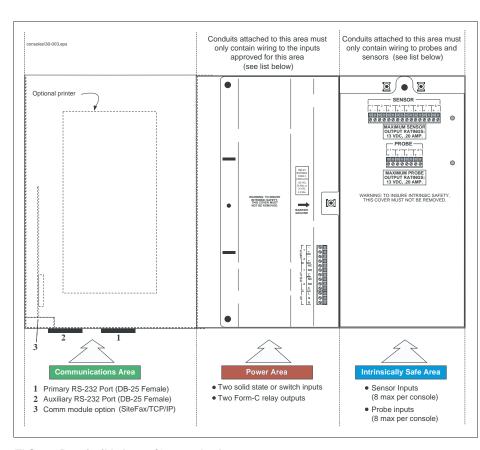
#### Sensor and Probe Junction Boxes:

Weatherproof electrical junction boxes with a gasketed cover are required on the end of each probe and sensor conduit run at the manhole or monitoring well location. Gasketing or sealing compound must be used at each entry to the junction box to ensure a waterproof junction. The interior volume of each junction box must be a minimum of 16 cubic inches.

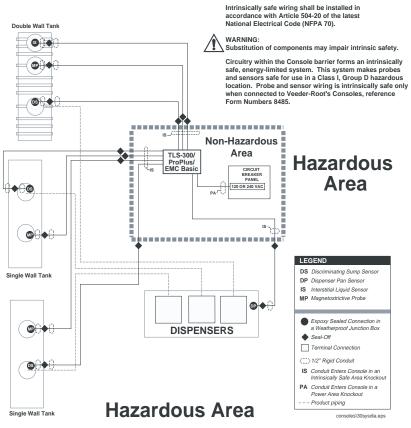
Veeder-Root recommends the following junction boxes or equivalent:

- Appleton Electric Co. JBDX junction box, JBK-B cover, and JB-GK-V gasket.
- Crouse-Hinds Co. -GRFX-139 junction box, GRF-10 cover, and GASK-643 gasket.

The adjoining figure illustrates the permissible devices that can be connected to the console. Note; that the number of inputs/ outputs in your console may differ from those in this illustration.



TLS-300 Permissible Inputs/Outputs by Area



TLS-300/ProPlus/EMC Basic System Wiring Control Drawing (TLS-350 on next page)

#### Planning Probe and Sensor Installation

The contractor should provide a diagram of purposed trench and conduit runs between the boxes in the back room to the deployed sensors and probes. The site drawing will help in calculating conduit and wiring lengths, number of junction boxes, sealing boxes, clamps, brackets and so on,

Always be mindful when employing the hardware that the latest National Electric Codes, federal, state and local codes are being adhered to.

Note: To ensure optimum signal strength plan sensor and probe wiring lengths so that there will be no splices between the field junction box and the interface module connection in the console. Every splice in the hazardous area requires the use of an epoxy sealing kit and should not be pulled through the conduit and must be located in a separate waterproof, sealed junction box.

The intrinsically-safe integrity of the installed console, sensor and probe conduits can share the same trenches with power conduits, but can not share the same conduit with any other wiring, nor can it share the same conduit with another intrinsically-safe wiring.

Install conduits (3/4, 1, or 1-1/4" I.P.S.) from all probe and sensor locations to the console's location. Knockouts are provided for these sizes in the intrinsically safe area of the console for probe and sensor wiring.

Conduit to be sealed in accordance with the latest National Electric Code (NFPA 70) and the Automotive and Marine Service Station Code (NFPA 30A) since they passed from a Class 1, Division 1 or 2 hazardous area into a non-hazardous area. The above figure shows the deployment.of sensors and probes.

The installation of a console at a paved site, may allow the trench to be dug in the pavement for the conduit to the sensors and probes or grooves may be cut into the pavement to run direct burial cable to these devices and then seal over the cable grooves (if permitted).

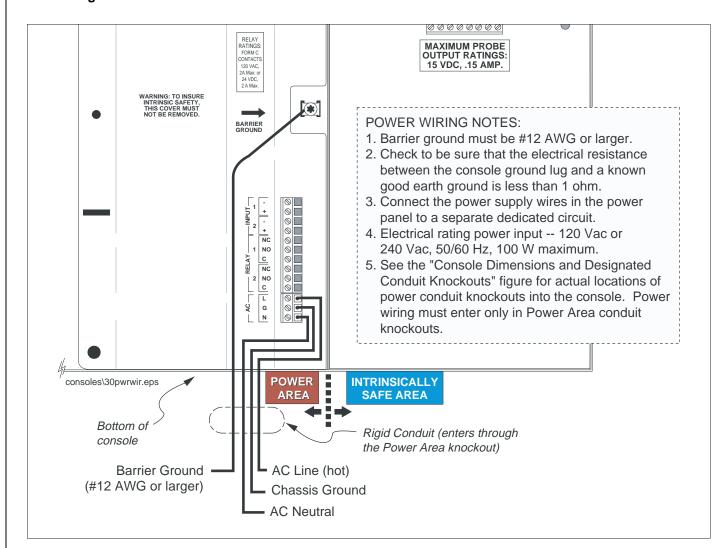
**NOTE:** Installations of the Direct Burial System can only be done in these locations where local codes permit the use of buried cable instead of conduit, and epoxy splices instead of junction boxes.

Ref 576013-879; Site Prep and Install Manual, pg 4, 6, & 7



#### Wiring the Console - TLS-300/350/ProMax/EMC Consoles

#### 300 Wiring Console



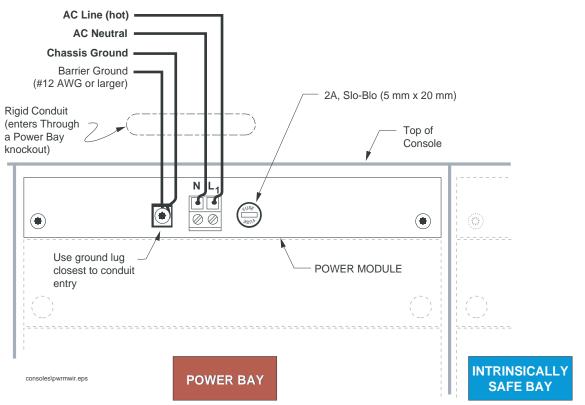
#### Wiring AC Power to the - TLS-300

Pull four wires between the power panel and the console; three #14 AWG or larger color-coded wires for AC line (hot), AC neutral and chassis ground; and one #12 AWG wire for barrier ground.

Depending on the console, connect the input AC power wires as shown above.

Check the Ground Connection. Using an ohmmeter check resistance between the console's metal case and the earthing ground wire's connection at the "known good earth ground". It should read less than 1 ohm.

#### 350 Wiring Console



#### POWER WIRING NOTES:

- 1. Barrier ground must be #12 AWG or larger.
- 2. Check to be sure that the electrical resistance between the console ground lug and a known good earth ground is less than 1 ohm.
- 3. Connect the power supply wires in the power panel to a separate dedicated circuit.
- 4. Electrical rating power input -- 120 Vac or 240 Vac, 50/60 Hz, 100 W maximum.
- See the "Console Dimensions and Designated Conduit Knockouts" diagram for actual locations of power conduit knockouts into the console. Power wiring conduits must enter Power Bay knockouts.

#### Wiring The AC Power to the - TLS-350/ProPlus

Pull four wires between the power panel and the console; three #14 AWG or larger color-coded wires for AC line (hot), AC neutral and chassis ground; and one #12 AWG wire for barrier ground.

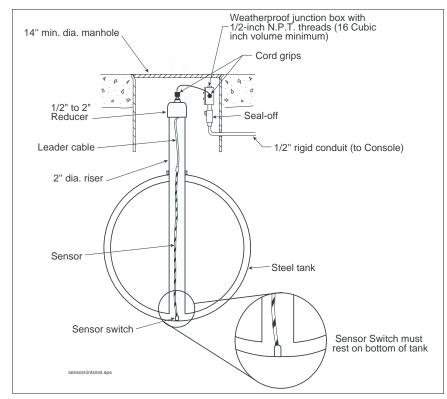
Depending on the console, connect the input AC power wires as shown above.

Check the Ground Connection. Using an ohmmeter check resistance between the console's metal case and the earthing ground wire's connection at the "known good earth ground". It should read less than 1 ohm.

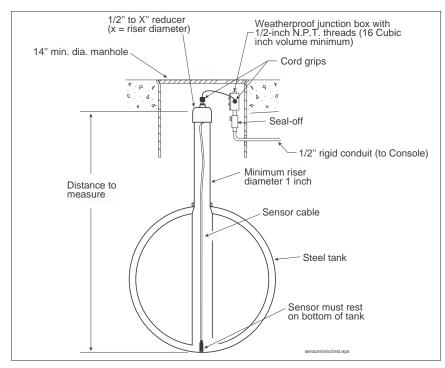
Ref 576013-879; Site Prep and Install



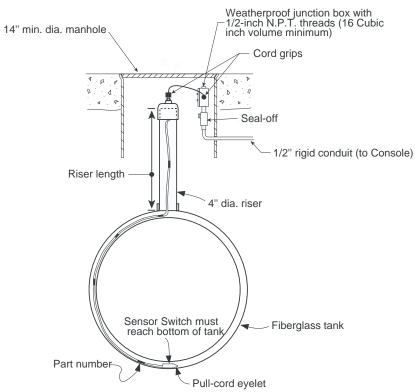
#### Sensor Installation - Interstitial, MicroSensor & Hydrostatic Single Float



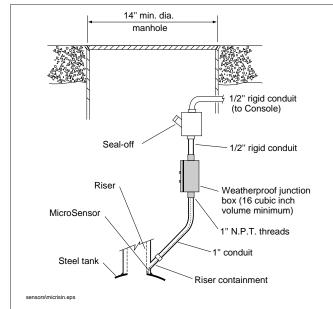
**Example Interstitial Sensor Installation - Steel UST** 



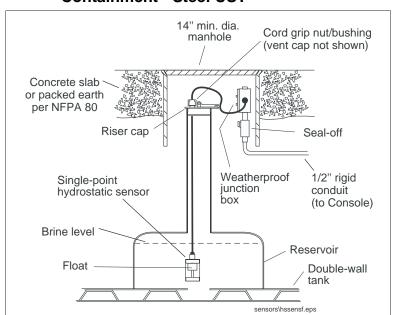
**Example Interstitial MicroSensor Installation - Steel UST** 



**Example interstitial Sensor Installation - Fiberglass UST** 



**Example MicroSensor Installation in Riser Containment - Steel UST** 



**Example Hydrostatic Reservoir Single & Dual Foat Wiring Routing** 

Ref 576013-879; Site Prep and Install Manual, pgs 36 to 38



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Gilbarco Consolidated Wiring Package Fuel Tank (EE)

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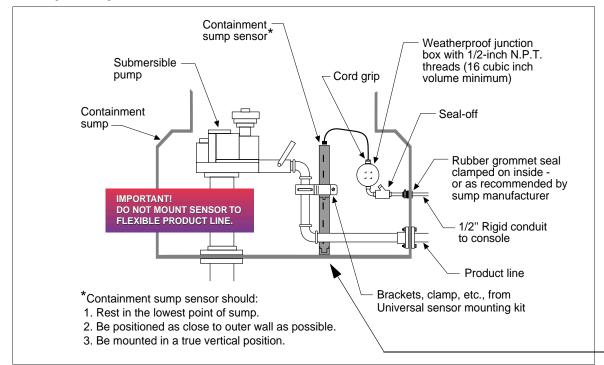
Sheet 3

FE-350B

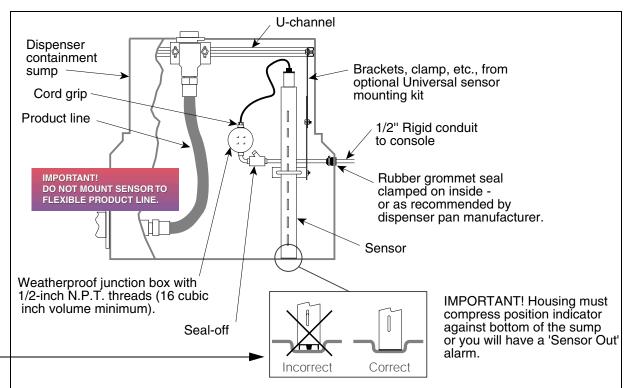
Rev.....

#### Sensor Installation - Sump/Pan

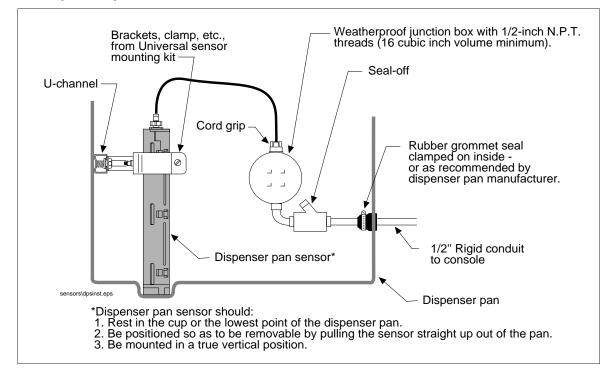
#### **Example Dispenser Pan Sensor Installation**



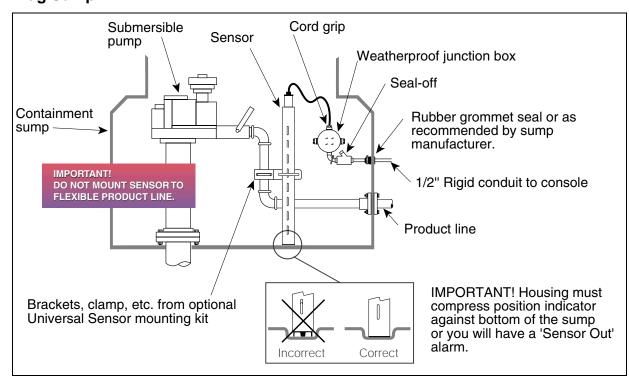
#### **Mag Sump**



#### **Example Dispenser Pan Sensor Installation**



#### Mag Sump



Ref 576013-879; Site Prep and Install, pg 40



FIELD WIRING DIAGRAM

Gilbarco Consolidated Wiring Package Fuel Tank (EE)

Sheet 4

Rev.....

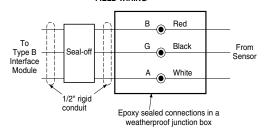
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FE-350B

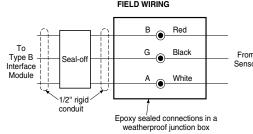
#### Sensor Installation - Probe & Sensor Field Wiring

#### Field Wiring Probes and Sensors Cables to Console Cables

#### 4 SITE SOLID-STATE DISCRIMINATING CONTAINMENT SUMP SENSOR FIELD WIRING



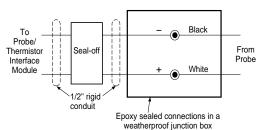
#### 4SITE SOLID-STATE DISCRIMINATING DISPENSER PAN SENSOR FIFLD WIRING



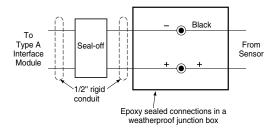
#### Field Wiring Probes and Sensors Cables to Console Cables - concluded

#### INTERSTITIAL SENSOR for STEEL TANKS FIELD WIRING Sensor Interface Module Red Epoxy sealed connections in a weatherproof junction box

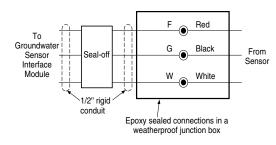
#### MAGNETOSTRICTIVE PROBE FIELD WIRING



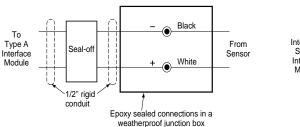
#### SOLID-STATE DISCRIMINATING INTERSTITIAL LIQUID SENSOR for FIBERGLASS TANKS - FIELD WIRING 1 Micro Sensor



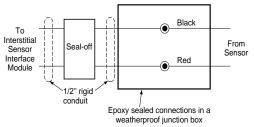
**GROUNDWATER SENSOR - FIELD WIRING** 



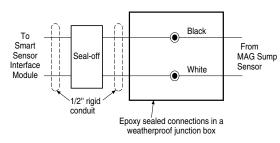
PLLD Sensor



PIPING SUMP SENSOR - FIELD WIRING

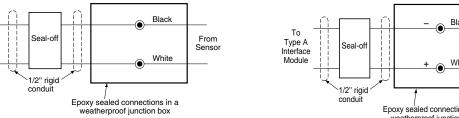


MAG SUMP SENSOR - FIELD WIRING

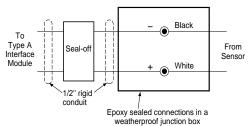


DISCRIMINATING DISPENSER PAN SENSOR AND OIL/WATER SEPARATOR SENSOR - FIELD WIRING

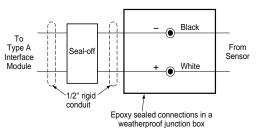
Interstitial Sensor



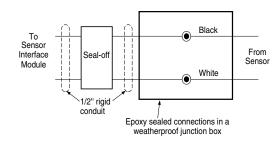
SOLID-STATE CONTAINMENT SUMP SENSOR - FIELD WIRING



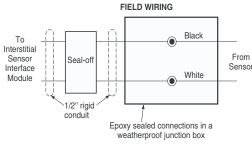
SOLID-STATE DISPENSER PAN SENSOR - FIELD WIRING

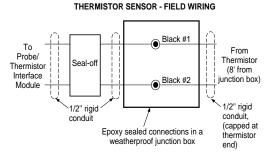


#### HYDROSTATIC SENSORS for FIBERGLASS TANKS - FIELD WIRING

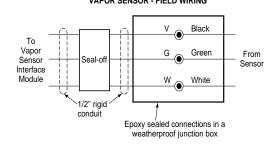


INTERSTITIAL SENSOR for FIBERGLASS TANKS





**VAPOR SENSOR - FIELD WIRING** 



Ref 576013-879; Site Prep and Install, pg 48



Gilbarco Consolidated Wiring Package

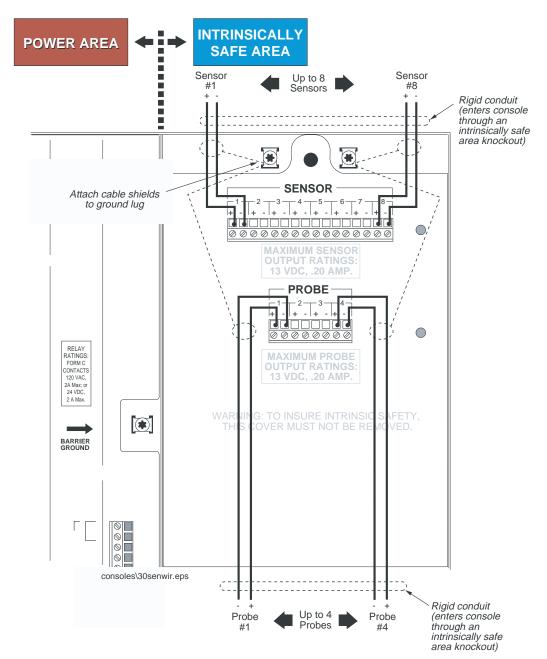
Fuel Tank (EE) Sheet 5

06/20

FE-350B

#### **Probe and Sensor Field Wiring - Wiring TLS-300**

#### 300 Probe & Sensor to TLS-300



The console has two Form-C relay outputs to overfill alarms and external audible and visual warning devices.

