



Passport® System

Enhanced Dispenser Hub Start-up and Service Manual

Computer Programs and Documentation

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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 9001:2008 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

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 #	CoC#	Product	Model #
02-019	Encore	Nxx	02-036	Legacy	Jxxx
02-020	Eclipse	Exx	02-037	G-SITE Printer (Epson)	PA0307
02-025	Meter - C Series	PA024NC10		G-SITE Distribution Box	PA0306
	Meter - C Series	PA024TC10		G-SITE Keyboard	PA0304
02-029	CRIND	—		G-SITE Mini Tower	PA0301
	TS-1000 Console	—		G-SITE Monitor	PA0303
	TS-1000 Controller	PA0241		G-SITE Printer (Citizen)	PA0308
02-030	Distribution Box	PA0242	02-038	C+ Meter	T19976
	Meter - EC Series	PA024EC10	02-039	Passport	PA0324
	VaporVac Kits	CV	02-040	Ecometer	T20453
			05-001	Titan	KXXY Series

Trademarks

Non-registered trademarks

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

Registered trademarks

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

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1 – Introduction

Purpose

This manual provides service instructions for the Enhanced Dispenser Hub [EDH (PA040300xx)], which is part of the Gilbarco® Passport® system. The EDH provides fault tolerance pump control, and serves as an interface between the Server on the Passport System and the Distribution Box (D-box).

Intended Users

This manual is intended for Authorized Service Contractors (ASCs) who install, service, and repair EDH.

Related Documents

Document Number	Title	GOLD Library
MDE-2149	Warranty Return Materials Authorization	Gilbarco Forms
MDE-2713	Universal Distribution Box-Installation Manual	The Advantage® and Legacy® Models
MDE-3116	Distribution Box PA0306 Installation Instructions	<ul style="list-style-type: none"> • G-SITE® • Passport • POS Peripheral Devices • The Advantage and Legacy Models
MDE-3620	POS Site Preparation Manual	Site Preparation
MDE-3799	D-box for G-SITE w/ Competitive Pumps & CATs	POS Peripheral Devices
MDE-3816	Passport Hardware Start-up & Service Manual	<ul style="list-style-type: none"> • Passport • Service Manual
MDE-3839	Passport System Installation Addendum	Passport
MDE-4157	Passport Combined WS Installation Poster	Passport
MDE-4159	Passport Manager WS Installation Poster	Passport
MDE-4318	Passport Competitive Pump and CRIND® (CPC) Hardware/Software Start-up & Svc Manual	Competitive Pump and CRIND
MDE-4822	Passport Enhanced Dispenser Hub Installation Instructions	<ul style="list-style-type: none"> • Passport • Service Manual
MDE-4834	System Recovery Guide for Passport V8.02 through V8.07	Passport
MDE-4882	Enhanced Dispenser Hub Hardware Upgrade Kit (M09747K001) Installation Guide for Passport	Passport
PT-1869	Recommended Spare Parts for Domestic Products	Parts Manual
PT-1877	Retail Automation Products Illustrated Parts Manual	Parts Manual

Abbreviations and Acronyms

Term	Description
ASCs	Authorized Service Contractors
CMOS	Complementary Metal-Oxide Semiconductor
CRIND	Card Reader IN Dispenser
CWS	Cashier Workstation
D-box	Distribution Box
DC In	DC Input Port
DIMM	Dual In-line Memory Module
DMZ	Demilitarized Zone
EDH	Enhanced Dispenser Hub
GSM	Gilbarco Security Module
IC	Integrated Circuits
IP	Internet Protocol
LAN	Local Area Network
MWS	Manager Workstation
PCB	Printed Circuit Board
POS	Point of Sale
RGA	Returned Goods Authorization
SATA	Serial Advanced Technology Attachment
TAC	Technical Assistance Center
VSAT	Very Small Aperture Terminal
WAN	Wide Area Network

Returning Equipment

IMPORTANT INFORMATION

EDH is intended to be serviced in the field. Do not return the entire EDH without approval from the area Service Manager.

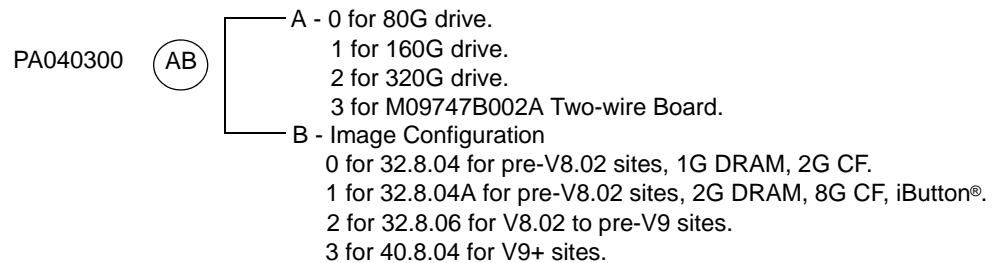
All equipment or components returned under Gilbarco's warranty policy or for repair must be packaged properly to avoid shipping damage. Return equipment in its original shipping container. If the original materials are not available, use a durable reinforced corrugated box and suitable packing material (polyfoam chips, polyurethane foam chips, or polystyrene foam chips).

- Fill the bottom of the container with at least 2 inches of packing material.
- Ensure that the device is firmly packed with additional packing material, if required.
- Include a description of the malfunction or damage and return with shipping information.
- Complete a Returned Goods Authorization (RGA) form *MDE-2149 Warranty Return Materials Authorization Form* and ship it with the device.

CAUTION

Gilbarco recommends that returned equipment be fully insured. Gilbarco inspects all returned equipment for any damage caused during return shipment. The customer is responsible for all repair costs of equipment damaged during the return shipment caused by improper packing.

Model Number Breakdown



Introducing EDH and Components

For all Passport versions, the EDH connects to the following components on the Passport System:

- D-box
- Local Area Network (LAN) Router or LAN Hub

In addition, for the Passport System V8.02, the EDH connects to the following peripherals:

- Tank Monitor™
- Price Sign
- Network Modem/Very Small Aperture Terminal (VSAT) Connection
- Security Camera
- Car Wash
- Gilbarco Security Module (GSM)
- Journal Printer

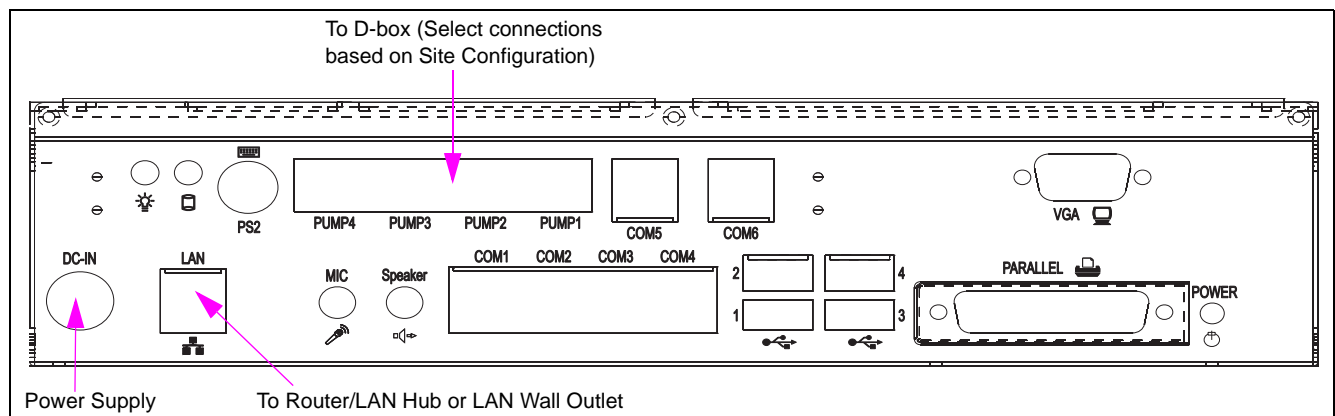
EDH

The EDH is the component that communicates between the Passport System and the forecourt. It manages proper communications and timing in addition to supporting fault tolerant forecourt control. This enables the Passport System to continue to sell fuel through any of the Cashier Workstations (CWS) in the event that the Server is offline.

The connection side of an EDH is shown in [Figure 1-1](#).

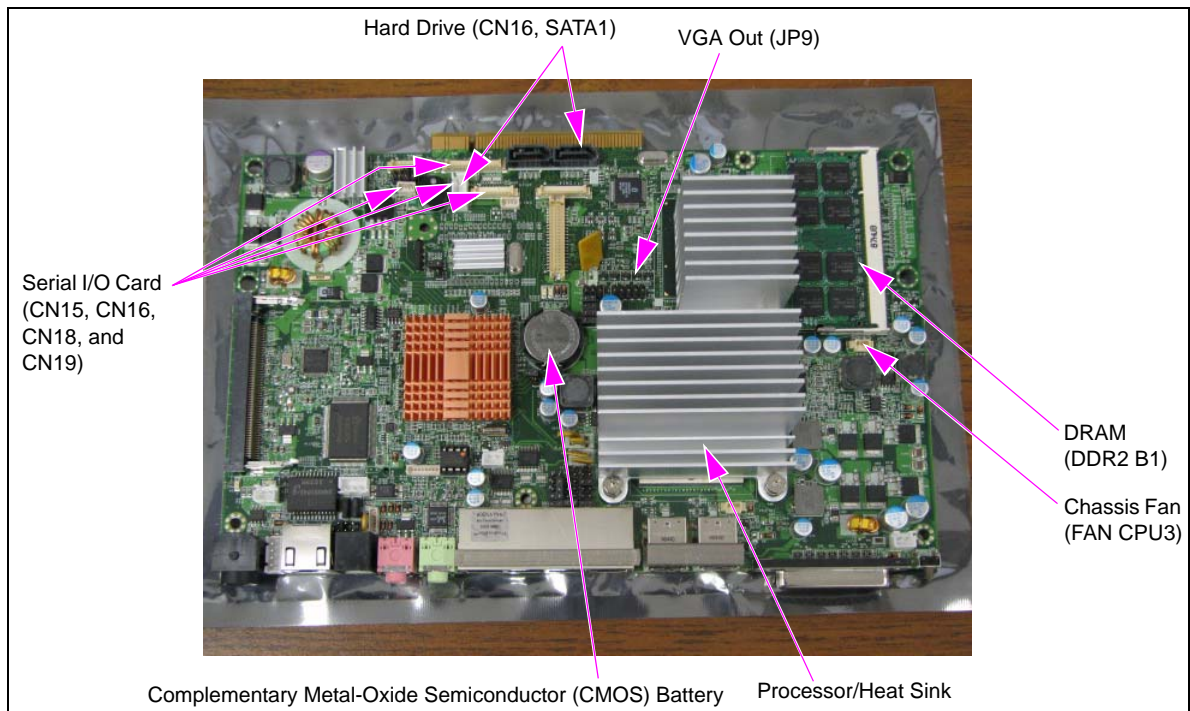
An example of the connections to the D-box and Router/LAN Hub is shown in [Figure 1-1](#). For step-by-step instructions on installing the EDH, refer to *MDE-4822 Passport Enhanced Dispenser Hub Installation Instructions*.

Figure 1-1: EDH Connections



The EDH Circuit Board is shown in [Figure 1-2](#).

Figure 1-2: EDH Circuit Board



Part Number Information

Use the following part numbers when ordering replacement parts.

Part Number	Description
M06232B023	Compact Flash Card, 2 GB
M09747B001	Motherboard
M09747B002	Serial I/O Strip Board
M09747B002A	Serial I/O Strip Board
M09747B003	Compact Flash Board
M09747B004	Processor
M09747B005A	DRAM, 2 GB, DDR2-533 MHz minimum
KS702C0012D	Hard Drive, Pre-V8.02 Configured
KS702B0022D	Hard Drive, V8.02 to Pre-V9
KS702-0032D	Hard Drive, V9+
M09747B007	Fan (60 X 60 X 13 mm)
M09747B008	Power Supply (without Cord)
M09747B009	Power Cord
M09747B010	Cable Assembly, Serial, RJ-45 to DB-9 250 mm
M09747B011	Internal iButton Cable
M09747B012	iButton
M09747B013	iButton Adapter
M09747B014B	Compact Flash, 8 GB
N09747B014C	Compact Flash, 16 GB

Part Number	Description
M09747K001	iButton Kit
PA040300xx	EDH

Connection Component - D-box

D-box links the fuel dispensers to the Passport System. It communicates with the Passport System through the EDH, which can be mounted on a wall. It can also be mounted below the front counter. For more details, refer to *MDE-4822 Passport Enhanced Dispenser Hub Installation Instructions*. D-boxes are now shipped with knockouts provided for mounting the EDH.

Connection Component - LAN Router/LAN Hub

The LAN router enables the EDH to communicate with the following Passport System components:

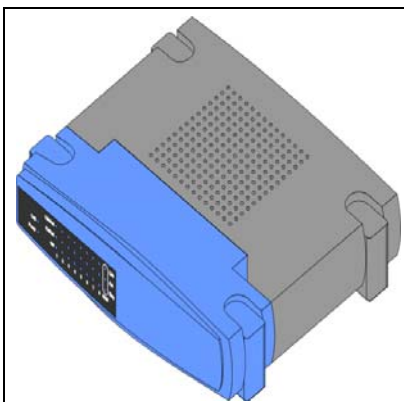
- Client at each Client/CWS.
- Server at the Server/Manager Workstation (MWS).

For each connection, a light blinks on the front of the LAN router/hub to indicate network activity.

A LAN router is used with Passport versions earlier than V8.02, to provide network connections. For sites that require more than 8-ports of the LAN router, a LAN hub may be used to support seven additional ports.

For Passport V8.02+, a VPN router must be used to support the security functions required for PA-DSS compliance. For sites that require more than four LAN ports for Passport LAN devices, or one port for external LAN devices (Back Office, Loyalty Servers), a LAN hub may be used to support seven additional ports. When upgrading a site, the existing LAN router may also be reused to provide port expansion.

Figure 1-3: LAN Router



Part Number Information

Use the following part number when ordering replacement parts.

Part Number	Description
Q13708-05B	LAN Router, 8-port

Figure 1-4: LAN Hub**Part Number Information for LAN Hub**

Use the following part number when ordering replacement parts.

Part Number	Description
Q13708-01A	LAN Hub, 8-port (Linksys®)

Connection Component - VPN Router

The VPN RV042 Router (old and new) which enables the EDH to communicate with the Passport System is shown in [Figure 1-5](#).

Figure 1-5: VPN Router**Part Number Information for VPN Router**

Use the following part numbers when ordering replacement parts.

