GILBARCO VEEDER-ROOT

Encore® and Eclipse®

Site Preparation Manual

MDE-3802H

Computer Programs and Documentation

Federal Communications Commission (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

Gilbarco is an ISO 9001:2000 registered company.

Underwriters Laboratories (UL):

U L File#	Products listed with U L
MH1941	All Gilbarco pumps and dispensers that bear the UL listing mark.
MH8467	Transac System 1000 and PAM 1000
E105106	Dell DHM Minitower
E165027	G-SITE and Passport Systems

New York City Fire Department (NYFD):

NYFD C of A #	Product
4805	The Advantage Series and Legacy Series
4986	Encore and Eclipse

California Air Resources Board (CARB):

Executive Order #	Product
G-70-52-AM	Balance Vapor Recovery
G-70-150-AE	VaporVac

National Conference of Weights and Measures (NCWM) - Certificate of Conformance (CoC):

Gilbarco pumps and dispensers are evaluated by NCWM under the National Type Evaluation Program (NTEP). NCWM has issued the following CoC:

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

Patents

Gilbarco Inc. products are manufactured or sold under one or more of the following US patents:

Dispensers

4,566,504 4,556,927 4,570,686 4,687,033 4,728,788 4,748,846 4,799,940 4,805,453 4,876,653 4,890,210 4,913,813 4,930,655 4,934,565 4,938,054
4,938,251 4,939,730 4,967,366 4,986,445 5,040,577 5,098,179 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 5,450,883 5,464,466 5,501,246 5,535,130 5,542,458 5,543,849 5,546,981 5,557,084 5,571,310 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 5,954,080 5,956,259 5,969,691 5,971,042 5,979,705 5,980,090 6,026,866 6,052,629 6,073,840 6,078,888
6,078,896 6,082,415 6,085,775 6,087,954 6,089,284 6,092,410 6,098,879 6,102,085 6,109,477 6,112,134 6,113,039 6,116,505 6,119,110 6,123,118
6,149,033 6,167,923 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 6,380,853 6,381,514
6,386,246 6,418,983 6,421,616 6,422,464 6,431,226 6,438,452 6,460,579 6,463,389 6,466,842 6,470,233 6,493,440 6,499,516 6,505,134 6,522,947
6,523,744 6,529,800 6,532,999 6,535,726 6,546,882 6,571,151 6,571,201 6,573,884 6,574,603 6,578,145 6,618,362 6,644,360 6,681,814 6,685,089
6,690,275 6,697,705 6,704,774 6,708,797 6,710,701 6,712,101 6,721,669 6,736,313 6,741,909 6,745,104 6,761,190 6,763,974 6,766,949 RE35,238
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D433,421 D433,422 D433,423 D433,424 D433,685 D433,686 D433,687 D433,688 D434,424 D434,780 D435,051 D440,579 D443,624 D456,820
D457,084

Point of Sale/Back Office Equipment

4,967,366 5,228,084 5,448,638 5,798,931 5,980,090 5,708,580 5,719,779 5,719,781 5,724,067 5,734,851 6,073,840 6,078,888 6,116,505 6,185,307
6,263,319 6,275,746 6,326,934 6,360,137 6,363,299 6,364,206

Trademarks

Non-registered trademarks

C-PAM™	Highline™	SMART Meter™
CIM™	MultiLine™	SmartPad™
ECR™	Optimum™ Series	Surge Management System™
EMC™	PAM™ 1000	Tank Monitor™
G-CAT™	PAM™	TCR™
Gilbert™	SMART Connect™	Ultra-Hi™
G-SITE® Link™	SMART CRIND™	ValueLine™
G-SITE® Lite™	SMART Merchandising™	

Registered trademarks

Dimension® Series	The Advantage® Series	Encore®
Gilbarco®	Transac®	Eclipse®
InfoScreen®	Trimline®	TRIND®
Legacy®	VaporVac®	Passport®
Making Things Better®	G-SITE®	CRIND®
MPD®	Transac® System 1000	Performer®
		e-CRIND®

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PETROLEUM EQUIPMENT INSTITUTE

Table of Contents

1 – Introduction

Purpose

The purpose of this manual is to provide information to prepare a site for Encore® and Eclipse® Series pumps or dispensers.

Perform all site preparation procedures in accordance with NFPA 30A, NFPA 70, and applicable national, state and local codes/regulations. For a non-US installation, other codes may apply. Plan your site ahead of time. Use experienced, licensed personnel that practice accurate, safe construction techniques. Time, expense, and extra effort in the early stages of preparing a site can eliminate problems in later stages. Careful site preparation provides a sound troubleshooting framework for field repairs.

Note: Always consult manufacturer installation instructions for additional information. This manual does not purport to list all requirements for installation of outside vender components.

Intended Users

This manual is intended for individuals who are trained in the construction of gasoline stations. If you do not have experience with this type of construction (gasoline stations), contact a licensed, trained engineer or contractor or Gilbarco Authorized Service Contractor (ASC).

Gilbarco Contact Information

For this type of information	Call the following phone numbers
To schedule training on Gilbarco products	Contact your local Gilbarco distributor for assistance.
For technical assistance	Gilbarco Technical Support at 1-800-743-7501.
For warranty service and information	Gilbarco Service Center at 1-800-800-7498.
For explanation of Gilbarco's warranty policy	Contact your local Gilbarco distributor for assistance.
For additional technical literature, for example installation, parts manuals, and other documents	Gilbarco Literature Department at 1-336-547-5661.
Solutions, Products, Services and Support	http://www.gilbarco.com/Company/northAmerica.cfm

Required Reading

Manufacturer's Instructions - Equipment manufacturers must provide instructions for other equipment, such as Submerged Turbine Pumps (STPs), leak detectors, underground tanks, product lines, and shear valves. Gilbarco does not purport to provide complete or up-to-date installation instructions for other manufacturer's equipment.

Related Documents

Document Number	Title	GOLD Library
MDE-2183	Service Station Equipment and POS System Warranty for USA and Canada	Domestic Warranty and Owner's Manuals
MDE-2540	The Advantage®, Legacy, and MPD Series Owner's Manual	Advantage and Legacy Models
MDE-2755	Gilbarco STP Control and Dispenser Isolation Relay Box PA0287 Installation Manual	Encore and Eclipse
MDE-3019	Handbook 44 (referenced by Department of Weights and Measures)	N/A
MDE-3804	Encore/Eclipse Start-up/Service Manual	Encore and Eclipse
MDE-3893	Encore/Eclipse Owner's Manual	Encore and Eclipse
MDE-3985	Encore Installation Manual	Encore and Eclipse
MDE-4247	SMART Connect™ System Installation, Service and Parts Manual	SMART Connect
MDE-4516	Encore 500 S Series Owner's Manual	Encore and Eclipse
FE-321	Gilbarco STP Isolation Relay Box PA0287 Field Wiring Diagram	Engineering Diagrams
FE-341	Eclipse Series Dispenser Wiring Diagram	Encore and Eclipse
FE-363	Field Wiring Diagram for Encore 500 (M04104 Power Supply only)	Encore and Eclipse
FE-364	Field Wiring Diagram Encore 300	Encore and Eclipse
PT-1936	Encore Illustrated Parts Manual	Parts Manual
PT-1937	Encore 300/500/500S/550 and Eclipse Recommended Spare Parts Manual	Parts Manual

Abbreviations and Acronyms

Term	Description
ASC	Authorized Service Contractor
D-Box	Distribution Box
POS	Point of Sale
STP	Submerged Turbine Pump
UL	Underwriters Laboratory

Term	Description
ULSD	Ultra Low Sulfur Diesel

Other Useful Safety Information

This section provides additional safety information.