#### **Important Restrictions:**

Do not connect output relays to a device that draws more than 2 amperes of current. Output power: relay contact, resistive load - 120 Vac, 2 A max; or 24Vdc, 2 A max.

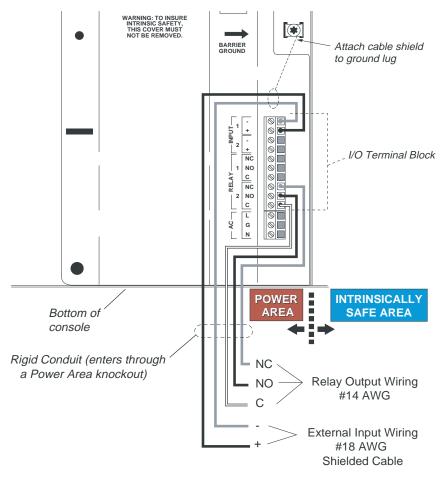
Alarm relays cannot be used for flow control. Alarm relays provide only a momentary closure and cannot actuate flow control devices such as valves and pump motor relays for extended periods of time.

#### **External Inputs:**

The INPUT 1 and 2 terminals can accept two dry-contact switch closure inputs from an external device such as a backup generator.

For each external input, connect a shielded cable consisting of two #18 AWG conductors to the INPUT connectors on the I/O terminal block.

#### 300 I/O Wiring to TLS



#### **Example of Wiring I/O Devices to a TLS-300**

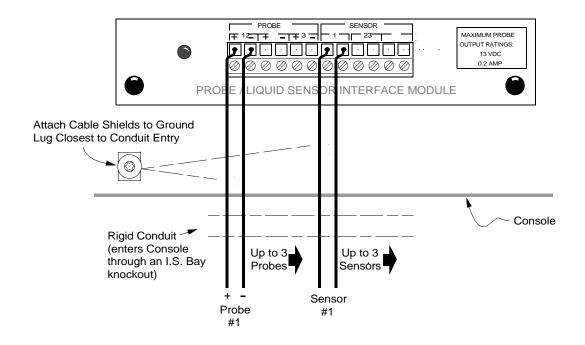
Ref 576013-879; Site Prep and Install, pg 52, 53



#### **Example of Probe and Sensor Wiring to a TLS-300**

#### Probe and Sensor Field Wiring - Probe & Thermistor & 3 Probe / 3 Sensor Interface Module

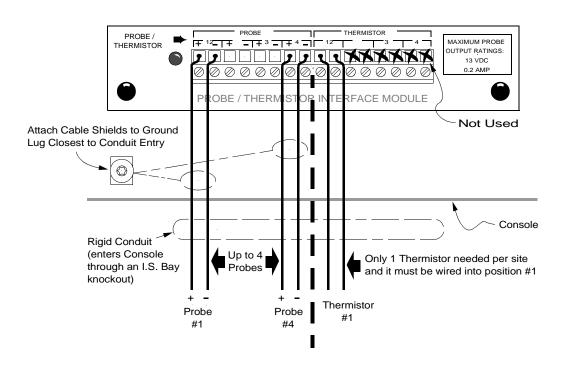
#### 300 Probe & Sensor Interface Wiring



#### 3 Probe / 3 Sensor Interface Module Wiring Table

Device	Wires	Observe Polarity
Mag Probe	2	yes
Interstitial sensor for fiberglass/steel tanks	2	No
Piping sump sensor	2	No
Discriminating dispenser pan sensor	2	No
Discriminating containment sump sensor	2	No
Hydrostatic sensor (for all double-wall tanks	2	No

#### 350 Probe/Thermistor Interface Wiring



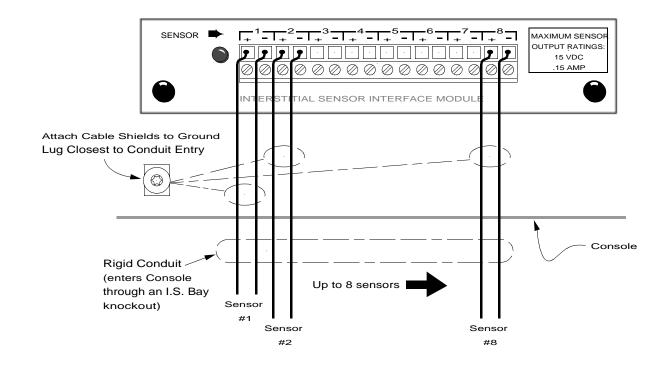
#### **350 Probe/Thermistor Interface Module Wiring Table**

Device	Wires	Observe Polarity
Mag Probe	2	yes
Ground Temperature thermistor - When using volumetric line leak detection (VLLD), only one ground temperature thermistor is needed per site and the thermistor must be wired to thermistor position number 1 (positions 2 - 4 are not used).	2	no

Ref 576013-879; Site Prep and Install Manual, pg 56 & 57.



#### 350 Interstitial Sensor Module Wiring

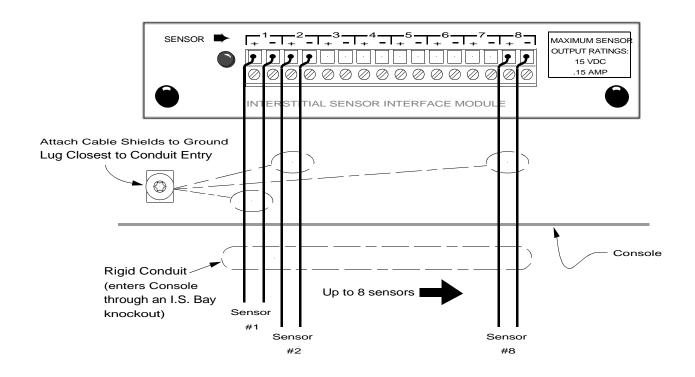


#### **Interstitial Sensor Interface Module Wiring Table**

Device	Wires	Observe Polarity
Interstitial sensor for fiberglass/steel tanks	2	Yes
Piping sump sensor	2	No
Discriminating dispenser pan sensor	2	No
Discriminating containment sump sensor	2	No
Hydrostatic sensor (for all double-wall tanks	2	No
Oil/water separator sensor	2	No

#### **Eight Sensor Input (Smart Sensor)**

#### 350 Smart Sensor Module Wiring



#### **Smart Sensor Module Wiring Table**

Device	Wires	Observe Polarity
Interstitial sensor for fiberglass/steel tanks	2	Yes
Piping sump sensor	2	No
Discriminating dispenser pan sensor	2	No
Discriminating containment sump sensor	2	No
Hydrostatic sensor (for all double-wall tanks	2	No
Oil/water separator sensor	2	No

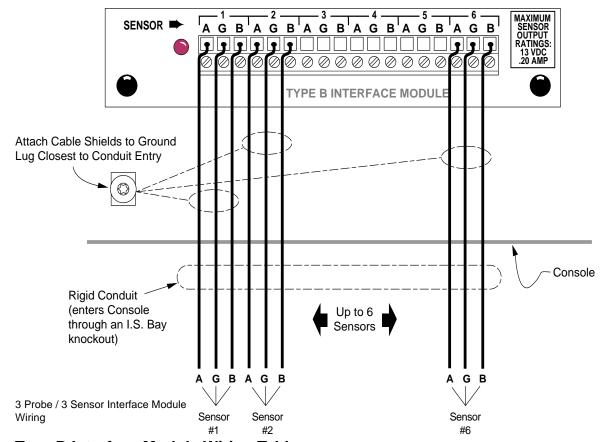
Ref 576013-879; Site Prep and Install Manual, pg 58, 59



#### Sensor Field Wiring -350 Type A & B Module

#### 350 Sensor to TLS-350

#### **Type B Interface Module Wiring**

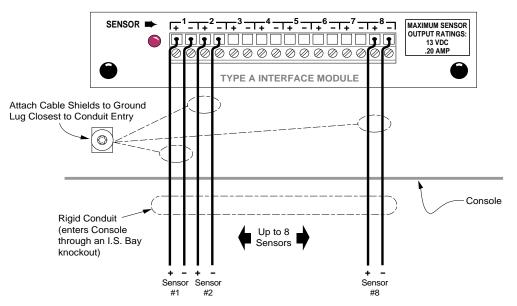


Type B Interface Module Wiring Table

Device	Wires	Observe Polarity
4SITE solid-state discriminating dispenser	3	Yes
4SITE solid-state discriminating containment sump sensor	3	Yes
Interstitial sensor for fiberglass/steel tanks	2	No

#### 350 Sensor to TLS-350

#### **Type A Interface Module**



#### Type A Interface Module Table

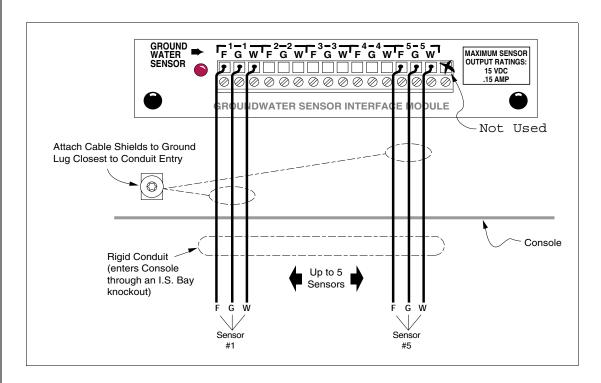
Device	Wires	Observe Polarity
4SITE discriminating Interstitial sensor for fiberglass tanks	2	Yes
Micro sensor	2	Yes
Solid-state dispenser pan sensor	2	Yes
Solid-state containment sump sensor	2	Yes

Ref 576013-879; Site Prep and Install Manual, pg 60, 61



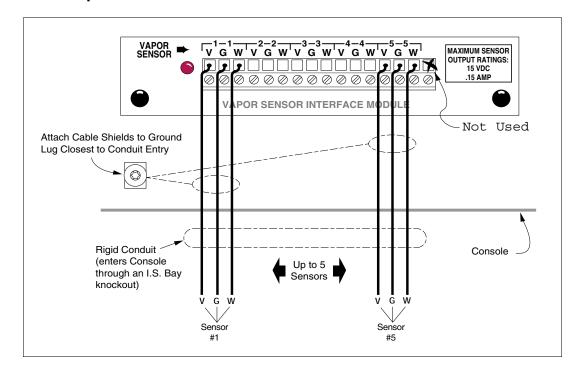
#### Sensor Field Wiring - 350 Ground Water & Vapor Sensor Interface Modules

#### 350 Ground Water Sensor to TLS-350



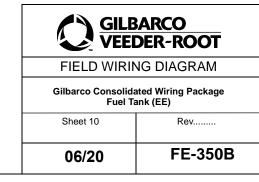
Device	Wires	Observe Polarity
4SITE Groundwater Sensor	3	Yes

#### 350 Vapor Sensor to TLS-350



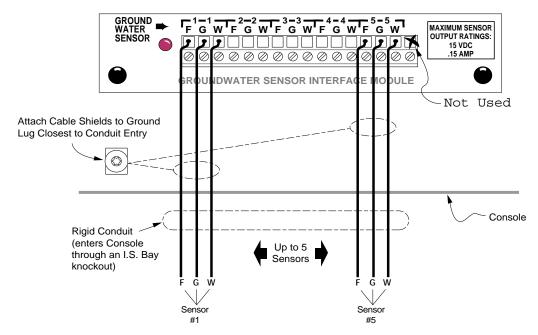
Device	Wires	S Observe Polarity
Vapor Sensor	3	Yes

Ref 576013-879; Site Prep and Install Manual, pg 67, 68 (pdf)



#### Sensor Field Wiring - 350 Ground Water & Vapor Sensor Interface Modules

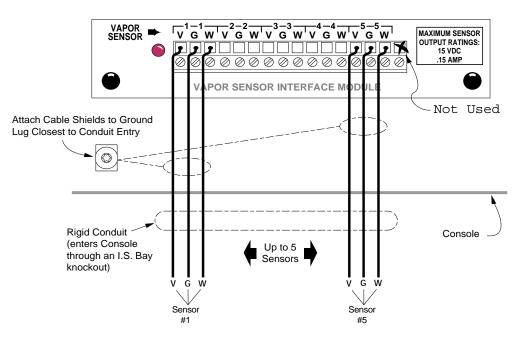
#### 350 Groundwater Sensor Interface Wiring



#### **Groundwater Sensor Interface Module Wiring Table**

Device	Wires	Observe Polarity
4SITE Groundwater Sensor	3	Yes

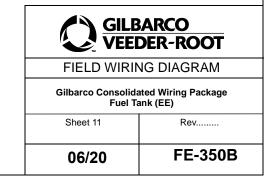
#### 350 Vapor Sensor Interface Module Wiring



#### **Vapor Sensor Interface Module Wiring Table**

Device	Wires	Observe Polarity
Vapor Sensor	3	Yes

Ref 576013-879; Site Prep and Install Manual, pg 60, 61

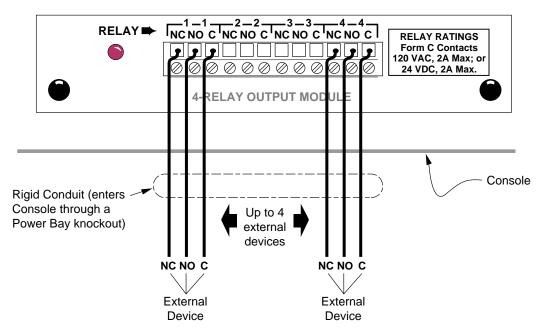


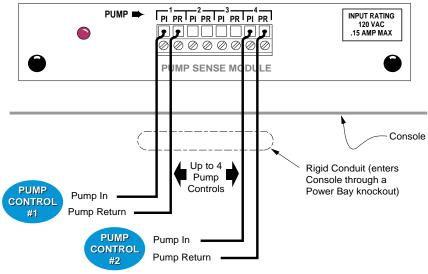
#### 350 PowerWiring - Relay Modules

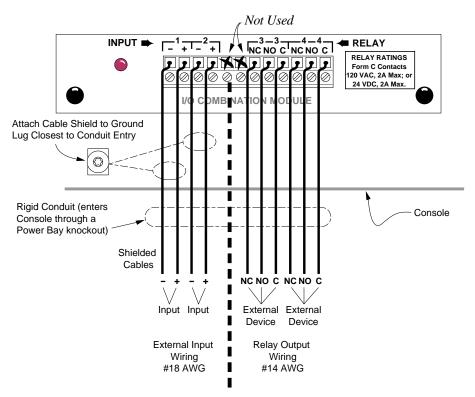
#### **4-Relay Output Module Wiring**

### Pump Sense Module Wiring

#### I/O Combination Module Wiring







Device	Discription	Manual No.
Pressure Line Leak Controller Modules	Required with Pressure Line Leak Detection	576013-499
Line Leak Interface Module	Required with Volumeric Line Leak Detection	576013-765
WPLLD Controller Module	Required with Wireless Pressurized Line Leak Detection	577013-481
WPLLD AC Interface Module	Required with Wireless Pressurized Line Leak Detection	577013-481
Mechanical Dispenser Interface Module	Consoles w/BIR only - Dispensing system input from mechanical dispensers. Accepts inputs from up to 4 pulsers or pulse/totalizers.	576013-893

Ref 576013-879; Site Prep and Install Manual, pgs 62 - 65



#### **Probe and Sensor Field Wiring - Module Type ID Wiring Table**

#### **Module Type:**

	Tern	ninal Ide	entification		
Probe/ Sensor Identification	2-Wire Probe/Sensor	Vapor Sensor	Groundwater Sensor	Type B Sensor	Color Code or Marking
	+	>	F	Α	
	_	G	G	G	
		W	W	В	
	+	>	F	Α	
	-	G	G	G	
		W	W	В	
	+	٧	F	Α	
	_	G	G	G	
		W	W	В	
	+	٧	F	Α	
	_	G	G	G	
		W	W	В	
	+	٧	F	Α	
	_	G	G	G	
		W	W	В	
	+	٧	F	Α	
	_	G	G	G	
		W	W	В	
	+	٧	F	Α	
	_	G	G	G	
		W	W	В	
	+	٧	F	Α	
	_	G	G	G	
		W	W	В	

The adjoining form is designed to record the wiring scheme and wiring ID of probes and sensors connected to the consoles.

**Note:** Failure to record and maintain the relationship of wiring between probe and sensor locations and their positions on the console module connectors could result in incorrect identification of a leak type or leak location, or improper system operation.

#### Probe/Sensor Identification

Identify the device connected to this module location, for example, Tank #1 Probe, Vapor Sensor - NW corner.

#### **Terminal Identification**

Probe and interstitial sensor connectors have 2 terminals per probe or sensor position (+ and -). Vapor sensor, groundwater sensor, and Type B sensor connectors have 3 terminals per sensor.

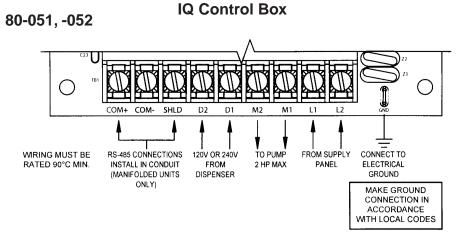
#### Color Code or Marking

Enter the color or marking that identifies the probe or sensor wire connection to this module terminal.