Part Number	Description
Q13708-08A/B	VPN Router, 4-port, LAN, 1-port Demilitarized Zone (DMZ)
Q13708-08	VPN Router, 4-port, WAN, 1-port DMZ

2 – Important Safety Information

Notes: 1) *Save this Important Safety Information section in a readily accessible location.*

2) *Although DEF is non-flammable, Diesel is flammable. Therefore, for DEF cabinets that are attached to Diesel dispensers, follow all the notes in this section that pertain to flammable fuels.*




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 Health Administration (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 fluid lines.

Important Safety Information

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/DEF 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

DEF generates ammonia gas at higher temperatures. When opening enclosed panels, allow the unit to air out to avoid breathing vapors. If respiratory difficulties develop, move victim away from source of exposure and into fresh air. If symptoms persist, seek medical attention.

WARNING



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

WARNING



Gasoline/DEF spilled in eyes may cause burns to eye tissue. Irrigate eyes with water for approximately 15 minutes. Seek medical advice immediately.

WARNING



Gasoline/DEF 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 work 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.

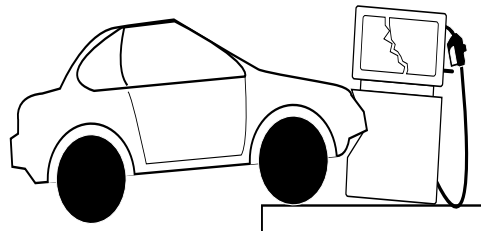
Lockout/Tagout

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.

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.
	DEF is non-flammable. However it can create a slip hazard. Clean up spills promptly.

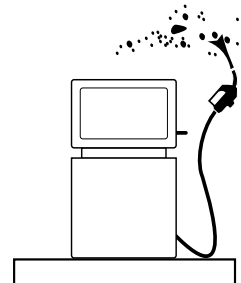
The following actions are recommended regarding these hazards:



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 – Setting Up EDH

CAUTION

To make the required settings, you must have an external Keyboard and Monitor connected to the EDH.

BIOS and Jumper Settings

Standard CMOS Features		Fail Safe BIOS Settings
Date	XX/XX/XXXX	
Time	XX:XX:XX	
IDE Channel 0 Master	ST980310AS	
	IDE HDD Auto Detection	Press Enter
	IDE Channel 0 Master	Auto
	Access Mode	Auto
	Capacity	xxxx MB
	Cylinder	xxxx
	Head	xxxx
	Precomp	xxxx
	Landing Zone	xxxx
	Sector	xxxx
IDE Channel 0 Slave	InnoDisk Corp. - iCF	
	IDE HDD Auto Detection	Press Enter
	IDE Channel 0 Master	Auto
	Access Mode	Auto
	Capacity	xxxx MB
	Cylinder	xxxx
	Head	xxxx
	Precomp	xxxx
	Landing Zone	xxxx
	Sector	xxxx
Video	EGA/VGA	
Halt On	All, but keyboard	
Base Memory	640 K	
Extended Memory	1038366 K	
Total Memory	1039360 K	

Standard CMOS Features		Fail Safe BIOS Settings
Advanced BIOS Features		
Hard Disk Priority	1. CH0 S.: ST980310AS	
Virus Warning	Disabled	
Quick Power On Self Test	Enabled	
First Boot Device	Hard Disk	
Second Boot Device	Disabled	
Third Boot Device	Disabled	
Boot Other Device	Disabled	
Boot Up Numlock Status	On	
Typematic Rate Setting	Disabled	
Typematic Rate (Char/Sec)	6	
Typematic Delay (Msec)	250	
Security Option	Setup {PASSASC}	
APIC Mode	Enabled	
MPS Version Control for OS	1.4	
Summary Screen Show	Enabled	
Advanced Chipset Features		
SLP_S4# Assertion Width	1 to 2 sec	
System BIOS Cacheable	Enabled	
Video BIOS Cacheable	Enabled	
PCI Express Root Port Function	PCI-E Compliancy Mode:	V1.0a
** VGA Settings **		
DVMT Mode	DVMT	
DVMT/Fixed Memory Size	128 MB	
Boot Display	Auto	
Integrated Peripherals		
Onboard Lan Boot ROM	Disabled	
Onboard PCI Express Lan	Auto	
PCI Slot Function	Enabled	
Init Display First	On Board	
On Chip IDE Device	IDE HDD Block Mode	Enabled
	IDE DMA Transfer Access	Enabled
	On Chip Primary PCI IDE	Enabled
	IDE Primary Master PIO	Auto
	IDE Primary Slave PIO	Auto
	IDE Primary Master UDMA	Auto
	IDE Primary Slave UDMA	Auto
*** On-Chip Serial ATA Settings ***		
	Serial Advanced Technology Attachment (SATA) Mode	Auto
	OnChip Serial ATA	Combined
	SATA Port Speed Setting	Disabled
	PATA IDE Mode	Secondary
	SATA Port	P0, P2 is Primary

Standard CMOS Features		Fail Safe BIOS Settings
Onboard Device	USB Controller	Enabled
	USB Controllers Enable	Controller #1~4
	USB 2.0 Controller	Enabled in Passport V8.02 and earlier Disabled in Passport V8.02+
	Azalia/AC97 Audio Select	All Disabled
Super I/O Device	Serial Port 1	3F8
	Serial Port 1 Use IRQ	IRQ4
	Serial Port 2	2F8
	Serial Port 2 Use IRQ	IRQ3
	Serial Port 2 Mode	Normal
	<i>x RxD, TxD Active</i>	<i>Hi, Lo</i>
	<i>x IR Transmission Delay</i>	<i>Enabled</i>
	<i>x IR Duplex Mode</i>	<i>Half</i>
	Serial Port 3	3E8
	Serial Port 3 Use IRQ	IRQ5
	Serial Port 4	2E8
	Serial Port 4 Use IRQ	IRQ5
	Serial Port 5	4E8
	Serial Port 5 Use IRQ	IRQ5
	Serial Port 6	4F8
	Serial Port 6 Use IRQ	IRQ5
	Onboard Parallel Port	378/IRQ7
	Parallel Port Mode	Standard
	<i>x ECP Mode Use DMA</i>	<i>3</i>
	Power Management Setup	
Power Supply Type	ATX	
Power On Control	Soft-off by pwr-button	Delay 4 sec
	Pwron After pwr-fail	Former Sts
	Power on by PCI PME/LAN	Disable
	Power on by PCI PME	Disable
	Power on by Ring	Disable
	Resume by Alarm	Disable
	<i>x Date (of month) Alarm</i>	<i>0</i>
	<i>x Time (hh:mm:ss) Alarm</i>	<i>0 : 0 : 0</i>
ACPI Function	Enable	
Power Management	User Defined	
Video Off Method	DPMS	
Video Off In Suspend	Yes	
Suspend Type	Stop Grant	
Modem Use IRQ	3	
Suspend Mode	Disabled	
HDD Power Down	Disabled	
** Reload Global Timer Events **		
Primary IDE 0	Disabled	

Standard CMOS Features		Fail Safe BIOS Settings
Primary IDE 1	Disabled	
Secondary IDE 0	Disabled	
Secondary IDE 1	Disabled	
FDD, COM, LPT Port	Disabled	
PCI PIRQ[A-D]#	Disabled	
PnP/PCI Configurations		
Reset Configuration Data	Disable	
Resources Controller by	Auto (ESCD)	
x <i>IRQ Resources</i>	<i>Press Enter</i>	
PCI/VGA Palette Snoop	Disable	
INT PIN 1 Assignment	Auto	
INT PIN 2 Assignment	Auto	
INT PIN 3 Assignment	Auto	
INT PIN 4 Assignment	Auto	
*** PCI Express Relative Items ***		
Maximum Payload Size	128 MB	
PC Health Status		
<i>(As Reported)</i>		
Load Optimized Defaults		
Select this option to load the optimized default settings for the EPS system.		
Load Fail-Safe Defaults		
Select this option to load the optimized default settings for the EPS system.		
Set Supervisor Password		
Set password to allow a user to go in and modify BIOS contents.		
Set User Password		
Set password to allow a user to view BIOS contents but not modify them.		
Save & Exit Setup		
Saves all settings that have been changed in BIOS.		
Exit Without Saving		
No changed settings are saved when this option is selected.		

Notes: 1) *Parameters in gray cannot be changed.*
 2) *Parameters in italics may vary from system to system.*

Testing Connection with LAN

To test the connectivity of the EDH with the LAN, proceed as follows:

- 1 Ensure that all cables connecting the LAN port of the EDH with the router (or hub) are secure. Verify if there is a lit LED corresponding to the port number of the port that the EDH is plugged into, on the router/hub.
- 2 On the Passport Server or Client, log on to System Maintenance (Ctrl, Alt, P) and then into the Advanced User to access the Image Control Panel to bring up a DOS command prompt.
- 3 At the command prompt, type the following command: **ping [Machine Name]** where [Machine Name] is the Internet Protocol (IP) address of the EDH. For example, ping 10.5.48.5 for Passport Systems V3.6 to V8.0, or ping 10.5.50.2 for Passport Systems V8.02 or later.
- 4 Press **Enter** and view the response from the component. One of the following responses appears:
 - Reply from [IP Address] - Component is communicating with the server.
 - “Request Timed Out” message appears - Component is not communicating with the server. If this message is displayed, try to ping the EDH again. If this message appears again, refer to the “Troubleshooting LAN Issues” section in *MDE-3816 Passport System Start-up and Service Manual*.
- 5 Type **exit** and press **Enter** to close the Command Prompt window.

Note: If you continue to experience problems with LAN connection, call the Gilbarco Technical Assistance Center (TAC) at 1-800-743-7501.

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4 – Replacing Parts

This section contains instructions for replacing the following parts on EDH:

- CMOS Battery
- Compact Flash/Hard Drive
- Dual In-line Memory Modules (DIMMs)
- Fan
- iButton
- Motherboard
- Processor
- Serial I/O Strip Board
- Video

Preventing Electrostatic Discharge



Printed Circuit Boards (PCBs) and Integrated Circuits (ICs) within a Passport System are sensitive to electrostatic discharge caused by static electricity. Electrostatic discharge damages electronic parts.

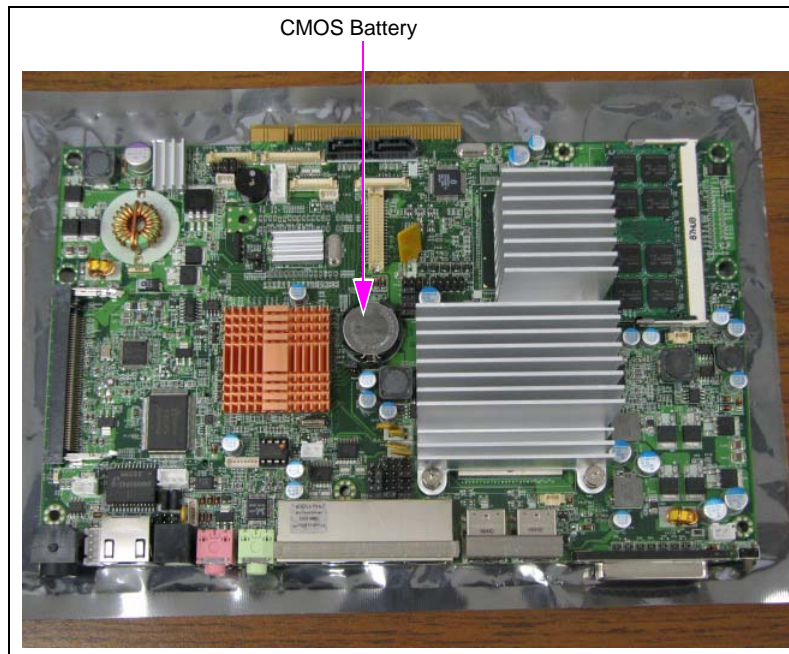
Use the following guidelines when replacing Passport System circuit boards or handling sensitive parts:

- Touch an unpainted metal surface to discharge any static electricity buildup.
- Use a wrist strap connected to a grounded metal frame or chassis. The EDH must be plugged into a properly grounded AC outlet with power turned off, to provide a path to the ground.
- Position the removed circuit boards on a grounded anti-static mat.
- Always transport circuit boards in a static shielding bag.

CMOS Battery

EDH Motherboard contains a battery that backs up the BIOS and clock settings. If the clock settings are lost during a power failure, this battery must be replaced with a standard CR2023 Coin Cell (see [Figure 4-1](#)).

Figure 4-1: Location of CMOS Battery



Replacing Battery

WARNING

There is a danger of explosion if the battery is replaced incorrectly. Replace only with the same or equivalent type recommended. Discard used batteries according to the manufacturer's instructions.

To replace the battery, proceed as follows:



- 1 Remove the three screws from the top of the cover, and remove the cover.

CAUTION

The hard disk drive is attached to the top cover. Handle the cover with care to ensure that the hard drive is not exposed to excessive shock.

- 2 Note the battery's polarity and remove the battery (see [Figure 4-1](#)).
- 3 Insert the new battery. Ensure that the polarity is correct.
- 4 Replace the cover using the three screws removed in step 1.
- 5 Reprogram the clock settings and verify if the BIOS settings are as listed in "[BIOS and Jumper Settings](#)" on [page 3-1](#).

Compact Flash/Hard Drive

EDH is equipped with two disk drives, a 2.5-inch Hard Disk Drive and Compact Flash solid state drive.

Specifications

Following table lists the disk drive part numbers.

Description	Part Number
Hard Disk Drive V32.8.04A	KS702C0012D
Hard Disk Drive V32.8.06	KS702B0022D
Hard Disk Drive V40.8.04	KS702-0032D
8 GB CF Drive	M0977B014B
16 GB CF Drive	M09747B014C

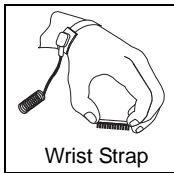
Replacing Drives

To replace the drives, proceed as follows:

- 1 Remove the screw from the drive access panel and remove the panel.
- 2 Lift the Hard Drive out of the enclosure. If the Hard Drive is to be replaced, disconnect the SATA Connectors and replace with a new drive.
- 3 If the solid state drive is to be replaced, move the Hard Drive to the side, pull the solid state drive from its slot, and replace it with another solid state drive.
- 4 Position the Hard Disk Drive back in the cavity.
- 5 Reinstall the drive panel using the screw removed in step 1.

