

## Introduction

### Purpose

This document provides instructions to convert an Encore® 500 (Blender or MPD®) or 500 S (Blender or MPD with or without Enhanced Bezel) unit with Proportional Valves to be a Simulator unit. The Simulator unit can mimic an installed unit showing fuel deliveries. However, it does not require actual fluid flow to go through the unit.

*Note: This kit is compatible with Pump Control Node (PCN) Software V01.7.00 or later.*

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### Abbreviations and Acronyms

Term	Description
PCB	Printed Circuit Board
PCN	Pump Control Node
POS	Point Of Sale
MPD	Multi-Product Dispenser

### Parts List

Item	Description	Part Number	Quantity
1	EC4322 Label	M07100B001	1
2	Locking Circuit Board Support	Q10651-02	8
3	E500 Proportional Valve Simulator Board	M04924A001	1
4	E500 Proportional Valve Board	M02044A004	1
5	Nozzle Switch Cable	M05161A001	1
6	Simulator Cable, J1208 to J1208A	M05162A001	1
7	Pulser Simulator Cables	M05163A001	4
8	Valve Sense Adapter Cable	M05164A001	1
9	Valve/Pump Handle Cable, J110 to J10	M05165A001	1
10	Valve Sense Cable, P10 to J120	M05166A001	1

## Related Documents

Document Number	Title	GOLD Library
MDE-3804	Encore and Eclipse® Start-up/Service Manual	<ul style="list-style-type: none"><li>• Encore and Eclipse</li><li>• Service Manual</li></ul>
MDE-3985	Encore Installation Manual	<ul style="list-style-type: none"><li>• Encore and Eclipse</li><li>• Encore and Eclipse Installers</li></ul>
PT-1936	Encore Series Pump and Dispenser Illustrated Parts Manual	<ul style="list-style-type: none"><li>• Encore and Eclipse</li><li>• Encore and Eclipse Installers</li><li>• Parts Manual</li></ul>

# Important Safety Information

**Note:** Save this Important Safety Information section in a readily accessible location.

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.

DEF is non-flammable. Therefore, explosion and fire safety warnings do not apply to DEF lines.

### 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 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.

#### WARNING

DEF is mildly corrosive. Avoid contact with eyes, skin, and clothing. Ensure that eyewash stations and safety showers are close to the workstation location. Seek medical advice/recommended treatment if DEF spills into eyes.

**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.

# Installing the Simulator Kit (M02349K002) with Proportional Valves

Before you begin, read and understand all safety information found in MDE-3804 Encore and Eclipse Series Start-up and Service Manual - Safety Instructions.

Inform the Manager that the power will be removed and remove all power supplied to the unit at the breaker located in the building. Block off the unit from customers.



## WARNING

Failure to turn off the unit during the installation of the kit may cause injury or bodily harm from electrical shock. Ensure that all power to the unit is switched off before opening the door to the unit and during kit installation.

To install the Simulator Kit (M02349K002), proceed as follows:

- 1 Replace the existing Valve Board (M02044) with the new Valve Board (M02044A004). Re-plug the Valve Power Connector J1200 to the Valve Board (M02044A004). However, leave J1201 loose.  
*Note: Extra supports are included in the kit, if required.*
- 2 Install the four locking circuit board supports into the Simulator Board (M04924A001) and attach it to the Base Electronics plate just below the Valve Board (M02044A004) (see [Figure 1](#) on [page 7](#)).
- 3 Plug J1201 of the Valve Sense Adapter Cable (M05164A001) into P1201 of the new Valve Board (M02044A004). Plug the loose end of the cable coming from the Pump Control Node (PCN) onto P120 of Valve Sense Adapter Cable (M05164A001).
- 4 Plug J120 of the Valve Sense Cable (M05166A001) into P120 of the Valve Sense Adapter Cable (M05164A001).
- 5 Plug J110 of the Valve/Pump Handle Cable (M05165A001) into P110 of the Simulator Board (M04924A001). Plug the opposite end - J10 into P10 of the Valve Sense Cable (M05166A001).
- 6 Plug J1208 of the Simulator Cable (M05162A001) into P1208 of the Valve Board (M02044A004) and J1208A into P1208A of the Simulator Board (M04924A001).
- 7 Plug the SIM end of the Pulser Simulator Cable (M05163A001) into the Simulator Board (M04924A001) at P114A and plug the PCN end onto P114 of the PCN. Repeat for remaining pulsers.  
*Note: The cables must be laid straight from the Simulator Board (M04924A001) to the PCN, with no crossing of pulser cables.*
- 8 Plug J1 of the Nozzle Switch Cable (M05161A001) onto P101 of the Simulator Board (M04924A001).  
*Note: The nozzles must be in the “up” position or “open”, to avoid Error Code 4322 after a warmstart or a coldstart. If nozzle switches are not connected, the simulator will automatically dispense after the pump handle is lifted and the valves are energized.*

- 9 Apply the M07100B001 label to a location where it can be easily viewed.

The installation of the kit is complete. Proceed to [“Testing the Installation”](#).

Restore power to the dispenser. Additional programming or Jump Jack placement is not required.

*Note: The simulator requires a Valve Board (M02044A004) (included in kit).*

## Testing the Installation

To perform a functional test of the simulator installation, proceed as follows:

- 1 Lift the pump handle.
- 2 Push the grade select switch, if required.

