

MARS[®] PC Workstation

Service Manual

Software Version 6

2010165-052

Revision E



GE Medical Systems
Information Technologies

gemedical.com

NOTE: In addition to software version 6, the information in this manual also applies to MARS PC software version 5.1. Due to continuing product innovation, specifications in this manual are subject to change without notice.

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1 Introduction

For your notes

Manual Information

Revision History

Each page of the document has the document part number followed by a revision letter at the bottom of the page. The revision letter identifies the document's update level.

Table 1. Revision History 2010165-052

Revision	Date	Comment
A	14 May 2003	Initial release
B	23 July 2003	Added uninstall modem instructions in chapter 6 for MARS PC client systems, added anti-virus software recommendation and limiting drive share access notes in chapter 2 and 3.
C	16 November 2003	Added HP EVO D530 system box information.
D	29 March 2004	Changed v 6.0 to v. 6 throughout the manual to cover point releases.
E	1 December 2004	Added HP dc7100 system box information.

Manual Purpose

This manual supplies technical information for the service representative and technical personnel so they can install and maintain the equipment. Use it as a guide for maintenance and electrical repairs considered field repairable. Where necessary the manual identifies additional sources of relevant information and or technical assistance.

See the operator manual for the instructions necessary to operate the equipment safely in accordance with its function and intended use.

Definitions

- Items shown in **Black** text are keys on the keyboard, text to be entered, or hardware items such as buttons or switches on the equipment.
- Items shown in *Italicized* text are software terms which identify menu items, buttons, or options in various windows.
- To perform an operation which appears with a plus (+) sign between the names of two keys, you press and hold the first key while pressing the second key once. This is called a keystroke combination. For example, "Press **Ctrl+Esc**" means to press and hold down the **Ctrl** key while pressing the **Esc** key.
- When instructions are given for typing a precise text string with one or more spaces, the point where the spacebar must be pressed is indicated as: <Space>. The purpose of the < > brackets is to ensure you press the spacebar when required.
- **Enter** means to press the "Enter" or "Return" key on the keyboard. Do not type "enter".

Chapter Content

This manual is organized into chapters and appendices:

NOTE

This manual primarily covers the MARS PC Workstations running the Windows 2000 operating system. These systems run on a Compaq Evo D510, a Hewlett Packard (HP) D530 CMT, or an HP dc7100 system box.

The MARS PC Workstations running the Windows NT operating system are only discussed in two chapters, the “[Network Installation](#)” on page 3-1, and the “[System Rebuild and Software Reinstall](#)” on page 6-1. For any additional information on the MARS PC systems running Windows NT, please see the original Service Manual that shipped with that particular unit.

1 Introduction

Describes the service manual and chapter contents. Provides general information on safety, service requirements, equipment symbols, and serial number identification.

2 Equipment Overview

Describes the equipment and its technical characteristics, preparation for use, and connector locations. An interconnect table is provided for setting up and connecting the system.

3 Network Installation

Describes the network installation for the Windows NT and Windows 2000 systems, and the process of adding new users to the workgroup. The software upgrade procedure for MARS PC systems running Windows NT is also explained.

In addition, this section explains how to change from a workgroup to a domain.

4 Maintenance

Contains a preventive maintenance schedule, cleaning guidelines and checkout procedures.

5 Troubleshooting

Provides overall and specific troubleshooting help.

5 System Rebuild and Software Reinstall

Provides instructions on rebuilding the MARS PC Workstation with an image disk. Also provides information on the reinstallation of MARS PC application software.

6 Parts Lists

Provides a list of GE Medical Systems *Information Technologies* and original equipment manufacturer (OEM) part numbers for field replaceable units (FRUs).

Appendix

The appendix includes technical specifications and slot configuration information.

Related Manuals

See the documents listed below if you need additional information.

Table 2. MARS PC Workstation Documents	
Part Number	Name
2010165-053	MARS PC Pre-Installation Guide
2010165-066	MARS PC Upgrade Instructions
2010165-051	MARS PC Operators Manual
2010165-135	Adding MARS PC to MUSE communication
2010165-188	MARS PC Workstation Security Fix
2006531-006	Installation Guide (for units manufactured in Germany; catalog number 2006542-002)
2006531-007	MARS PC Service Manual (for units manufactured in Germany; catalog number 2006542-002)

Downloading OEM Manuals From the Internet

Access the original equipment manufacturer (OEM) manuals by using the URLs provided in the table that follows.

NOTE

The information in the following OEM website table is current at the time of release. Titles, part numbers, and URL addresses are subject to change without notice.

Adobe Acrobat Reader software must be installed on your system to read or print the OEM manuals. If you do not have the software installed on your system, it can be obtained for free from the Adobe website at:

<http://www.adobe.com/>

Table 3. OEM Websites				
Product	Home Page Web Address	Manual/Data Web Address	Manual Title	Manual Part number and revision
APC UPS	http://www.apc.com	http://sturgeon.apcc.com/techref.nsf/c2b594b2a21353f385256864006bf8ae/bf761bc147d2ea948525688f0069aac3?OpenDocument	Back UPS 200/300/500/650 User's Guide-120v Installation and operating instructions for the 120V	990-2004E Rev. 7
Compaq Deskpro EN Small Form Factor (SFF)	http://www.compaq.com/	http://www5.compaq.com/support/techpubs/maintenance_guides/201579-002.html	Deskpro EN SFF Maintenance & Service Guide	Second Edition (September 2000) Part Number 201579-002
		ftp://ftp.compaq.com/pub/supportinformation/techpubs/user_reference_guides/177620-003.pdf	Deskpro EN SFF Troubleshooting Guide	Third edition (Oct. 2000) 177620-003

Table 3. OEM Websites (Continued)

Product	Home Page Web Address	Manual/Data Web Address	Manual Title	Manual Part number and revision
Compaq Evo Small Form Factor	http://www.compaq.com/	http://www3.compaq.com/support/reference_library/viewdocument.asp?countrycode=1000&prodid=2039 Evo+Desktop+D500+Series+SFF&source=252312-001.xml&dt=13	Compaq Service Reference Guide (Evo)	252312-001
		http://www3.compaq.com/support/reference_library/viewdocument.asp?countrycode=1000&prodid=2039 Evo+Desktop+D500+Series+SFF&source=243850-001.xml&dt=264	Compaq Hardware Reference Guide Compaq Evo Family of Personal Computers Desktop Model	243850-001
		http://www3.compaq.com/support/reference_library/viewdocument.asp?countrycode=1000&prodid=2039 Evo+Desktop+D500+Series+SFF&source=243849-001.xml&dt=264	Compaq Hardware Reference Guide Evo Desktop Family Evo Workstation Family Small Form Factor Models - Intel Pentium 4 Version	243849-001
		http://www3.compaq.com/support/reference_library/viewdocument.asp?countrycode=1000&prodid=2039 Evo+Desktop+D500+Series+SFF&source=191077-003.xml&dt=264	Compaq Getting Started Evo Desktop Family Evo Workstation Family Deskpro Workstations	191077-003
		http://h20000.www2.hp.com/bc/docs/support/UCR/SupportManual/TPM_177944_rev_us/TPM_177944_rev_us.pdf	Safety and Regulatory Guide Evo Desktop Family Evo Workstation Family Deskpro Workstations	177944-004
Compaq Evo D510 minitower	http://www.compaq.com/	http://www3.compaq.com/support/reference_library/viewdocument.asp?countrycode=1000&prodid=2039 Evo+Desktop+D500+Series+SFF&source=252312-001.xml&dt=13	Service Reference Guide	252312-001

Table 3. OEM Websites (Continued)

Product	Home Page Web Address	Manual/Data Web Address	Manual Title	Manual Part number and revision
		ftp://ftp.compaq.com/pub/supportinformation/techpubs/user_reference_guides/177620-006_rev6_us.pdf	Compaq Troubleshooting Guide	177620-006
		http://h18000.www1.hp.com/products/quickspecs/11349_na/11349_na.HTML	Compaq Technical Specifications	N/A
Compaq 18 in. Monitor V7550	www.compaq.com/	http://h18004.www1.hp.com/products/monitors/advantage/v7550.html	Product Specifications V7550 Color Monitor	N/A
HP EVO D530 convertible minitower	http://www.hp.com/	http://h200007.www2.hp.com/bc/docs/support/UCR/SupportManual/TPM_340154_rev001_us/TPM_340154_rev001_us.pdf	"Technical Reference Guide hp compaq d330 and d530 Personal Computers"	340154-001
		http://h200007.www2.hp.com/bc/docs/support/UCR/SupportManual/TPM_312969_rev2_us/TPM_312969_rev2_us.pdf	"Troubleshooting GuideCompaq Business Desktopsd530, d330, and d325 Models"	312969-002
		http://h18000.www1.hp.com/products/quickspecs/11632_na/11632_na.PDF	Quick Specs	N/A
		http://h200001.www2.hp.com/bc/docs/support/UCR/SupportManual/TPM_335683_rev002_us/TPM_335683_rev002_us.pdf	HP Compaq d530 Series Personal Computer, CMT, Illustrated Parts Map	335683-002
		http://h200000.www2.hp.com/bc/docs/support/SupportManual/c00062755/c00062755.pdf	Business Desktop d500 Series Service Reference Guide	336492-003

