

Introduction

Purpose

This document provides installation instructions and specifications for PAM™ 1000 software kits K93674-01S, M03172K001 and M03172K002.

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Required Tools

The following tools are required to install the software kit:

- Anti-static wrist strap
- Grounded anti-static mat
- Integrated circuit (IC) removal tool
- 1/4 inch nut driver
- Needle nose pliers

Related Documents

Document Number	Title	GOLD Library
MDE-2028	Static Control Equipment	The Advantage® Series and Legacy models
MDE-2391	Transac® System 1000 and PAM 1000 Service Manual	Transac Products

Required Reading

Before installing the equipment, the installer must read, understand, and follow:

- This manual
- NFPA 30A, The Automotive and Marine Service Station Code
- NFPA 70, The National Electric Code
- Applicable federal, state, and local codes and regulations

Failure to follow these manuals and regulations may adversely affect the safe use and operation of the equipment.

Parts List for the Kit K93674-01S - for Standard PAM 1000 Features

Item	Description	Part Number	Quantity	Location
1	Erasable programmable read-only memory (EPROM) IC chip	S304-03120XXX	1	U3
2	EPROM IC chip	S304-13120XXX	1	U4

Parts List for the Kit M03172K001 - for Enhanced PAM 1000 Features

Note: This kit is installed in all PA02412010005 PAM 1000 Controllers.

Item	Description	Part Number	Quantity	Location
1	EPROM IC chip	S304-13216XXX	1	U3
2	EPROM IC chip	S304-23216XXX	1	U4

Parts List for the Kit M03172K002 - for Enhanced PAM 1000 Features for Canada

Note: This kit is installed in all PA02412010006 PAM 1000 Controllers. It is also shipped loose with any PA02412010005 PAM 1000 Controller shipped to Canada. The original software in the PA02412010005 PAM 1000 Controller must be removed and replaced with the software in the M03172K002 Kit for any installations in Canada.

Item	Description	Part Number	Quantity	Location
1	EPROM IC chip	S304 13217XXX	1	U3
2	EPROM IC chip	S304 23217XXX	1	U4

Minimum Dispenser Requirements for Enhanced PAM 1000 Feature - Request Customer Action Status

One of the new features available with the installation of the Enhanced PAM software kit is a optional feature called Request Customer Action Status.

Note: The point of sale (POS) system you are installing may or may not support this feature, and if it does, it may or may not be mentioned in the POS system manuals.

The Request Customer Action Status feature allows the POS system to poll the dispenser to determine what the customer has done so far at the pump. For example:

- Has the customer selected a price level or grade?
- Has the pump handle been lifted (or nozzle been removed in an auto-on dispenser)?
- Does the Push-to-Start button need to be pressed?
- If a grade has been selected, what is the grade?

The POS system will use this information to create improved customer prompting and the Card Reader in Dispenser (CRIND®) device, that is, making the CRIND prompts more consistent with what the customer is or is not doing at the dispenser.

Note: This is an optional feature and there is no requirement for it to be implemented by the POS system.

This feature is supported on all Encore® 300, Encore 500, and Eclipse® dispenser models. This feature is supported on older dispenser models only if they are running the minimum firmware versions listed in the table below.

Note: The pump firmware must be upgraded only if the POS system uses this feature. Refer to the appropriate POS system manual.

Dispenser	Minimum Dispenser Firmware Version
The Advantage MPD® Series	70.6
<ul style="list-style-type: none"> • MPD Four-Grade 	
<ul style="list-style-type: none"> • MPD Three-Grade 	
<ul style="list-style-type: none"> • MPD Two-Grade 	
The Advantage Quad & Dual	70.6
<ul style="list-style-type: none"> • Quad (2 grades) 	
<ul style="list-style-type: none"> • Dual (1 grade) 	
The Advantage MPD Single-Hose and MPD Single-Hose +1	72.0
The Advantage Blender Six-Hose	77.2
The Advantage Blender X+0 and Blender X+1 (where X = 3, 4, or 5 grades)	75.2
The Advantage Blender Single-Hose	75.2
MPD-3 Multi-Product Dispenser (must be equipped with LCD displays)	54.1
Highline™ (must be equipped with LCD displays) and Legacy	70.6
The Dimension® Series (export only)	70.6
<ul style="list-style-type: none"> • Dimension Four-Grade 	
<ul style="list-style-type: none"> • Dimension Three-Grade 	
<ul style="list-style-type: none"> • Dimension Two-Grade 	

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 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.