Breakaways

Required by NFPA 30A, breakaways are emergency devices designed to retain liquid on both sides of the breakaway point installed on each hose. Refer to manufacturer's instructions for proper installation.

Collection of Fuel in Approved Containers

NFPA 30A, Section 2, requires use of approved containers to collect, transport, and dispose of fuel. Containers must be specifically designed and labeled for handling hazardous fuels.

Read MSDS

Before working with any chemicals or fuels in and around a dispensing facility, read the Material Safety Data Sheets (MSDS) pertaining to those chemicals as prescribed in the Occupational Safety and Health Administration Standard, 29 CFR 1910.1200. Refer to the supplier's literature.

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.

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2 – 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/dispenser 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 the console's ALL STOP and PUMP STOP or similar keys.

Total Electrical Shut-Off Before Access
Any procedure that requires access to electrical components or the electronics of the dispenser requires total electrical shut off of that unit. Understand the function and location of this switch or circuit breaker before inspecting, installing, maintaining, or servicing Gilbarco equipment.

Evacuating, Barricading and Shutting Off
Any procedure that requires access to the pump/dispenser or STPs requires the following actions:

- An evacuation of all unauthorized persons and vehicles from the work area
- Use of safety tape, cones or barricades at the affected unit (s)
- A total electrical shut-off of the affected unit (s)

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 Support 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
Applicable information is available in National Fire Protection Association (NFPA) 30A; *Code for Motor Fuel Dispensing Facilities and Repair Garages*, NFPA 70; *National Electrical Code (NEC)*, Occupational Safety and Hazard Association (OSHA) regulations and federal, state, and local codes. All these regulations 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 below must be followed to prevent death, injury or damage to the equipment:


DANGER: Alerts you to a hazard or unsafe practice which will result in death or serious injury.


WARNING: Alerts you to a hazard or unsafe practice that could result in death or serious injury.


CAUTION with Alert symbol: Designates a hazard or unsafe practice which may result in minor injury.

CAUTION without Alert symbol: Designates a hazard or unsafe practice which may result in property or equipment damage

Working With Fuels and Electrical Energy

Prevent Explosions and Fires
Fuels and their vapors will explode or burn, if ignited. Spilled or leaking fuels cause vapors. Even filling customer tanks will cause potentially dangerous vapors in the vicinity of the dispenser or island.

No Open Fire

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 fuel vapors. Every time you get 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. Familiarize yourself with Cardiopulmonary Resuscitation (CPR) methods, if you work 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 Lockout/ Tagout procedures. If you are not familiar with this requirement, refer to this information in the service manual and OSHA documentation.

Working With Electricity Safely

Ensure that you use safe and established practices in working with electrical devices. Poorly wired devices may cause a fire, explosion or electrical shock. Ensure that grounding connections are properly made. Take care that sealing devices and compounds are in place. Ensure that you do not to pinch wires when replacing covers. Follow OSHA Lockout/ Tagout 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. Ensure that you clean hands after handling equipment. Do not place any equipment in the mouth.

⚠ WARNING

The pump/dispenser contains a chemical known to the State of California to cause cancer.

⚠ WARNING

The pump/dispenser contains a chemical known to the State of California to cause birth defects or other reproductive harm.

In an Emergency

Inform Emergency Personnel

Compile the following information and inform emergency personnel:

- Location of accident (for example, address, front/back of building, and so on)
- Nature of accident (for example, possible heart attack, run over by car, burns, and so on)
- Age of victim (for example, baby, teenager, middle-age, elderly)
- Whether or not victim has received first aid (for example, stopped bleeding by pressure, and so on)
- Whether or not a victim has vomited (for example, if swallowed or inhaled something, and so on)

⚠ 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.

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

Lockout/Tagout

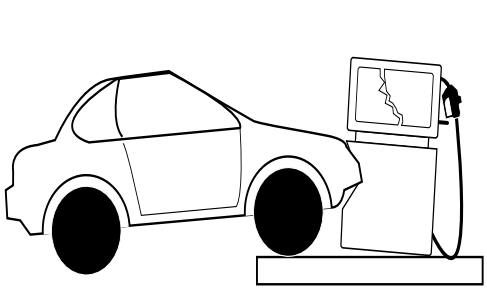
Lockout/Tagout covers servicing and maintenance of machines and equipment in which the unexpected energization or start-up of the machine(s) or equipment or release of stored energy could cause injury to employees or personnel. Lockout/Tagout applies to all mechanical, hydraulic, chemical or other energy, but does not cover electrical hazards. Subpart S of 29 CFR Part 1910 - Electrical Hazards, 29 CFR Part 1910.333 contains specific Lockout/ Tagout provision for electrical hazards.

Hazards and Actions

WARNING

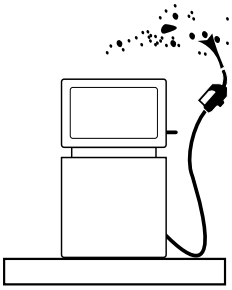
Spilled fuels, accidents involving pumps/dispensers, or uncontrolled fuel flow create a serious hazard.
Fire or explosion may result, causing serious injury or death.
Follow established emergency procedures.

The following actions are recommended regarding these hazards:



Collision of a Vehicle with Unit

Fire at Island



Fuel Spill

- Do not go near a fuel spill or allow anyone else in the area.
- Use station EMERGENCY CUTOFF immediately. Turn off all system circuit breakers to the island(s).
- Do not use console E-STOP, ALL STOP and PUMP STOP to shut off power. These keys do not remove AC power and do not always stop product flow.
- Take precautions to avoid igniting fuel. Do not allow starting of vehicles in the area. Do not allow open flames, smoking or power tools in the area.
- Do not expose yourself to hazardous conditions such as fire, spilled fuel or exposed wiring.
- Call emergency numbers.

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3 – Site Preparation

Station Layout

Gilbarco recommends that you follow the instructions given below:

- Consider traffic flow, kiosk, and store location when planning the location of pumps/dispensers.
- Plan islands for efficient routing of plumbing and wiring. Arrange product lines by hose and foundation layouts (refer to MDE-3985 Encore Installation Manual). Follow local codes.