Table 3. OEM Websites (Continued)

Product	Home Page Web Address	Manual/Data Web Address	Manual Title	Manual Part number and revision
Hewlett-Packard dc7100 system box	http://www.hp.com/	http://h200007.www2.hp.com/bc/docs/support/SupportManual/c00236571/c00236571.pdf	HP Compaq dc7100 and dx6100 Series Business Desktop Computers Technical Reference Guide	361834-001
		http://h200007.www2.hp.com/bc/docs/support/SupportManual/c00236571/c00236571.pdf	Troubleshooting Guide Business Desktops	361204-001
		http://h18000.www1.hp.com/products/quickspecs/11948_na/11948_na.pdf	Quick Specs	N/A
		http://h200007.www2.hp.com/bc/docs/support/SupportManual/c00219460/c00219460.pdf	HP Compaq Business Desktop dc7100 Series Personal Computer (CMT Chassis) Illustrated Parts Map	361292-002
		http://h200007.www2.hp.com/bc/docs/support/SupportManual/c00211142/c00211142.pdf	HP Compaq Business Desktop dc7100 Series Service Reference Guide	361288-002
		http://h200007.www2.hp.com/bc/docs/support/SupportManual/c00189252/c00189252.pdf	Hardware Reference Guide -- HP Compaq Business Desktops dc7100 Convertible Minitor	360225-001
HP 4200N LaserJet printer	http://www.hp.com/	http://h200001.www2.hp.com/bc/docs/support/SupportManual/bpl12546/bpl12546.pdf	HP Laserjet 4200, and 4300 Printers User Guide	Second edition September 2002
HP 1200 LaserJet printer	http://www.hp.com/	http://h200005.www2.hp.com/bc/docs/support/SupportManual/bpl10395/bpl10395.pdf	HP LaserJet 1200 Series User Guide	Second Edition April 2001
MultiTech Analog Modem	http://www.multitech.com/	http://www.multitech.com/DOCUMENTS/Collateral/manuals/S000286B.pdf	MultitModem Owner's manual MT5634ZBA	Part number 82068600 Revision A
		ftp://ftp.multitech.com/ext/att/ATT_Global_Modem_Configuration.pdf	MultitModem MT5634ZBA Configuration and Setup Instructions	N/A
Card Reader Acquisition Device (Omni Drive) — internal	http://www.csm.de/	http://www.csm.de/html/e/produkte_komponenten/pc_card_drives/professional_line/frm/xomnidrive_intern_pro.htm	Only technical data sheet available	N/A

Table 3. OEM Websites (Continued)

Product	Home Page Web Address	Manual/Data Web Address	Manual Title	Manual Part number and revision
Card Reader Acquisition Device (Omni Drive) — external	http://www.csm.de/	http://www.csmproducts.com/html/e/produkte_komponenten/fm/xmain.htm	Only technical data sheet available	N/A
Sony 21 in. Monitor CPD-G520P	http://www.sony.com/	N/A	Only sales data sheet information available	N/A
NEC MultiSync LCD 1850X	http://www.necmitsubishi.com/	http://www.necmitsubishi.com/corpus/U/F/LCD1850X_manual.pdf	MultiSync LCD1850X User's Manual	N/A
NEC MultiSync LCD 1980SX	http://www.necmitsubishi.com/	http://www.necmitsubishi.com/corpus/5//LCD1980SX_manual2.pdf	MultiSync LCD1980SX User's Manual	N/A
Powerware 5115 UPS	www.powerware.com	http://www.powerware.com/UPS/5115_UPS.asp	Powerware 5115 User's Guide	05146640A

Conventions

The following conventions are used in this manual.

Safety Messages

DANGER safety messages indicate an imminently hazardous situation which, if not avoided, **WILL** result in death or serious injury.

WARNING safety messages indicate a potentially hazardous situation which, if not avoided, **COULD** result in death or serious injury.

CAUTION safety messages indicate a potentially hazardous situation which, if not avoided may result in minor or moderate injury.

NOTE messages provide additional user information.

Safety Information

Responsibility of the Manufacturer

GE Medical Systems *Information Technologies* is responsible for the effects of safety, reliability, and performance only if:

- Assembly operations, extensions, readjustments, modifications, or repairs are carried out by persons authorized by GE Medical Systems *Information Technologies*.
- The electrical installation of the relevant room complies with the requirements of the appropriate regulations.
- The equipment is used in accordance with the instructions for use.

NOTE

The addition of non-approved software programs and network devices are not recommended or supported by GE Medical Systems *Information Technologies*. Repairs or Technical Support assistance for failures related to non-approved applications and configurations are not covered by warranty, and will be charged on a time and material basis.

General

This device is intended for use under the direct supervision of a licensed health care practitioner.

To ensure patient safety, use only parts and accessories manufactured or recommended by GE Medical Systems *Information Technologies*.

Contact GE Medical Systems *Information Technologies* for information before connecting any devices to this equipment that are not recommended in this manual.

If the installation of this equipment, in the USA, will use 240 V rather than 120 V, the source must be a center-tapped, 240 V, single-phase circuit.

Parts and accessories used must meet the requirements of the applicable IEC 601 series safety standards, and/or the system configuration must meet the requirements of the IEC 601-1-1 medical electrical systems standard.

The use of ACCESSORY equipment not complying with the equivalent safety requirements of this equipment may lead to a reduced level of safety of the resulting system. Consideration relating to the choice shall include:

- use of the accessory in the PATIENT VICINITY; and
- evidence that the safety certification of the ACCESSORY has been performed in accordance to the appropriate IEC 601-1 and/or IEC 601-1-1 harmonized national standard.

Information Technology Equipment

The hardware components that make up the MARS PC Workstation are considered to be Information Technology Equipment (ITE). These individual components have been found to comply with the standard for Safety of Information Technology Equipment, Including Electrical Business Equipment EN60950 (UL 950).




The software used in the MARS PC Workstation is considered as medical software. The software has been designed and manufactured to the appropriate medical regulations and controls.

The MARS PC Workstation, which consists of the hardware and software components together, is considered a medical device. However, the appropriateness of applying the ITE requirements to evaluate the hardware portions of the workstation can be justified by the fact that the MARS PC Workstation does not have any applied parts nor is the MARS PC Workstation intended for use in the “patient environment”.




Equipment Symbols

The following symbols appear on the equipment. For equipment symbols not shown refer to the original manufacturer’s equipment manuals.



Monitor Controls

	Sets Monitor contrast
	Sets Monitor brightness
	Power button




Disk Drive LEDs

	Indicates disk activity (flashing green)
	Indicates disk is on-line (green)
	Indicates a disk failure (amber)

UPS

	Identifies the row of LEDs that show AC input level
	Identifies the row of LEDs that indicate battery charge Level

Monitor Controls

	Sets Monitor contrast
	Identifies the row of LEDs that indicate load devices
	Power ON button

Warnings and Cautions

DANGER

Do NOT use in the presence of flammable anesthetics.

WARNINGS

Replace only with the same type and rating of fuse.

This is Class I equipment. The mains plug must be connected to an appropriate power supply.

Turn off power and disconnect power cord from AC power source before removing the cover.

CAUTIONS

To reduce the risk of electric shock, do NOT remove cover (or back). Refer servicing to qualified personnel.

This equipment contains no user serviceable parts. Refer servicing to qualified service personnel.

DO NOT load any software other than that specified by GE Medical Systems *Information Technologies* onto the MARS PC. Installation of software not specified by *Information Technologies* may cause damage to the equipment or loss or corruption of data.

U.S. Federal law restricts this device to sale by or on the order of a physician.

Service Information

Service Requirements

Refer equipment servicing to GE Medical Systems *Information Technologies* authorized service personnel only. Any unauthorized attempt to repair equipment under warranty voids that warranty.

It is the user's responsibility to report the need for service to GE Medical Systems *Information Technologies* or to one of their authorized agents.

Failure on the part of the responsible individual, hospital, or institution using this equipment to implement a satisfactory maintenance schedule may cause undue equipment failure and possible health hazards.