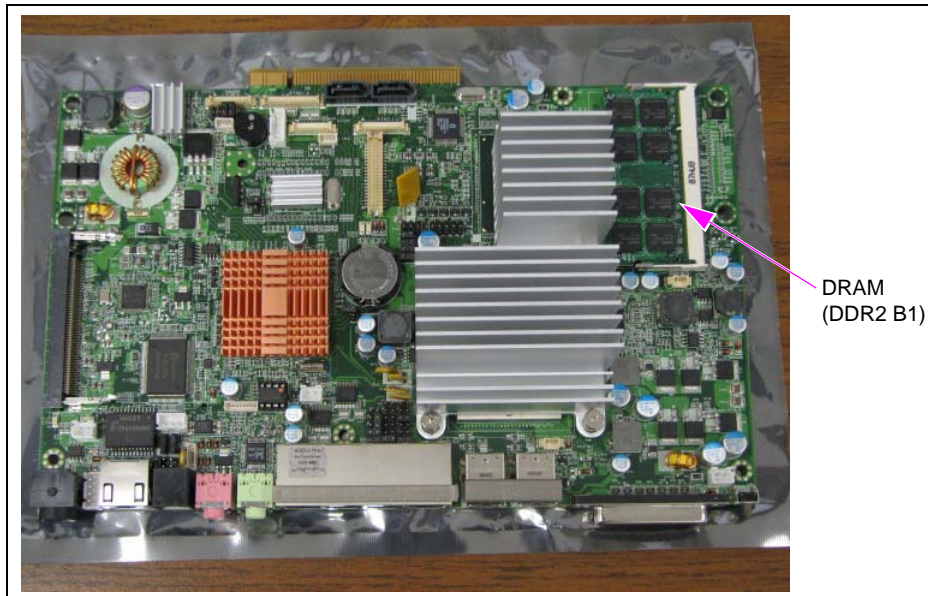
Note: A faulty drive must be replaced with a pre-imaged Hard Drive.

DIMMs



The DIMM provides the memory for the EDH (see [Figure 4-2](#)).

Figure 4-2: Location of DIMM



Specifications

Following table lists the DIMM part number.

Description	Part Number
2 GB DIMM	M09747B005A

Replacing DIMM

To replace the DIMM, proceed as follows:

- 1 Remove the three screws from the top of the cover and remove the cover.

CAUTION

The hard disk drive is attached to the top cover. Handle the cover with care to ensure that the hard drive is not exposed to excessive shock.

- 2 Hold back the two spring clips that secure the DIMM, tilt the DIMM up and lift it out.
- 3 Insert the new DIMM and release the spring clips. Ensure that the DIMM is fastened securely.
- 4 Reinstall the cover using three screws removed in step 1.

Fan

The Chassis Fan provides cooling for the EDH.

Specifications

Following table lists the Chassis Fan part number.

Description	Part Number
Chassis Fan	M09747B007

Replacing Fan

To replace the fan, proceed as follows:

- 1 Remove the three screws from the top of the cover and remove the cover.
- 2 Remove the fan cable from the Motherboard.
- 3 Remove the four screws that secure the Serial I/O Strip Board to the chassis and remove the assembly.
- 4 Install the replacement fan using four screws removed in step 3.
- 5 Reinstall the cable on the Motherboard.
- 6 Replace the cover using three screws removed in step 1.

iButton

Specifications

Following table lists the parts provided in the iButton Kit (M09747K001):

Description	Part Number	Quantity
Internal iButton Cable	M09747B011	1
iButton	M09747B012	1
iButton Adapter	M09747B013	1
Cable Mount	Q13787-01	2
Cable-tie	Q10178-02	2
2 GB DRAM Module	M09747B005A	1
8 GB Compact Flash Module	M09747B014B	1

Replacing iButton

To replace the iButton, proceed as follows:

Note: For more information, refer to MDE-4882 Enhanced Dispenser Hub Hardware Upgrade Kit (M09747K001) Installation Guide for Passport.

- 1 Turn off power to the EDH. Remove three screws on the front of the top cover. Slide the cover forward and remove the cover.

CAUTION

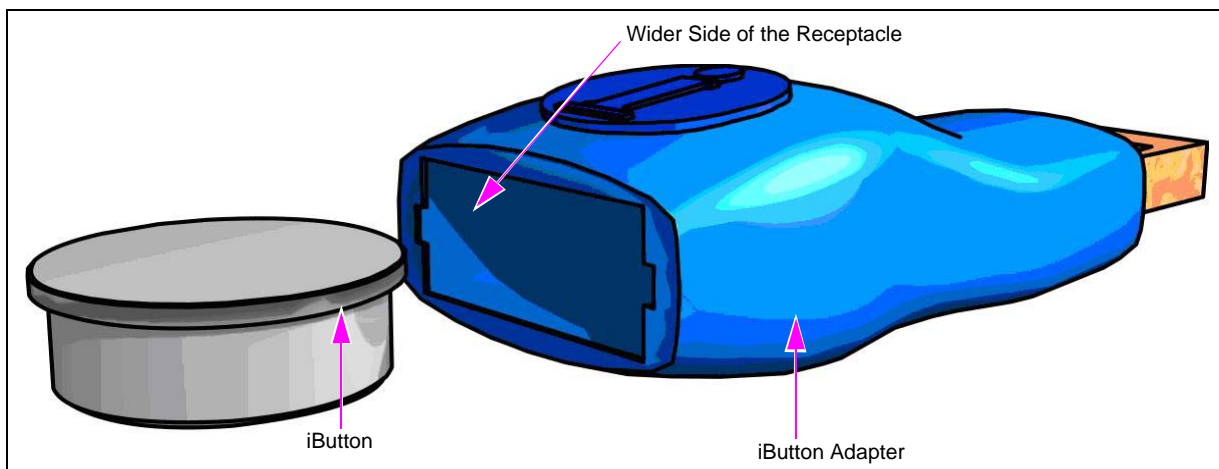
The hard disk drive is attached to the top cover. Handle the cover with care to ensure that the hard drive is not exposed to excessive shock.

- 2 Remove the iButton Adapter (M09747B013) and rear cover from its packaging.
- 3 Install the iButton (M09747B012) in the Adapter as shown in [Figure 4-3](#).

Notes: 1) The side of the iButton without writing on it (lip on top), inserts into the case, facing the “i” logo that is molded into the casing.

2) The rear cover will not engage if the iButton is installed upside down.

Figure 4-3: iButton Assembly

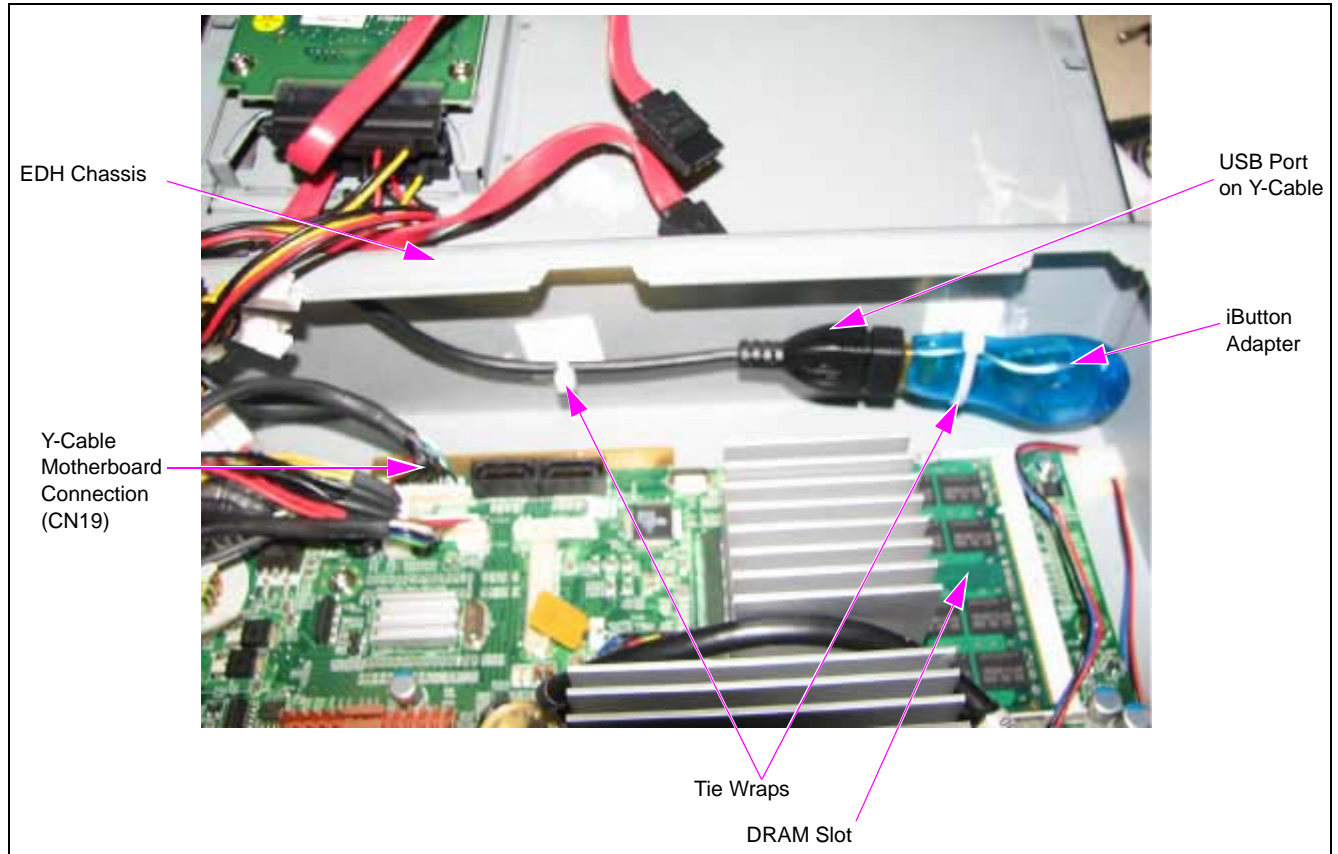


- 3 Install the rear cover on the iButton Adapter.
- 4 Remove the Internal iButton Cable (M09747B011) between the CN19 Connector and install the replacement cable.

Note: Ensure that the connector with two cables is connected to the Motherboard. The connector with only one cable must be connected to the serial I/O Strip Board.
- 5 Attach the iButton Adapter to the USB port on the Internal iButton Cable.

- 6 Secure the iButton Adapter to the rear of the EDH chassis (on the wall next to the PCI Connector) using the cable-tie and mounting pads provided in the iButton kit.

Figure 4-4: iButton Adapter Connection



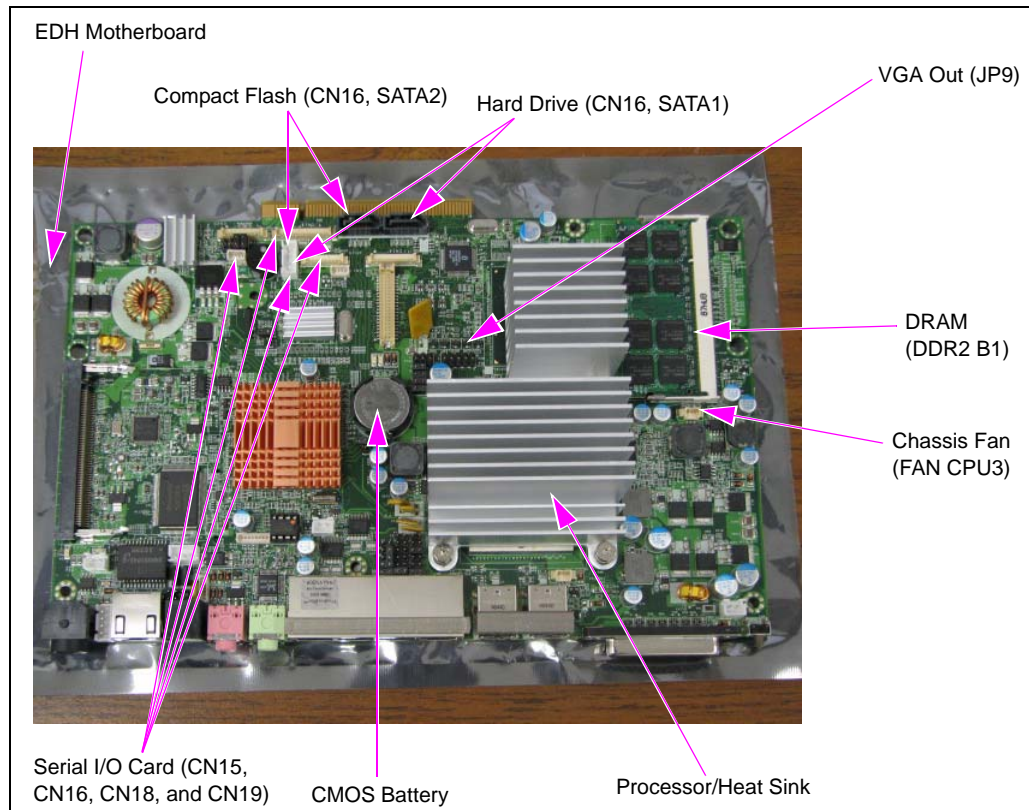
- 7 Reinstall the top cover and three screws that were removed in step 1 on [page 4-6](#).
- 8 Turn on power to the EDH.

If replacing an existing iButton, the new iButton must be configured using system recovery. For instructions on replacing an iButton, refer to *MDE-4834 Passport V8.02+ System Recovery Guide*.

Motherboard

The Motherboard controls the EDH's COM 1-4 ports, Parallel port, LAN port, and USB ports. It also provides interfaces for Drives, Serial I/O Board, and Chassis Fan (see [Figure 4-5](#)).

Figure 4-5: EDH Motherboard



Specifications

Following table lists the Motherboard part number.

Description	Part Number
Motherboard	M09747B001

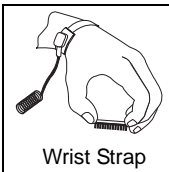
Replacing Motherboard

CAUTION

Disconnect power before replacing the fuse to avoid electrical shock.

For continued protection against risk of fire, only use replacement fuses of the same type and rating.

To replace the Motherboard, proceed as follows:



- 1 Remove the three screws from the top of the cover and remove the cover.

CAUTION

The hard disk drive is attached to the top cover. Handle the cover with care to ensure that the hard drive is not exposed to excessive shock.