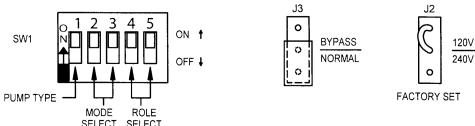
Ref 576013-879; Site Prep and Install





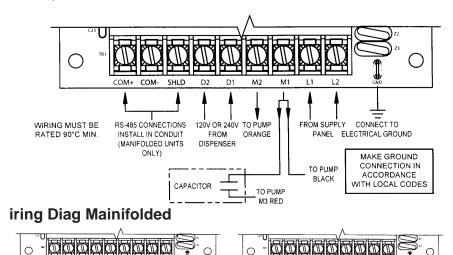


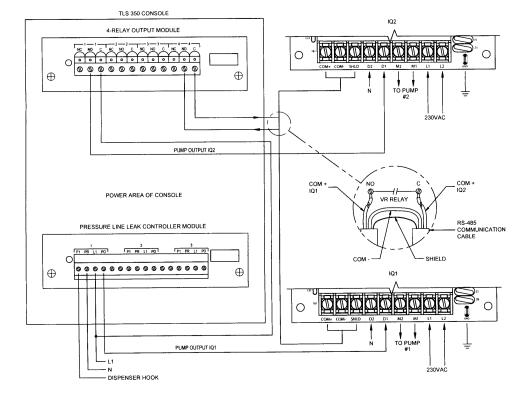
#### SW1 - Switch Settings for Mainifolded System



	Switch		Switch					
Pump Type	1	Mode Select	2	3	Role Select	4	5	
Standard	on	Stand Alone	on	on	Unit 1	on	on	
X Series	off	Manifold PLLD	on	off	Unit 2	on	off	
		Manifold Alternating	off	on	Unit 3	off	on	
		Manifold Direct	off	off	Unit 4	off	on	

#### 80-058, -059





#### Note:

Ensure that J2 and J3 jumpers are properly positioned (J2 matching dispenser signal voltage and J3 Normal position). (**Pump protection monitoring is not available in this position**.)

Manifolded PLLD mode allows interfacing with an ATG console. This mode has special communication wiring requirements, ref. drawing above for IQ with manifolded PLLD systems.

Mainifolded Direct mode allows for a primary pump to initiate all dispensing events and secondary pumps to help when required. The control box is set as Unit 1 (switch 4 & 5 on) is the Primary.

For Initial Calibration and Troubleshooting, reference Red Jacket Manual No: D051-330 Rev E.

#### Control Box Voltages:

The control box is designed to operate from 200 to 250Vac. Always refer to the pump installation instruction manual for the correct supply voltage. Typical pump ratings are 208 to 240Vac.

#### Dispenser signal terminals:

D1 and D2 are not polarity sensitive and can accept 120V or 240V signals. For tandem installations, wire all signals to all the controllers.

#### Pumps Operating in Manifolded Configuration:

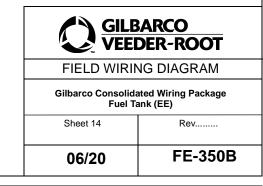
require a two conductor, twisted pair with shield (min. 22AWG) connected to COM+, COM-, and SHIELD terminals of TB1. Daisy chain communications cable to all controllers as shown above. Use of Belden 9462 or equivalent is acceptable. The RS-486 link between pump controllers is not intended to connect to other pump electronic equipment such as Prolink, CPT, or other ATG devices. This cable must be installed into a conduit.

#### Setup Switches and Calibrations:

For connection, setup and calibration instructions consult the documentation that was shipped with the equipment.

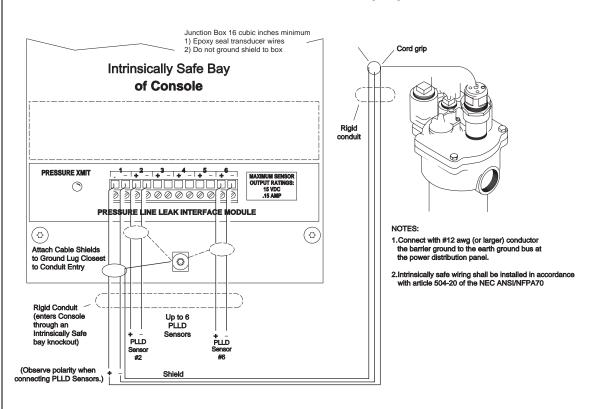
Setup Switches Settings, reference Setup Switch Chart at the top of the page.

Ref RJ D051-330 C



#### PLLD Controller Module and Transducer-to-Controller Module Wiring

#### PLLD Interface Module Wiring Diagram



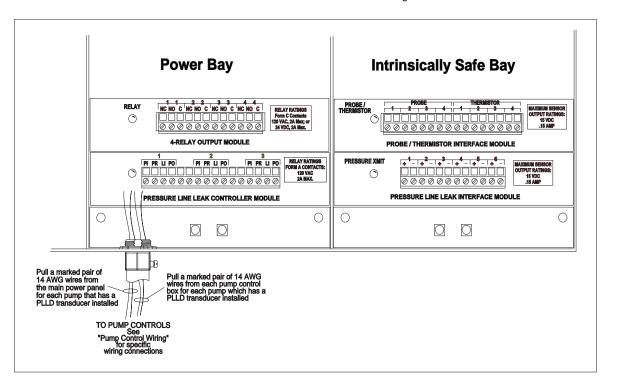
#### PUMP CONTROLLER WIRING

- Run conduit(s) from console to control box(s) for the STPs having PLLD transducers. Conduit must be able to accomidate 2 #14 AWG wires for each pump. (There are knockouts for 3/4, 1, and 1/1/4 inch conduits in the console).
- Pull two #14 AWG color-coded or marked wires from each PLLD Controller Module between the power bay console and the STP relay control box. Ensure that all wires are marked as to orgin to reduce confusion between multiple runs.

#### IMPORTANT:

Dispensers and console must be wired to the same leg of incoming power at the main electrical panel; otherwise damage may occur to dispenser and console.

PLLD Transducer-to-Controller Module Wiring



#### PLLD TRANSDUCER-TO-CONSOLE WIRING

#### Preferred Wiring Type

#14 - #18 AWG stranded copper, shielded cable (REQUIRED) and manufactured with a material suitable for the environment, such as Carol C2534, Belden 88760, or Belden 8760. Wiring to be installed as a Class 1 circuit with the following provisions:

- Wire run must not exceed 1000 feet to meet intrinsic safety requirments,
- Capacitance does not exceed 100 pF/ft,
- Inductance does not exceed 0.2 µH/ft.

**Note:** Throughout this manual, when mentioning any cable or wire being used for PLLD transducer-to- console wiring, it will be referring to shielded cable.

Alternate Wiring Type - When Approved by the Local Authority Having Jurisdiction!

#22 AWG stranded copper, shielded cable (REQUIRED) and manufactured with a material suitable for the environment, such as Belden 88761. Wiring to be installed as a Class 1 circuit with the following provisions:

- Wire run must not exceed 750 feet to meet intrinsic safety requirments,
- Capacitance does not exceed 100 pF/ft,
- Inductance does not exceed 0.2 µH/ft.

#### Splices

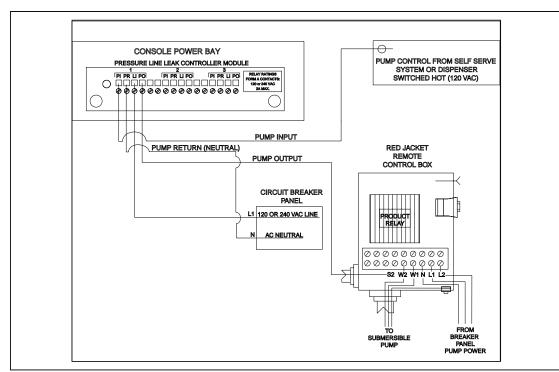
Veeder-Root recommends that no splices be made in the wire run between a PLLD transducer junction box and the console. Each splice degrades signal strength and could result in poor system performance.

#### PUMP POWER WIRING TO PLLD CONTROLLER MODULE

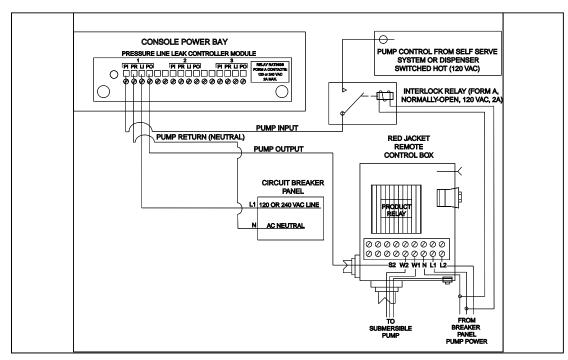
- Conduit to accomidate 2 #14 AWG wires for each pump with PLLD transducers.
- Knockouts to accomidate 3/4 inch, 1 inch, and 1 1/4 inch conduit in console.
- Mark and pull 2 #14 AWG wires (black & white) from main power panel for each pump for which there will be a PLLD transducer.



#### PLLD Red Jacket Maxxum Big-Flo 3-Phase Wiring



Red Jacket Maxxum Big-Flo Single-Phase Wiring



Red Jacket Maxxum Big-Flo 3-Phase Wiring

#### **General Wiring Practices**

- Wires are color coded and marked to identify their source.
- Do not remove the connector, containing the terminal idenfification, from the PLLD module or the module from its slot in the connsole during wiring or wiring errors may occur.
- Label all connectors using supplied labels according to the slots in which the modules are installed.

**IMPORTANT!** Once a connector has been wired on a module and the console has been programmed, the connector and module cannot be moved to another slot without reprogramming the system.

#### **PLLD Interface Module Wiring Connections**

Reference PLLD Site Prep and Installation Guide (Veeder-Root) 576013-902, pg 5-2, for this process.

#### **PLLD Transducer Field Wiring Connections**

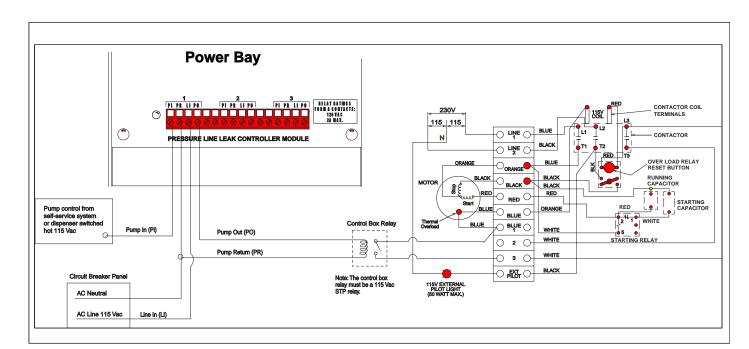
Reference PLLD Site Prep and Installation Guide (Veeder-Root) 576013-902, pg 5-2, for this process.

#### **PLLD Controller Module Wiring**

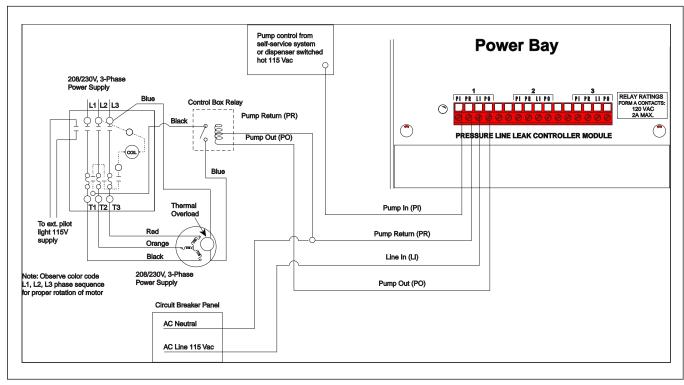
Reference PLLD Site Prep and Installation Guide (Veeder-Root) 576013-902, pg 5-3, for this process.



#### PLLD Red Jacket Maxxum Big-Flo Single & 3-Phase Wiring



#### Red Jacket Maxxum Big-Flo Single-Phase Wiring



Red Jacket Maxxum Big-Flo 3-Phase Wiring

#### **General Wiring Practices**

- Wires are color coded and marked to identify their source.
- Do not remove the connector, containing the terminal idenfification, from the PLLD module or the module from its slot in the connsole during wiring or wiring errors may occur.
- Label all connectors using supplied labels according to the slots in which the modules are installed.

**IMPORTANT!** Once a connector has been wired on a module and the console has been programmed, the connector and module cannot be moved to another slot without reprogramming the system.

#### **PLLD Interface Module Wiring Connections**

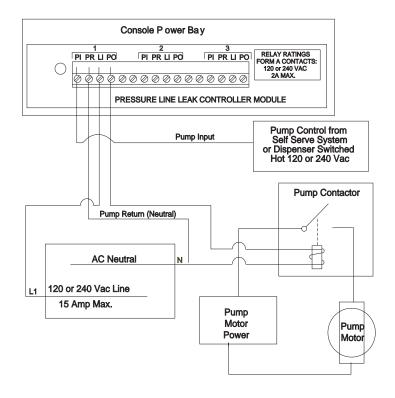
Reference PLLD Site Prep and Installation Guide (Veeder-Root) 576013-902, pg 5-2, for this process.

#### **PLLD Transducer Field Wiring Connections**

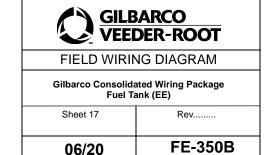
Reference PLLD Site Prep and Installation Guide (Veeder-Root) 576013-902, pg 5-2, for this process.

#### **PLLD Controller Module Wiring**

Reference PLLD Site Prep and Installation Guide (Veeder-Root) 576013-902, pg 5-3, for this process.



PLLD System and Pump Control Diagram for Non-Red Jacket Relay Control Box



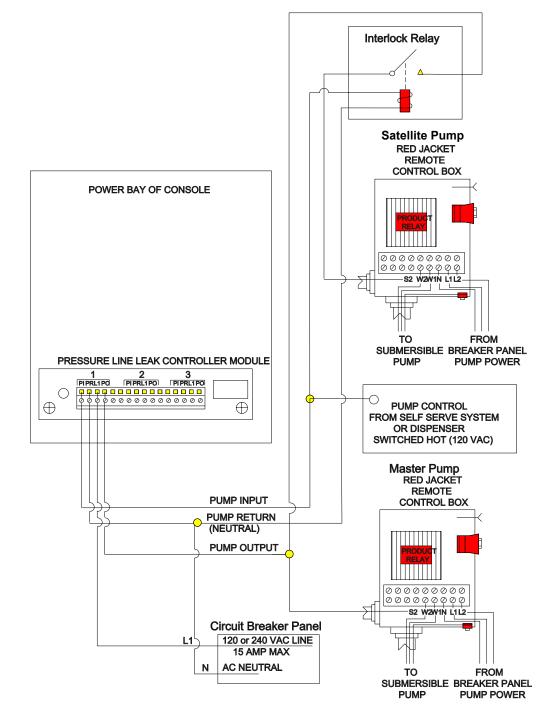
#### PLLD System and Pump Control Diagram & Manifold Product Lines for both Non Red Jacket Relay & For Red Jacket Relay Control Box

#### **PLLD System For Non-Red Jacket Relay Control Box**

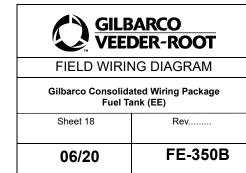
#### Console Power Bay PI PR LI PO PI PR LI PO PI PR LI PO ulletPRESSURE LINE LEAK CONTROLLER MODULE Pump Control from Self Serve System or Dispenser Switched Hot 120 or 240 Vac Pump Input **Pump Contactor** Pump Return (Neutral) AC Neutral L1 120 or 240 Vac Line 15 Amp Max. Pump Motor Pump Motor Power

PLLD System and Pump Control Diagram for Non-Red Jacket Relay Control Box

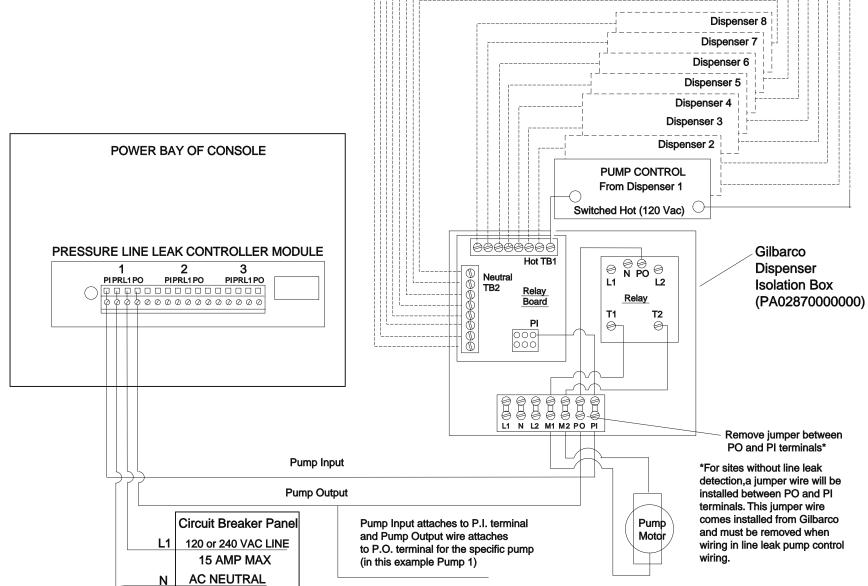
#### PLLD System ForRed Jacket Relay Control Box - Single Tank, Dual Pumps



Wiring Diagram - Manifolded Product Lines PLLD - Single Tank, Dual Pumps (Red Jacket Relay Control Box shown in this example)



# PLLD System and Pump Control Diagram for Gilbarco Dispenser Isolation Box Dispenser 8



PLLD System and Pump Control Diagram for Gilbarco Dispenser Isolation Box

Ref VR 576013-902 rev U



FIELD WIRING DIAGRAM

Gilbarco Consolidated Wiring Package Fuel Tank (EE)

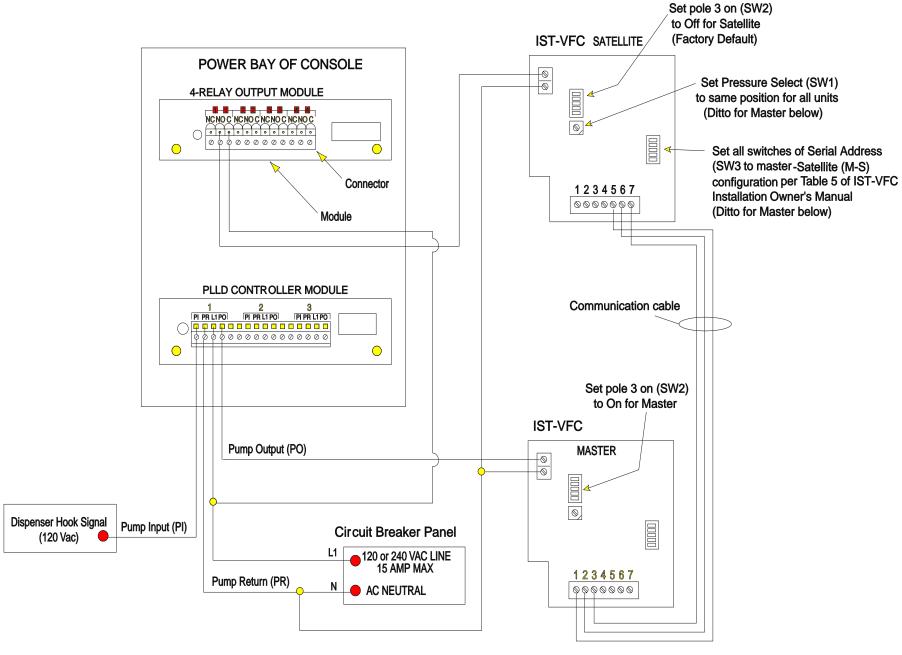
Sheet 19

Rev.....