Regular maintenance, irrespective of usage, is essential to ensure that the MARS PC Standalone, Client and Server will always be functional when required.

Product Code Identification

The Product Code is used to identify specific system platforms. Using the Product Code Table below and before servicing the MARS PC Workstation, identify the correct product code of the system.

The product code can be identified using the serial number listed on the product label attached to the base of each system. See **“Equipment Identification”** on page 1-17.

NOTE

This manual primarily covers the MARS PC Workstations running the Windows 2000 operating system. These systems run on either a Compaq Evo D510, HP EVO D530 CMT, or an HP dc7100 system box.

The MARS PC running on the Windows NT operating system is only discussed in **“Network Installation”** on page 3-1, and **“System Rebuild and Software Reinstall”** on page 6-1. For any additional information on the MARS PC systems running Windows NT, please

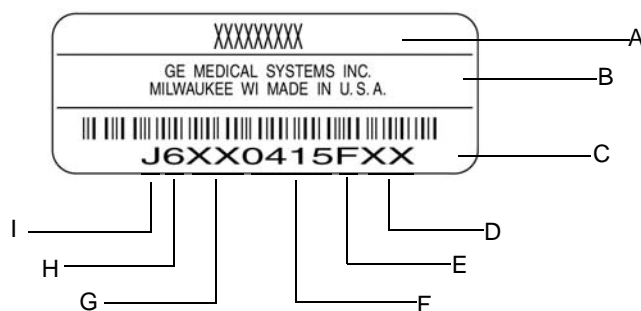
see the original Service Manual that shipped with the unit.

Table 4. Product Codes		
Product Code or catalog number	MARS Model	Operating System
HY	MARS PC Standalone and Client workstation (Compaq Model Evo D510)	Microsoft Windows 2000 Professional Service Pack 3
	MARS PC Standalone and Client workstation (HP Model EVO D530)	Microsoft Windows 2000 Professional Service Pack 4
HY	MARS PC Server (Compaq Model D510)	Microsoft Windows 2000 Server Service Pack 3
	MARS PC Server (HP Model EVO D530)	Microsoft Windows 2000 Server Service Pack 4
SAT	MARS PC Standalone and Client workstation (HP Model dc7100)	Microsoft Windows 2000 Server Service Pack 4
	MARS PC Server (HP Model dc7100)	Microsoft Windows 2000 Server Service Pack 4
PU	MARS PC Standalone and Client workstation	Microsoft Windows NT (manufactured in United States)
2006542-002	MARS PC Standalone and Client workstation	Microsoft Windows NT (unit manufactured in Germany)

Equipment Identification

Every GE Medical Systems *Information Technologies* device has a unique serial number for identification. The serial number appears on the device label and may appear in one of two formats, A or B as follows.

Format A is shown below.

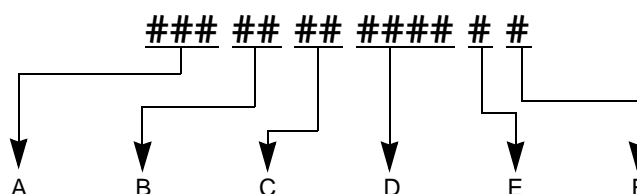


MD1113-022C

Table 5. Equipment Identification

Item	Name	Description
A	name of device	MARS PC Workstation
B	manufacturer	GE Medical Systems <i>Information Technologies</i>
C	serial number	Unique identifier
D	device characteristics	One or two letters that further describe the unit, for example: P = prototype not conforming to marketing specification; R = refurbished equipment; S = special product documented under Specials part numbers; U = upgraded unit
E	division	F = Cardiology G = Monitoring N = Freiburg Hellige
F	product sequence number	Manufacturing number (of total units manufactured)
G	product code	Two-character product descriptor PU = MARS PC Workstation
H	year manufactured	0 = 2000, 1 = 2001, 2 = 2002, (and so on)
I	month manufactured	A = January, B = February, C = March, D = April, E = May, F = June, G = July, H = August, J = September, K = October, L = November, M = December

Format B is shown below.



- A Product Code
- B Year Manufactured (00-99)
00 = 2000
01 = 2001
02 = 2002
(and so on)
- C Fiscal Week Manufactured
- D Production Sequence Number
- E Manufacturing Site
- F Miscellaneous Characteristic

2 Equipment Overview and System Setup

For your notes

System Characteristics

General Description

MARS PC Workstation is a multi parameter analysis and review system PC on a platform that supports MARS Holter analysis and editing system software.



03A

NOTE

The picture shows a representative system. The configuration of your system may vary slightly. The printer, modem, and power supply are not pictured.

Hardware

The MARS PC standalone, client, and server workstation use an Intel PC platform with the Microsoft Windows® operating system.

It uses a multi-tasking environment, which provides the ability to acquire, analyze, edit and print simultaneously.

Peripherals include the monitor, keyboard, mouse, card reader acquisition unit, printer, uninterruptible power supply (UPS), and CD-RW. The system also includes an analog modem for remote system support (RSS). A Tape acquisition unit is optional.

Standalone and Client Platform

The client platform and stand-alone platform both require 25 Gig of storage (approximately 300 slots) for patient data and 10 Gig of storage for patient reports.

Server Platform

The server platform requires 60 Gig of storage (approximately 750 slots) for patient data and 15 Gig of storage for patient reports.

Software

MARS Holter Analysis and Editing System Software

The MARS Holter analysis and editing system software acquires ECG data from electronic ECG recorders. The software provides:

- multiple techniques of scanning for complex editing
- algorithm enhancement for more precise beat and noise detection
- up to 12 high-resolution trends simultaneously on one screen
- pre-configured standard final reports
- dual channel superimposition displayed at up to 240 times real-time

MARS PC Client Software

MARS PC software can be loaded on MARS PC clients running Windows NT 4.0 service pack 6A or Windows 2000 Professional with the multi-language package operating system.

MARS PC Server Software

MARS PC software can be loaded on a MARS PC server running the Windows 2000 Server operating system with the multi-language package.

CardioSoft Client Software

CardioSoft client software will operate on a MARS PC client, server or standalone system.

Software Activators

There are various software applications and features that reside in a single software application. Depending on what software applications or features were purchased, you may need to use a MARS PC Workstation specific software activator to begin, or to continue to use that application or feature.

See the MARS PC Workstation operator's manual for additional information on using software activators.

Remote System Support (RSS) Access Unit

Each MARS PC Workstation uses a non-networked analog modem for Remote System Support (RSS). The RSS access unit allows GE Medical Systems *Information Technologies* to maintain, and if necessary, diagnose and repair the software.

Configurations

NOTE

The addition of non-approved software programs is not recommended or supported by GE Medical Systems *Information Technologies*.

The MARS PC Workstation can be configured into a standalone, a server, or a client system. The configurations are described below:

1. Standalone

- ◆ The patient data is stored locally and saved patient reports can be sent to a MUSE server across a network. There is no access to patient data from other MARS systems. The standalone runs with Windows NT or Windows 2000 professional software.

2. Server

- ◆ All patient data will be stored on the MARS PC server and can be accessed by MARS PC clients. However, in the event of server failure or availability, patient data acquired at the client will be stored locally on the client. The server may have a card reader or tape acquisition devices on it if 5 or less clients are attached. The patient reports can also be sent to a MUSE server. The server runs with Windows 2000 server software.

3. Client

- ◆ The client automatically sends patient data to the MARS PC server, and has access to all patient data stored on the server. It has data acquisition devices attached. The patient reports can also be sent to a MUSE server. The client must have a MARS PC server to operate. The client runs with Windows NT or Windows 2000 Professional software.

Network Functions

The individual configurations can create three different MARS PC network configurations using a standard ethernet TCP/IP network.

The network configurations are:

1. MARS PC standalone configuration

- ◆ This configuration can communicate with a network printer and/or a MUSE server. It can also have a parallel printer.

2. MARS PC client-server configuration.

- ◆ This configuration allows the MARS PC client to access and send patient data to a MARS PC server. Patient data is automatically sent from the client to the MARS PC server. Patient reports can also be sent to a MUSE server. The client can print to a network or parallel printer.