  Note: Efficient routing of plumbing and wiring will potentially improve pump/dispenser flow rates and minimize unit power requirements. Refer to *"Plumbing Requirements" on page 23**.*
- Place the pump/dispenser so that the customers can dispense fuel safely and conveniently.
- Install the pumps/dispensers at least 8 feet apart on the island.
- The service technician must have easy access to the entire pump/dispenser (top, rear, front and sides). Gilbarco recommends at least 60 inches of clearance from any structure (for example, wall, fence and so on).
- Install protective posts at the ends of the island to protect the pumps/dispensers against collision. Posts must not interfere with customer fueling.
- Ultra-Hi units with satellites may require a separate fence between the satellite and an adjacent truck lane. Consult local requirements and allow adequate clearance between the fence and unit for service access.

Station Security

It may be impossible with any manufacturer's unit, even if it is designed for security, to stop a knowledgeable, unobserved, experienced thief. It is possible to greatly reduce the probability that a theft will be successfully attempted if security measures are designed into the station layout and security minded actions are planned into site operation. The following recommendations are intended to decrease the probability of theft by observance and/or incorporating obstacles that deter criminal activity.

Enhancing Security

To enhance security, proceed as follows:

1. Design stations where employees have a complete, unobstructed view of all fueling locations. Do not block employee views with merchandise displays or other obstructions. If complete view is not possible, utilize video surveillance equipment. Equipment monitoring should be made obvious and signs stating its use should be posted.

2. Use dispenser/pump security kits when available.

3 Plan to use modular programming “time out” functions that shut down the unit if no pulser activity occurs for a preselected time.

4 Plan to provide periodic/frequent inspection of equipment security provisions to verify their integrity.

5 Enter new programming access codes, as default codes are commonly known. These codes should only be known by trusted station employees and involved ASCs. Store the codes in a safe and secure location known to station management. Unit service may result in being more expensive if these codes are lost.

6 At installation, and all times thereafter, ensure that the lower door levers are adjusted correctly and will not allow the panels to be removed easily without a key or tools. If you suspect that keys are available to thieves in your area, consider using special locks or keys available from locksmiths.

7 Use surveillance cameras especially for areas of high risk or locations that are potentially blocked from your view.

8 Observe Point of Sale (POS) warnings or messages for units that are off line.

Equipment and Materials Required At the Site

The following equipment and materials are required at the site:

- Fuel storage tanks
- Submerged Turbine Pumps (STPs) and leak detectors for dispensers
- Piping and fittings
- Pit boxes
- Shear valves for dispensers
- Shear valves or equivalent for pumps with above-ground tanks
- Check valves for pumps
- Conduit and gas/oil resistant wiring
- STP control relay boxes for dispensers
- Circuit breakers
- Field wiring connection tool, manufactured by WAGO, Part #236-332
- Isolation relays for electronic dispensers
- Emergency power cutoff switch
- Safety warning signs
  Place warning signs (for example: No Smoking, Turn Off Engine and so on), where fuel customers will notice and read them. Contact your local distributor for warning signs.
- Conduit Seal (Potting) Compound (as required by seal manufacturer)
- For above-ground tanks with self-contained pumps, use vacuum actuated pressure regulating valve at the pump.
- Distribution box(es) (D-Box).
- UL®-approved sealant suitable for the application involved

4 – Electrical Requirements

The electrical requirements are listed below:

- Prepare sites as per 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 systems.
- Recommended voltages for pumping units are 220 VAC single phase or 380 VAC 3-phase.
- Route product wiring to protect from damage, using conduit as required.

Note: Pumping units operate at higher load levels than dispensers. Refer to FE-363 Field Wiring Diagram for Encore 500 (M04104 Power Supply only) and FE-364 Field Wiring Diagram Encore 300 for details.

Emergency Power Cutoff Switch

⚠ WARNING

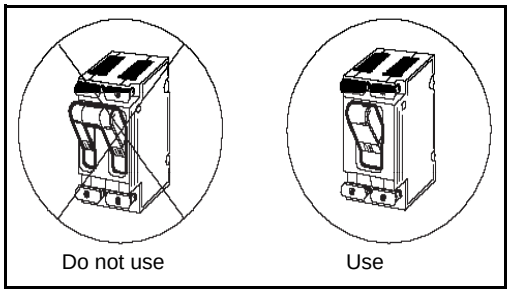
Spills and collisions expose highly flammable and explosive fuels.

Install Emergency Power Cutoffs at a station and follow all instructions in this manual and others.

- 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 on).
- Ensure that the emergency power cutoff switch is 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.
- Familiarize all employees with the location of the emergency power cutoff switch and its usage. Ensure that you remind them at frequent intervals.

  Note: Do not use E-STOP, ALL-STOP, or PUMP STOP keys on Gilbarco Console/Cash Registers to shut off the pump/dispenser power. These keys do not remove AC power and do not always stop product flow.

Circuit Breakers



- Install a dedicated UL/CUL-listed switched-neutral breaker (except for Canada) to each circuit leading to a pump/dispenser or dispenser and STPs. It must be able to disconnect hot and neutral conductors simultaneously. Canada requires that only hot conductors be switched. Single-pole breakers with handle ties shall not be permitted. Refer to NEC 514.
- Use only a UL/CUL-listed circuit breaker panel, as appropriate for that area.
- Install circuit breakers away from the pumps/dispensers. They must be readily accessible and clearly marked with the pump/dispenser number involved.
- Install a separate circuit breaker for each STP (dispenser models) or each pump motor (self-contained models). Identify each circuit breaker to recognize the STP involved.
- Install one circuit breaker for each pump/dispenser or a small island group to allow powering down of pump/dispenser for service. Installing more than one pump/dispenser per circuit breaker causes potentially more than one dispenser to be down during service work. This can affect station operation significantly.

STP Control Relay Boxes for Dispensers

Follow the instructions given below:

- 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.
- Label the Box/relay to identify the STP involved.

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 Manual and FE-321 Gilbarco STP Isolation Relay Box PA0287 Field Wiring Diagram.

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 (refer to FE-321 Gilbarco STP Isolation Relay Box PA0287 Field Wiring Diagram).
- Combined STP Control Relay/Isolation Relay boxes are recommended.

Conduit

If not already required, Gilbarco recommends that a spare conduit be run for future high-speed communications. Refer to High-Speed Communication Wiring on page 16 for details. Instructions regarding the conduit specifications are given below:

- Use a 1 inch trade size rigid aluminum conduit with the Encore and Eclipse pumps/dispensers to connect wires to the pump/dispenser. Two-wire data wires can share power wiring conduit (refer to model-specific wiring diagrams).
- Use different 1 inch conduits for CRIND® Twisted Pair, intercom and call button wiring.
- Use threaded, rigid metal conduit or a rigid non-metallic conduit for applications below the pump dispenser to carry electrical wires. Conduit must conform to national and local electrical codes. If you use non-metallic conduit, it must be at least 2 feet underground. The last 2 feet of the underground run to the ground interface must be a 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 specified. Some regulatory agencies do not allow the use of a galvanized piping component when diesel is involved. Consult local regulators. Also, galvanized piping is not usable for certain Alternative fuels, such as E85 or Biodiesel.
- Never share dispenser power or two-wire communication conduit with other manufacturer's 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. Separate and isolate dispenser/pump wiring from other equipment wiring in wiring troughs.
- 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.
- A seal-off 'Y' fitting (for example, Killark® Type EY) must be installed on all units as a first connection where conduit leaves the ground.