- 2 Remove the cables from the Serial I/O Strip Board, Drives, VGA port, and system fan.
- 3 Remove the two screws that secure the Serial I/O Strip Board and retain them for reassembly.
- 4 Remove the DIMM from the main board.
- 5 Using a 3/16-inch nut driver, remove the VGA Cable retaining the screws from the chassis.
- 6 Remove the eight screws from the main board and lift it out.
- 7 Remove the four screws from the Processor Heat Sink and retain them for reassembly.
- 8 Remove the two retaining screws on the front panel that secure the parallel printer port.
- 9 Release the connector on the processor by rotating the lock screw 180° counterclockwise towards the unlock symbol, using a small slotted screwdriver.
- 10 Remove the processor and install the new Motherboard. Rotate the lock screw 180° clockwise towards the lock symbol.
- 11 Apply thermal paste on the top of the processor before the installation of the Processor Heat Sink.
- 12 Install the Processor Heat Sink removed in step 7 on the new Motherboard.
- 13 Appropriately align the new Motherboard to the housing by using the DC Input Port (DC In), Speaker, parallel printer, and Microphone ports as alignment guides.
- 14 Install the new Motherboard in the EDH and install eight screws that were removed in step 6.
- 15 Insert the DIMM into the new Motherboard.
- 16 Reinstall the Serial I/O Strip Board using two screws removed in step 3.

- 17 Install the cables from the Serial I/O Strip Board, drives, VGA port, and system fan.
- 18 Replace the cover using the three screws removed in step 1 on [page 4-9](#).
- 19 Reprogram the clock and BIOS settings as listed in “BIOS and Jumper Settings” on [page 3-1](#).

Processor

The processor provides the central processing unit and cache for the EDH.

Specifications

Following table lists the processor part number.

Description	Part Number
Processor, 1.86 GHz	M09747B004

Replacing Processor

To replace the processor, proceed as follows:

- 1 Remove the three screws from the top of the cover and remove the cover.

CAUTION

The hard disk drive is attached to the top cover. Handle the cover with care to ensure that the hard drive is not exposed to excessive shock.

- 2 Note the orientation of the VGA Cable and remove it from the Motherboard.
- 3 Remove the four screws that secure the Heat Sink to the chassis and remove the assembly.
- 4 Release the connector on the processor by rotating the lock screw 180° counterclockwise towards the unlock symbol, using a small slotted screwdriver.
- 5 Remove the processor and replace it. Rotate the lock screw 180° clockwise towards the lock symbol.
- 6 Apply thermal paste on the top of the processor before the installation of the Processor Heat Sink.
- 7 Install the Heat Sink removed in step 3 on the new Motherboard.
- 8 Reinstall the VGA Cable on the Motherboard orienting as noted in step 2.

Serial I/O Strip Board

The Serial I/O Strip Board provides the interface for COM ports 5 and 6, pump loops, keyboard port, and status LEDs for the EDH.

Specifications

Following table lists the Serial I/O Strip Board part number.

Description	Part Number
First Generation Serial I/O Strip Board	M09747B002
Second Generation Serial I/O Strip Board	M09747B002A

Replacing Serial I/O Strip Board

To replace the Serial I/O Strip Board, proceed as follows:

- 1 Remove the three screws from the top of the cover and remove the cover.

CAUTION

The hard disk drive is attached to the top cover. Handle the cover with care to ensure that the hard drive is not exposed to excessive shock.

- 2 Remove the cables from the Motherboard to the Serial I/O Strip Board.
- 3 Remove the two screws that secure the Serial I/O Strip Board to the chassis and remove the assembly.
- 4 Install the replacement Serial I/O Strip Board using two screws removed in step 3.
- 5 Reinstall the cables from the Motherboard.
- 6 Replace the cover using three screws removed in step 1.

Second Generation Serial I/O Strip Board

To replace the first generation two-wire board with the new second generation two-wire board, proceed as follows:

Note: Following instructions are for the systems with Windows® XP® with the 32.8.06 image. If EDH is installed with V9 or later then skip to [“Configuring V9 EDH \(Windows 7\)”](#) on [page 4-26](#). For Windows XP based EDH without the new Windows XP 32.8.07 image, it is required to reassign the COM ports.

Installing, Updating Driver, and Assigning COM Port for Second Generation Two-wire Board

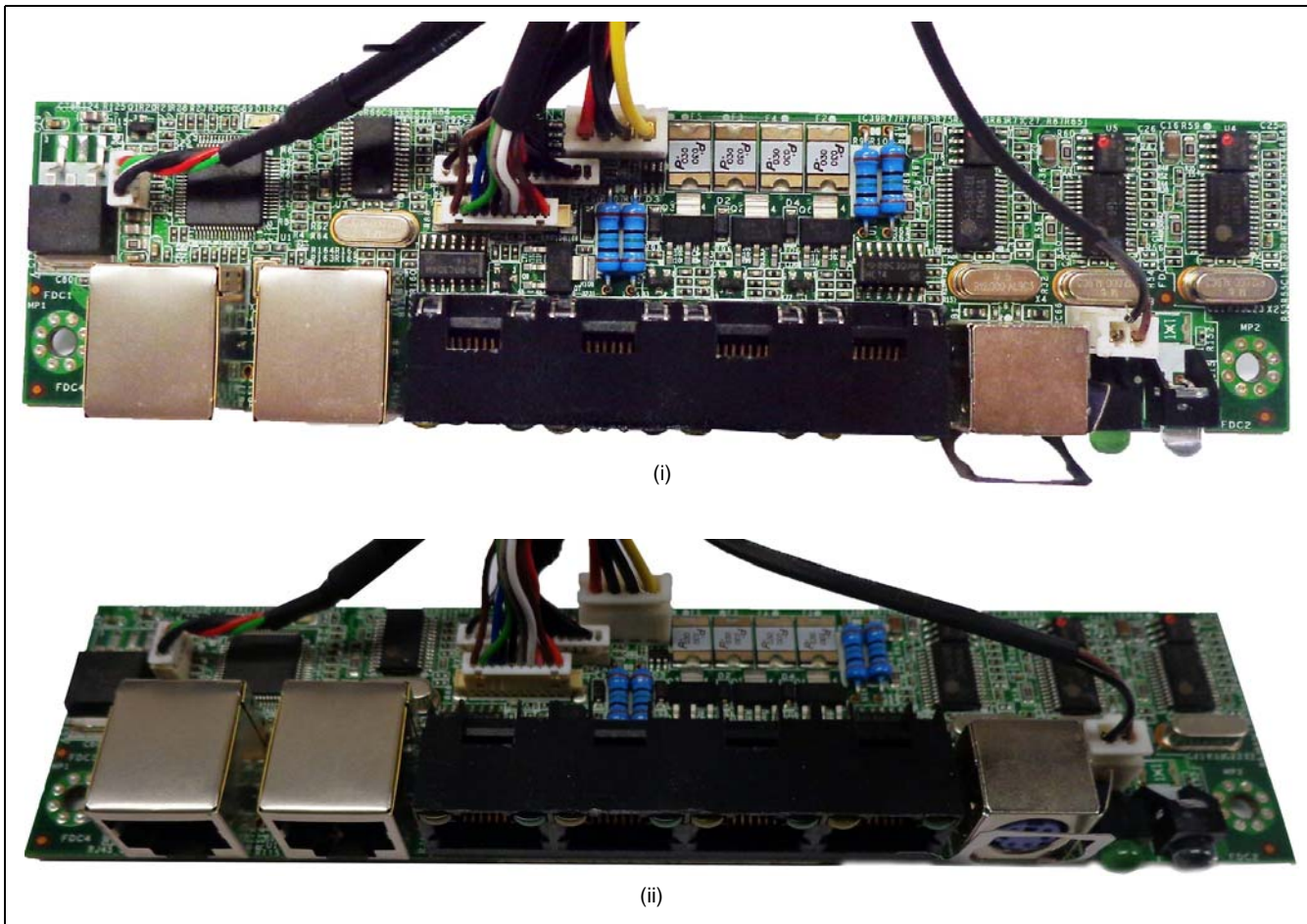
To install, update driver, and assign COM port for second generation two-wire board, proceed as follows:

Installing Two-wire Board

To install the two-wire board, proceed as follows:

- 1 Stop anyone from dispensing fuel or using debit/credit card.
- 2 When the dispensers are clear, remote into the EDH and bring up level 2 system maintenance. Log into the system recovery on the EDH and save an image.
- 3 From level 2 system maintenance, shutdown the system by pressing the shutdown button and then pressing the shutdown button again on the pop-up menu.
- 4 After the EDH is completely powered down, remove all cables and cords from the EDH.
Note: Ensure that you know exactly where the cable or cord plugs back in.

Figure 4-6: Board Wiring Connections



- 5 Remove the top cover of the EDH by removing the three Phillips® screws.

CAUTION

The hard disk drive is attached to the top cover. Handle the cover with care to ensure that the hard drive is not exposed to excessive shock.

- 6 Remove the two Phillips screws from the EDH two-wire board.
- 7 Document or take a picture of the connections.
- 8 Disconnect the cables from the EDH two-wire board.

*Note: Note the way to distinguish the difference between the old two-wire board versus the new two wire-board. The bottom of the old two-wire board shows **IO BOARD V1.00** (see [Figure 4-7](#)), and the bottom of the new two-wire board shows **IO BOARD V2.00** (see [Figure 4-8](#)).*

Figure 4-7: Old Two-wire Board

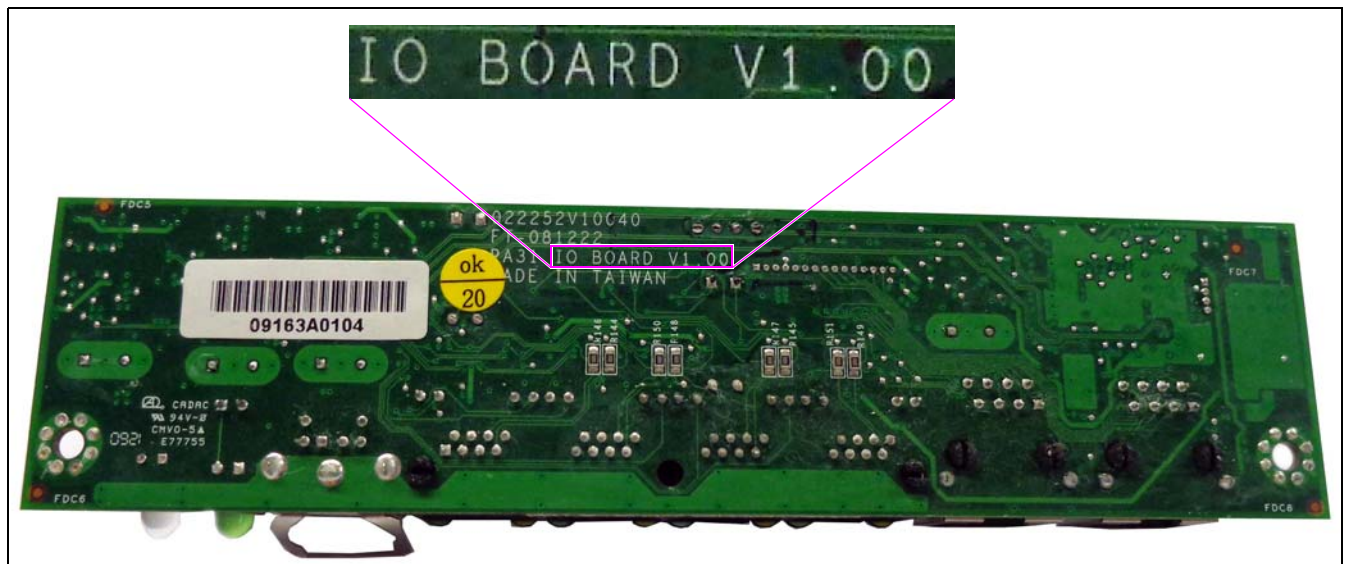
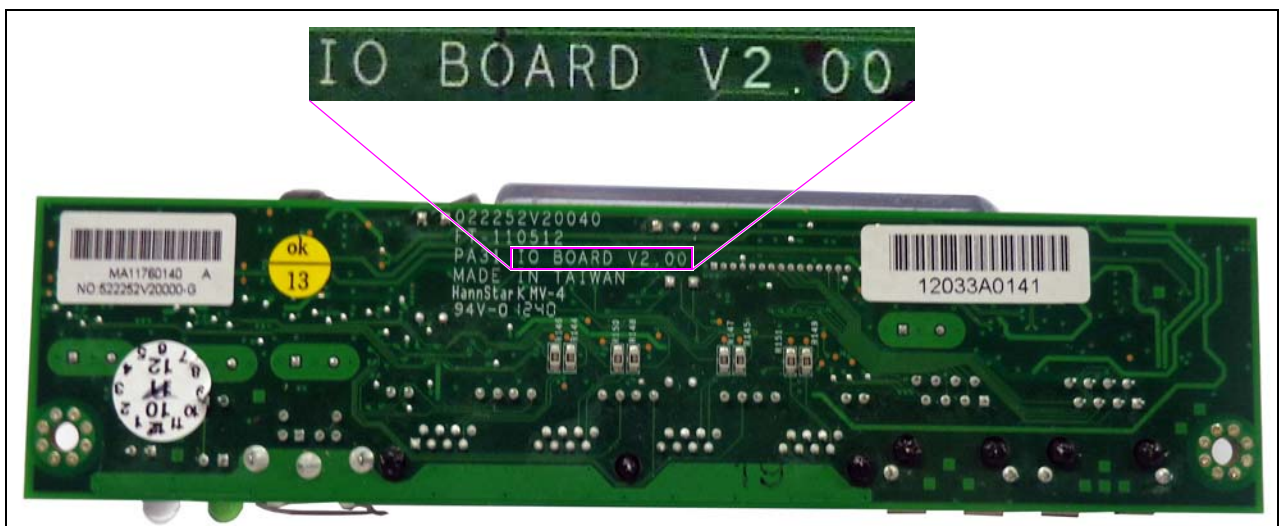


Figure 4-8: New Two-wire Board



- 9 Connect the cables back to the new EDH two-wire board (internally).
- 10 Verify the cables are fully seated to the two-wire board (internally).
- 11 Install the two Phillips screws back to the EDH two-wire board.
Note: Before you power on the EDH with the new two-wire board installed, ensure you only have the power and LAN cable connected to the EDH (ability to remote into the EDH). This will cut down on time to load the driver.
- 12 Install the EDH top cover by inserting the three Phillips screws.
- 13 Power up the EDH by pressing the power button on the EDH.
Note: The dispensers will not come online. After the new two-wire board is powered up, you will notice that both the green and amber light are glowing (see [Figure 4-9](#)).