3. MARS PC server configuration

- ◆ All patient data will be stored on the MARS PC server and can be accessed by MARS PC clients. It may have card reader or tape acquisition devices if five or less clients are attached. The server

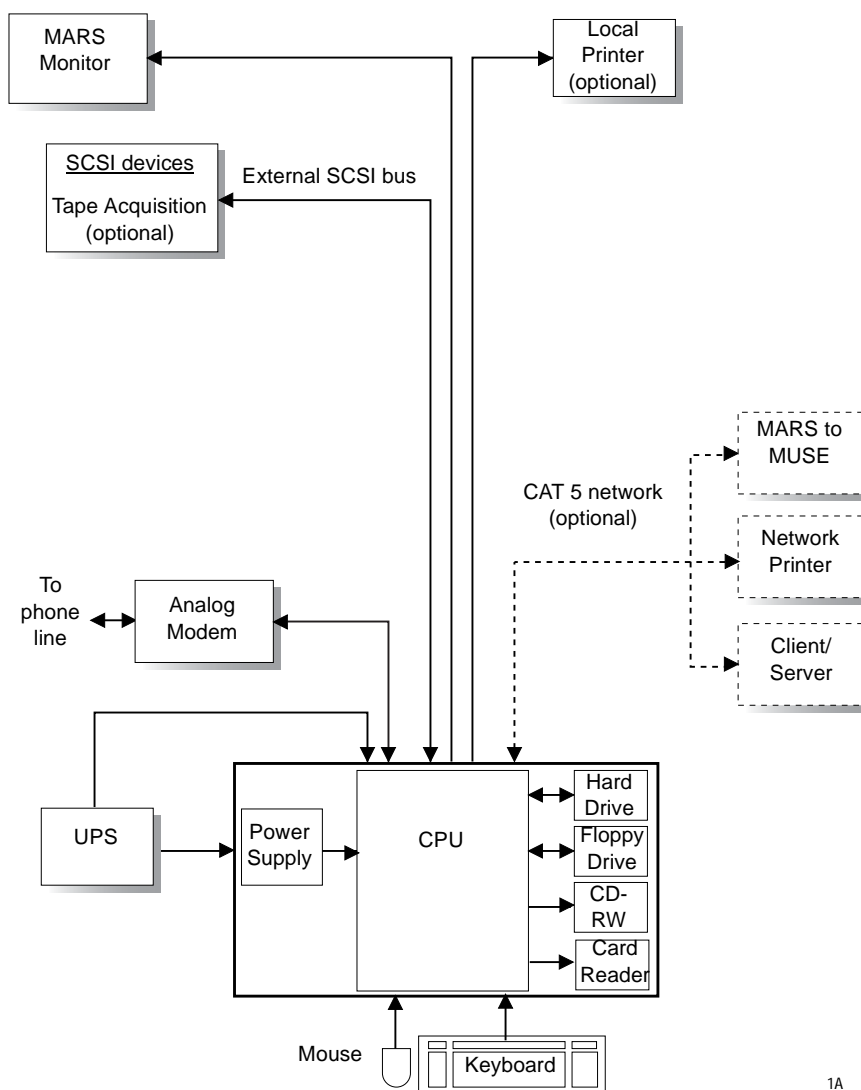
can support a maximum of 25 MARS PC clients. The patient reports can also be sent to a MUSE server.

NOTE

To enable the MARS PC to communicate with the MUSE, GE Medical Systems *Information Technologies* Service personnel must setup the MUSE.

Block Diagram

Please keep in mind that the block diagram is only a representative sample, as there are too many possible configurations to show them all.



System Setup and Installation

The following interconnection table (Table 6, “[Configuration Interconnections](#),” on page 2-10) instructs how the client-server and standalone workstation should be set up. Please refer to the supplied OEM manuals and the “[System Components and Locations](#)” on page 2-12 for additional information.

WARNINGS

Keep leakage current within acceptable limits when connecting auxiliary equipment to this device.

This is Class 1 equipment. The mains plug must be connected to an appropriate power supply.

Connecting the Equipment

Connecting the equipment consists of:

- Connecting the applicable peripheral devices
- Booting MARS PC Workstation for the first time
- Setting up the network
- Complete the check out procedure

To connect the equipment, follow the configuration table provided on the following pages.

MARS PC Interconnection Guide

Table 6, “[Configuration Interconnections](#),” on page 2-10 provides the physical connections necessary for the MARS PC standalone and client-server configurations. Once the physical connections are completed go to “[Network Installation](#)” on page 3-1 for setting up the network.

Before You Begin

IMPORTANT

Confirm the MARS PC Workstation box is configured to receive the correct source voltage (115V or 230 V) for your geographical area.

Configure the dip switches on the UPS to receive the correct source voltage for your geographical area. Use the “User’s Guide” that shipped with the UPS for the correct dip switch configuration.

IMPORTANT

To protect the MARS PC Workstation from viruses, the appropriate anti-virus software should be installed before connecting the system to the network. It is recommended that the customer turn on the anti-virus software auto protect option, and keep the virus

definitions current to avoid virus infections. Please discuss virus protection with the hospital Information Systems (IS) department before proceeding with the network installation of this equipment.

In addition to installing anti-virus software, it is recommended that the customer limit drive share access for additional virus protection. This can be accomplished by changing the share permissions for the *gemsit* folder. It is recommended that permissions be set for individual users, rather than the entire MARSWORKGROUP or an entire domain. This will change the default factory setup.

Standalone, Server, and Client Hardware Configuration (Compaq EVO D510 and HP EVO D530 CMT) Interconnect Table

NOTE

Use the pictures, “[Compaq EVO D510 \(Rear View\)](#)” on page 2-13, “[HP EVO D530 \(Rear view\)](#)” on page 2-16, or “[HP dc7100 \(Rear view\)](#)” on page 2-19, for locating and identifying the connectors on the back of the MARS PC Workstation.

Table 6. Configuration Interconnections		
Connect From	Connect To	Comments/Instructions
Uninterruptible Power Supply (UPS) NOTE: DO NOT plug the printer into the UPS!	MARS PC Workstation Box	Connect the RS232 9 Pin cable from the UPS computer interface port to the Serial-1 connector on the MARS PC Workstation Box.
	AC Power Outlet	Plug the UPS power cord into the AC power wall outlet. Confirm that the “Site Wiring Fault” LED located on the rear top left corner of the UPS is off.
	RSS MultiModem	Connect the MultiModem LINE connector to the UPS IN connector (via RJ11 cable).
	Wall Phone line	Connect the wall phone line connector to the UPS OUT connector (via RJ11 cable).
RSS MultiModem	MARS PC Workstation Box	Connect the 9 pin, serial 2 workstation connector to the modem D connector.
	AC Power wall outlet	Ensure the RSS MultiModem is “OFF”. Plug the AC/ DC Power supply into the modem, and then to the AC power wall outlet.
	Telephone	RSS MultiModem Phone connector plugs into the base of the telephone (via RJ11 cable).
Tape Acquisition Unit	MARS PC Workstation Box	Note: This is an optional device. Connect to the MARS PC SCSI connector then plug the terminator connector into the top connector on the Tape Acquisition unit. See “ Tape Acquisition Unit (Optional) ” on page 2-20 for additional information.
Keyboard	MARS PC Workstation Box	Connect to top left corner USB connector. (Looking at the rear of the workstation)
Mouse	MARS PC Workstation Box	Connect to green connector

Table 6. Configuration Interconnections (Continued)

Connect From	Connect To	Comments/Instructions (Continued)
Printer	MARS PC Workstation Box	Connect to the Parallel 2 connector. NOTE: DO NOT plug the printer into the UPS!
	AC Power wall outlet	Ensure the printer is configured for the main power (i.e. 115VAC or 220 VAC). Ensure the printer is "OFF" before plugging the power cord into the AC wall outlet.
Monitor	MARS PC Workstation Box	Connect via 15 pin D video connector.
	AC Power wall outlet	Ensure the monitor is configured for the main power (i.e. 115VAC or 220 VAC). Ensure the monitor is "OFF" before plugging the power cord into the AC Power wall outlet.
MARS PC Workstation Box	UPS AC receptacle	Plug the power cord from the workstation box into the UPS AC receptacle.
	Network connector (ethernet)	Connect via the network cable. NOTE: The network is optional on Standalone units.