Wiring

For high-speed communications information, proceed to High-Speed Communication Wiring on page 16.

- Wire all pumps/dispensers as per NFPA 30A, NFPA 70 and applicable national, state, and local codes/ regulations.
- Wire all circuits as N.E.C. Class 1 except the speaker (intercom) circuit which must be N.E.C. Class 2. Install the speaker (intercom) circuit in a separate 1 inch conduit.
- Use stranded gas and oil resistant copper wire rated for 300 Volts (up to 240 VAC source) and 80°C. Do not use solid wire.
- In the main conduit, for two-wire communications, use only twisted-pair wiring per the diagram. 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, which has been short and continuity tested and passed.
- 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 (also note that Red Jacket also has an Isolation Relay Box that can be used).
- Use listed wire nuts for all connections. Do not use tape.
- Pull spare wires for future use.
- Protect conduit ends and wire from water ingress or thread damage after installation, prior to installation of the pumps/dispensers.
- Seal-off ‘Y’ fitting(s) must be potted after all wires are run to termination points.

For additional wiring notes and requirements, refer to the following documents:

- FE-341 Field Wiring Diagrams - Eclipse Series Dispenser Wiring Diagram.
- FE-363 Field Wiring Diagrams - Field Wiring Diagram for Encore 500 (M04104 Power Supply only).
- FE-364 Field Wiring Diagrams - Field Wiring Diagram Encore 300.

Data Wire Lengths

Use the table below to determine maximum data wire lengths.

CAUTION

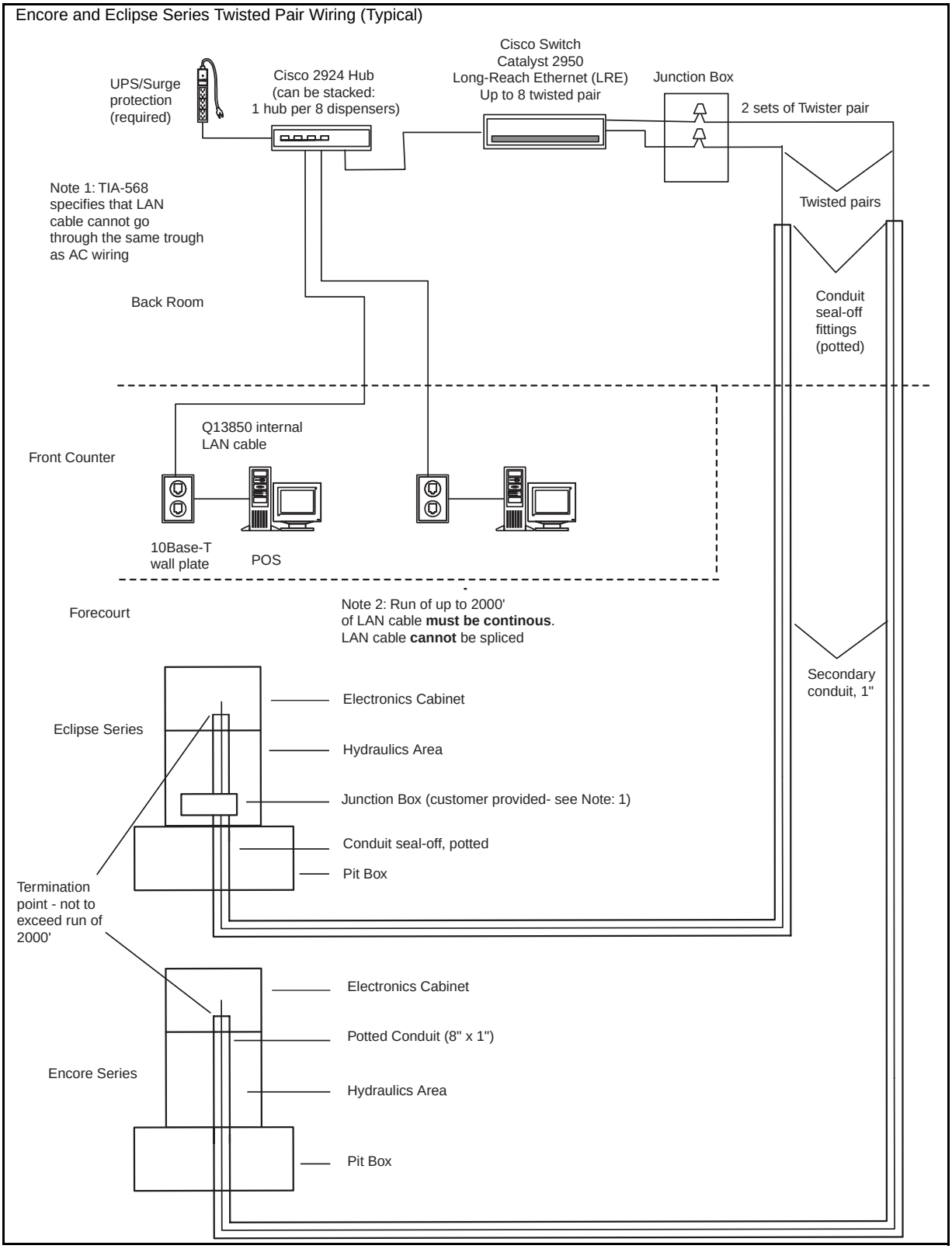
Failure to follow the requirements in the table below could result in communication issues between the pumps/dispensers and POS that are not covered by warranty.

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

Note: When installing new two-wire communication wiring, use unshielded twisted pair data wires. Shielded wire must not be used. Wiring and insulation specifications are as follows:

- ***Wiring specification**: Two-wire twisted pair (UTP) with 10 to 12 twists per foot, stranded annealed copper tinned with 18 AWG minimum required for runs up to 1000 feet or 14 AWG minimum for runs up to 2600 feet. Do not daisy-chain communications wiring.*
- ***Insulation specification**: PVC insulation of type TFFN or MTW, UL-approved gasoline and oil resistant. Reference C&M Corporation Part #27525 (18 AWG) or equivalent. The Gilbarco part number for wire is: Q13221-2.*

High-Speed Communication Wiring



Auxiliary Conduit

Gilbarco recommends the use of 1 inch rigid metallic conduit and fittings (refer to Conduit on page 13) for the auxiliary conduit used for wiring, apart from the dispenser power or two-wire communications. This will allow up to two speakers and two call/stop buttons per side, plus high-speed communications.

Ethernet Cable

Gilbarco requires use of only 10 Base-T cable as specified in this manual for high-speed communication wiring. Gilbarco specified cable must be used to permit issuance of a Certificate of Conformance and/or warranty. Use of other cable types may also create a hazardous situation or result in equipment malfunction.

⚠ WARNING

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

Use only 10 Base-T wiring specified by Gilbarco. Failure to follow this may result in bad or intermittent communication to the POS device.