Figure 4-9: Green and Amber Light Glowing on EDH



Updating Driver for Second Generation Two-wire Board

To update the driver for second generation two-wire board on Windows XP (Passport V8.x), proceed as follows:

Note: This is not applicable on Windows 7 (Passport V9) system.

- 14 Access the EDH via remote desktop from the server using the Security Manager Report.
Note: A “Found New Hardware” wizard pop-up will appear on the EDH. This box will only appear once; you must access device manager and manually update the drive one by one, which is shown in the following steps.

Figure 4-10: Found New Hardware Wizard Pop-up 1



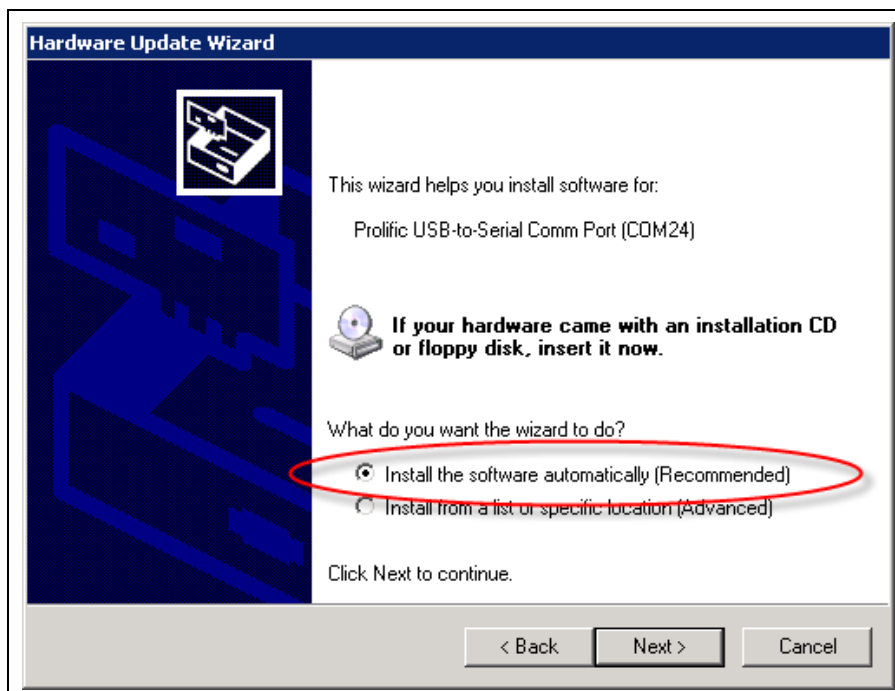
- 15 Enter the PassportTech or PassportSupport administrative credentials from the Security Manager Report into the “Found New Hardware” wizard pop-up. Ensure you only select the “Yes, this time only” button.

Figure 4-11: Found New Hardware Wizard Pop-up 2



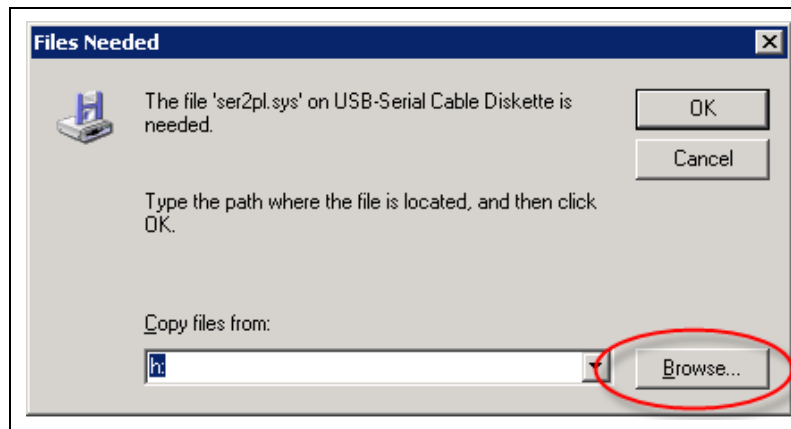
- 16 Select “Install the software automatically (Recommended)”, then select **Next**.
Note: If you use the option “Install from a list or specific location (Advanced)”, it will not populate the file required to update the driver.

Figure 4-12: Found New Hardware Wizard Pop-up 3



The search will not find the file automatically, you will receive another pop-up (Figure 4-13).

Figure 4-13: Found New Hardware Pop-up 4



- 17 Click **Browse** and navigate to **c:\windows\system32\drivers**, and select **ser2pl** file (see Figure 4-14). The end result must look like Figure 4-15. Select **OK** > **Next** > **Finished**.

Figure 4-14: Found New Hardware Pop-up 5

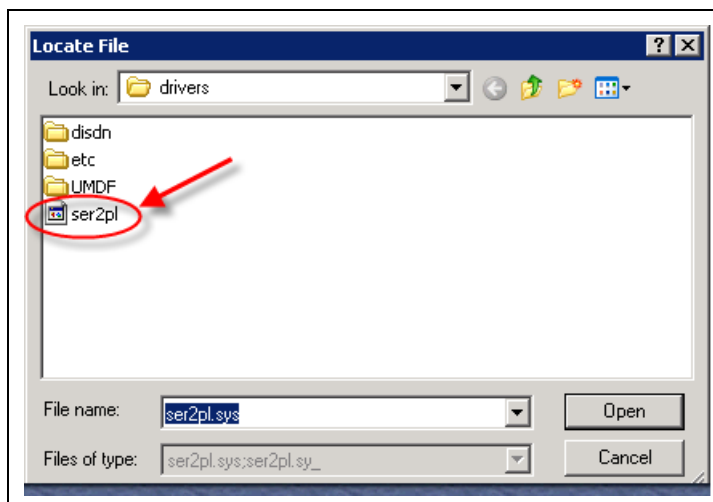
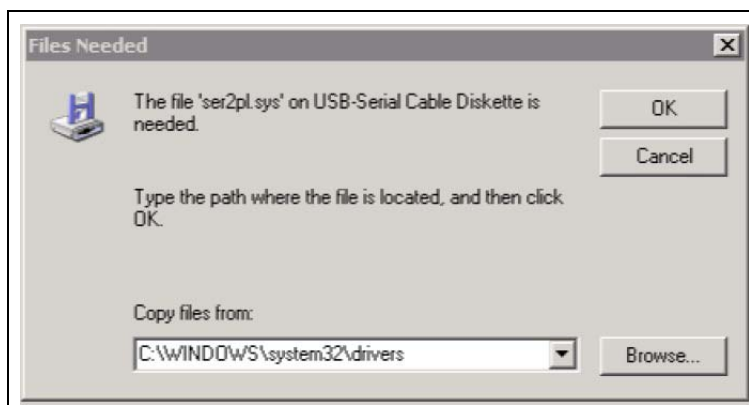


Figure 4-15: Found New Hardware Pop-up 6



Assigning COM Port for Second Generation Two-wire Board

To assign the COM port for two-wire board on Windows XP, proceed as follows:

- 18 After completing steps 15 (on [page 4-15](#)) to 17 (on [page 4-16](#)), you must get to device manager on the EDH. Log into level 2, **System Maintenance > Call Center > Advanced User > Image Control Panel > Administrative Computer Management > Device Manager > Ports (COM & LPT)**. See [Figure 4-16](#) and [Figure 4-17](#) on [page 4-18](#).

Figure 4-16: Device Manager Screen

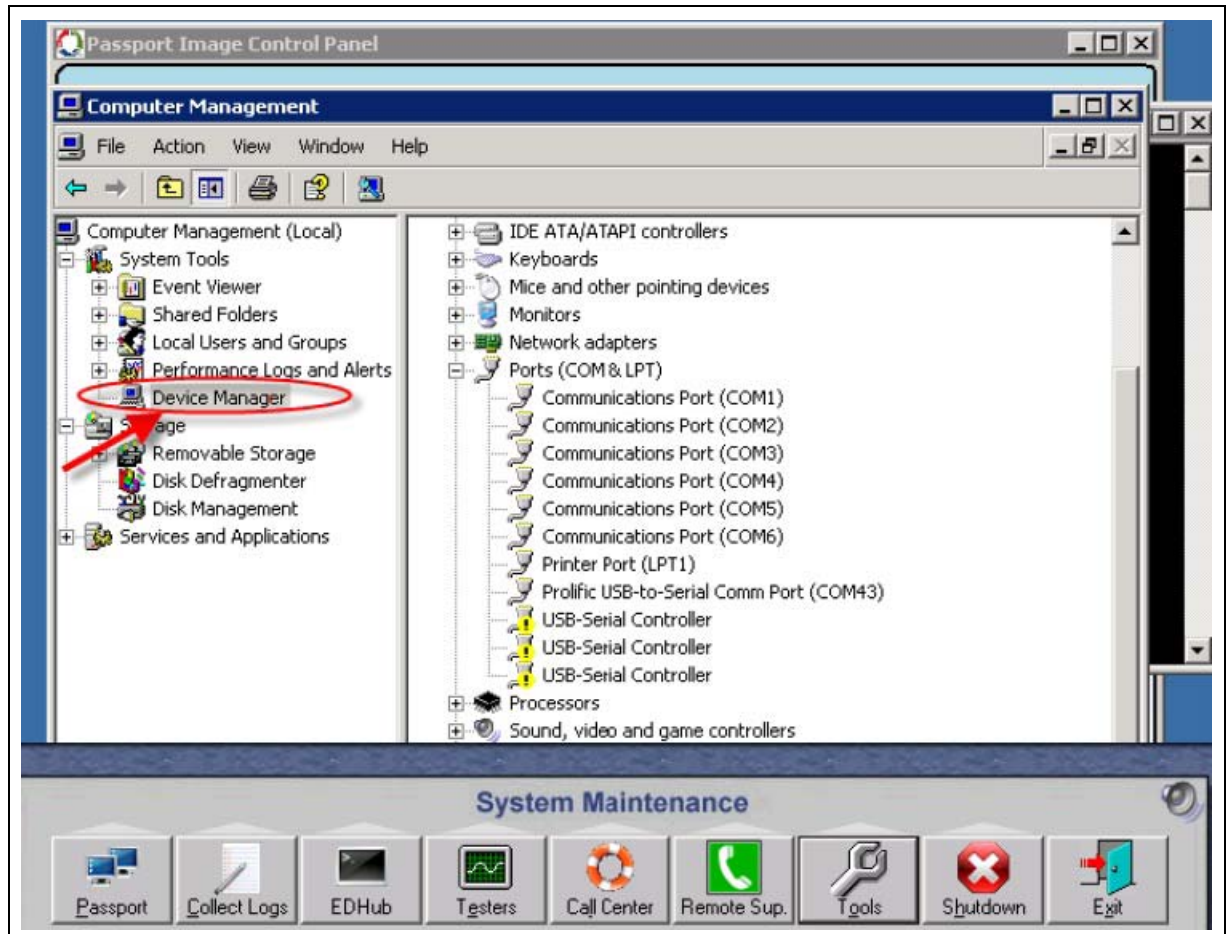
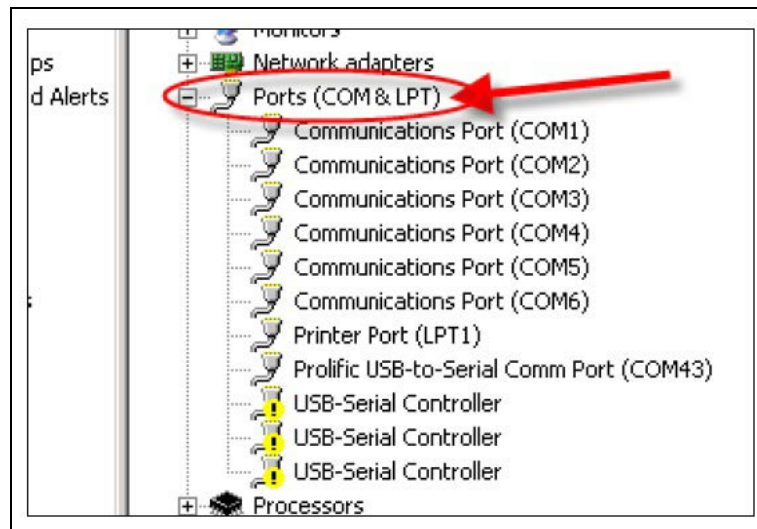


Figure 4-17: Ports Screen



- 19 Update each COM port manually.

Note: When updating the drivers you must go from top to bottom (see [Figure 4-18](#) and [Figure 4-19](#) on page 4-19).