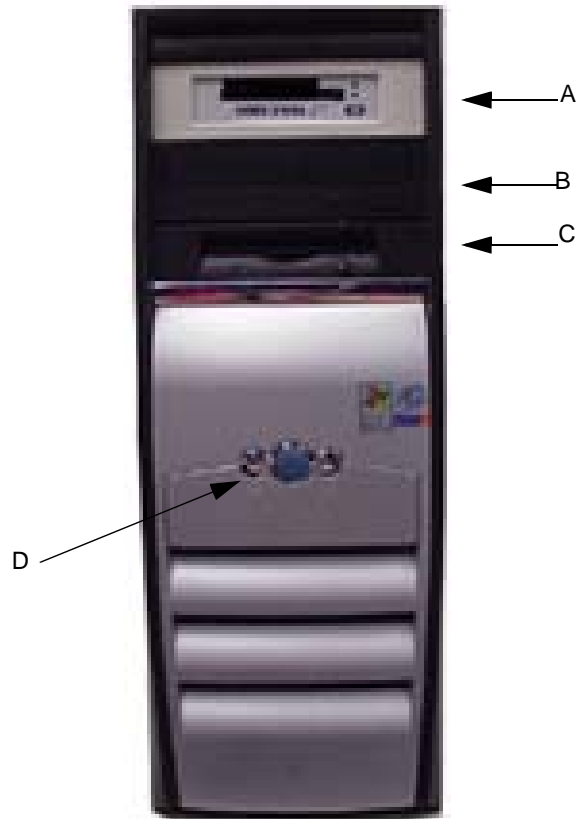
NOTE

After the physical connections are completed go to **"Network Installation"** on page 3-1 for setting up the network.

System Components and Locations

MARS PC Standalone, Client and Server System Boxes

Compaq EVO D510 (Front view)

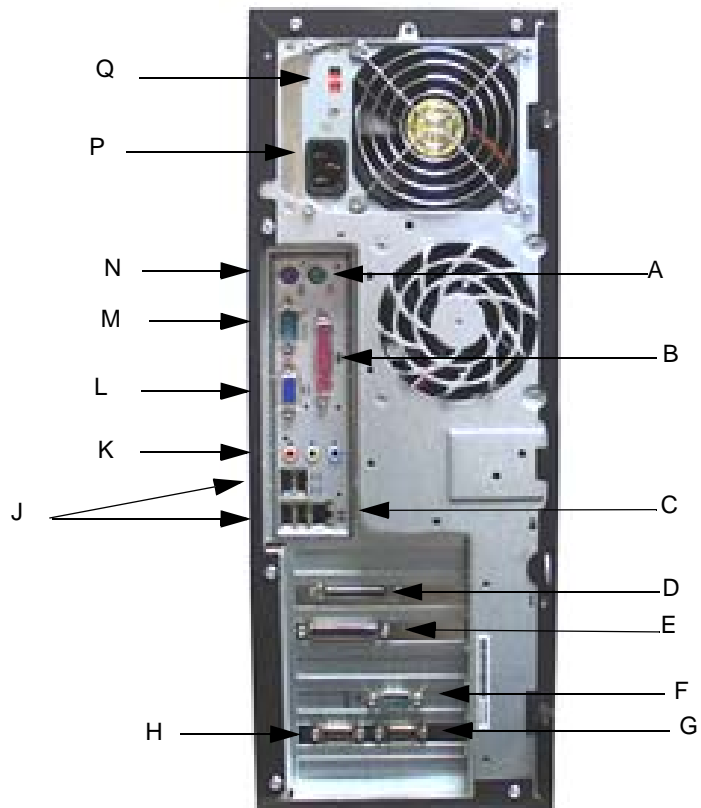


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Table 7. MARS PC System Box (Compaq EVO D510, Front View)

Item	Name	Description
A	Internal card reader	Reads holter data from data cards (This will be black in color, not white as pictured)
B	CD-RW Drive	Reads and writes to CD-RW
C	Floppy Drive	Reads floppy disks
D	Power Button	Turns system on or off.

Compaq EVO D510 (Rear View)



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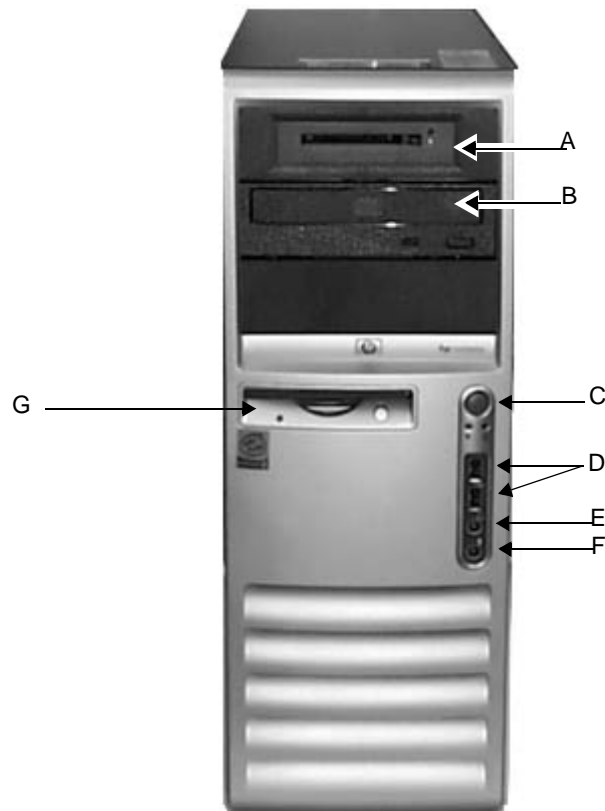
Table 8. MARS PC System Box (Compaq EVO D510, Rear View)

Item	Name	Description
A	Mouse Connector	Connects the mouse.
B	Parallel 1 Connector	Extra parallel connector (not currently used)
C	Ethernet Connector	Connects to network
D	SCSI Connector	Connects to the Tape Acquisition unit (optional device)
E	Parallel 2 Connector	Connects to the printer
F	Serial 2 Connector	Connects to RSS Modem
G	Serial 3 Connector	Extra serial connection (not currently used)
H	Serial 4 Connector	Extra serial connection (not currently used)
J	USB Connectors	Connects to the USB keyboard (use top left USB port for keyboard)
K	Audio Connector	Connects devices that supply sound
L	Video Connector	Connects to the monitor
M	Serial 1 Connector	Connects to the UPS
N	Keyboard Connector	Connects to the keyboard

Table 8. MARS PC System Box (Compaq EVO D510, Rear View) (Continued)

Item	Name	Description
P	Power Adapter	Connects unit to power outlet
Q	Voltage Select Switch	Switches voltage from 115V to 230V

HP EVO D530 (Front view)

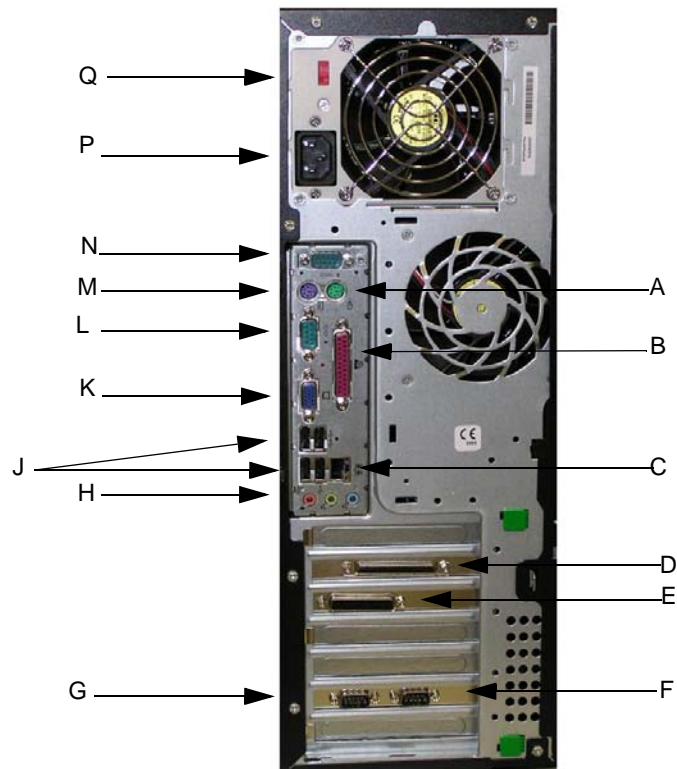


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Table 9. MARS PC System Box (HP EVO D530, Front View)

Item	Name	Description
A	Internal card reader	Reads holter data from data cards
B	CD-RW Drive	Reads and writes to CD-RW
C	Power Button	Turns system on or off.
D	Universal Serial Bus Connectors 2.0	Front USB connectors.
E	Headphone Out Jack	Provides sound for headphones.
F	Microphone In Jack	Not Used
G	Floppy Drive	Reads floppy disks

HP EVO D530 (Rear view)