The cable has the following properties:

- Safety Certification: UL Listing AWM Style 21094 80° C 300 volts.
- Vapor Test: Compliant to UL Standard 87, Section 36A, Para. 22.17

Ethernet Cable Installation Personnel and Procedures

IMPORTANT INFORMATION

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.

Ethernet cable must be installed by certified telecommunications technicians in accordance with ANSI/TIA/EIA 568-A Commercial Building Telecommunication Cabling Standards (and Amendments). The technician who installs must read and understand the details in the documents listed in the table below.

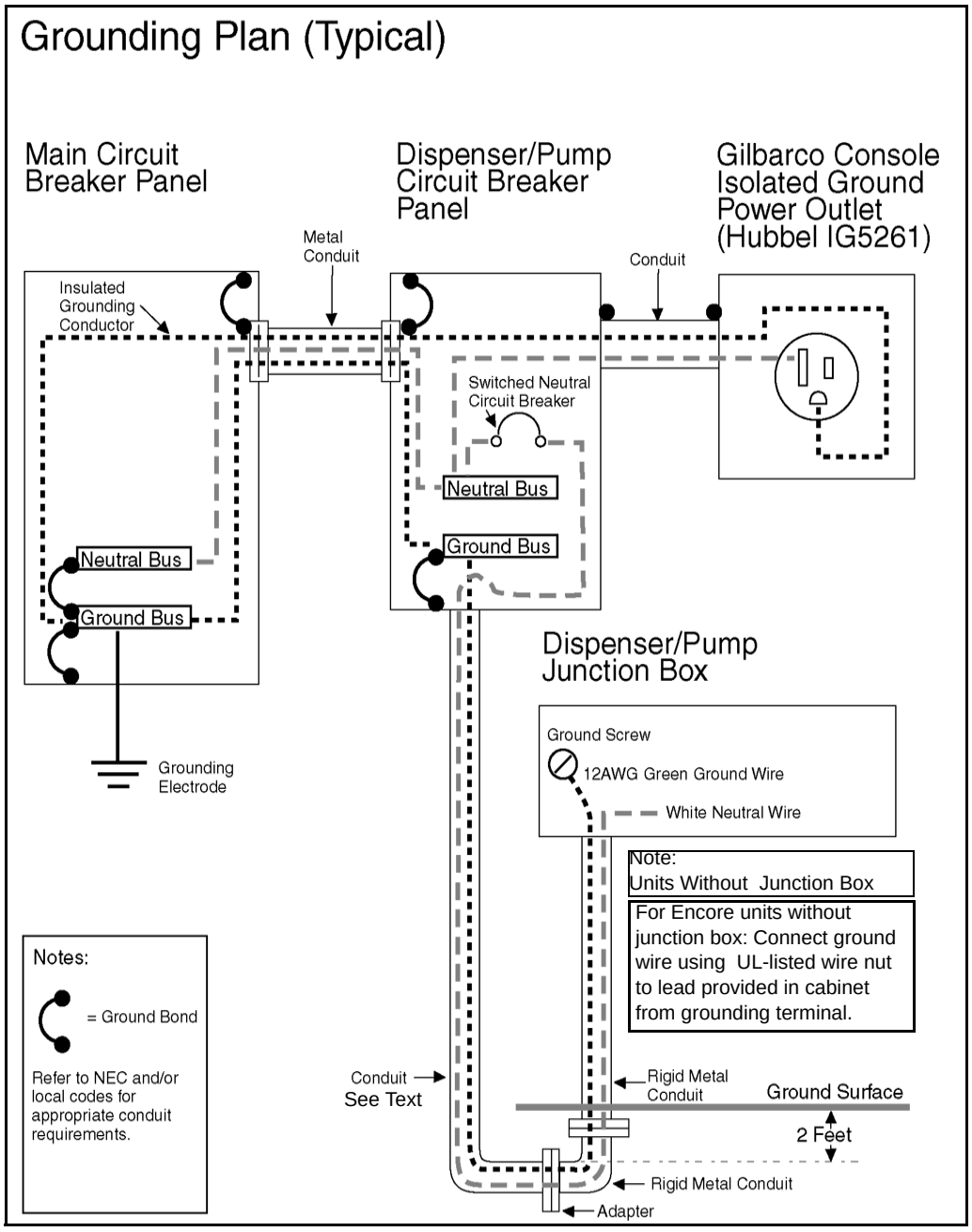
Document	Title
ANSI/IEEE 142-1991	Recommended Practice for Grounding of Industrial and Commercial Power Systems (IEEE Green Book)
ANSI/IEEE 1100	Recommended Practice for Powering and Grounding Sensitive Electronic Equipment (IEEE Emerald Book)

Document	Title
ANSI/TIA/EIATSB67	Transmission Performance Specification for Field Testing of Unshielded Twisted Pair Cabling Systems
ANSI/TIA/EIA568-B	Commercial Building Telecommunication Cabling Standards (with amendments)

Grounding

The grounding requirements are given below:

- NFPA 70 requires that you connect the following to system ground:
  - Consoles
  - Pumps and Dispensers
  - STPs
  - Relay Control Boxes
  - Circuit Breaker panel
  - 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 wire no smaller than 12 AWG. 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 the junction box or designated connection in the electrical cabinet for units without junction boxes.
  - Provide the proper ground as provided for under NFPA 70, Article 250.
  - Bond the neutral bus to an approved grounding electrode.


Grounding Plan (Typical)
Main Circuit Breaker Panel
Dispenser/Pump Circuit Breaker Panel
Gilbarco Console Isolated Ground Power Outlet (Hubbel IG5261)
Metal Conduit
Conduit
Insulated Grounding Conductor
Switched Neutral Circuit Breaker
Neutral Bus
Ground Bus
Neutral Bus
Ground Bus
Grounding Electrode
Dispenser/Pump Junction Box
Ground Screw
12AWG Green Ground Wire
White Neutral Wire
Note:
Units Without Junction Box
For Encore units without junction box: Connect ground wire using UL-listed wire nut to lead provided in cabinet from grounding terminal.
Notes:
= Ground Bond
Refer to NEC and/or local codes for appropriate conduit requirements.
Conduit
See Text
Rigid Metal Conduit
Ground Surface
2 Feet
Rigid Metal Conduit
Adapter

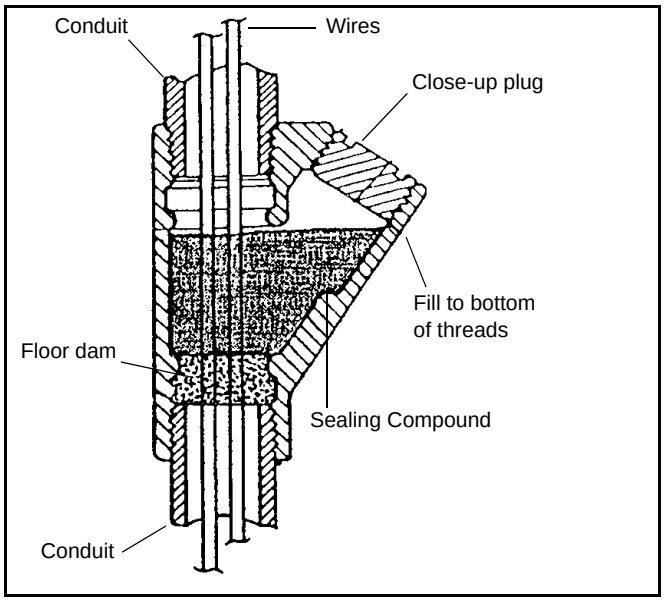
Sealing 'Y' Fittings

'Y' seals are installed in the conduit runs to minimize passage of vapors, gases or flames from one portion of the electrical installation to another through the conduit. Fittings must be installed in accordance with Articles 501-5 and 502-5 of the National Electric Code and fitting manufacturers' instructions.