Figure 4-18: COM Ports Screen 1

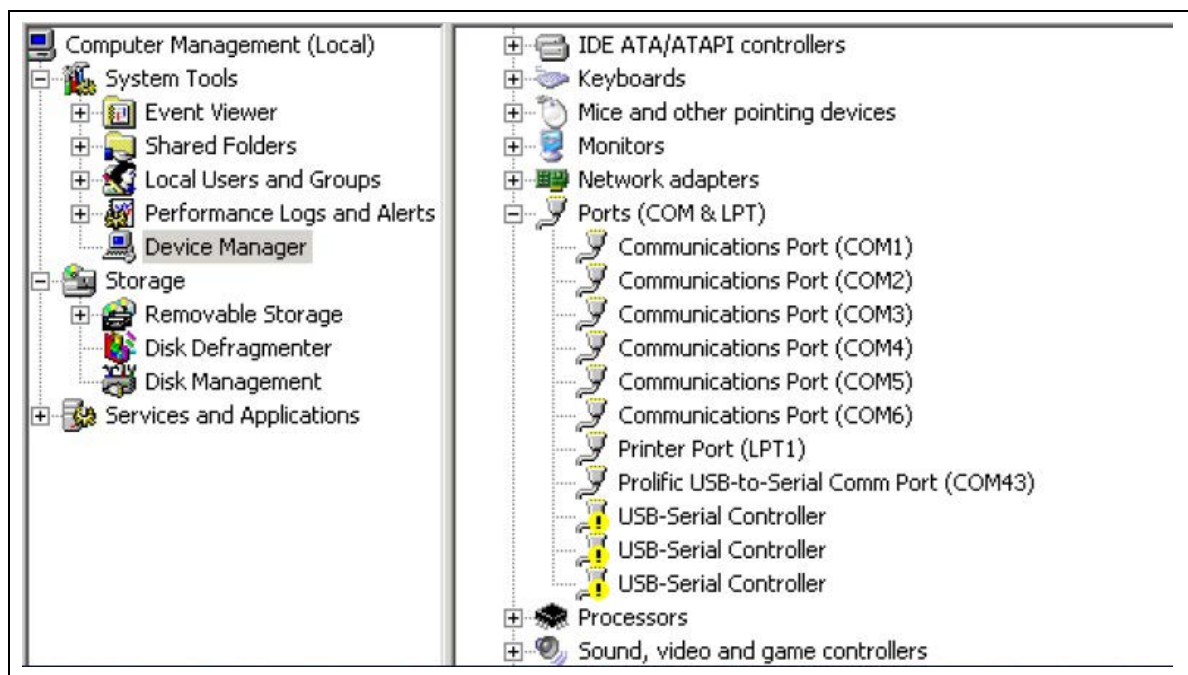
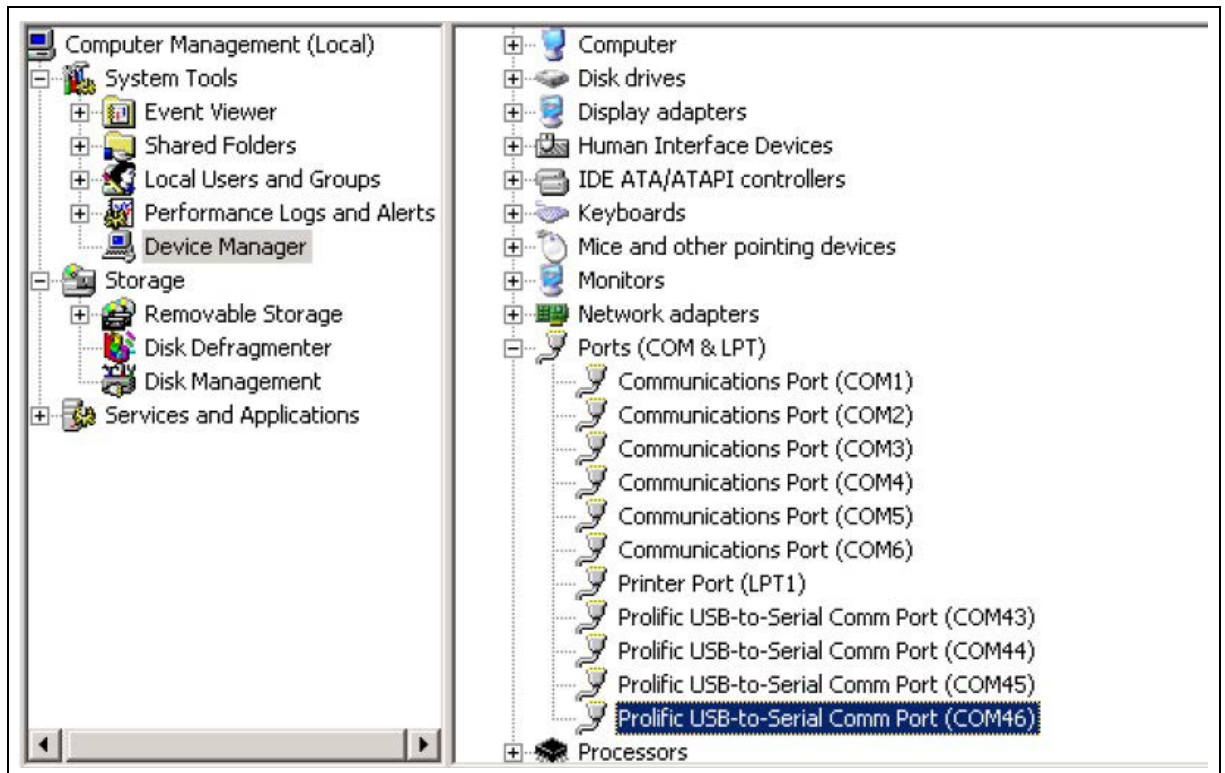
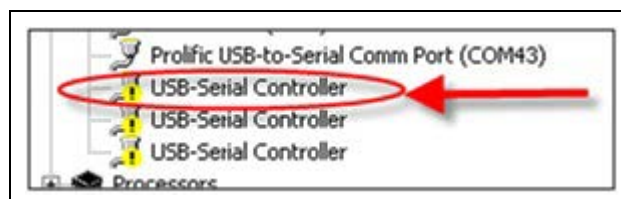


Figure 4-19: COM Ports Screen 2

- 20 Update the driver manually by left clicking on the first USB-Serial Controller that has not been updated (see [Figure 4-20](#)).

Figure 4-20: Selecting Driver Manually

- 21 After the driver is selected, right click the driver using the right click button on the keyboard, which is located between the windows and Ctrl button (see [Figure 4-21](#)). Then Select the Update Driver option (see [Figure 4-22](#) on [page 4-20](#)).

Figure 4-21: Right Click Button

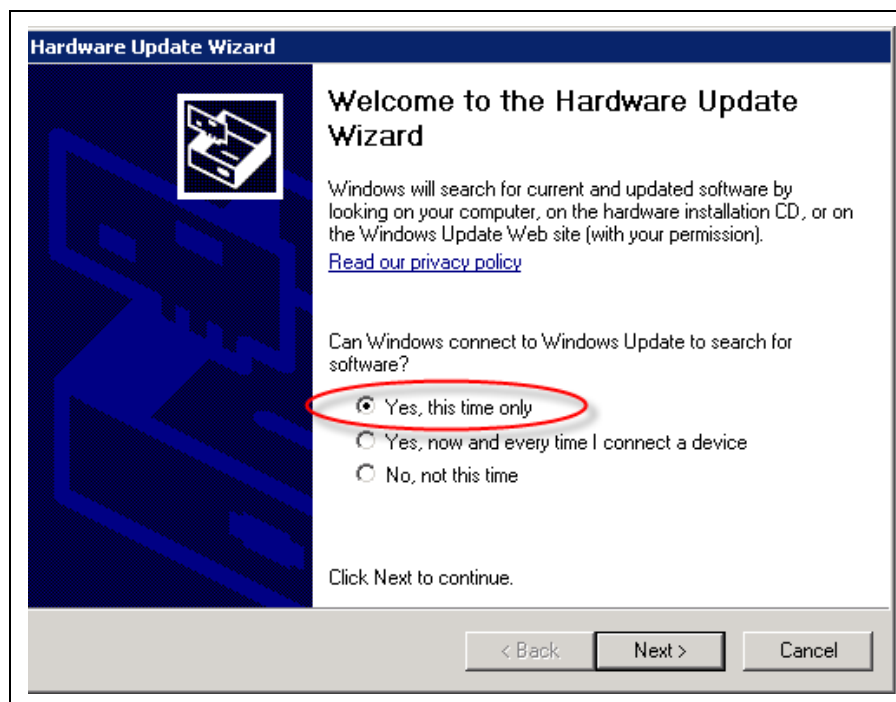
Figure 4-22: Update Driver Screen



You will now see a “Found New Hardware” Wizard pop-up box as shown in [Figure 4-23](#).

- 22 Ensure you only select “Yes this time only” button and then select **Next**.

Figure 4-23: Found New Hardware Pop-up Screen 1

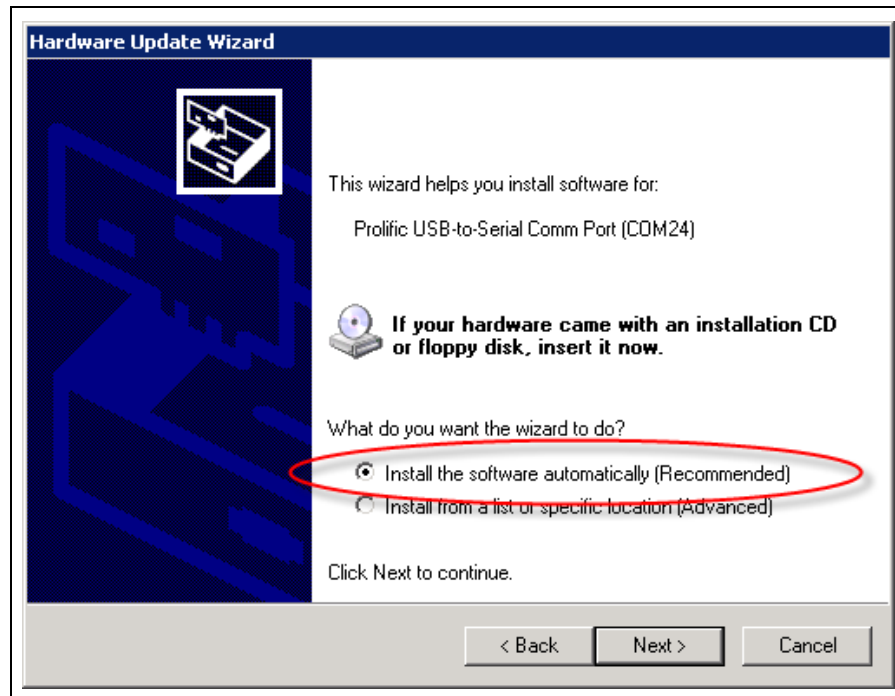


This process may take 5-8 minutes.

- 23 Select “Install the software automatically (Recommended)” and then select **Next** (see [Figure 4-24](#)).

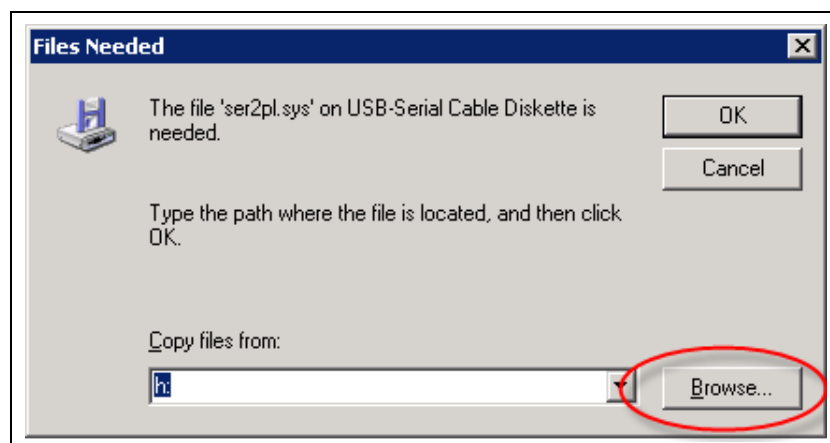
Note: If you use the option “Install from a list or specific location (Advanced)”, it will not populate the file required to update the driver.

Figure 4-24: Found New Hardware Pop-up Screen 2



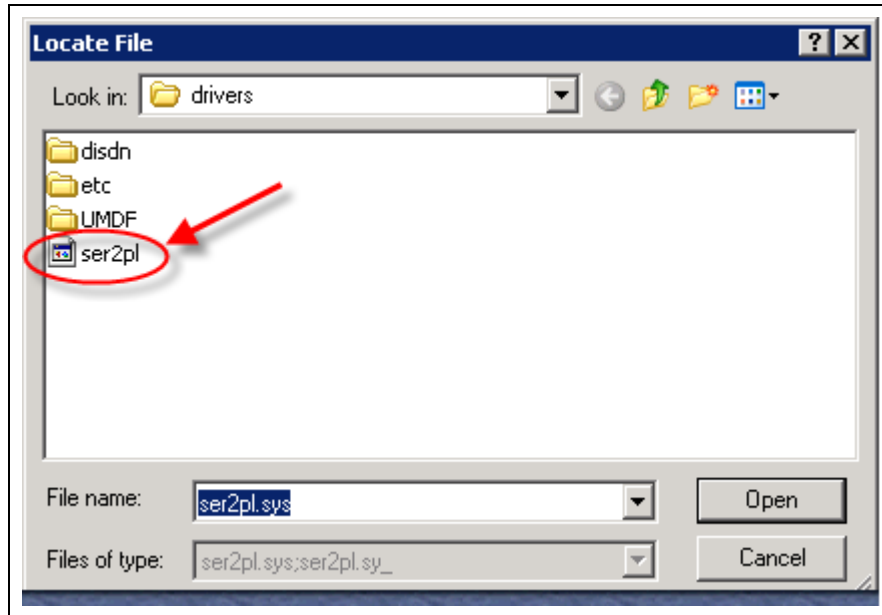
The search will not find the file automatically; you will receive another pop-up (see [Figure 4-25](#)).

Figure 4-25: Found New Hardware Pop-up Screen 3



- 24 Select **Browse** and navigate to **c:\windows\system32\drivers** and select **ser2pl** file (see [Figure 4-26](#)).

Figure 4-26: Found New Hardware Pop-up Screen 4



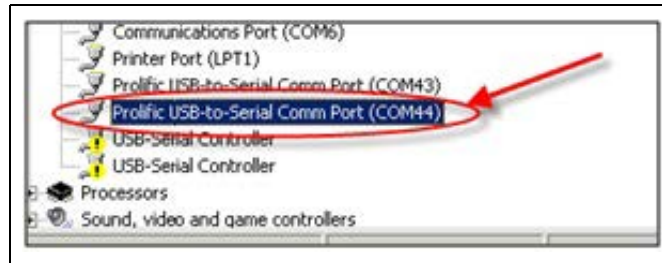
- 25 Select **OK** > **Next** > **Finished** (see [Figure 4-27](#)).

Figure 4-27: Found New Hardware Pop-up Screen 5



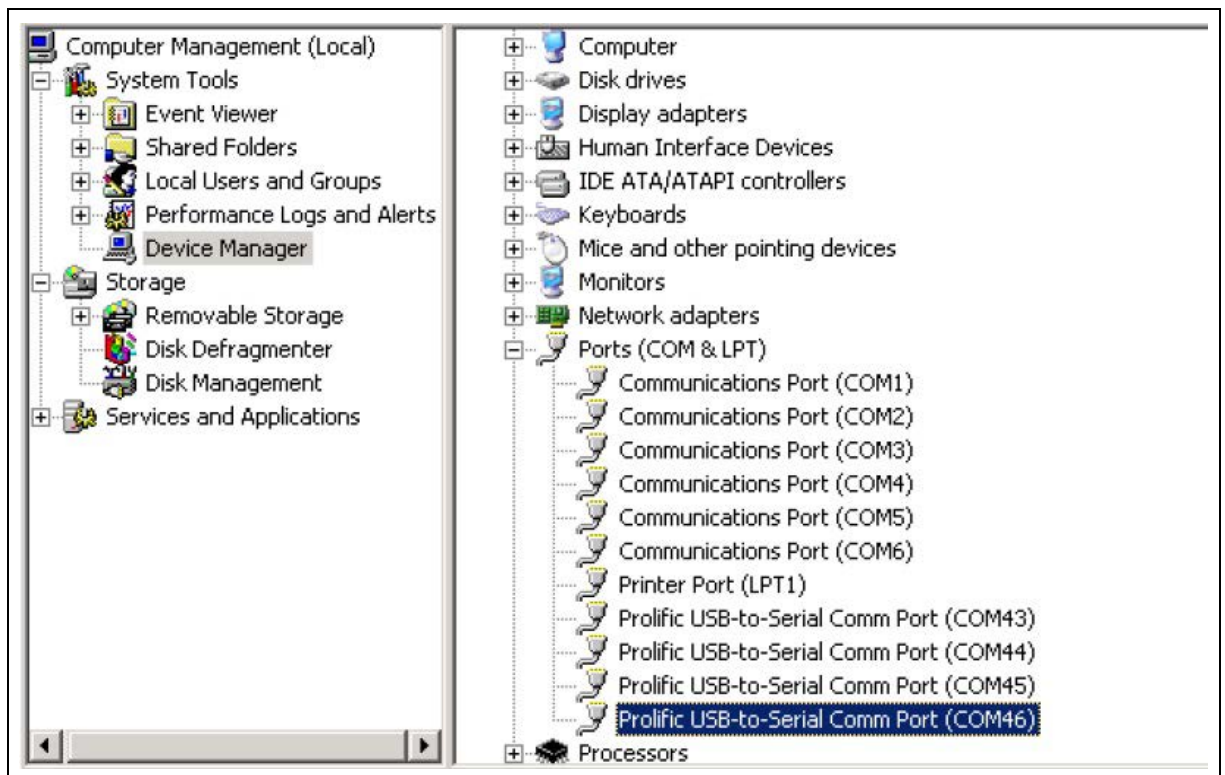
After you have manually updated the drive, it will be updated in Device Manager (see [Figure 4-28](#)).