06/20

FE-350B

## PLLD Manifold Product Lines - Dual FE Petro IST-VFC Controllers



Manifold product lines - dual FE Petro IST-VFC Controllers

Ref VR 576013-902 rev U



Gilbarco Consolidated Wiring Package Fuel Tank (EE)

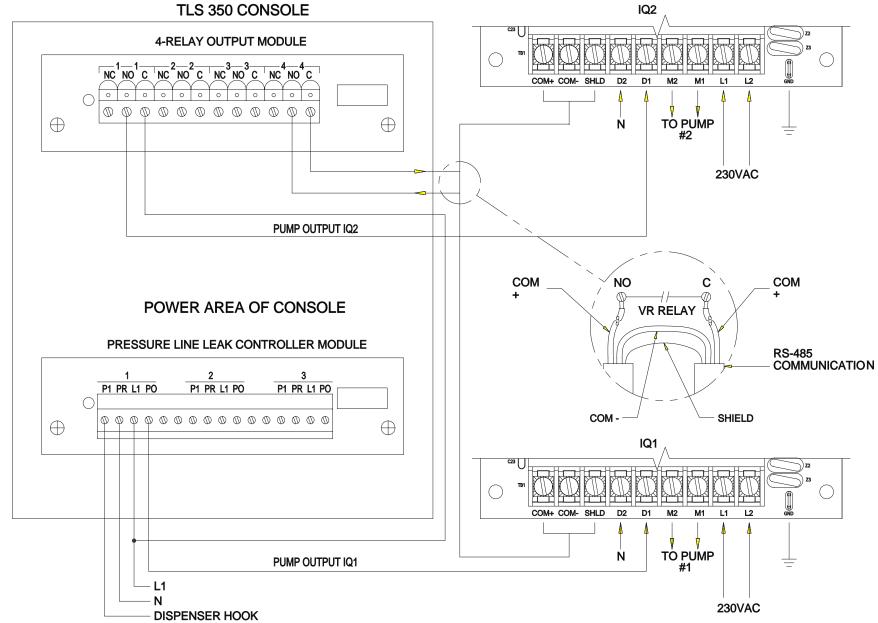
Sheet 20

Rev.....

06/20

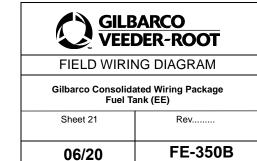
FE-350B

## PLLD Manifold Product Lines - Dual Red Jacket IQ Controllers TLS 350 CONSOLE



Manifild Product Lines - Dual Red Jacket IQ Controllers





#### 4 Inch Submersible Petroleum & AG Pumps Abbr, Syn & Elect Service Info pg 1

#### ABBREVIATIONS AND SYMBOLS

Chassis ground (see also GND) ÷

Earth ground 4 Ω Ohm, resistance Microfarad (10<sup>-6</sup> farad) μ**F** AG Alcohol-gasoline blends

C Centigrade DOM Domestic

**EPA Environmental Protection Agency** 

Fahrenheit FL Fixed Length

**FSA** Floating Suction Adapter

ft-lb Foot-pound **GND** Ground

gph; gpm Gallons per hour; Gallons per minute

hp Horsepower Hz Hertz INTL International

ISO International Organization for Standardization

kPa KiloPascals mm Millimeter N•m Newton-meter

NEC National Electrical Code

NFPA National Fire Protection Association

NPT National Pipe Thread

Petro Petroleum PH Phase

psi; psig Pounds per square inch; Pounds per square inch gauge

SG Specific Gravity

SSU Saybolt Seconds Universal, a measure of viscosity

UL Underwriters Laboratories Inc.

**UMP** Unit motor pump; Pump-motor assembly

VAC Voltage—alternating current

Volt

**VDC** Voltage—direct current

#### **Electrical Service Information**

1-1/2

1-1/2

AGUMP150S17-3,

X4AGUMP150S17,

UMP150U17-3

X4UMP150U17

50

50

3

3

342

342

457

457

3.8

3.8

15.8

15.8

13.1 - 16.4

13.1 - 16.4

13.1 - 16.4

13.1 - 16.4

13.1 - 16.4

13.1 - 16.4

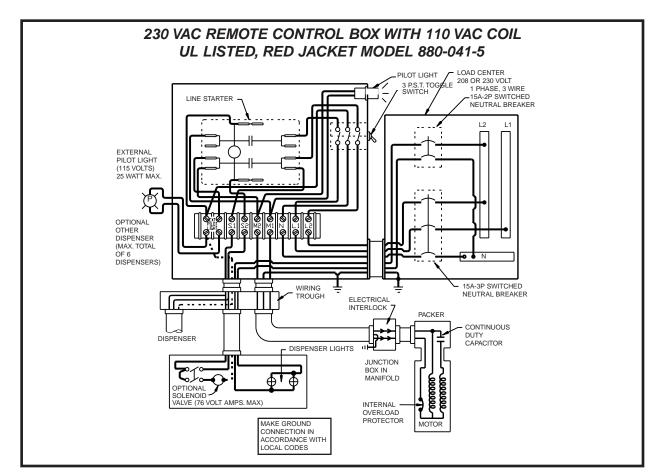
Required power supply rating for 60 Hz, 1 phase motors is 208 - 230 Vac. For 50 Hz, 1 phase motors, required rating is 220 - 240 Vac.

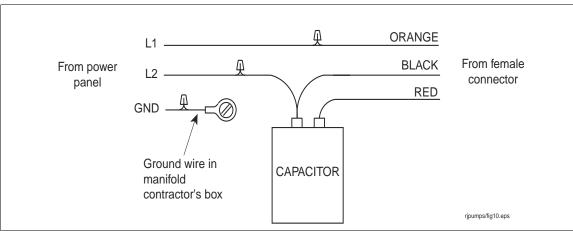
				Fluct	tage uation nge			Windir	g Resistance (Ohms)		
UMP Model No.	НР	Hz	РН	Min.	Max.	Max. Load Amps	Locked Rotor Amps	Black- Orange	Red- Orange	Black-Red	Capacitor Kit (µF
AGUMP75S1, UMP75U1	3/4	60	1	200	250	6.5	22	2.9 - 3.6	14.9 - 18.2	17.7 - 21.9	410164-001 (17.5)
AGUMP150S1, UMP150U1	1-1/2	60	1	200	250	10.5	42	2.0 - 2.5	11.6 - 14.2	13.5 - 16.8	410164-002 (25)
X3AGUMP150S1, X3UMP150U1	1/1/2	60	1	200	250	10.5	42	2.0 - 2.5	11.6 - 14.2	13.5 - 16.8	410164-002 (25)
AGUMP200S1-3, UMP200U1-3	2	60	1	200	250	11.4	47	1.4 - 1.7	2.5 - 3.2	3.8 - 5	410164-003 (40)
		ī					I				
				Fluct	tage uation nge			Windir	ng Resistance	(Ohms)	
					Max.	Max. Load	Locked Rotor	Black-	Red- Orange	Black-Red	
UMP Model No.	HP	Hz	PH	Min.		Amps	Amps	Orange	090	Didok Hou	Capacitor Kit (µF)
AGUMP75S3-3,	<b>HP</b> 3/4	<b>Hz</b> 50	1 1	Min. 200	250	5.8	18.6	3.6 - 4.5	20.4 - 25	23.9 - 29.6	Capacitor Kit (μF) 410164-001 (17.5)
AGUMP75S3-3, UMP75U3-3 AGUMP150S3-3,	-				250 250	•	-				
MP Model No.  AGUMP75S3-3, UMP75U3-3  AGUMP150S3-3, UMP150U3-3  X4AGUMP150S3, X4UMP150U3	3/4	50	1	200		5.8	18.6	3.6 - 4.5	20.4 - 25	23.9 - 29.6	410164-001 (17.5)

Ref RJ D42-153-1 B,

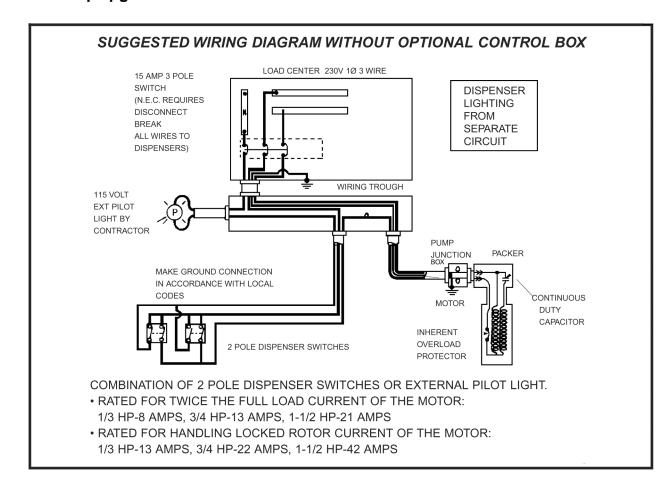


#### 4 Inch Submersible Petroleum & AG Pumps pg 2

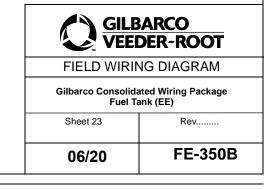




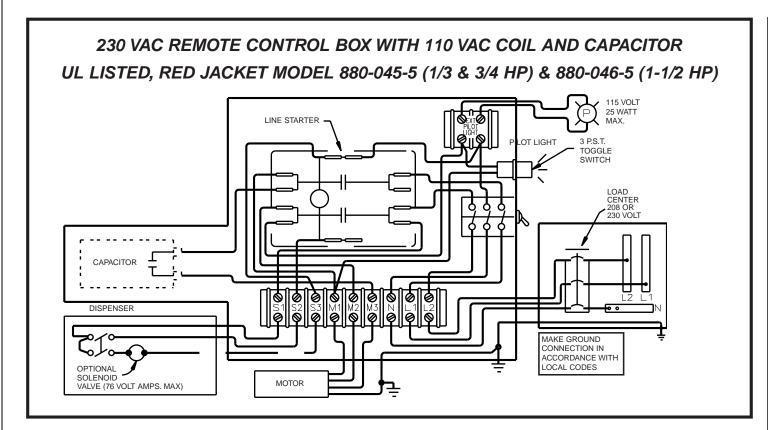
See electrical drawing above, attach like colored wires to pump.



Ref RJ D42-153-1 B,

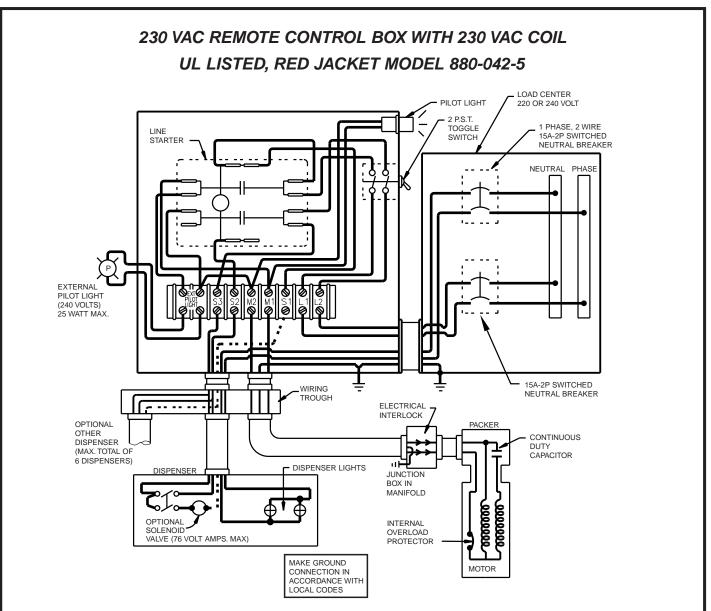


#### 4 Inch Submersible Petroleum & AG Pumps - IQ Control Box pg 3



#### Note:

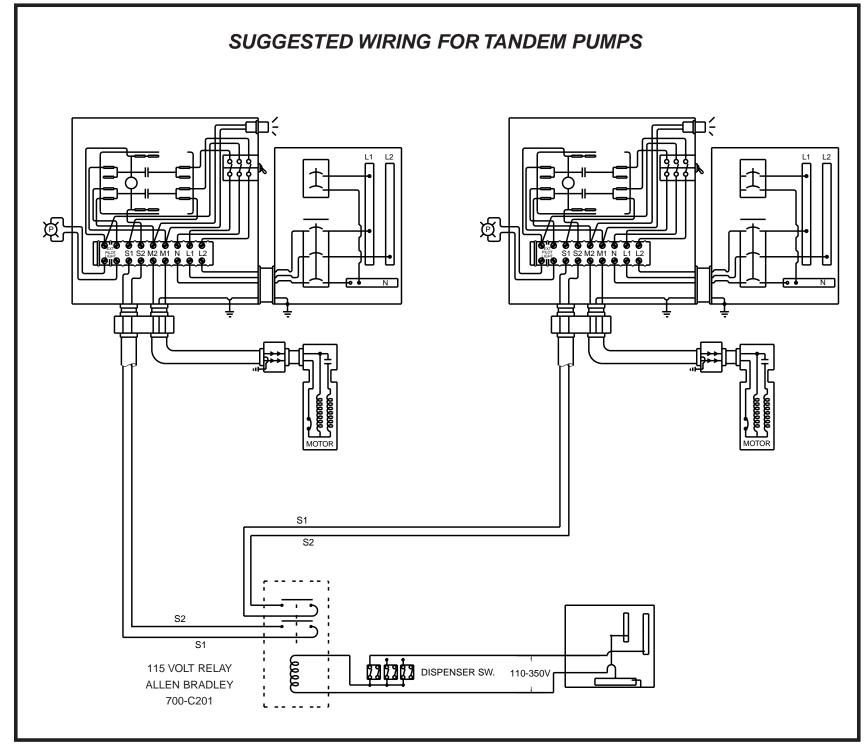
If electronic line leak is being used, reference TLS-350 Wiring Drawing.



#### Ref RJ 042-153-1 B



#### 4 Inch Submersible Elect Service Info Petroleum & AG Pumps pg 4



Note: 115 VAC relay are not available from Gilbarco and should be purchased locally.

**Note:** The above diagram shows the wiring allowing both submersibles to operate simultaneously with any combination of dispensers turned on. To operate individual, the appropriate toggle switch, located externally on the side of the control box can be turned off manually.

Note:

If electronic line leak is being used, reference TLS-350 Wiring Drawing.

This drawing does not apply.

Ref RJ D42-153-1 B,



#### Quantum<sup>™</sup> 4 Inch Submersible Pumps pg 1

Required power supply rating for 60Hz, 1 phase motors is 208-230VAC. For 50Hz 1 phase motors, required rating is 220-240 VAC.