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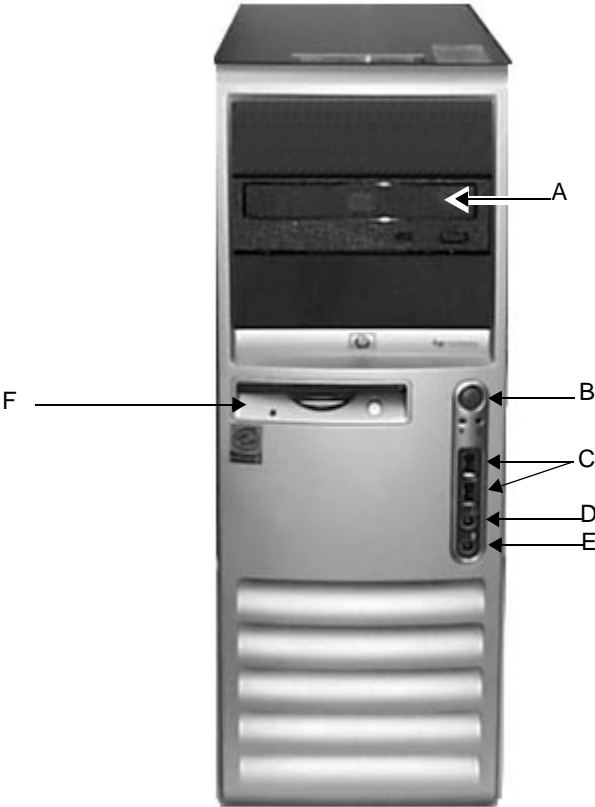
Table 10. MARS PC System Box (HP EVO D530, Rear View)

Item	Name	Description
A	Mouse Connector	Connects the mouse.
B	Parallel 1 Connector	Extra parallel connector (not currently used)
C	Ethernet Connector	Connects to network
D	SCSI Connector	Connects to the Tape Acquisition unit (optional device)
E	Parallel 2 Connector	Connects to the printer
F	Serial 3 Connector	Extra serial connection (not currently used)
G	Serial 4 Connector	Extra serial connection (not currently used)
H	Audio Connector	Connects devices that supply sound
J	USB Connector	Connects to the USB keyboard (use top left USB port for keyboard)
K	Video Connector	Connects to the monitor
L	Serial 1 Connector	Connects to the UPS
M	Keyboard Connector	Connects to the keyboard
N	Serial Connector 2	Connects to RSS Modem

Table 10. MARS PC System Box (HP EVO D530, Rear View) (Continued)

Item	Name	Description
P	Power Adapter	Connects unit to power outlet
Q	Voltage Select Switch	Switches voltage from 115V to 230V

HP dc7100 (Front view)

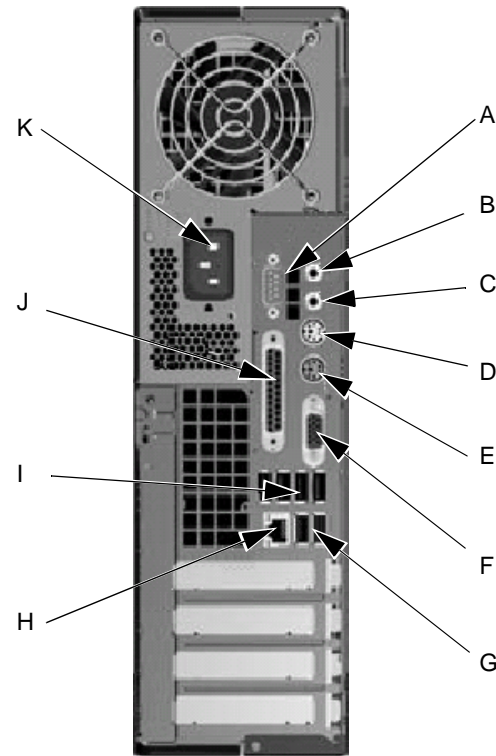


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Table 11. MARS PC System Box (HP dc7100, Front View)

Item	Name	Description
A	DVD-RW Drive	Reads and writes to DVD-RW and CD-RW
B	Power Button	Turns system on or off
C	Universal Serial Bus Connectors 2.0	Front USB connectors
D	Headphone Out Jack	Provides sound for headphones
E	Microphone In Jack	Not used
F	Floppy Drive	Reads floppy disks

HP dc7100 (Rear view)



55A

Table 12. MARS PC System Box (HP DC7100, Rear View)

Item	Name	Description
A	Serial 1 connector	Connects to the UPS
B	Audio out connector	Headphone/Speaker audio out
C	Audio in connector	Line audio in
D	Keyboard connector	Connects to the keyboard
E	Mouse connector	Connects the mouse
F	Video connector	Connects to the monitor
G	USB ports 1, 2	Connects to the USB keyboard (use leftmost USB port for keyboard)
H	Ethernet connector	Connects to network
I	USB ports 3 – 6	Other USB devices can be connected to these ports
J	Parallel port	Connects to parallel printer
K	AC input connector	Connects unit to power outlet

Tape Acquisition Unit (Optional)

Front View

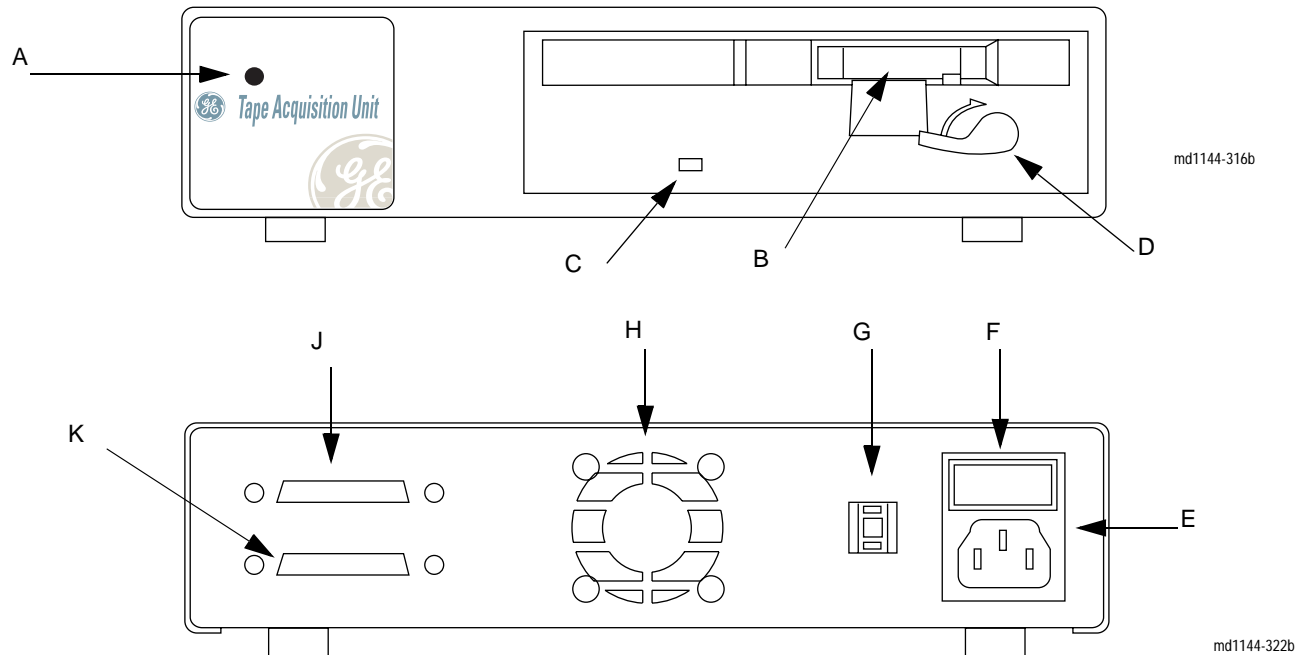
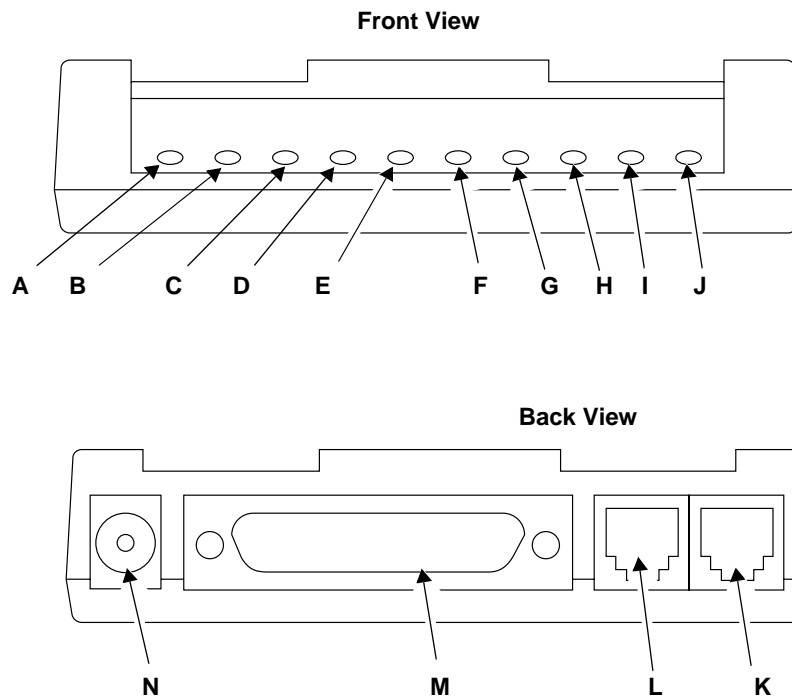