Figure 4-28: Updating Driver Screen 1



- 26 Repeat steps [20](#) (on [page 4-19](#)) to [25](#) (on [page 4-22](#)) until you have updated each driver (see [Figure 4-29](#)).

Figure 4-29: Updating Driver Screen 2

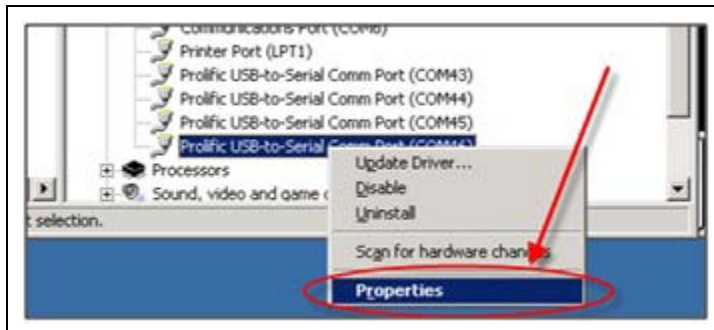


Reassigning COM Port for Second Generation Two-wire Board

To reassign the COM port for two-wire board on Windows XP, proceed as follows:

- 27 After the drivers are installed for the four COM ports, select **Prolific USB-to-Serial Comm Port (COM46)** or the last COM port that has not been assigned, and with your keyboard right click and select **Properties** (see [Figure 4-30](#)).

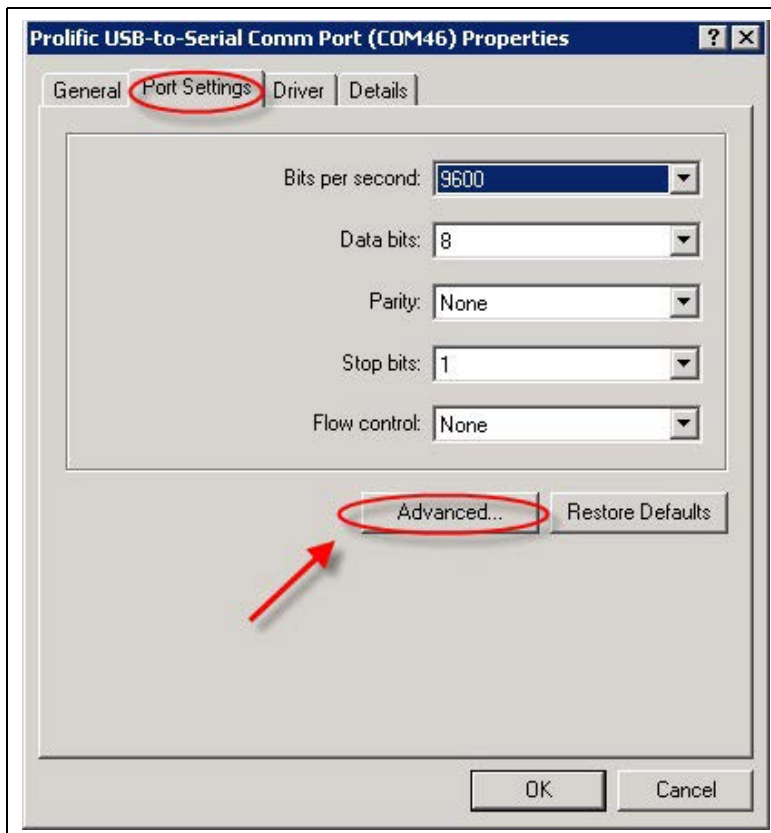
Figure 4-30: Updating the Driver Screen 3



Note: When reassigning COM ports you must start from COM46 and go up to COM43. This will prevent the COM ports from being reassigned improperly causing the pump loops to be out of order.

- 28 Select **Port Settings** and then select **Advanced** (see [Figure 4-31](#)).

Figure 4-31: Port Settings Screen



- 29 Under Advanced Settings, click on the COM Port Number drop-down menu (see Figure 4-32). Select the appropriate COM port for the updated drive (see Figure 4-34 on page 4-26). After the appropriate COM port has been selected, you will receive a pop-up as shown in Figure 4-33. Select **Yes** and select **OK** twice.

Note: The COM ports selected previously are displayed (see Figure 4-32), disregard and select the appropriate COM port. For the correct COM port assignment, see Figure 4-34 on page 4-26.

Figure 4-32: Advance Setting Screen

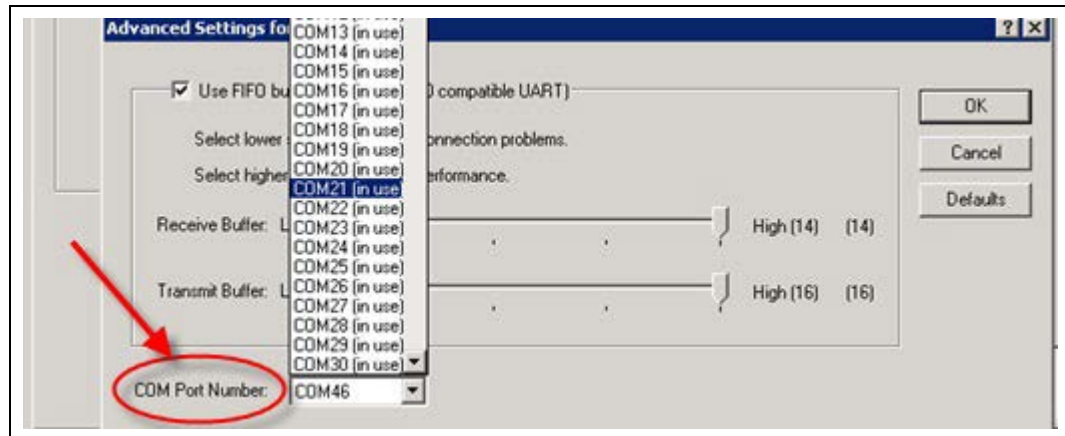
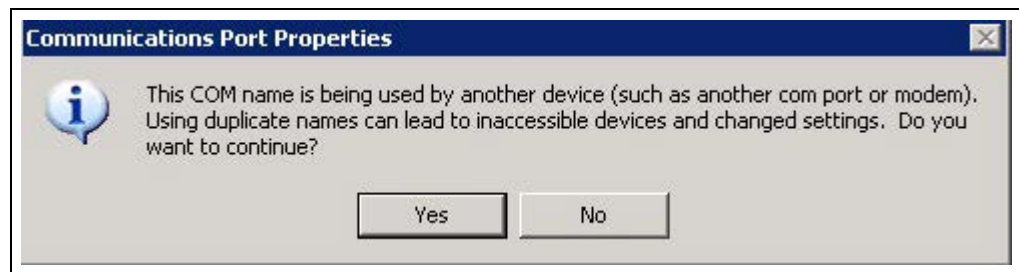


Figure 4-33: Communications Port Properties

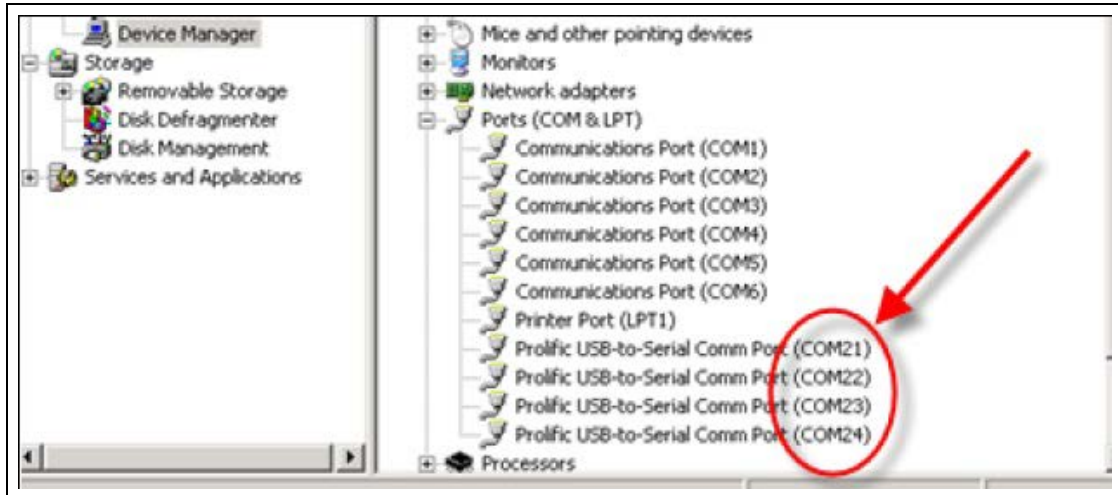


Incorrect COM Port Setting	Correct COM Port Setting	Pump Loop
COM46	COM21	1
COM45	COM22	2
COM44	COM23	3
COM43	COM24	4

Note: After a port has been reassigned it will not automatically update in Device Manager. You have to exit Computer Management, reopen computer management, and access Device Manager to see the updated COM port.

- 30 Repeat steps 27 on (page 4-24) to 29 (on page 4-25) until all COM ports have been properly reassigned to the correct COM port.

Figure 4-34: Correct COM Port



- 31 After all COM ports have been properly reassigned, access level 2 system maintenance on the EDH and select **Shutdown**. While the EDH is shutdown, reconnect all cable and power on the EDH by pressing the power button. After the EDH has been powered on, the pump will come online.

After the EDH reboots, you can ensure proper COM port assignments when the pump loop lights blink (the Amber and Green lights should blink to indicate proper communication with the dispenser), as they have been configured.

Configuring V9 EDH (Windows 7)

These steps only need to be run if the Passport Application has already been installed on the system. (If the application has NOT been installed, then during the application installation the ports are properly reassigned).

- 1 After the second generation two-wire board hardware has been installed, Remote Desktop into the EDH as the PassportTech or PassportServices user.
- 2 From the Start menu select **All Programs > Gilbarco > StopEPS**.
- 3 Open a Command Prompt and run: **c:\Gilbarco\Tools\ThirdPartyInstaller.exe +IMAGE**.
- 4 From the Start menu select **All Programs > Gilbarco > StartEPS**.
- 5 The Recovery Image must then be removed so that the system generates a new image with the updated settings: **del f:\gilbarco\images*.***.
- 6 To generate a new System Recovery Image, run: **c:\gilbarco\sr\bin\srimagecapture.exe**.

Video

The video for the EDH is provided by the Motherboard. If the VGA port fails, follow the instructions in [“Replacing Motherboard”](#) on [page 4-9](#).

CAUTION

The Intel® video driver used in the EDH causes the video driver to select the wrong video source, if a monitor used is different from the one used when the image was created.

When booting up, the video disappears immediately after the Windows XP Pro splash screen appears. Press **Ctrl**, **Alt**, and **F1**, to select the onboard graphics.

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5 – Servicing EDH

Troubleshooting EDH LEDs

Port	Solid Green LED	Blinking Green LED	Solid Amber LED	Blinking Amber LED
Pump - (Refer to Notes 1 and 2)	A solid green LED on a PUMP loop indicates an open loop between the EDH and D-Box.	A blinking green LED on the LAN port indicates data from at least one pump/Card Reader IN Dispenser (CRIND) device on this specific loop is being received by the EDH.	NA	A blinking amber LED on a PUMP loop port indicates that this loop is active and the EDH is attempting to transmit data through this port.

Notes: 1) When both green and amber LEDs on the two-wire ports are blinking, it does not indicate communication between the Point of Sale (POS) and the dispensers, but rather between the dispensers and the EDH itself. The EDH is the conversion point of TCP/IP to two-wire and vice versa.

2) When both green and amber LEDs on the two-wire ports are off (and the EDH has AC power), it indicates that there is a complete loop between the EDH and the D-box, but the EDH is not attempting to transmit any data over this loop.

Troubleshooting EDH Hardware-related Issues

Symptoms/Errors	Possible Causes/Checks	Recommended Solution	Impact
EDH Bootstrap			
"NTLDR is missing" or other files missing.	Corrupted or bad Hard Drive.	Replace the Hard Drive.	Machine has to be reinstalled or restored from image through Image Recovery. Security report is required for the iButton and PassportTech account password.
"Invalid System Disk". "Replace the disk, and then press any key"/"DISK BOOT FAILURE, INSERT SYSTEM DISK AND PRESS ENTER".	Corrupted or bad Hard Drive.	Replace the Hard Drive.	Machine has to be reinstalled or restored from image through Image Recovery. Security report is required for the iButton and PassportTech account password.
	Bad Motherboard.	Replace the Motherboard.	iButton password may become invalid and encryption may be unavailable. If so, re-enter iButton password through the Security Manager.
	Reseat Hard Drive cables on both ends.		
	Boot sequence is not set to boot from HD0.	Check the boot sequence.	
	Hard drive is not connected to SATA1 Motherboard Connector.	Connect to SATA1 Connector.	
System boots up into BIOS setup screen automatically.		Replace the Motherboard.	
Squealing sound heard from the Motherboard.	Reseat the DRAM.	Replace the DRAM.	
Intermittent bootup. Intermittent Ethernet® connection. Defective USB ports.	Bad Motherboard.	Replace the Motherboard.	iButton password may become invalid and encryption may be unavailable. If so, re-enter iButton password through the Security Manager.
iButton test fails (select Computer Manager > Device Manager to verify if "1-Wire Adapter" can be seen).	Internal USB port is defective. Replacing the cable does not resolve the issue.	Replace the Motherboard.	iButton password may become invalid and encryption may be unavailable. If so, re-enter iButton password through the Security Manager.
	M09747B011 Cable is reversed.	Reinstall the cable with the connector that has two cables connecting the Motherboard (refer to <i>MDE-4882 Enhanced Dispenser Hub Hardware Upgrade Kit (M09747K001) Installation Guide for Passport</i>).	
	M09747B012 installed upside down.	Reinstall the iButton as shown in <i>MDE-4882 Enhanced Dispenser Hub Hardware Upgrade Kit (M09747K001) Installation Guide for Passport</i> .	
Blue screen error, UNMOUNTABLE_BOOT_VOLUME.	Corrupted or bad Hard Drive.	Replace the Hard Drive.	Machine has to be reinstalled or restored from image through Image Recovery. Security report is required for the iButton and PassportTech account password.