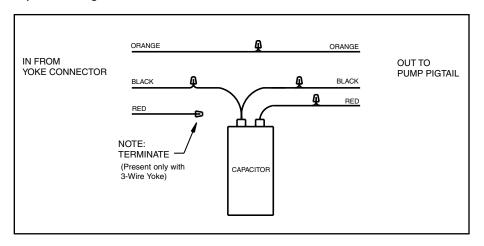
			EL	ECTR	ICAL	SERVICE IN	IFORMATION				
UMP Model No.	НР	HZ	PH	Flucti	oltage etuation ange Max. Load Amps		Locked Rotor Amps	Winding Resistance (Ohms)		(Ohms)	Capacitor Kit (µF)
NO.				Min.	Max.	g		Black-Oran e	Red-@gran e	BlackeR d	
AGUMP33R1 UMP33U1	1/3	60	1	200	250	4.0	13.0	8.1-9.9	15.8-19.3	23.8-29.3	144-224-5 (17.5)
AGUMP75S1 UMP75U1	3/4	60	1	200	250	6.5	22.0	2.7-3.3	14.7-18.0	17.3-21.4	144-224-5 (17.5)
AGUMP150S1 UMP150U1	1-1/2	60	1	200	250	10.5	42.0	1.8-2.3	5.3-6.5	6.2-8.9	144-225-5 (25)
X3AGUMP150S1 X3UMP150U1	1-1/2	60	1	200	250	10.5	42.0	1.8-2.3	5.3-6.5	6.2-8.9	144-225-5 (25)
X5AGUMP150S1 X5UMP150U1	1-1/2	60	1	200	250	10.5	42.0	1.8-2.3	5.3-6.5	6.2-8.9	144-225-5 (25)
AGUMP200S1-3 UMP200U1-3	2	60	1	200	250	11.4	47.0	1.4-1.7	2.5-3.2	3.8-5.0	144-367-5 (50)

UMP Model No.	НР	НР	HP	HP	НР	HP	HZ	PH	Flucti	age uation nge	Max. Load Amps	Locked Rotor Amps	Winding I	Resistance	(Ohms)	Capacitor Kit (µF)
140.				Min.	Max.			Black-Orange	Red-@gran e	BlackeR d						
AGUMP75S3-3 UMP75U3-3	3/4	50	1	200	250	5.8	18.6	3.5-4.3	23.1-28.3	26.5-32.7	144-224-5 (17.5)					
AGUMP150S3-3 UMP150U3-3	1-1/2	50	1	200	250	10.0	34.5	2.7-3.4	12.4-15.2	15.0-18.7	144-225-5 (25)					
X4AGUMP150S3 X4UMP150U3	1-1/2	50	1	200	250	10.0	34.5	2.7-3.4	12.4-15.2	15.0-18.7	144-225-5 (25)					
AGUMP75S17-3 UMP75U17-3	3/4	50	3	342	457	2.2	11.0	26.1-31.9	26.1-31.9	26.1-31.9						
AGUMP150S17-3 UMP150U17-3	1-1/2	50	3	342	457	3.8	15.8	12.1-14.8	12.1-14.8	12.1-14.8						
X4AGUMP150S17 X4UMP150U17	1-1/2	50	3	342	457	3.8	15.8	12.1-14.8	12.1-14.8	12.1-14.8						

#### Capacitor Kits

2	1/3,3/4	1-1/2
144-367-5	144-224-5	144-225-5
50 μF	17.5 μF	25 μF
2	2	2
1	1	1
5	5	5
	50 μF 2 1	144-367-5 144-224-5 50 μF 17.5 μF 2 2 1 1

#### **Capacitor Wiring Schematic**

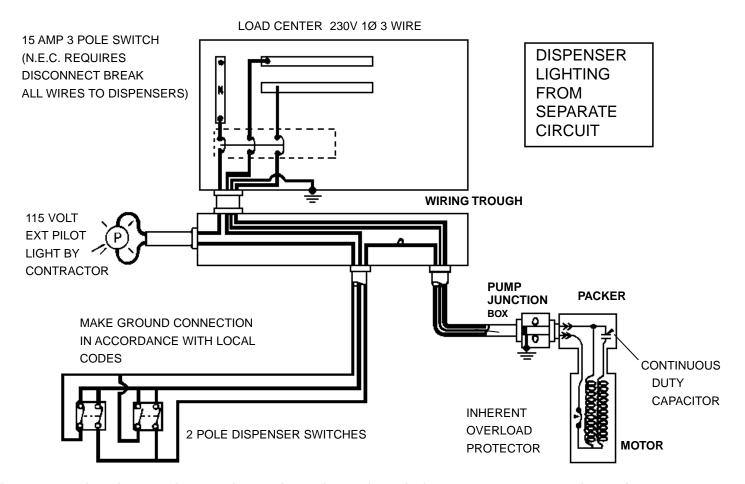


Ref RJ D42-129-1E PG 6, 12



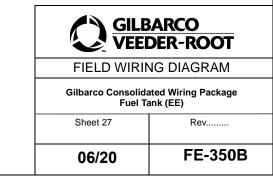
#### Quantum<sup>™</sup> 4 Inch Submersible Pumps pg 2

#### **Suggested Wiring Diagram Without Optional Control Box**



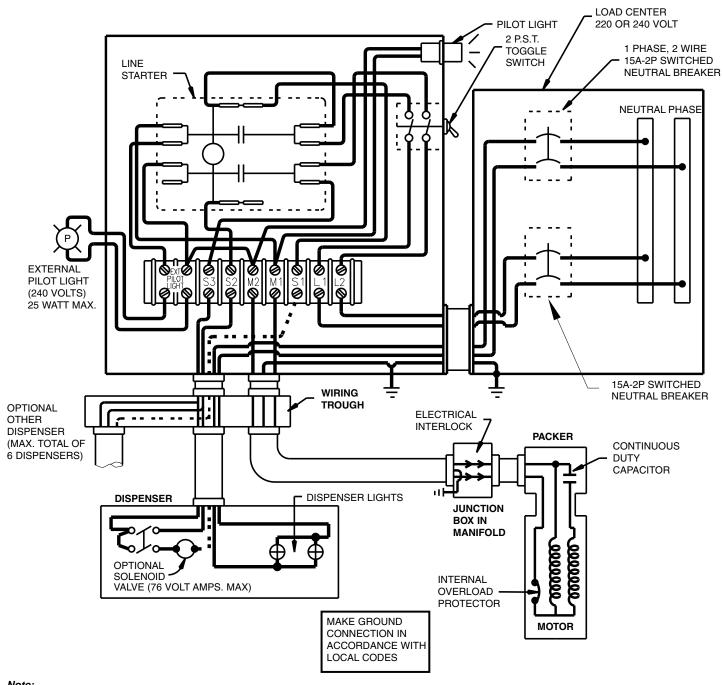
COMBINATION OF 2 POLE DISPENSER SWITCHES OR EXTERNAL PILOT LIGHT.
RATED FOR TWICE THE FULL LOAD CURRENT OF THE MOTOR:
1/3 HP-8 AMPS, 3/4 HP-13 AMPS, 1-1/2 HP-21 AMPS, 2 HP-22.8 AMPS
RATED FOR HANDLING LOCKED ROTOR CURRENT OF THE MOTOR:
1/3 HP-13 AMPS, 3/4 HP-22 AMPS, 1-1/2 HP-42 AMPS, 2 HP-47 AMPS

Ref RJ D42-129-1 E, pg 6



#### Quantum<sup>™</sup> 4 Inch Submersible Pumps pg 3

# 230 VAC REMOTE CONTROL BOX WITH 230 VAC COIL UL LISTED, RED JACKET MODEL 880-042-5



#### Note:

If electronic line leak is being used, reference TLS-350 Wiring

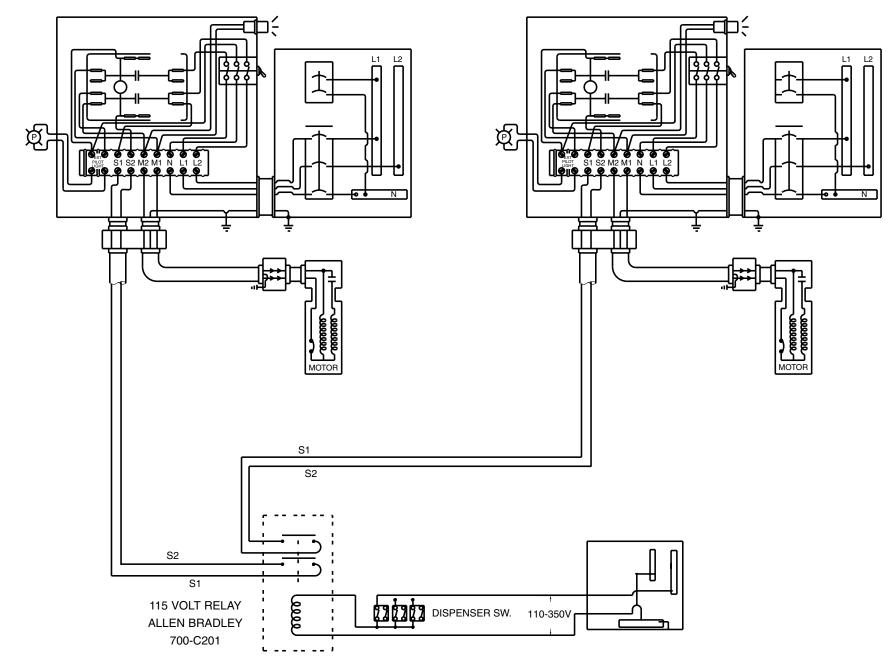
This drawing does not apply.

Ref RJ D42-129-1 E, pg 8

GILE VEEL	SARCO DER-ROOT
FIELD WIRI	NG DIAGRAM
	ated Wiring Package ank (EE)
Sheet 28	Rev
06/20	FE-350B

#### Quantum<sup>™</sup> 4 Inch Tandem Submersible Pumps pg 4

#### SUGGESTED WIRING FOR TANDEM PUMPS



#### Tandem Pump Installation:

115 Volt Relay are not available from Gilbarco and should be purchased locally.

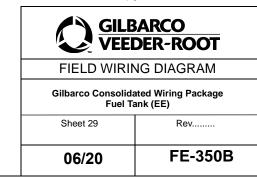
Illustration above shows wiring allowing both submersibles to operate simultaneously with any combination of dispensers turned on. To operate individually, the appropriate toggle switch, located externally on the side of the control box can be turned off manually.

#### Note:

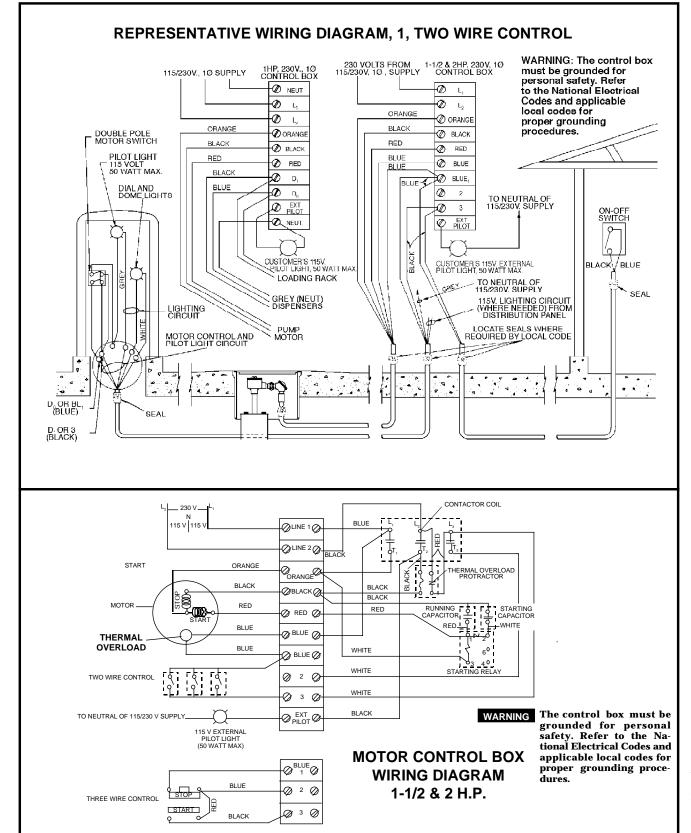
If electronic line leak is being used, reference TLS-350 Wiring Drawing.

This drawing does not apply.

Ref RJ D42-129-1 E, pg 17



#### Big-Flo® Hgh Capacity Gasoline Pumps pg 1



N-4--

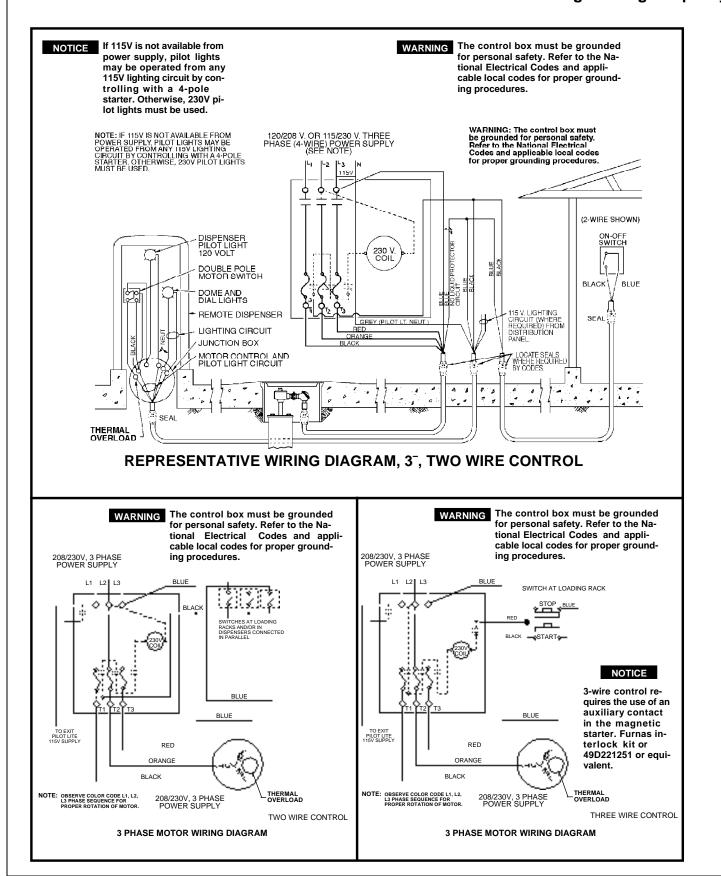
If electronic line leak is being used, reference TLS-350 Wiring Drawing.

This drawing does not apply.

Ref RJ 051-023, pg 6



#### Big-Flo<sup>®</sup> Hgh Capacity Gasoline Pumps pg 2

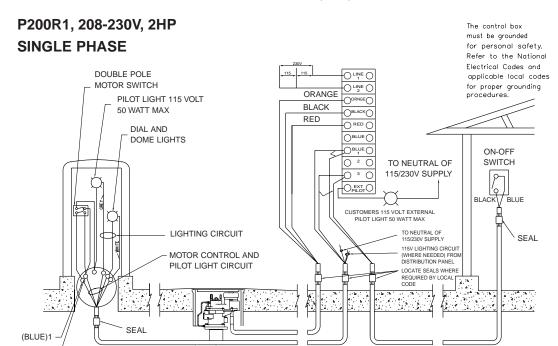


Ref RJ 051-023, pg 7

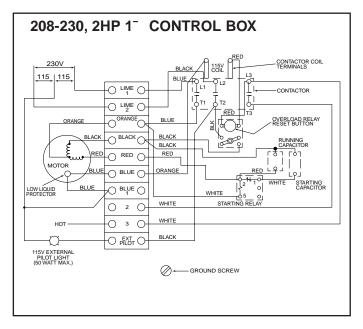


#### 6 Inch Submersible Petroleum & AG Pumps pg 1

# TYPICAL MECHANICAL DISPENSER REPRESENTATIVE WIRING DIAGRAM, 1<sup>-</sup>, TWO-WIRE CONTROL



### REPRESENTATIVE WIRING DIAGRAM FOR USE WITH SWITCHED "HOT" FEED 208-230 VOLTS A.C., 2 HP SINGLE-PHASE CONTROL BOX.



NOTE: APPROVED COMPONENT
ONLY - TOTAL SYSTEM
INSTALLED SHALL COMPLY
WITH ALL LOCAL CODES.

MAKE GROUND CONNECTION IN ACCORDANCE WITH LOCAL CODES

#### WARNING

The control box must be grounded for personal safety. Refer to the National Electrical Codes and applicable local codes for proper grounding procedures.

- 1 Remove red wire (coil to L2).
- 2. Relocate orange wire at L1 to coil.
- 3. Change to 115V coil assembly.

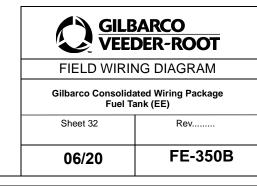
#### Table A

(BLACK)3

60 Hz 208-240, 575 VOLT TWO STAGE UNITS	50 Hz, 380-415 VOLT, THREE STAGE UNITS
P200J1-2MB=15 GPM M	P300J17-3HB=20 GP
P200J4-2MB=15 GPM M	P500J17-3K=25 GP
P300J4-2HB=20 GPM M	P300J16-3HB=20 GP
P500J4-2K=25 GPM M	P500J16-3K=25 GP
P500J6-2K=25 GPM	

**Note:** Never wire a submersible pump to run continuously at less than minimum flow rate. The pumps are designed to run continuously at or above minimum flow rate or with an intermittent duty cycle, not to exceed 20 on/off cycles per hour.

Ref RJ 051-301-1



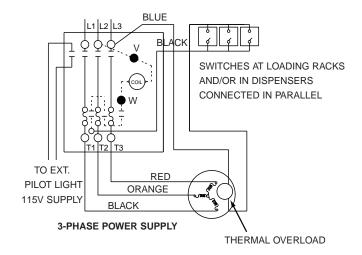
#### 6 Inch Submersible Pumps pg 3

# TWO WIRE THREE-PHASE MOTOR WIRING DIAGRAM

#### WARNING

The control box must be grounded for personal safety. Refer to the National Electrical Codes and applicable local codes for proper grounding procedures.

#### **3-PHASE POWER SUPPLY**



NOTE: OBSERVE COLOR CODE L1, L2, L3 PHASE SEQUENCE FOR PROPER ROTATION OF MOTOR.

# THREE-PHASE MOTOR WIRING DIAGRAM

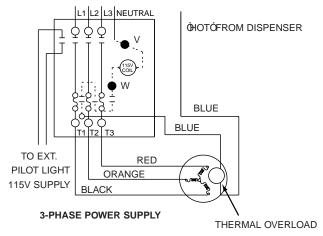
#### WARNING

The control box must be grounded for personal safety. Refer to the National Electrical Codes and applicable local codes for proper grounding procedures.

#### NOTICE

Rewire coil for proper voltage.

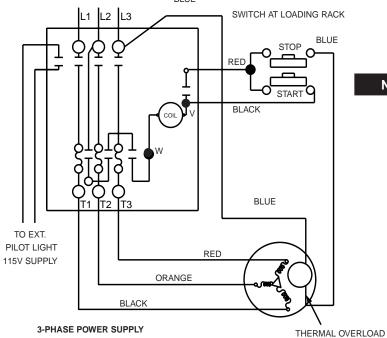
#### **3-PHASE POWER SUPPLY**



NOTE: OBSERVE COLOR CODE L1, L2, L3 PHASE SEQUENCE FOR PROPER ROTATION OF MOTOR.

# THREE WIRE THREE-PHASE MOTOR WIRING DIAGRAM

#### **3-PHASE POWER SUPPLY**



WARNING

The control box must be grounded for personal safety. Refer to the National Electrical Codes and applicable local codes for proper grounding procedures.

NOTICE

3-wire control requires the use of an auxiliary contract in the magnetic contactor. Furnas auxiliary interlock field kit 49D22125001 or equivalent.

NOTE: OBSERVE COLOR CODE L1, L2, L3 PHASE SEQUENCE FOR PROPER ROTATION OF MOTOR.

Ref RJ 051-301-1 C



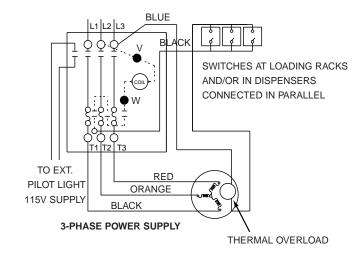
#### 6 Inch Submersible Pumps pg 3

#### TWO WIRE THREE-PHASE **MOTOR WIRING DIAGRAM**

#### WARNING

The control box must be grounded for personal safety. Refer to the **National Electrical Codes and** applicable local codes for proper grounding procedures.