Table 13. Tape Acquisition Unit

Item	Name	Description
A	power LED	Indicates the operating status of the tape acquisition unit. It glows green when power is applied.
B	tape drive opening	Allows tapes to be inserted into the tape acquisition unit.
C	tape motion indicator LED	Indicates the motion of the tape drive. It glows green when the tape moves faster than 100 mm/sec. It glows red when the tape speed drops below 100 mm/sec.
D	release lever	Depressing ejects the tape from the tape drive opening. Lever must be closed to start rewind.
E	mains AC power port	Connects the tape acquisition unit to an external mains AC power source. The tape acquisition unit contains a 120v/240v autosensing power supply.
F	power (On/Off) switch	Controls the power to the tape acquisition unit.
G	SCSI ID switch	Selects the SCSI target ID number. SCSI target ID for connecting to workstation = 5.
H	cooling fan intake	Moves air in to cool tape acquisition unit components.
J	SCSI port	Connects to the terminator connector
K	SCSI port	Connects to SCSI port on the back on the MARS PC Workstation

Remote System Access Unit

MultiTech MultiModem Analog Modem (MT5634ZBA)



MD1144-403A

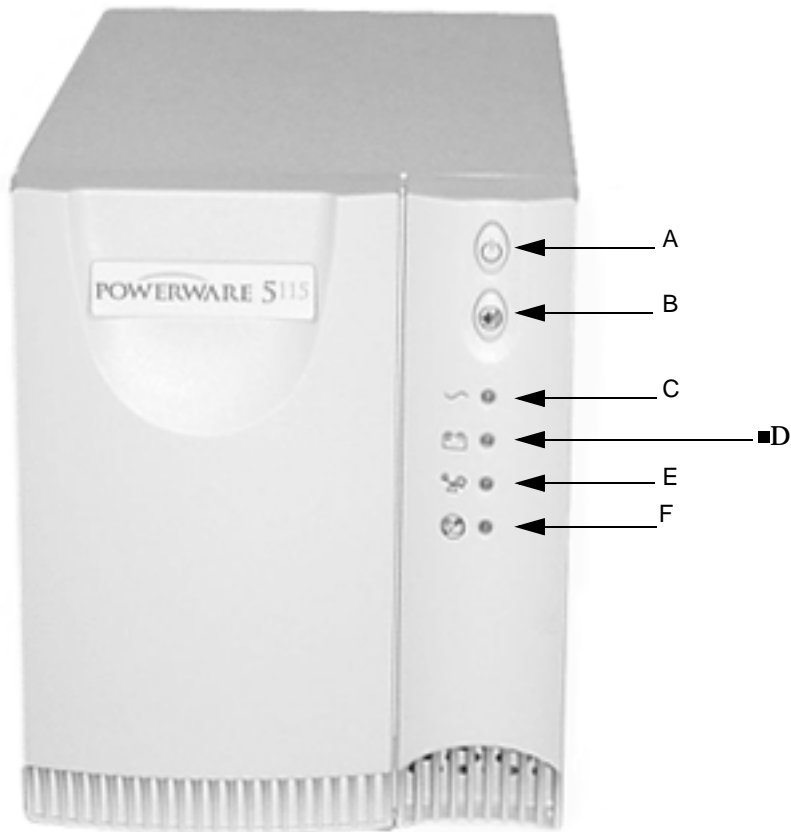
MD1144-404A

Table 14. MultiTech MultiModem Analog Modem (MT5634ZBA)

Item	Name	Description
A	TD LED	Transmit Data: Blinks when transmitting data.
B	RD LED	Receive Data: Blinks when receiving data.
C	CD LED	Carrier Detect: indicates that the modem has established a connection with another modem. During a retrain, this light blinks.
D	56 LED	Lights when connected to an ISP-type K56flex server
E	28 LED	Lights when the modem is connected in V.34 mode.
F	14 LED	Lights when the modem is connected in V.32bis mode.
G	OH LED	Off Hook: indicates that the modem is using the telephone line to dial, be online or answer.
H	TR LED	Terminal Ready: Glows when modem can answer an incoming call.
I	EC LED	Error Control: Glows to indicate aV.42 error-controlled (TurboPEP, PEP, V.42 or MNP) connection has been established. Blinks to indicate data compression enabled.
J	FX LED	FAX Mode: Glows to indicate modem in Fax mode.
K	line port	Connects the modem to an external telephone line (via the UPS).
L	phone port	Connects the modem to a telephone.
M	RS-232 port	Connects to the Comm 2 (serial) connector on MARS PC.
N	power port	Provides power to the modem via the UPS.

Uninterruptible Power Supply (UPS)

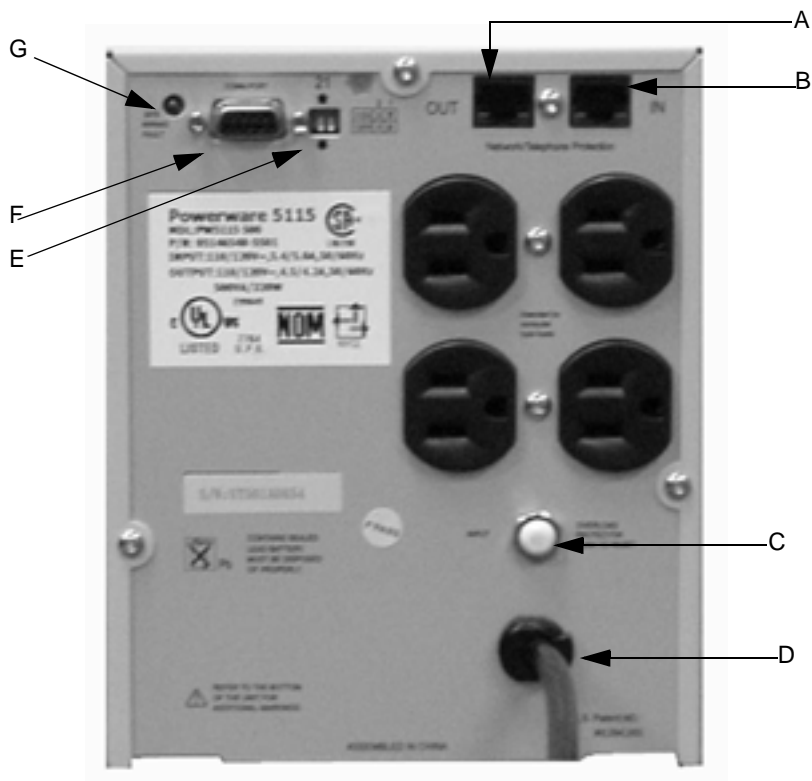
Powerware 5115 (Front View)



032A

Powerware Power Supply (Front view) 5115		
Item	Name	Description
A	Power On/Off Button	Controls power to the UPS.
B	Test/Alarm Reset Button	Lit whenever normal utility voltages are present at the power sockets.
C	Power On Indicator	This indicator is green when power is on.
D	On Battery Indicator	This indicator is yellow when the UPS is running on battery.
E	Overload Indicator	This indicator is red when the UPS is overloaded.
F	Service Indicator	This indicator is red when the UPS requires servicing.