IMPORTANT INFORMATION
Wiring must be tested for proper continuity and verification. No shorts should exist between individual wires or any wire to metallic conduit before potting any Y fittings.

Gilbarco uses Killark® Type EY fittings and recommends them or their equivalent for vertical conduit runs.

Note: The following sealing directions are for Killark fittings only, and instructions may vary for other manufacturer's fittings. Read all instructions completely before you begin.



To seal Killark fittings, proceed as follows:

1. Remove the close-up plug.
2. Separate conductors and fill the conduit in and around conductors using Killark type "PF" packing fiber to a floor dam to ensure that the fluid sealing compound is held.
   Note: Floor dam must be even with the conduit stop in the lower hub of fitting. Exercise care to prevent damage to the conductor insulation. Force the packing between conductors and hubs, pushing any shreds of packing fiber away from conductors to prevent leakage path.

3 Use only Killark Type "SC" sealing compound with Killark fittings, and do the following:
- Use a clean mixing vessel for every batch of sealant.
- Mix the compound at the rate of 3 parts compound to 1 part water by volume.
- Sprinkle the compound in water while stirring, until a thick paste is formed.
  Note: Do not mix more compound than can be used in fifteen minutes.
- Continue mixing for at least 3 minutes, until consistency is just fluid enough to pour slowly, like thick gravy (not watery).

4 Slowly pour approved fluid compound into the sealing fitting to the level of the bottom of threads for close-up plug.
Note: Ensure that you pour slowly to avoid trapping air bubbles in seal.

5 Immediately wipe off any spilled compound and close the seal with close-up plug.
Note: Initial setting of sealing compound will occur within 30 minutes. Compound requires a minimum of eight hours above 32 °F to develop sufficient strength to withstand explosion pressures.

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5 – Plumbing Requirements

Fuel Tanks

Follow tank manufacturer's instructions, national, state and local regulations for storage tank installation.

Note: Fiberglass tanks manufactured prior to 1992 may not be compatible with certain Alternative fuels.

On pumps (self-contained units), it is recommended that a vertical lift of 10 feet should not be exceeded. The EPA and API regulates the vapor pressure of gasoline. A lift greater than 10 feet may result in pumping unit noise and/or low flow rates.

Notes:1) The maximum lift is defined as the vertical distance from the bottom of the suction pipe in the storage tank to the pump shaft center line of the pumping device.

2) Install a Gilbarco Model 52 or equivalent vacuum-actuated valve (per NFPA 30) directly beneath a self-contained pump when above-ground storage tanks are used. Without a vacuum-actuated valve, sump may overflow. Refer to the manufacturer's installation instructions, Gilbarco Product Service Bulletin 26-91 and Check Valves (Used on Pumps and Ultra-Hi Units Only) on page 26 for more information.

⚠ WARNING

Highly flammable and explosive fuels are present.

Failure to observe all safety precautions could result in severe injury or death. Observe all safety precautions in this manual and others.

⚠ WARNING

Certain Alternative fuels (Biodiesel, high alcohol, special additives or mixes different from standard gasoline or diesel) may not be compatible with piping or hydraulic components.

Component leaks or failures may occur, causing environmental issues or increased risk of fire or explosion.

Consult the piping or hydraulic component manufacturer for guidance whenever Alternative fuels are used, for compatibility with their piping or components (including older fiberglass tanks).

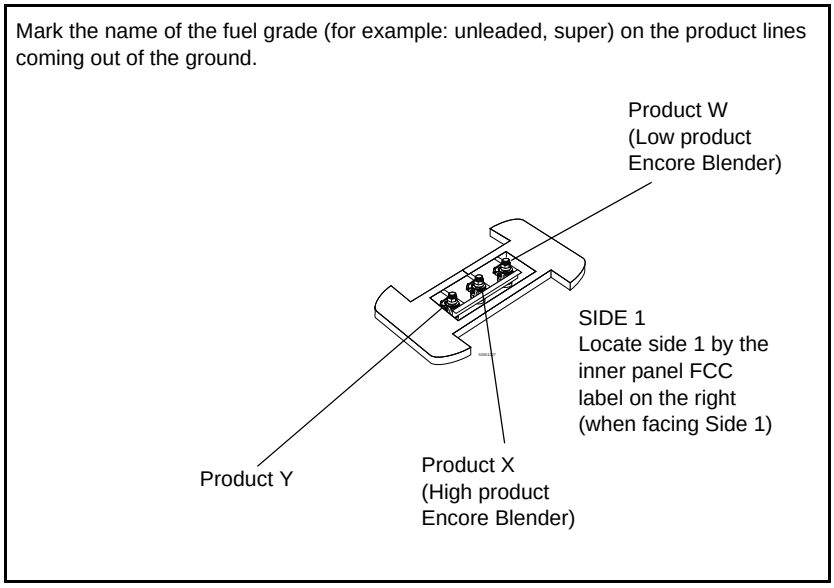
Leak Detectors

Use only listed leak detectors. Follow manufacturer's instructions for leak detector installation.

STPs

Use only listed STPs. Follow manufacturer's instructions for the installation of STPs.

Pipe Installation



Refer to PEI Publication RP100 Recommended Practices for Installation of Underground Liquid Storage Systems (Chapter 9) and PEI Publication RP200 Recommended Practices for Installation of Above-ground Storage Systems for Motor Vehicle Fueling.

Product inlet pipes and vapor pipes for Gilbarco pumps/dispensers vary in location between models. Product piping order differs from blenders to previous Advantage models. See model-specific footprint before installing pipes.

- Check national, state and local regulations for installation of pipe system.
- Use containment system as required by national, state and local regulations.
- Below the unit, use new black iron pipe or non-metallic UL and code-approved flexible pipe (constructed of UL-approved pipe material and UL approved fittings).
- Use 1-1/2 inch pipe for riser-to-pump or dispenser.

- Alternative fuels may require special piping materials or components. Consult the manufacturer to determine whether the piping material is compatible with the fluid being used.
  Use 2 inch risers on Ultra-Hi units that use a 2 inch shear valve.
- Leak detectors may not detect leaks reliably in plumbing between master and satellite Ultra-Hi units. Secondary containment and likely specialized leak detection equipment is required. Consult codes.

Pipe Size

The required pipe size depends on the number of units sharing lines, size of the STPs (dispensers only), and length of the run. Follow the guidelines below:

Pumps (Standard Flow)

Use new pipes of 2, 2-1/2 or 3 inches.