#### **3-PHASE POWER SUPPLY**



NOTE: OBSERVE COLOR CODE L1, L2, L3 PHASE SEQUENCE FOR PROPER ROTATION OF MOTOR.

#### THREE-PHASE **MOTOR WIRING DIAGRAM**

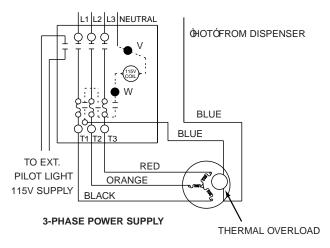
#### WARNING

The control box must be grounded for personal safety. Refer to the **National Electrical Codes and** applicable local codes for proper grounding procedures.

#### NOTICE

Rewire coil for proper voltage.

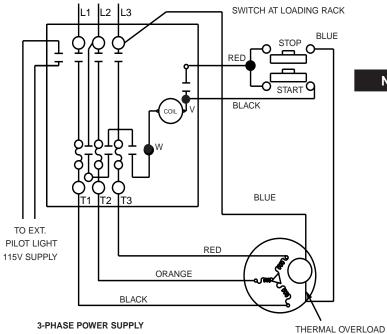
#### **3-PHASE POWER SUPPLY**



NOTE: OBSERVE COLOR CODE L1, L2, L3 PHASE SEQUENCE FOR PROPER ROTATION OF MOTOR.

#### THREE WIRE THREE-PHASE **MOTOR WIRING DIAGRAM**

#### **3-PHASE POWER SUPPLY**



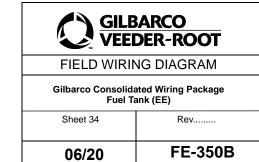
WARNING

The control box must be grounded for personal safety. Refer to the **National Electrical Codes and** applicable local codes for proper grounding procedures.

NOTICE

3-wire control requires the use of an auxiliary contract in the magnetic contactor. Furnas auxiliary interlock field kit 49D22125001 or equivalent.

NOTE: OBSERVE COLOR CODE L1, L2, L3 PHASE SEQUENCE FOR PROPER ROTATION OF MOTOR.



Ref RJ 051-301-1 C

#### 6 Inch Submersible Pumps - Dual Manifold pg 4

# SUGGESTED DIAGRAM FOR WIRING DUAL MANIFOLD SYSTEM. TWO WIRE CONTROL. 208/230 SINGLE PHASE

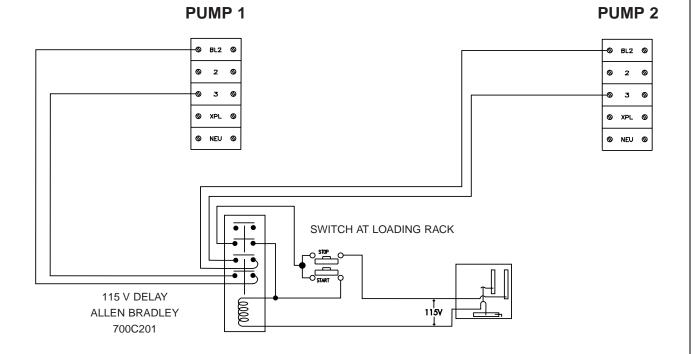
# PUMP 2 | Solid So

DISPENSER SW. 115V

ALLEN BRADLEY

700C201

# SUGGESTED DIAGRAM FOR WIRING DUAL MANIFOLD SYSTEM. THREE WIRE CONTROL. 208-230 SINGLE PHASE

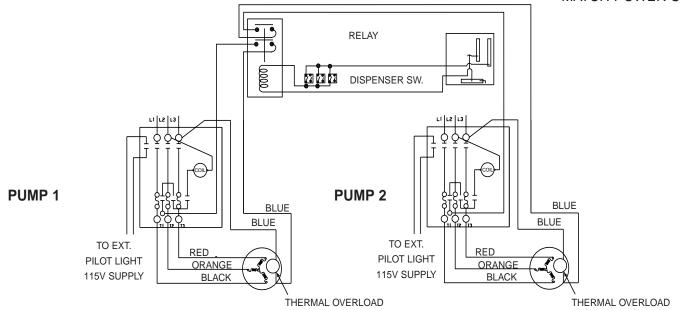




#### 6 Inch Submersible Pumps - Dual Manifold pg 5

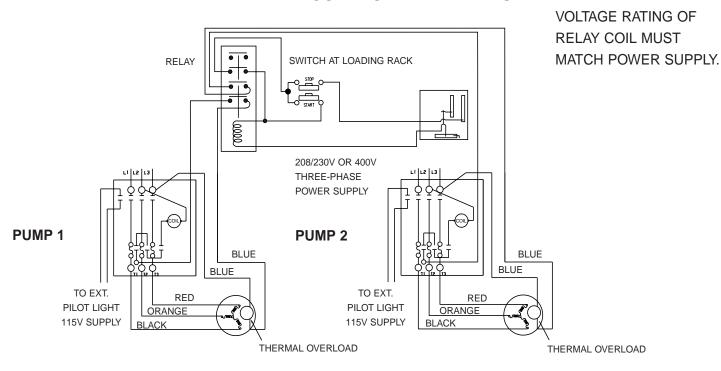
# SUGGESTED DIAGRAM FOR WIRING DUAL MANIFOLD SYSTEM. TWO WIRE CONTROL. THREE PHASE

VOLTAGE RATING OF RELAY COIL MUST MATCH POWER SUPPLY.



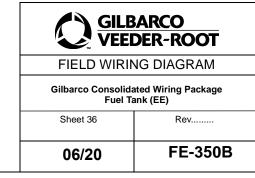
NOTE: OBSERVE COLOR CODE L1, L2, L3 PHASE SEQUENCE FOR PROPER ROTATION OF MOTOR

# SUGGESTED DIAGRAM FOR WIRING DUAL MANIFOLD SYSTEM. THREE WIRE CONTROL. THREE PHASE



NOTE: OBSERVE COLOR CODE L1, L2, L3 PHASE SEQUENCE FOR PROPER ROTATION OF MOTOR

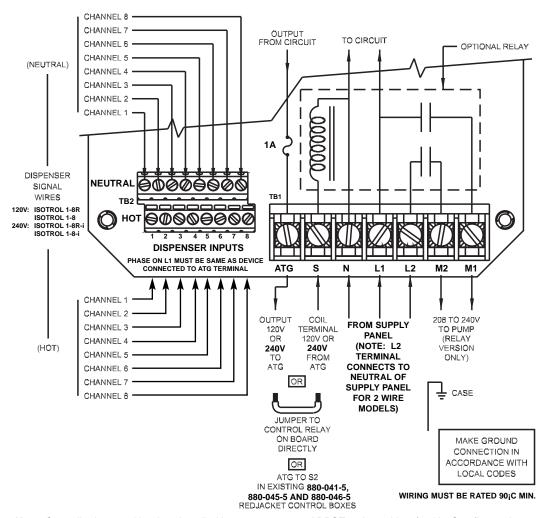
Ref RJ 051-301-1 C



#### ISOTROL<sup>™</sup> 1-8 Control Box pg 1

#### **M**ODEL INFORMATION

Model No.	Device Description	Red Jacket Part No.
Isotrol 1-8R	120V w/Relay	880-047-1
Isotrol 1-8	120V w/o Relay	880-049-1
Isotrol 1-8R-i	240V w/Relay	880-048-1
Isotrol 1-8-i	240V w/o Relay	880-050-1



**Note:** Controller boxes with relays installed have contacts rated DPST 30A, 240V, 50/60 Hz. See figure above for relative electrical connections.

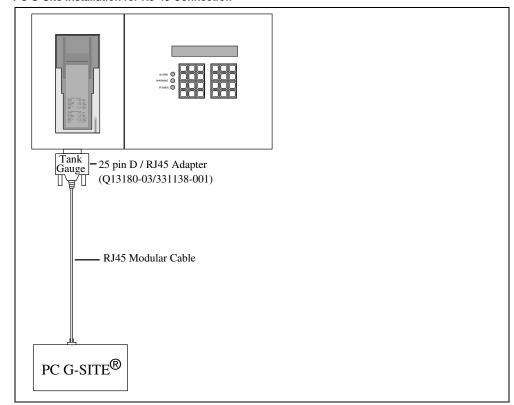
**Note:** This device is not compatible with Red Jacket Control Box 880-042-5. If such a device exists, replace it with ISOTROL 1-8-i that has the on board relay. Compatible of this device with Control Box Models 880-041-5, 880-045-5 and 880-046-5 assumes that they have been installed and wired according to their diagrams.

Ref RJ D-051-329 A

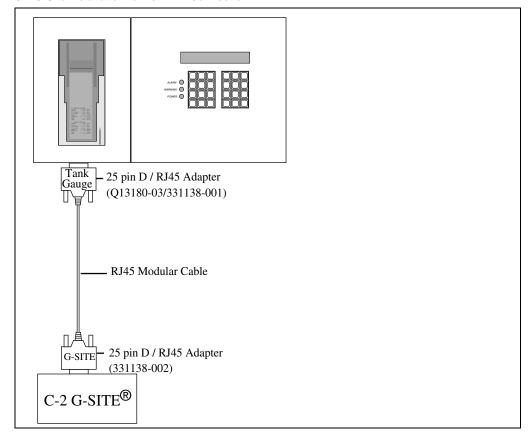


#### TLS-350R Interface Module - RJ-45 Connection

#### PC G-Site Installation for RJ-45 Connection



#### C-2 G-Site Installation for 25 Pin D Connection



Ref VR 576013-850 rev D, pg 8



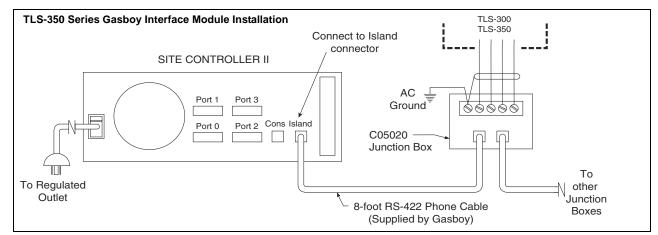
Sheet 38

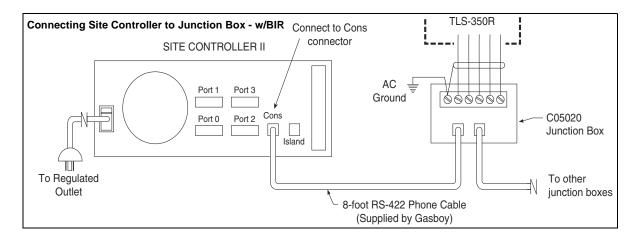
Rev.....

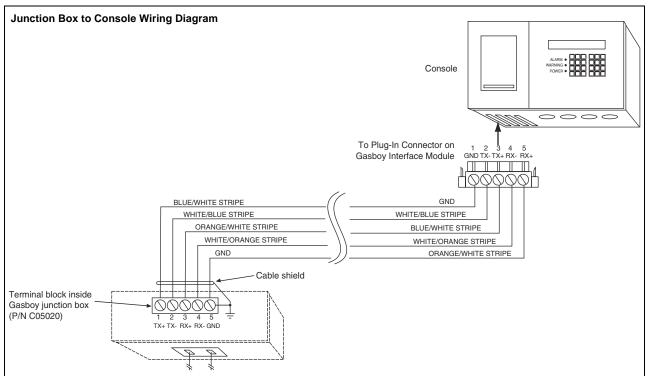
06/20

FE-350B

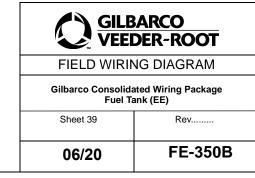
#### **Gasboy CFN Interface Module**





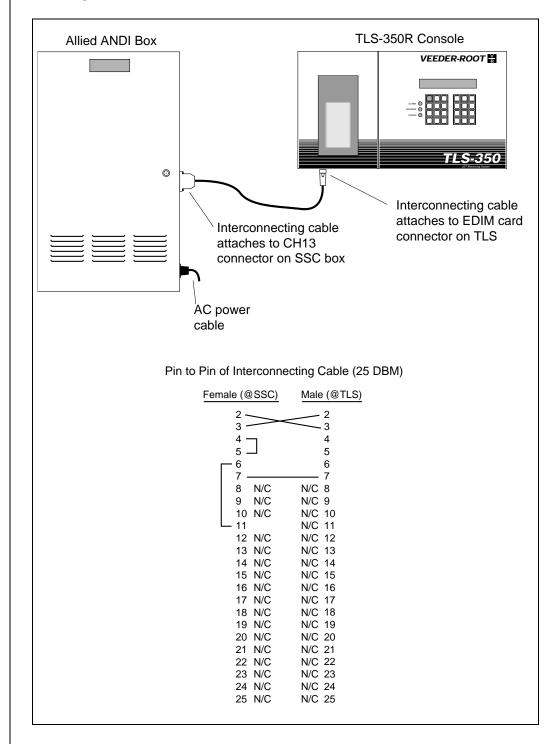






#### **DIM For TLS-350/R Systems**

#### Connecting Site Controller to Junction Box - w/o BIR

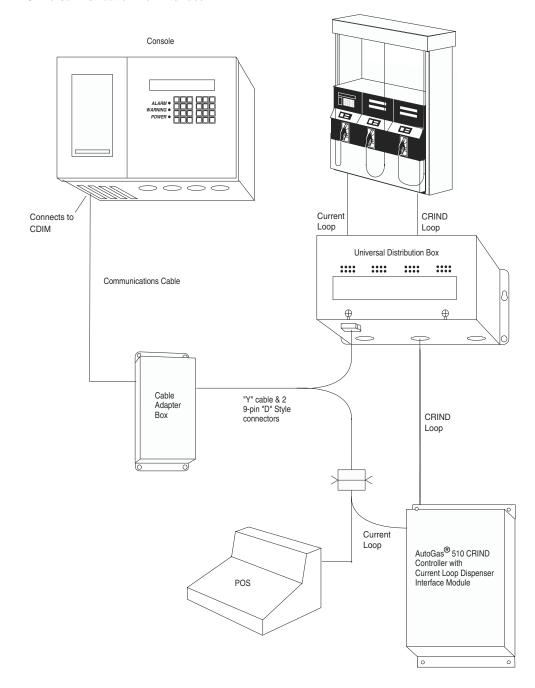


Ref VR 577013-614 Rev B, pg 10



#### **CDIM Gilbarco Transac system 1000 POS - Universal Dist Box Interface**

#### **Universal Distrbution Box Interface**

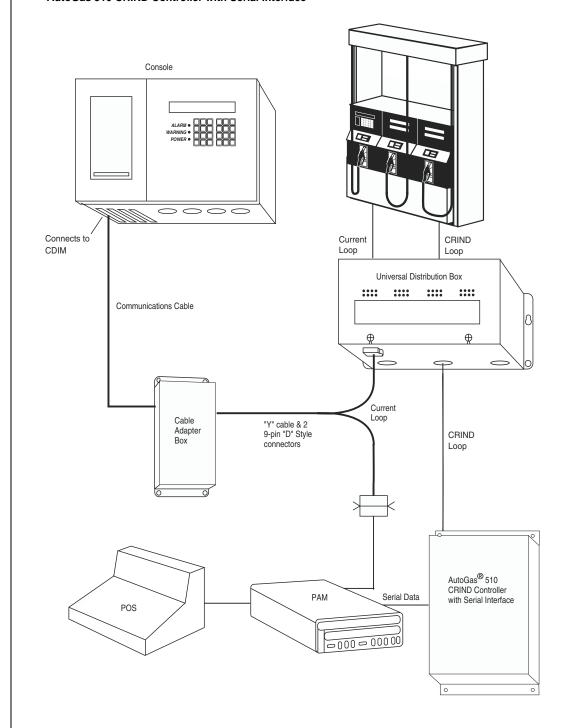


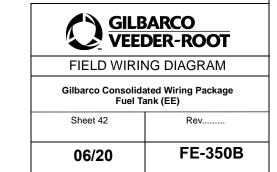
Ref VR 577013-435 rev F, pg 15,



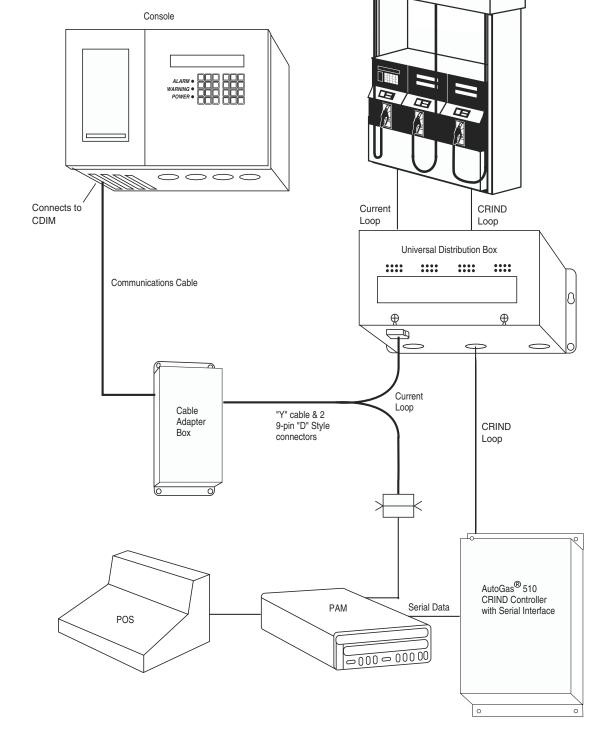
#### CDIM AutoGas<sup>®</sup> 510 CRIND Controller with Current Loop Interface