Installation of the Software Kits

Electrostatic Discharge (ESD) Precautions

Note: See MDE-2028 Static Control Equipment for more information on static control equipment.

CAUTION



Printed Circuit Boards (PCBs) and ICs (such as EPROMs) are sensitive to electrostatic discharge caused by static electricity. Electrostatic discharge damages electronic components.

To prevent damage to the electronic components due to electrostatic discharge, proceed as follows:

- 1 Place yourself at a neutral, static-free potential. Touch a conductive metal frame or chassis.
- 2 Use a wrist strap connected to a grounded metal frame or chassis.
- 3 Place removed PCBs and/or ICs on a grounded anti-static mat.

Preparing to Install PAM 1000 Software

To prepare for the installation of the PAM 1000 software, proceed as follows:

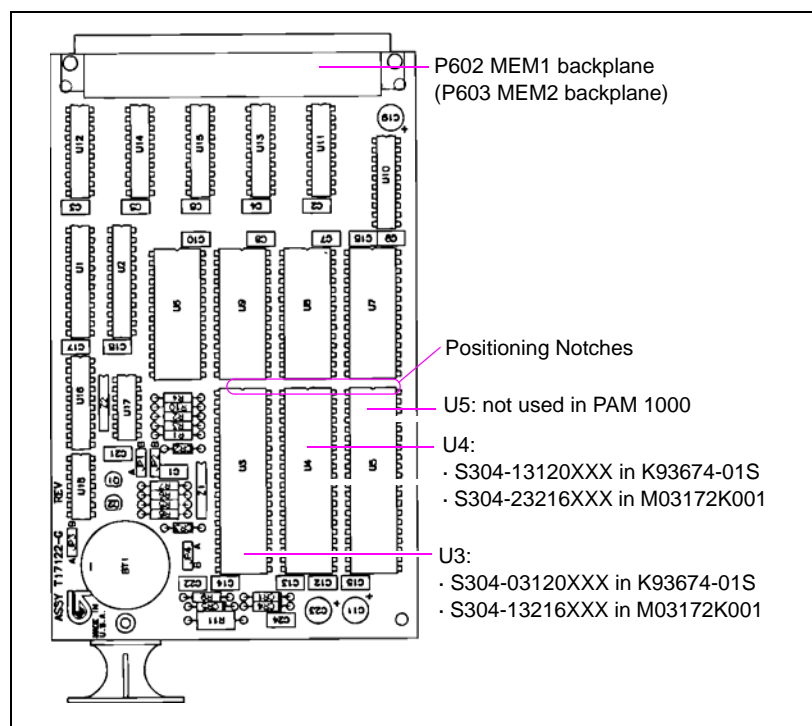
- 1 Read all instructions before beginning.
- 2 Follow all safety precautions.
- 3 Follow the [Electrostatic Discharge \(ESD\) Precautions](#) listed above.
Note: Failure to follow electrostatic discharge precautions may damage electronic components.
- 4 Inform the manager/cashier to close the shift.
- 5 Print all reports, totals and configuration.
- 6 Remove AC power cord from PAM 1000.
- 7 Remove the two hexagonal head screws from the connector cover plate and open the cover plate.
- 8 Ensure that you do not damage the internal cables when you open the cover plates.

Removing PAM 1000 Software

To remove the PAM 1000 software, proceed as follows:

- 1 Remove memory board #1 from the PAM 1000 and place on a grounded anti-static mat to gain access to EPROMs. Refer to MDE-2391 Transac System 1000 and PAM 1000 Service Manual for detailed instructions.
- 2 Using an IC removal tool, remove the EPROMs in locations U3 and U4 of memory board #1. See [Figure 1 on page 7](#) for EPROM locations.
- 3 Place the EPROMs on a grounded, anti-static mat.

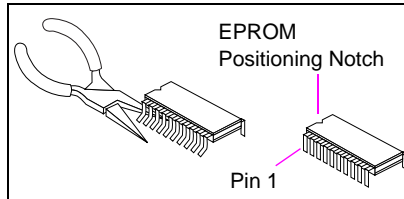
Figure 1: EPROM Locations on Memory Board #1



Installing PAM 1000 Software

- 1 Examine the new EPROMs. If necessary, straighten the legs of each EPROM using needle nose pliers. See [Figure 2](#).