- Pipe of 2 inches for runs up to 50 feet to a single pump.
- Pipe of 2-1/2 inches or 3 inches for longer runs up to 75 feet to a single pump with maximum lift condition.

Note: A dedicated line is recommended to supply each self-contained pump.

Pumps (High Flow)

Use new pipes of 3, 3-1/2 or 4 inches.

- Pipe of 3 inches for runs up to 50 feet to a single pump.
- Pipe of 3-1/2 or 4 inches for longer runs up to 75 feet to a single pump with maximum lift condition.

Note: A dedicated line is recommended to supply each self-contained pump.

Dispensers (Standard Flow)

Use new pipes of 2, 2-1/2 or 3 inches.

Notes:1) If the distance from the STP to the farthest dispenser is 200 feet or less, use a pipe of 2 inches.

2) If the distance exceeds 200 feet, use a pipe of 2-1/2 or 3 inches to the first dispenser and a pipe of 2 inches along the rest of the way. Trunk lines supplying multiple dispensers must be larger and should be sized to provide low pressure drops for an anticipated flow rate.

Dispensers (High Flow)

Use new pipes of 3, 3-1/2 or 4 inches.

Notes:1) If the distance from the STP to the farthest dispenser is 200 feet or less, use a pipe of 3 inches.

2) If the distance exceeds 200 feet, use a pipe of 3-1/2 or 4 inches to the first dispenser and a pipe of 3 inches along the rest of the way. Trunk lines supplying multiple dispensers must be larger and should be sized to provide low pressure drops for an anticipated flow rate.

Dispensers (Ultra-Hi High Gallon)

Use new pipes of 3 or 4 inches.

Notes:1) If the distance from the STP to the farthest dispenser is 75 feet or less, use a pipe of 3 inches.

2) If the distance exceeds 75 feet, use a pipe of 4 inches to the first dispenser and a pipe of 3 inches along the rest of the way. Trunk lines supplying multiple dispensers must be larger and should be sized to provide low pressure drops for an anticipated flow rate.

Special Notes for Systems Experiencing Fuel Conversions

Certain installations may involve converting fuels in existing tanks to other types of fuels. Generally, the types of conversions listed below can create issues with dispensing and other equipment where the new fuel cleans the tank, causing excessive filter changes after installation and potential equipment damage. Dispensing filters are not intended to provide absolute filtration, so very highly contaminated fuels can seriously affect the unit performance and life of the hydraulic components. Pumping excessive contamination through pumps/ dispensers is considered abuse and can void warranty on certain hydraulic components.

Exercise extra caution during the following situations:

- Conversion of straight gasoline to gasoline with alcohol content (or even gasoline with low alcohol to gasoline with high alcohol).
- Conversions of gasoline or diesel to pure alcohol.
- Conversion of diesel to gasoline.
- Conversion of gasoline or diesel fuels to fuels with a more aggressive additive package.
- Conversion of standard diesel to Ultra Low Sulfur Diesel (ULSD).
- Conversions of diesel to Biodiesel.

If such conversions are part of the installation, site tanks and plumbing are likely to require thorough cleaning using industry accepted tank cleaning practices, prior to dispensing fuel through the new pumps or dispensers.

Check Valves (Used on Pumps and Ultra-Hi Units Only)

Refer to PEI publication RP100 and manufacturer's installation instructions for information on installing the check valves for pumps. Install the check valve as close as practically possible to the suction unit. It should be gravity-activated with minimal, or no spring load. Check valves for use internal to the pumping unit are available from Gilbarco as an order entry item.

Ensure that there is only one check valve in each dedicated line (preferred method). Use of multiple check valves can restrict flow and cause cavitation, resulting in significant flow rate reductions. If installation necessitates placing more than one unit on a single dedicated product line, then check valves must be placed at each pumping unit. Check valves must be accessible for service.

The inlet check valve for Ultra-Hi units is required for accuracy in metering fuel. Use a factory-installed option or installation-installed check valve of low pressure drop.

Shear Valves (Generally Used On Dispensers Only)

⚠ WARNING

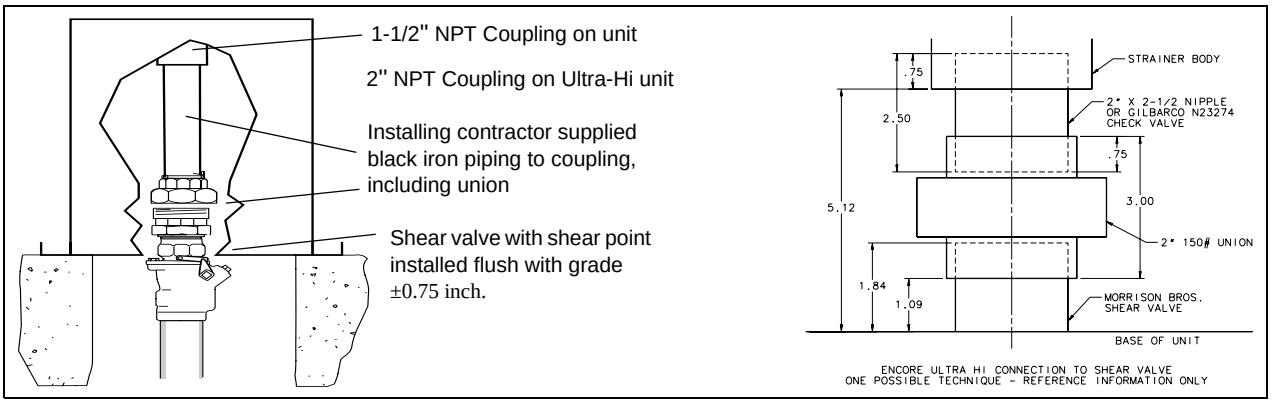
Dispensers that are knocked off from the island expose fuel.

Explosion and fire could result in severe injury or death.

Installation of shear valve is required by NFPA 30A. Install the shear valve accurately per manufacturer's instructions.

Note: Shear valves are not typically required on pumps but installation is discretionary and sometimes required. Consult local codes.

Refer to PEI Publication RP100 Recommended Practices for Installation of Underground Liquid Storage Systems (Chapter 9) and PEI Publication RP200 Recommended Practices for Installation of Above-ground Storage Systems for Motor Vehicle Fueling. A shear valve is a NFPA 30A required safety device. It closes automatically to stop product flow during a fire or if the dispenser gets knocked off the island. It also provides a means of manually closing inlet pipes.



Follow shear valve manufacturer's instructions for installation procedures, testing, and so on.

- Install shear valve on each product inlet pipe.

Notes:1) Standard Encore and Eclipse dispensers require male top shear valves of 1 1/2-inches. Gilbarco strongly recommends using double poppet shear valves that shut off flow from storage tanks and drain from the unit (for example, OPW #10BHMP or Exxon - OPW # 10RMSP).