#### AutoGas 510 CRIND Controller with Serial Interface



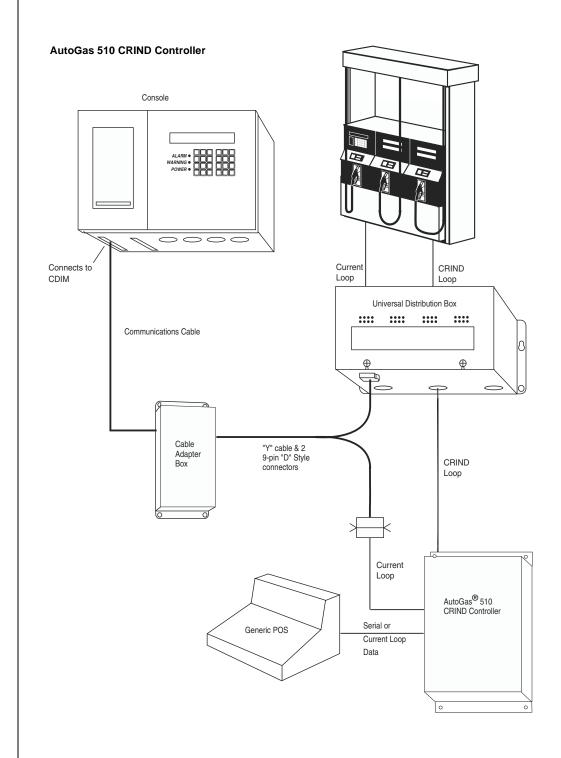


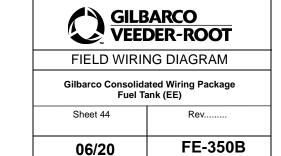
# CDIM POS AutoGas® 510 CRIND Controller with Serial Interface Connecting Site Controller to Junction Box - w/o BIR Console



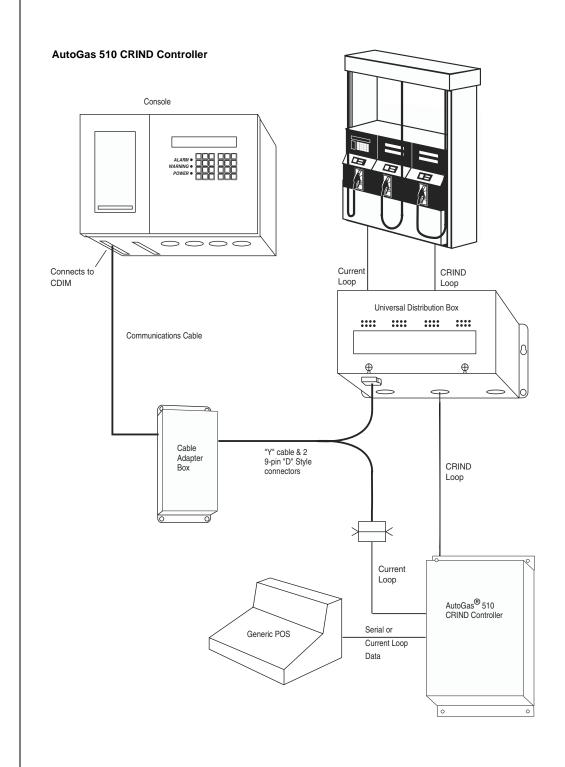


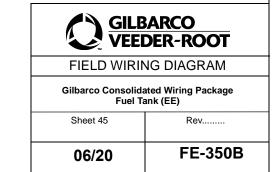
#### CDIM AutoGas<sup>®</sup> 510 CRIND Controller





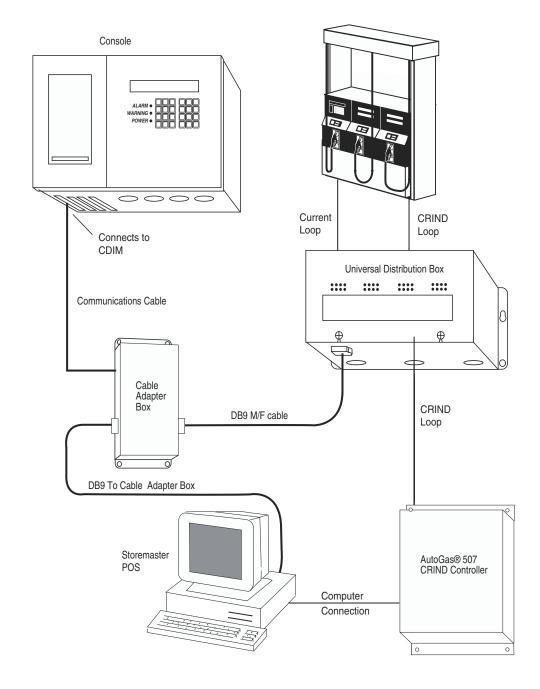
#### CDIM AutoGas® 510 CRIND Controller





#### CDIM AutoGas® 507 CRIND Controller

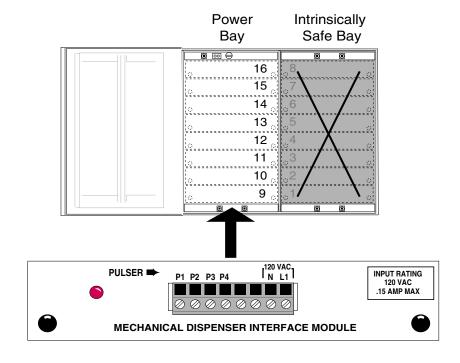
#### AutoGas 507 CRIND Controller

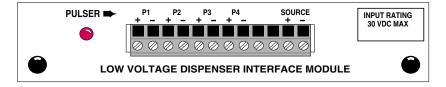




#### **MDIM/LVDIM Interface Module**

#### MDIM or LVDIM Modules Install in Power Bay Only





Ref VR 576013-893 Rev D, pg6



06/20

FE-350B

#### **DIM Setup Values**

#### **Pulse/Unit Conversion**

PULSE	CONVERSION	UNIT C	ONVERSION
Parameter	Pulses Per Unit Volume	Parameter	Unit Type
Р	100 (7697 pulser)	G	U.S. Gallons
F	10 (7697 on high volume pump)	М	Litres
Т	25 (7874 Pulse/ Totalizer)	I	Imperial Gallons
Q	2,5 (7874 on high volume pump)		
А	1/2		
S	1		
W	250		
Х	500		
Υ	1000		

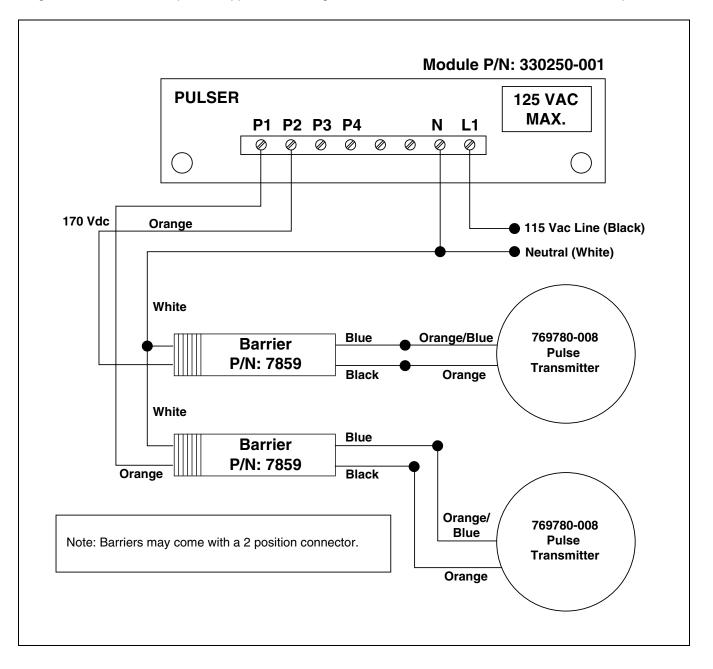
#### **Pulse Conversion Example**

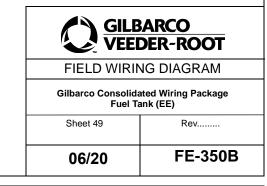
EXAMPLE: PPFFMMMM					
Parameter	Meter	Pulses			
PP	Meter 1 & 2	7697 Pulser			
FF	Meter 3 & 4	7697 High Volume			
MMMM	Meter 1, 2, 3, 4	Litre Pulses Unit			



#### **MDIMLVDIM Interface - Wiring Diagram of Mechanical Dispenser Applications**

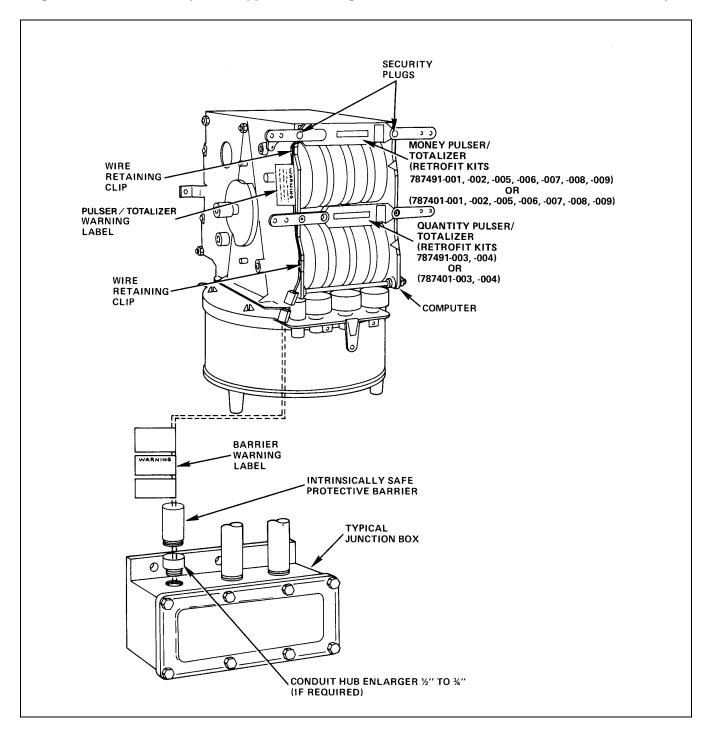
Diagram of Mechanical Dispenser Applications using two 1871/7697 Series Pulse Transmitters and required Barriers

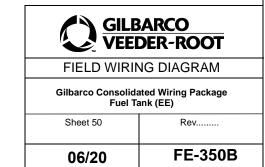




#### MDIMLVDIM Interface - Mechanical Dispenser Applications using 7874 Series Pulser/Totalizer

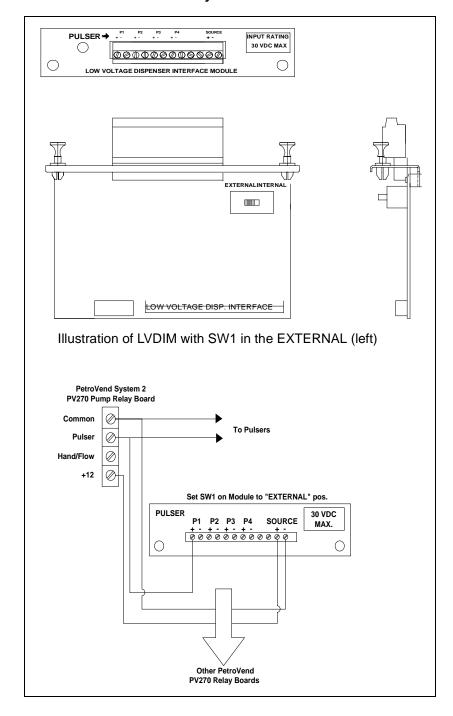
#### Diagram of Mechanical Dispenser Applications using two 1871/7697 Series Pulse Transmitters and required Barriers





#### **MDIMLVDIM Interface - Wiring to PetroVend System2 Controller**

#### Installation with PetroVend System 2 Site Controller





#### MDIMLVDIM Interface - Wiring to Kraus Micon & Gasboy or Tokyhelm Electronic Dispensers

#### Installation with GasBoy 9800 Series Electronic Dispensers

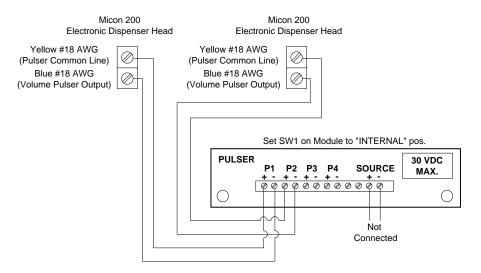
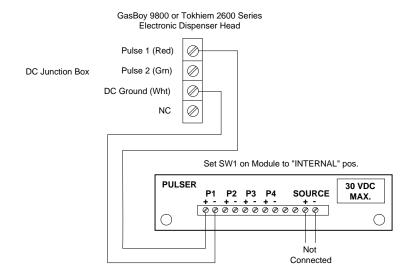


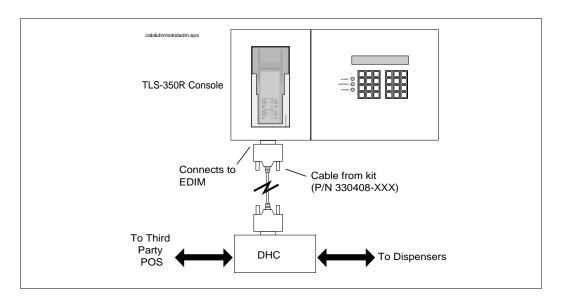
Illustration of Kraus Micon 200 Series Electronic Dispensers (Kraus Micon applications are not UL approved)