The main display must reset and start incrementing after the dispenser has been authorized. If the dispenser is in standalone mode, an authorization from the Point Of Sale (POS) system is not required.

- 3 Repeat steps 1 and 2 for all active grades.

All active grades must increment/dispense without Error Codes.

Common Error Codes are tabulated as follows:

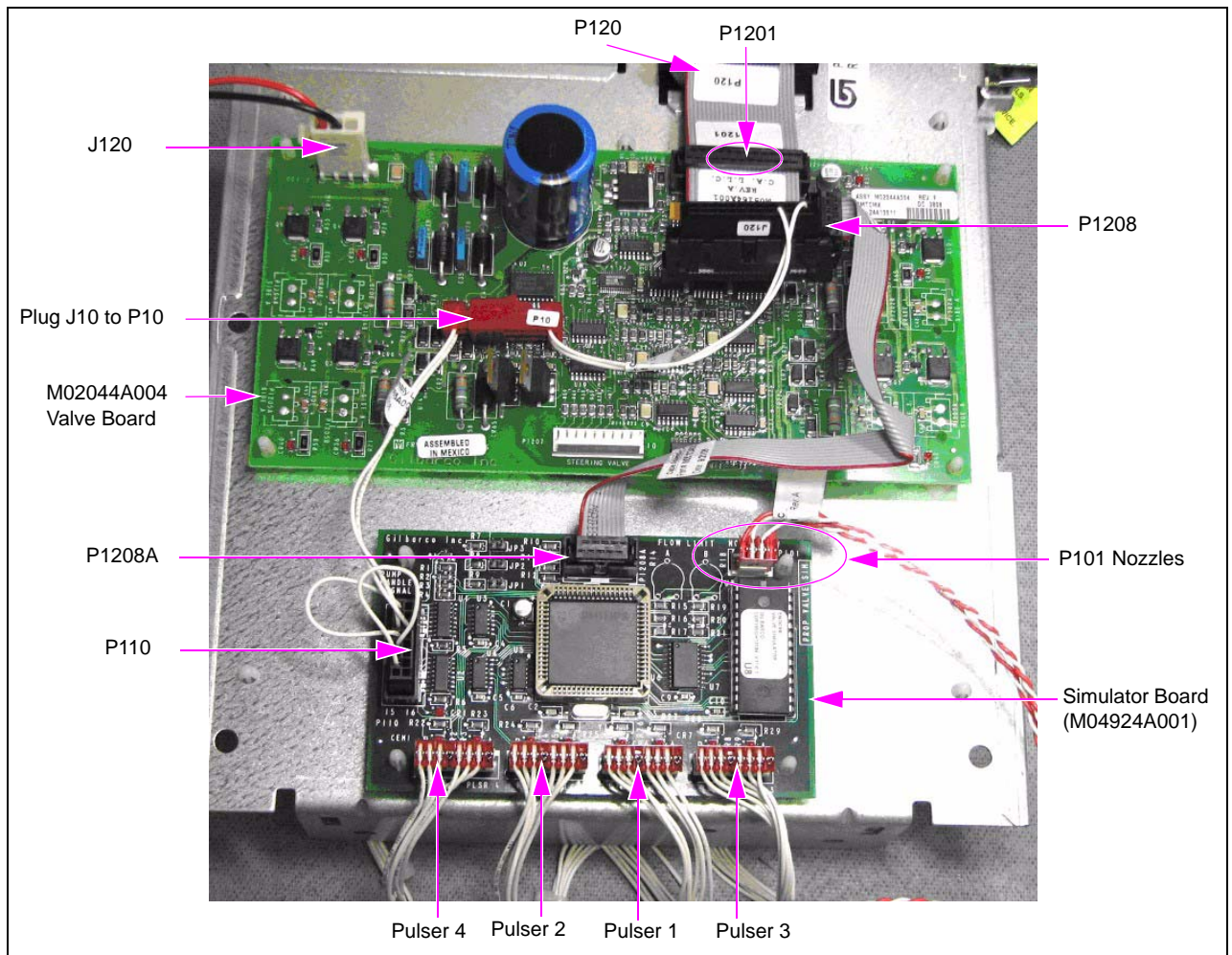
Error Code	Description	Action to be Taken
4322	Nozzles are off at power up.	Turn power off, raise or activate nozzles and re-apply power to the unit. The Error Code must disappear.
5049	PCN is receiving pulses from the wrong pulser.	Verify if SIM Pulser 1 goes to PCN Pulser 1, SIM Pulser 2 goes to PCN Pulser 2, SIM Pulser 3 goes to PCN Pulser 3, SIM Pulser 4 goes to PCN Pulser 4.

For complete programming instructions, refer to MDE-3804 Encore and Eclipse Start-up/Service Manual.

# Encore 500 Base Electronics

The Base Electronics consists of the pump electronics that rests on the U-rail in the bottom of the Electronics Cabinet. The base holds the PCN (M01922A001, not shown), Valve Board (M02044A004), and ECAL switch. Use the Printed Circuit Board [(PCB, Q10651-02)] which supports to attach both the Valve Board (M02044A004) and Simulator Board (M04924A001) to the metal base.

**Figure 1: Encore 500 Base Electronics**



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