Figure 2: Straightening EPROM Pins



- 2 Align positioning notch on each EPROM with the notch on the PCB. Align legs of each EPROM with the holes on the PCB. Install each EPROM in the proper location, using an approved IC tool. See [Figure 1 on page 7](#) for EPROM locations. Refer to one of the following for part numbers, as appropriate:
 - [“Parts List for the Kit K93674-01S - for Standard PAM 1000 Features” on page 2](#)
 - [“Parts List for the Kit M03172K001 - for Enhanced PAM 1000 Features” on page 2](#)
 - [“Parts List for the Kit M03172K002 - for Enhanced PAM 1000 Features for Canada” on page 2](#)

Clearing All Memory

To clear all memory, proceed as follows:

- 1 Verify with system integrator if memory battery should be enabled or disabled.
- 2 On memory board (still removed), move JP4 to position A for 15 seconds.
- 3 Refer to [“Memory Board #1 Jump Jack Settings” on page 9](#) to set jump jacks.

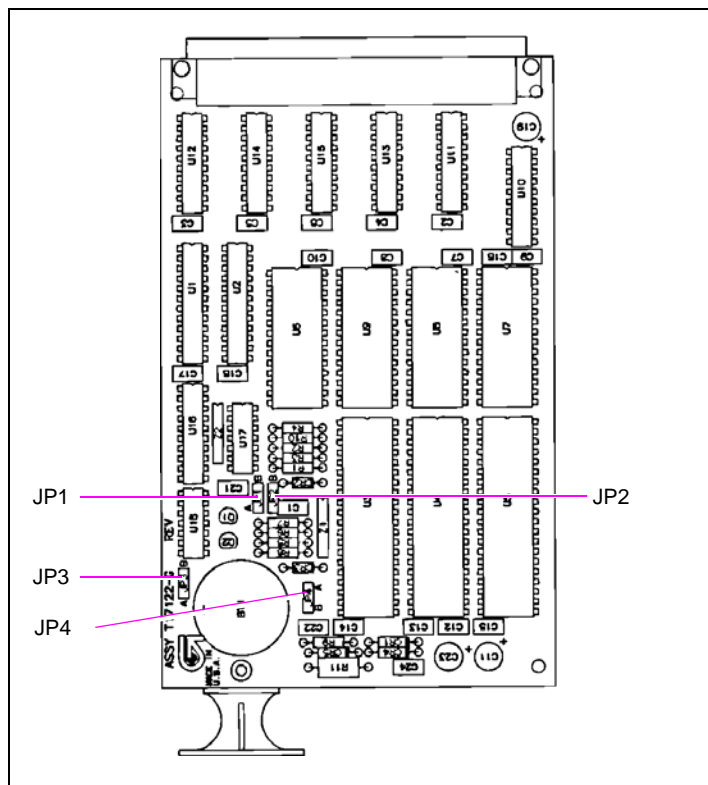
Memory Board #1 Jump Jack Settings

Jump Jack *	Memory Board #1	Description
JP1	B	memory board address most significant bit (MSB)
JP2	B	memory board address least significant bit (LSB)
JP3	B	wait state select
JP4	B **	battery jumper

* See Figure 3 for jump jack locations.

** The PAM 1000 memory board is shipped with JP4 in position A (battery disconnected). Position B allows memory to be stored. Check with system integrator to verify if memory should be saved or cleared when PAM 1000 observes AC power cycle.

Figure 3: Jump Jack Locations on Memory Board #1



Completing the Installation

To complete the installation, proceed as follows:

- 1 Verify CPU board jumper settings, including POS baud rate, per the [CPU Board Specifications](#).
- 2 Re-install memory board and end plate. Return system to operation. Refer to MDE-2391 Transac System 1000 and PAM 1000 Service Manual for specific instructions.
- 3 Restore power to equipment.
- 4 Perform appropriate diagnostic tests to ensure proper operation. Refer to MDE-2391 Transac System 1000 and PAM 1000 Service Manual.

CPU Board Specifications

In the event the baud rate settings are required, refer to MDE-2391 Transac System 1000 and PAM 1000 Service Manual.

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