Symptoms/Errors	Possible Causes/Checks	Recommended Solution	Impact
Does not boot to Windows.	At POST, system prompts "ENTER PASSWORD".	Load password.	
	Video disappears after Windows Splash screen.	Simultaneously press Ctrl , Alt , and F1 .	
		Enter Windows in Safe Mode and reload video driver.	
No display or Hard Drive activity.	Unit powers up, all pump loops and power LEDs lights up. However, there is no Hard Drive or display activity. POST screen never appears. No beeps.	Replace the Motherboard.	
System does not power up. No POST screen.	Check voltages on Power Supply.	Replace the Power Supply.	
	Voltages check OK.	Replace the Motherboard.	iButton password may become invalid and encryption may be unavailable. If so, re-enter iButton password through the Security Manager.
Award BIOS Beep Codes			
Repeating (endless loop).	Memory error.	Check for improperly seated or missing memory Replace the memory	
Repeating High/Low.	CPU	Either the CPU is not seated properly or the CPU is damaged. May also be due to excess heat. Check the CPU fan or BIOS settings for proper fan speed.	
One long beep and two short beeps.	Video adapter error.	Either video adapter is bad or is not seated properly. Also, verify that the Monitor Cable is connected properly.	
Hard Drive-Operating System			
"A disk read error occurred".	Run CHKDSK/F from DOS prompt.	To reboot, press Ctrl , Alt , and Delete .	
Event Viewer Errors			
"ntfs error"	Run CHKDSK/F from DOS prompt.	Possible bad Hard Drive.	
General Errors			
No network communication.	Network link not working.		
	LAN was disabled in BIOS.		
	Router not functioning/cabling.		
COM ports 5 and 6 are not available in the Device Manager.	Serial Cable is not fully seated on Current Loop Board.	Reseat the cable. Replace the Motherboard.	iButton password may become invalid and encryption may be unavailable. If so, re-enter iButton password through the Security Manager.
COM ports 1 to 4 are not available in Device Manager.	Motherboard failure.	Replace the Motherboard.	Reboot the EDH first and ensure that the Operating System does not recover.

Symptoms/Errors	Possible Causes/Checks	Recommended Solution	Impact
No communication on COM ports 5 and 6 (COM ports are available in the Device Manager).	Current Loop Board failure.	Replace the Current Loop Board.	
	Cable/Gender Mender incorrect or faulty.	Replace the faulty/incorrect device.	
All pumps down/Pump loop COM ports are not available in Device Manager.	USB or Power Cable not fully seated on Current Loop/Motherboard.	Reseat the cables.	The Hard Drive, power LEDs, and keyboard ports may not function either.
	USB port failure on Motherboard.	Replace the Motherboard.	
	Current Loop Board failure.	Replace the Current Loop Board.	
All pumps down, recovers after power fail.	BIOS is configured incorrectly.	Verify that the USB 2.0 is not enabled.	
Cannot connect through remote desktop.		Start system in VGA mode. Refer to "Enabling Display on EDH" .	

Enabling Display on EDH

When troubleshooting an EDH, it may be required for you to view the activities on the EDH screen. If you are unable to obtain a remote desktop session to view the EDH screen, perform the following steps to enable the display on the EDH, so that you can report the activities on the EDH screen. The EDH screen will turn "black" after the POST, unless you perform the following steps to enable the display.

IMPORTANT INFORMATION

The display must only be enabled for troubleshooting purposes.

To enable the display on the EDH, proceed as follows:

- 1 Connect the monitor and keyboard to the EDH.
- 2 Boot up the EDH in safe mode.
*Note: Press the **F8** key on the EDH keyboard when the EDH boots through the POST.*
- 3 When the EDH is booting into Windows, press and hold the left **Shift** key to log in as PassportTech or PassportSupport.
Note: The site's unique PassportTech password from the Security Manager Report will be required to log in.

IMPORTANT INFORMATION

If the System Security has been enabled, the approved site personnel must provide the password for PassportTech account.

- 4 Access the System Maintenance on the EDH.
- 5 Access the Windows Explorer on the EDH.

- 6 Navigate to **C:\Drivers\Video\Win2K_XP\v14.32.3\win2k_xp14323**.
- 7 Run **setup.exe**.
- 8 Accept default settings when prompts appear during driver installation.
- 9 When the driver has been completely installed, reboot the EDH. You must now be able to view the activities taking place on the EDH screen.

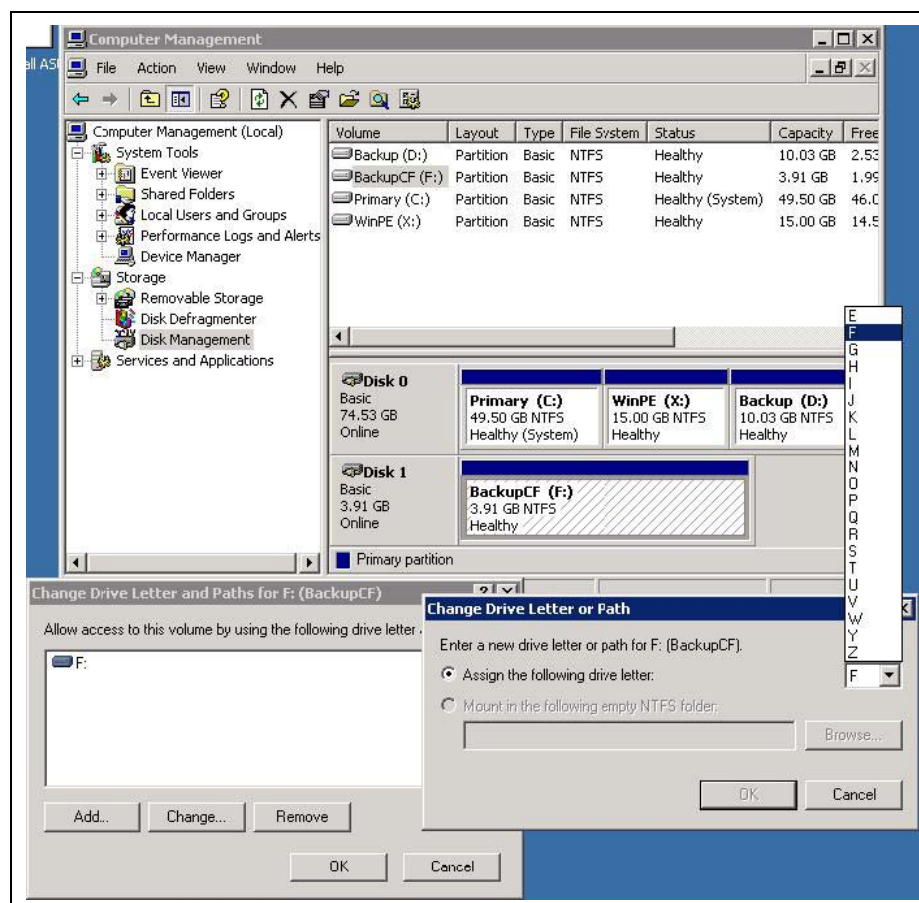
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Appendix A: Correcting Drive Letters on EDH

If the drive letters on the EDH are incorrect, proceed as follows:

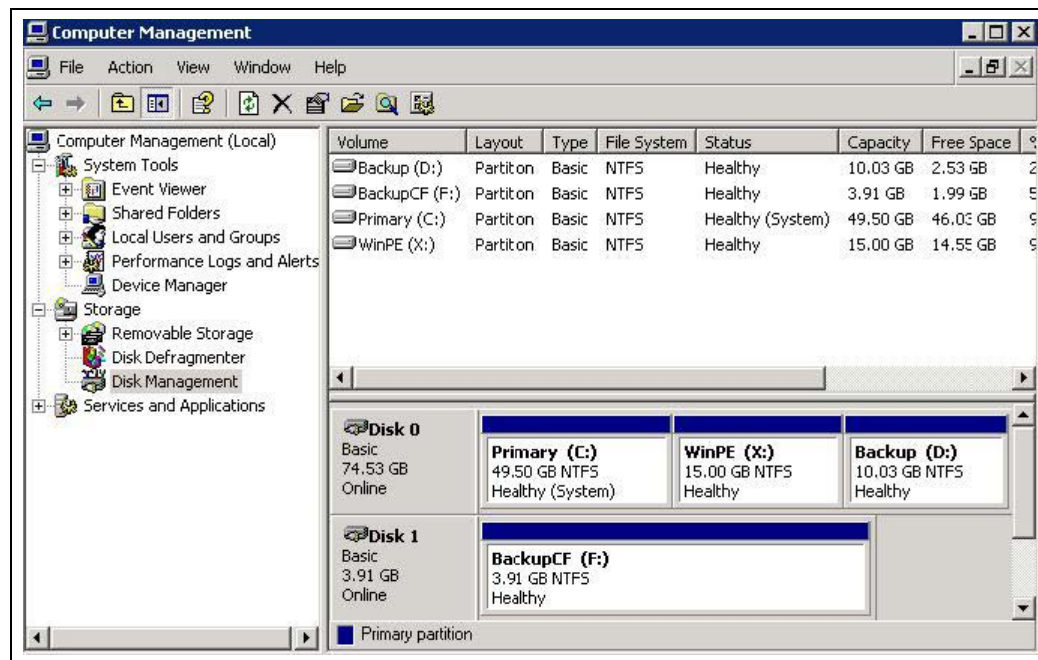
- 1 Select **Start > Control Panel > Administrative Tools > Computer Management** on the EDH.
- 2 Right-click on **Computer Management**.
- 3 Select **RunAs**, select **PassportTech** as the User Name, and enter the appropriate password.
- 4 Select **Storage > Disk Management**.
- 5 Select and right-click **BackupCF** and select **Change Drive Letter and Paths**.
- 6 Assign the Compact Flash drive to “F” as shown in [Figure A-1](#).
- 7 Repeat steps 4 and 5 to assign the Backup drive to “D” if not assigned.
- 8 Repeat steps 4 and 5 to assign WinPE to drive “X” if not assigned.

Figure A-1: Changing Drive Letter and Path



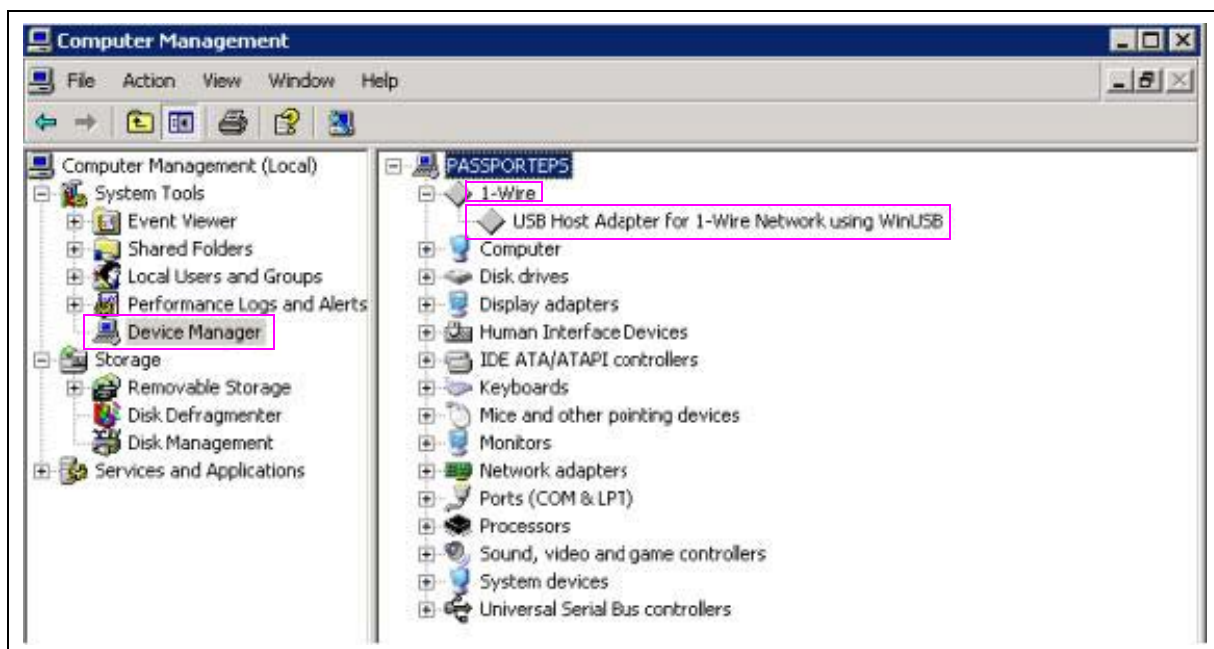
- 9 The drive letter mapping must match as shown in [Figure A-2](#).

Figure A-2: Computer Management



- 10 Select **Device Manager**, to ensure that the USB iButton 1-Wire Adapter is detected by the Operating System as shown in [Figure A-3](#).
Note: Ensure that the Cables are installed correctly.

Figure A-3: Device Manager



- 11 Press **Ctrl**, **Alt**, and **End** simultaneously on the Server keyboard. The Windows Security window appears.
- 12 Select **Shut Down**. The Shut Down Windows dialog box appears.
- 13 Select **Restart** from the drop-down menu and select **OK**. After the EDH reboots, repeat steps 1 (on [page A-1](#)) to 10 (on [page A-2](#)) to ensure the drive letters are correct and/or the USB iButton 1-Wire Adapter driver is installed.

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