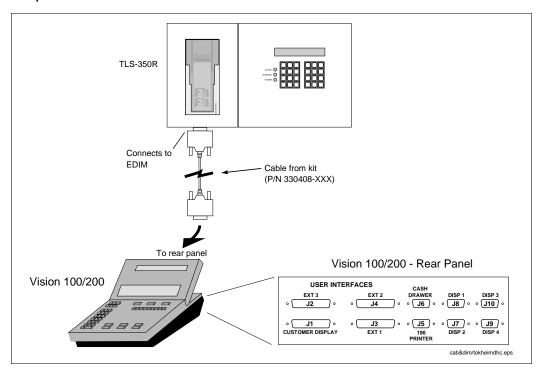


#### **Tokheim DIMs**

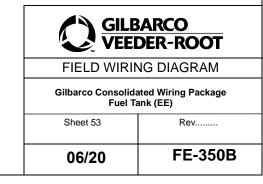
#### Stand-alone DHC Installation



#### Example of Tokheim Vision 100/200 Installation

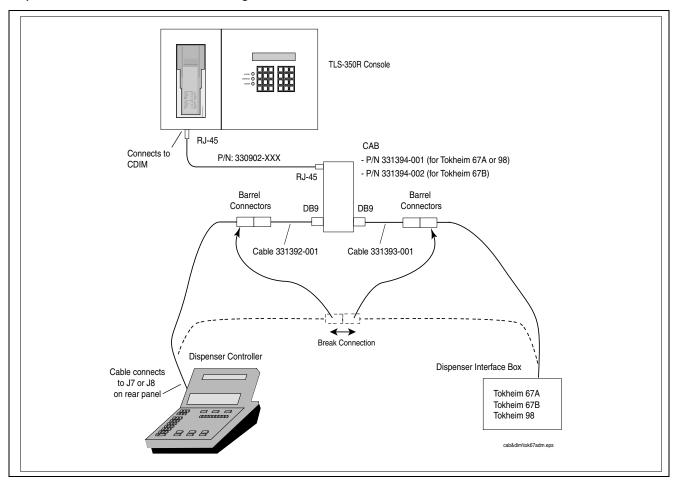


Ref VR 576013-576 Rev E, pg6



#### **Tokheim DIMs - 67/98 to the Tokheim Console**

#### Dispenser Controller Interconnection with Single CAB

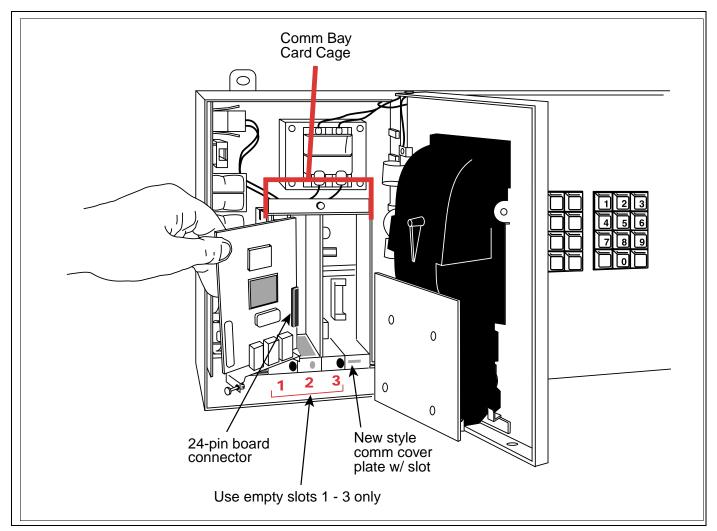


Ref VR 576013-576 Rev E, pg8

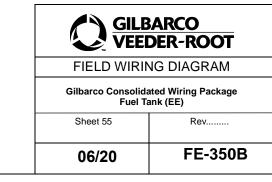


#### **CDIMs Wayne / Bennett CAB Installation**

TLS-350R Console CDIM Installation

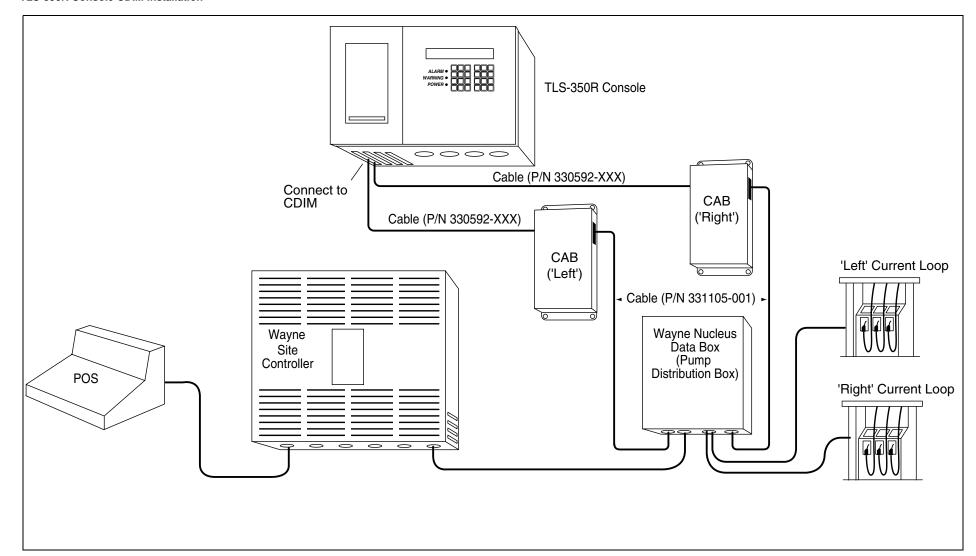


Ref VR 576013-944 Rev E, pg6



#### **CDIMs Wayne / Bennett Connecting Wayne CAB to Disp D-Box**

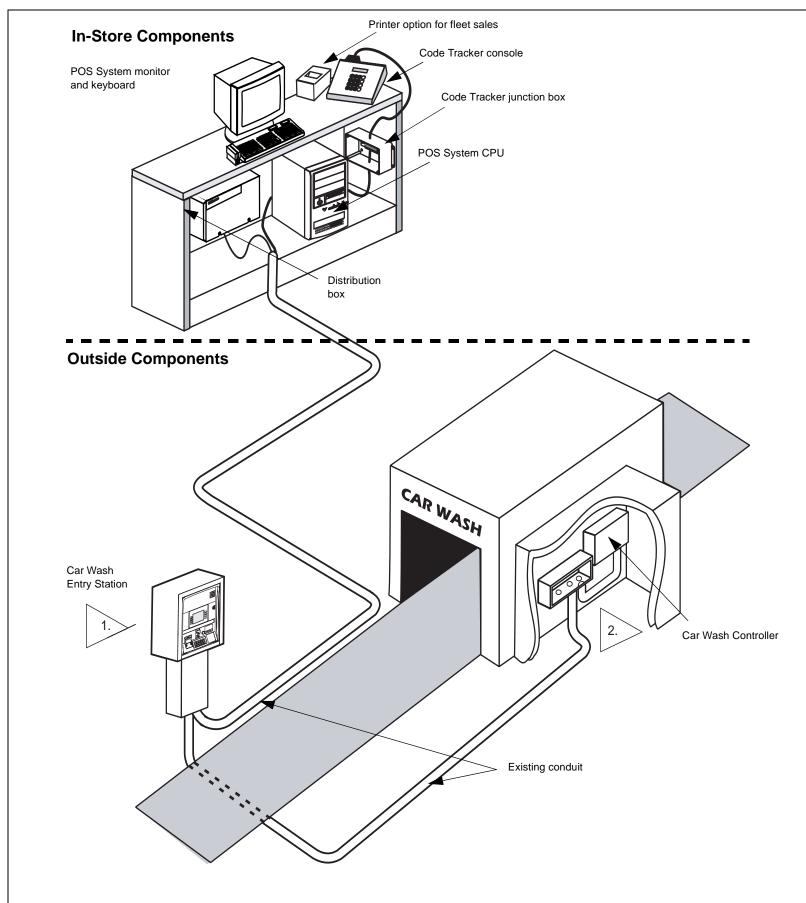
#### TLS-350R Console CDIM Installation



Ref VR 576013-944 Rev E, pg8



#### **Car Wash Code Tracker Wiring**



#### **Document Release Information**

Sect	Date	New Rev	ECO#	Comment(s)	Title
FF		New Rel			Car Wash Kiosk
FF		New Rel			Car Wash Safety & Notes
FF		New Rel			Car Wash Block Diagram
FF		New Rel			Car Wash Electric Component Wiring Drawings & Voltage Tables
FF		New Rel			Car Wash Field Wiring Box & Relays
FF		New Rel			Car Wash Code Tracker Wiring

#### **Subject Matter**

- 1.....Car Wash Kiosk
- 2.....Car Wash Safety & Notes
- 3.....Car Wash Block Diagram
- 4.....Car Wash Electrical Component Drawings & Values Tables
- 5.....Car Wash Field Wiring Box & Relays
- 6.....Car Wash Code Tracker Wiring



#### Car Wash Safety & Notes

#### **Safety Procedures**





Dangerous environment. High voltage is present.

Failure to observe all safety precautions could result in serious injury or death.

Observe all safety precautions as outlined in Gilbarco's manuals.

#### **Installation Procedures**

. If kiosk is within 20 feet of a dispenser then a single EMERGENCY POWER CUTOFF control to remove AC power from site equipment is required. If Kiosk is not within 20 feet of a dispenser, then the requirement is subject to local codes and regulations.

(The control is an additional safety feature, and not a substitute for

NEC/NFPA30 circuit breaker requirements.)

• Label the EMERGENCY POWER CUTOFF switch and instruct owner to keep area clear of obstacles.



Connect an insulated grounding conductor from the kiosk power panel to the site grounding electrode (size per NEC).

- Only field wiring connections are shown in the junction boxes. Cap all unused wires. Local and National Electrical Codes may apply.
- Install conduit per NEC for hazardous locations.
  - Wires -all wires are 14AWG (stranded) unless otherwise noted. kiosk ground - wire is 12AWG (stranded). Power loading and distance run may require larger wire size. Outputs from intercom and call button must be NEC Class 2. 2-Wire: For all installations with 'new' wiring, use unshielded twisted pair (UTP) data wires for all 2-wire communications. 18AWG wires may be used for 2-wire communication. Example: C&M (Wire) Corporation Part #27525, 18AWG UTP, UL and CSA recognized, oil and gas resistant, insulation rated 600V.
- Consult mfg. specs. for wire nuts to determine maximum number of wires that may be used per nut.



Ground connection in electronics cabinet is made with UL listed wire nut to factory provided lead already connected to grounding terminal.

Do not provide service loops or leave excess wire in electronics cabinet. Cut all wire lengths to size sufficient to reach termination without stress or excess. Dress all wires neatly along surfaces so as not to obstruct access to terminations and devices.



Terminals for connecting twisted pair communication wires on Terminal Block 2 on Power Supply are identified as follows: CRIND Node terminals have factory installed blue/yellow twisted pair.



For U.S. 240V installations wires labeled 'HOT' are to be connected to L1 and wires labeled 'NEUTRAL' are to be connected to L2.



Call ciruit to use a minimum 3/4 inch conduit for call button and intercom wiring. Separate ground wire installed.



Car wash grounding to be connected to an equipment grounding conductor located in the conduit per NFPA70, Article 250. Ground wire no smaller than 12 AWG, wire with green or green and yellow striped insulation.

Wire all circuits NEC Class 1, except wiring to speaker (intercom) and call button which are NEC Class 2.

Notes: In Canada switching neutral is contrary to the Canadian electrical code, reference part 1, rule 14-014.

For Distribution Box use PA0306 or PA0133 or PA0197 POS System The Distance between Distribution Box and Car Wash Entry Station and the distance between the Distribution Box and Console/Controller shall not exceed, for data wire, 2600 feet using AWG 14.

#### **Electrical Rating**

Gilbarco recommends the use of one 15 AMP breaker

#### **Symbols Chart** Wire Color Chart

Wire Nut	$\Delta$	Black Brown	B BR
Earth Ground	$\alpha$	Red	R
	G	Orange	OR
No Connection		Yellow	Υ
	ı	Green	GN
Connection		Blue	BU
	T	Violet	V
		Gray	GY
		\/\/hite	\//

Reference FE-343

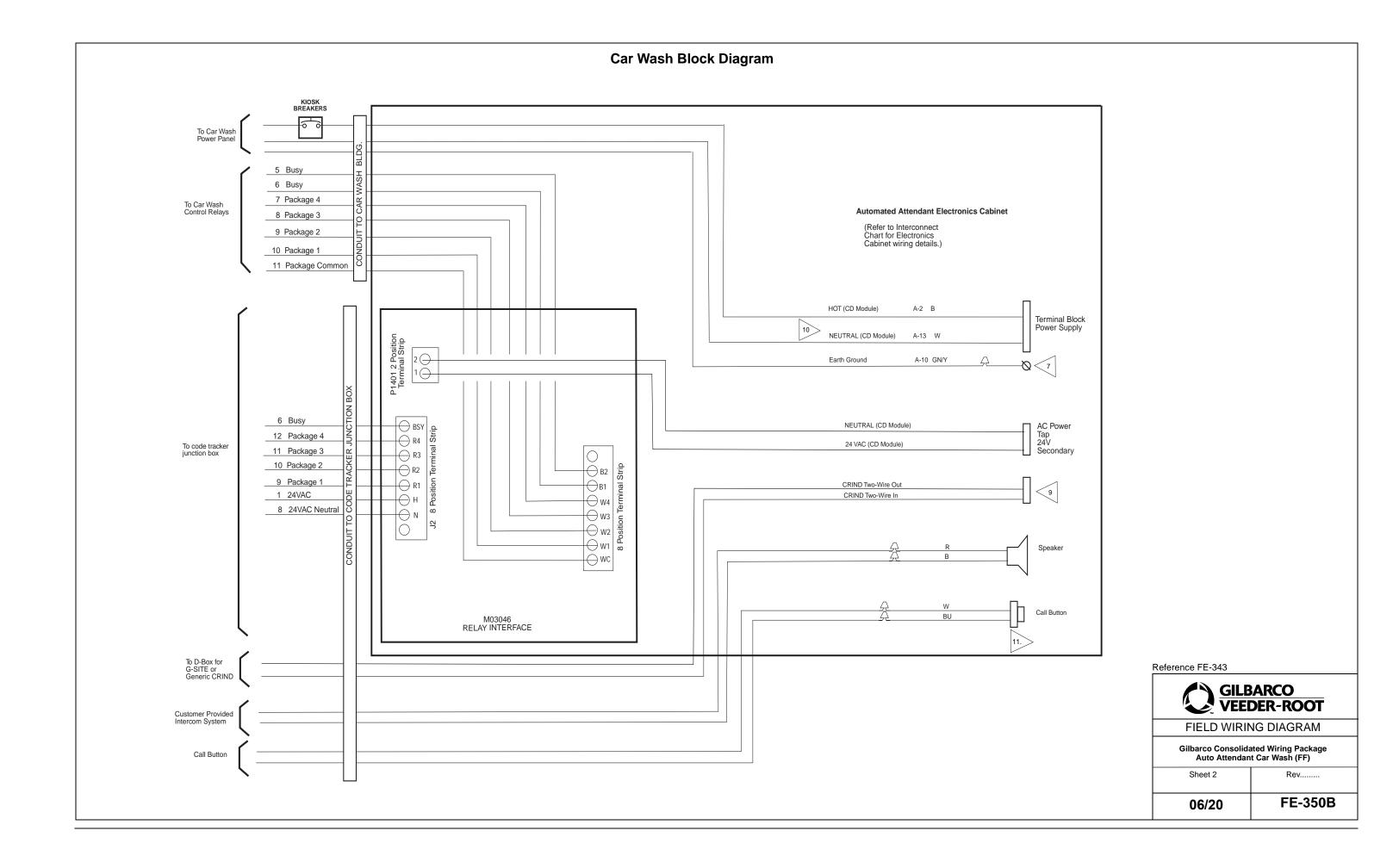


Gilbarco Consolidated Wiring Package Auto Attendant Car Wash (DD)

Sheet 1

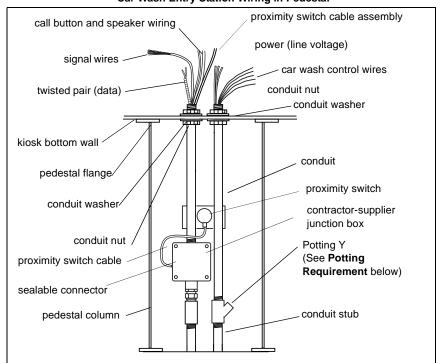
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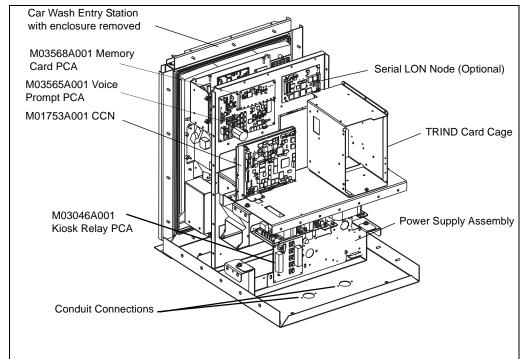
#### **Car Wash Electrical Component Drawings & Values Tables**

#### Car Wash Entry Station Wiring in Pedestal

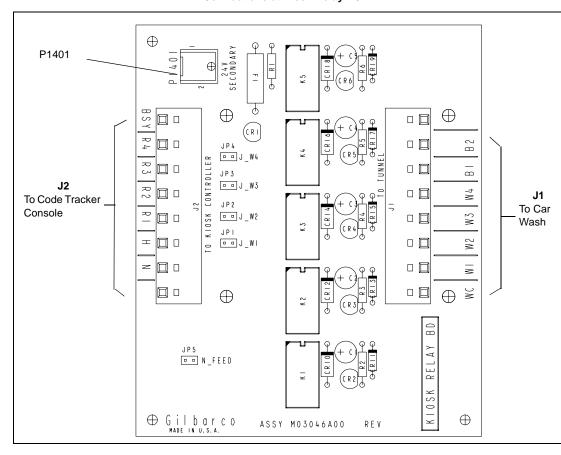


Conduit Size (inch)	O.D.	I.D.	Part Number
3/4	2-1/2	1-1/16	N16599-114
1	2-1/2	1-3/8	N16599-115

#### **Car Wash Entry Station Field Wiring**



#### Connections at Kiosk Relay PCA



#### Kiosk Controller PCA Connections Identification

Position at J2	At Code Tracker, Connects to:
N	24 VAC Return
Н	24 VAC
R1	Relay 1 control input from Code Tracker Console
R2	Relay 2 control input from Code Tracker Console
R3	Relay 3 control input from Code Tracker Console
R4	Relay 4 control input from Code Tracker Console
BSY	24 V switch output to code tracker

Relay Interface Connection		PDQ Laserwash 400	Mark VII
Label on Relay Board	Signal Name	Terminal	Terminal
B1	Wash In Use (Hot)	120	D18
B2	Wash In Use (Neutral)	121	D33
W4	Package 4	119	D6
W3	Package 3	118	D5
W2	Package 2	117	D4
W1	Package 1	116	D33
WC	Package Common	115	D13

#### PCA Contact Ratings

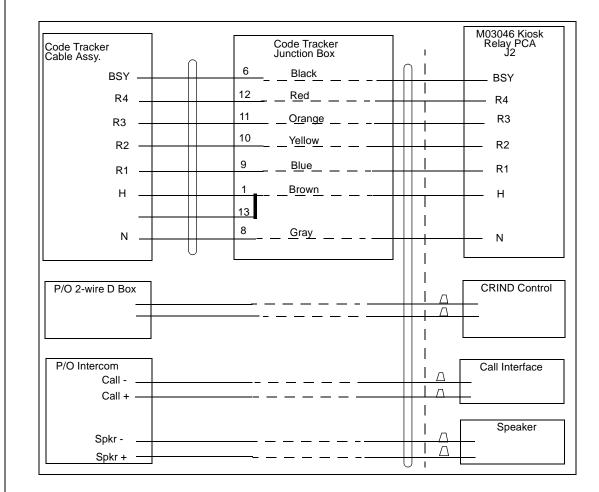
Item	Value	
Rated Load	0.50A at 125VAC or 2A at 30VDC	
Carry Current	2A	
Maximum Operating Voltage	125VAC or 125VDC	
Maximum Operating Current	2A	
Maximum Switch Capacity	62.50 VA or 60W	
Minimum Permissible Load	10uA, 10mVDC	

Reference MDE-4018B

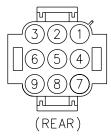


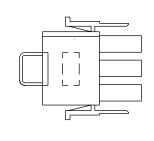
#### **Car Wash Field Wiring Box & Relays**

#### Details of Wiring in Field Wiring Box



#### Voltage Plug on Power Supply Detail

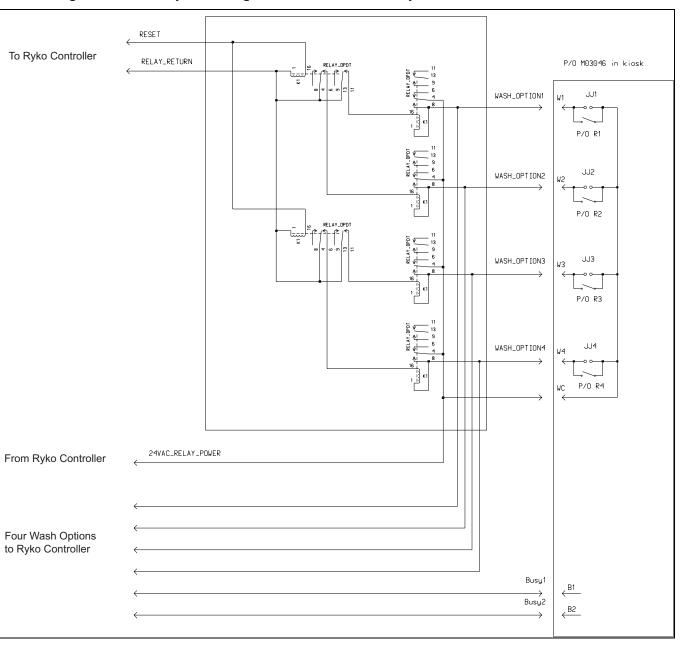




#### Voltage Plug Setting

Wire No.	from This Position	To This Position	Voltage
1	1	5	115V

#### Circuit Configuration for Relays in Wiring Box for AC-Controlled Ryko Unit

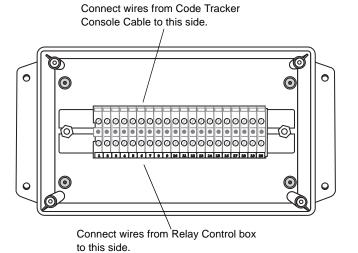


Reference MDE-4018B

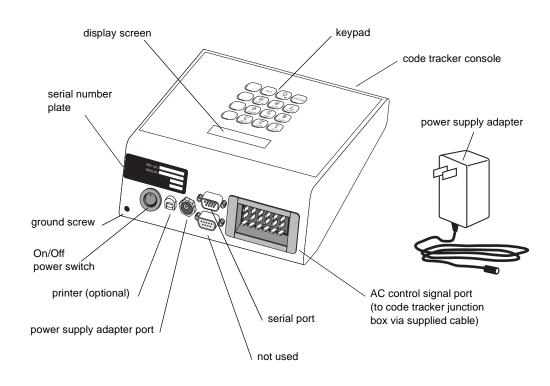


#### **Car Wash Code Tracker Wiring**

#### **Code Tracker Junction Box**



#### Code Tracker Console, Back View



Reference MDE-4018B



FIELD WIRING DIAGRAM

Gilbarco Consolidated Wiring Package Auto Attendant Car Wash (FF)

Sheet 5

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