2) Encore Ultra-Hi - It is a mandatory code requirement that the shear section of the shear valve be within +/- 3/4 inch (or to shear valve manufacturer's requirement, whichever is tighter) from the plane of the bottom of the base of a dispenser. Not all shear valve styles will allow maintenance of this tolerance for Encore Ultra-Hi units. A N23047 single poppet male top Morrison 2x2 636 M-0200AV or code-approved equivalent shear valve meets code requirements. Do not modify dispenser plumbing (for example, remove strainer housing) to accommodate other model valves or installation units such that the shear groove of the shear valve is not within +/- 3/4 inch of the base plane of the dispenser. Use of a N23274 Check Valve between the union and strainer housing will also ensure that the shear section is properly located.

Ultra-Hi dispensers require male shear valves of 2 inches.

Note: Use of shear valves lesser than 2 inches for Ultra-Hi units may result in equipment problems.

An Ultra-Hi check valve is required to insure accurate metering of fuel (for example, Morrison Bros. 2 inch 636M).

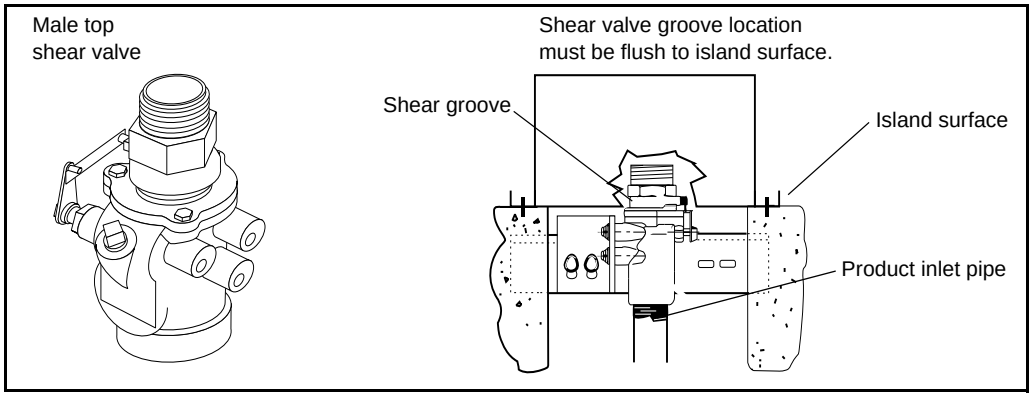
- Install a shear valve on the master dispenser satellite outlet and at the satellite inlet.
- Do not mount the shear valve upside down.
- Ensure that the valve linkage is accessible and has no interference to opening or closing from other piping, structure or components.
- Do not anchor shear valves at this time. Refer to MDE-3985 Encore Installation Manual for anchoring procedures.

  Note: The dispenser product inlet pipes need to be aligned with the shear valve. Do not restrict shear valve linkage with pipes, braces, and so on.
- Test shear valve operation.
- Close shear valve until equipment start-up. Cap the outlet pipe. This prevents dirt and other particles from getting in the dispenser product line. It also prevents fuel spillage.
- Connect the vapor return line. This can be done in the following two ways:

  - Install a flexible connector or shear section on vapor return pipes as required by NFPA 30A to ensure that the product side shear valves will operate correctly. Use a pipe of 1 inch to connect vapor return pipes located inside the pump/dispenser.

  ~OR~

  - Install a shear valve of 1 inch listed for use with vapor recovery lines. Refer to MDE-3187 K94227-XX, K94229-XX and K96576-01 Shear Valve Mounting Kit for Vapor Recovery Lines Installation Instructions.



Encore Ultra-Hi Shear Valve Installation Notes

The following points are critical to the success of installing the Encore Ultra-Hi Shear Valve:

- Selection of proper components mounted to the bottom of the strainer housing is critical in maintaining the proper location of the shear valve groove of the shear valve to the base plane of the dispenser. You must follow the shear valve manufacturer's required positioning for this groove.
- A check valve is required to insure accurate metering of fuel. Gilbarco recommends using N23274 which is approximately 2-1/2 inches long and can take the place of the close nipple located above the union.
- A union is required above the shear valve.
- A Morrison male end shear valve N23047 (Morrison # 636M-0200AV) can be used to properly maintain the position of the shear groove. The installer should verify if other manufacturer's shear valves will insure proper positioning of the shear groove per their specifications.
- Double poppet shear valves will not fit the Ultra-Hi and may cause performance problems.
- Other combinations of unions, check valves, and shear valves may be possible and still maintain proper location of the shear groove.
- Removal of a strainer from the system will void warranty.
- Shear valves of 1-1/2 inches will restrict flow noticeably. Double poppet shear valves of 1-1/2 inches can create unit performance problems not covered by warranty.

Pit Box Mounting

- Use strongly designed pit boxes that will not twist, bend or dislocate the shear valve during a collision.
- Use a pit box that will allow proper access to components during service, does not expose the pit after unit mounting, and properly fastens and supports the unit.
- Anchor pit boxes per pit box manufacturer's recommendations. Use recommended fasteners and tighten according to manufacturer's instructions.
- Insure that the pit boxes are compatible with Alternative fuels, if used. Consult the pit box manufacturer.

Safety Signs

- Safety signs warning of potential hazards may be required, depending on state and local codes, and NFPA regulations.
- Gilbarco requires installing applicable signs in locations likely to be noticed and read by the users of the equipment.
- Signs should be easily read, bilingual, durable and fade-resistant. Unless local regulations dictate otherwise, nationally recognized safety symbols with brief text are recommended.
- Signs should include, but are not limited to the following:
  - Use approved containers.
  - Turn vehicles off during fueling.
  - Static electricity hazards during fueling.

- Health related warnings (involving fuels), advisement of fuel flammability/ explosiveness, and others as required or desirable.
- No smoking/match warnings.
- Emergency procedures.

6 – Glossary

A

Alternative Fuels - Fuels other than standard gasoline or diesel that may contain high alcohol content (above that given in the warranty statement for standard dispensers). For example: Biodiesel, special additives or special fuel mixes.

C

COC - Certificate Of Conformance (see back of front cover for listing of numbers).

D

Dispenser - Dispensing device that uses STP in storage tank to move fuel from storage tank to dispenser.

H

High Hose - Pumps/Dispensers with hoses that connect overhead.

L

Listed - Products that bear the authorized Listing Mark of U.L. (Underwriters Laboratories). This is the manufacturer's declaration that the product complies with U.L.'s requirements in accordance with the terms of U.L.'s Listing and Follow-Up Service agreement.

Low Hose - Pumps/Dispensers with hoses that connect at hydraulics level.

M

Master/Satellite - Master dispensers are teamed with satellites for rapid fueling of trucks with saddle tanks. The master unit meters and computes product flow for both units. The satellite is a dispenser without the electronics module.

P

Pump - Uses self-contained pumping unit and motor to move fuel from storage tank.

S

STP - Submerged Turbine Pump

V

Valves - Mechanical device by which the flow of fuel in bulk may be started, stopped, or regulated by a movable part that opens, shuts, or partially obstructs one or more ports or passage ways.

GILBARCO VEEDER-ROOT

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