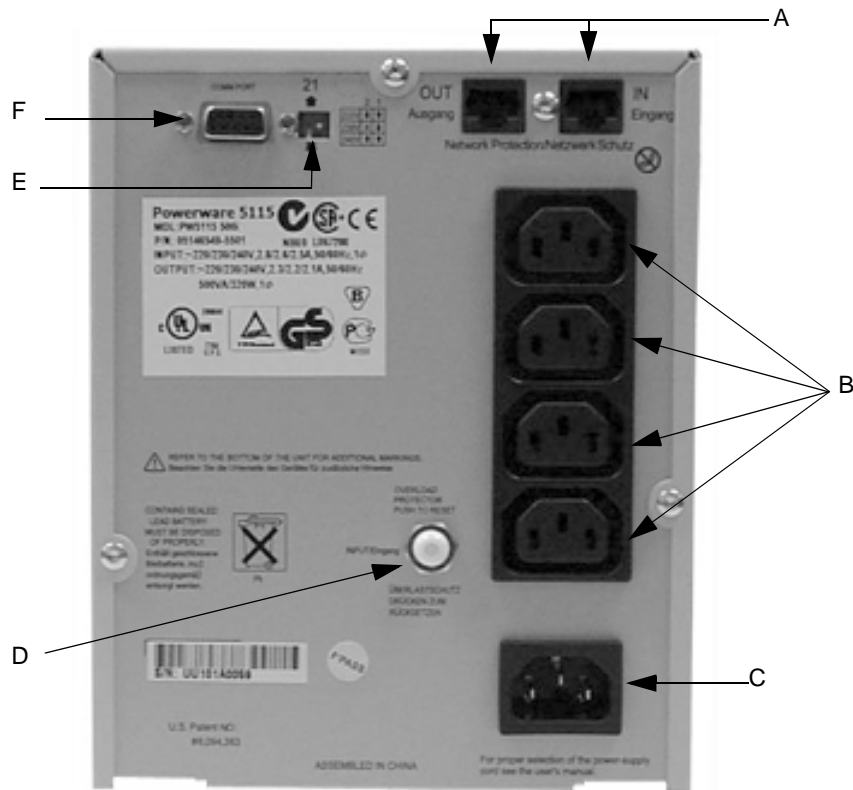
Powerware 5115 (120 volt) Rear View



034A

Powerware 120V Power Supply 5115, Rear view		
Item	Name	Description
A	Network transient protector (OUT)	Used for network or telecommunications equipment
B	Network transient protector (IN)	Used for network or telecommunications equipment
C	Input overcurrent protector	Resettable input overcurrent protector
D	6 foot Power cord	Connects to power
E	DIP Switches	Configures the input and output voltage
F	Communication Port	Allows data communication between the UPS and the computer
G	Site Wiring Fault Indicator	Lights up if there is no ground wire connection or if the neutral and line wires are crossed in the line receptacle

Powerware 5115 (220 volt) Rear View



031A

Powerware 220V Power Supply 5115 Rear view		
Item	Name	Description
A	Network Transient Protector	Used for network or telecommunications equipment
B	10 Amp Receptacles	Connect equipment to the UPS
C	Input Connector	Connects the UPS to power
D	Input Overcurrent Protector	Resettable input overcurrent protector
E	Dip Switch	Configures the input and output voltage
F	Communication Port	Allows data communication between the UPS and the computer

Monitors

Please refer to the Owner's Manual that shipped with the monitor for any necessary information. The monitors currently being shipped with the MARS PC are listed in the table below.

Monitors		
Size	Brand	Manufacturer Part number
17 inch	Compaq	V7550
19 inch	NEC	1980SX
21 inch	Sony	CPD-G520P

Printers

Please refer to the Owner's Manual that shipped with the printer for any necessary information. The printers currently being shipped with the MARS PC are listed in the table below.

Printers		
Type	Brand	Manufacturer Part number
LaserJet	Hewlett Packard	HP 1200
LaserJet	Hewlett Packard	HP 4200N
LaserJet	Hewlett Packard	HP 4250N

For your notes

3 Network Installation

For your notes

Network Setup for Windows 2000 Systems

Default Factory Setup

At the factory and during a rebuild, all MARS PC server, client and standalone systems (which use the Windows 2000 Operating System) are setup to use Windows workgroups by default. A new workgroup (MARSWORKGROUP) is set up automatically at the MARS PC server to provide secure client access to the drive shares.

A drive share with read/write/execute permission is set up automatically for "<server drive letter>:\gemsit" (with a drive share name of "gemsit") to allow the client to access the reports and slots directories.

The mei user account is automatically created and added to the MARSWORKGROUP. All new users added to the MARSWORKGROUP will have access to the drive shares.

IMPORTANT

To protect the MARS PC Workstation from viruses, the appropriate anti-virus software should be installed before connecting the system to the network. It is recommended that the customer turn on the anti-virus software auto protect option, and keep the virus definitions current to avoid virus infections. Please discuss virus protection with the hospital Information Systems (IS) department before proceeding with the network installation of this equipment.

In addition to installing anti-virus software, it is recommended that the customer limit drive share access for additional virus protection. This can be accomplished by changing the share permissions for the *gemsit* folder. It is recommended that permissions be set for individual users, rather than the entire MARSWORKGROUP or an entire domain. This will change the default factory setup.

Adding New Users to Workgroups

To add a new user to a workgroup you must add the user to the MARS PC server and to the MARS PC client.

NOTE

If you would like further assistance, please contact the MARS PC Workstation Technical Support Line at 1-800-558-7044 or 1-561-575-5000 ext. 4243.

Domain Network

If a customer has its own domain controller, the MARS PC can be added to the domain. The advantage of using a domain controller over the workgroup is that it allows for centrally controlled user administration.

If you create a new user account on a domain controller, the new account is automatically added as a member of that domain.

Joining MARS PC to a Domain

NOTE

This section is only needed if the customer intends to configure the MARS PC to join a domain and does not want to use the workgroup default setup.

If you would like further assistance, please contact the MARS PC Workstation Technical Support Line at 1-800-558-7044 or 1-561-575-5000 ext. 4243.

The following are the general steps necessary to add the MARS PC to the domain:

1. The customer must provide the domain name to be used.
2. Add the user names to the domain.
3. Configure the MARS PC server and the clients to join the domain.

NOTE

Standalone units can also be added to the domain, but there is no advantage to doing this.

4. Configure the *gemsit* drive share on the server with full control permissions for the domain users.
5. To verify that MARS PC Workstation is operating correctly, complete the steps given in “**Checkout Procedure**” on page 3-15.

Software Upgrade and Network Setup for Windows NT Systems

Standalone and Client Configurations Running Windows NT

NOTE

This section is for MARS PC standalone and client systems running the Windows NT Operating System.

The following steps are needed to complete the network configuration of the Windows NT boxes:

1. Determine if the MARS PC system has Ethernet capabilities.
2. Add network drivers if necessary.
3. Perform the software upgrade from version 5.1 (for standalone configurations).

NOTE

The upgrade allows the option of keeping the unit as a standalone or changing it to a client configuration.

4. Set up the network.
5. Check out the system.

Ethernet Capabilities

If the system box does not have an Ethernet card it can be upgraded to MARS PC version 6, but it cannot be attached to the network or communicate with the MUSE system. There is no network upgrade kit available for these units.

Only the MARS PC version 5.10 standalone configuration is available as an upgrade to version 6. The upgraded systems cannot support the tape acquisition unit.

Determine if Adding Network Drivers is Necessary

All MARS PC systems that have a product code of PU have network capability. The PU product code units were manufactured in the United States, and run on a Compaq or Hewlett Packard box. You must confirm that units without the PU product code contain a network card.

Looking at the serial label on the back of the unit determine:

if the MARS PC...	then go to...
has a PU product code	“Perform Software Upgrade to v6” on page 3-6
has catalog number 2006542-002	“Adding Network Drivers” on page 3-6

Adding Network Drivers

If you look at the back of the MARS PC system (catalog number 2006542-002) and see an Ethernet connector, the system has network capabilities, but the network drivers must be installed prior to upgrading the unit. Use the Installation Guide, part number 2006531-006, for instructions on adding network drivers.

After you have installed the network drivers go to “**Perform Software Upgrade to v6**” on page 3-6.

Perform Software Upgrade to v6

Introduction

Before beginning this setup, consult with the hospital Information Technology (IT) department and determine if the site is planning to use workgroups or a domain. If using workgroups, gather the user name, password, and computer name. If using domain, gather the user account domain and computer domain information.

NOTE

This section is for upgrading a MARS PC standalone workstation to a client configuration, or to a new standalone configuration that has networking capabilities. The system must be running software revision 5.10 to upgrade to version 6.

Available Configurations

The MARS PC upgrade options available are:

1. Standalone

- ◆ The patient data is stored locally and saved patient reports can be sent to a MUSE server across a network. There is no access to patient data from other MARS systems. The standalone configuration runs with Windows NT or Windows 2000 professional software. Use the standalone configuration if there is no MARS PC server available.

2. Client

- ◆ The client must have a MARS PC server available. The client automatically sends patient data to the MARS PC server, and has access to patient data stored on the server. It has data acquisition devices attached. The patient reports can also be sent to a MUSE server. The client runs with Windows NT or Windows 2000 Professional software.

Upgrade Options

The MARS PC allows a choice between a *Custom Upgrade* or a *Typical Upgrade*. It is important to understand the difference between the upgrades before you continue.

Typical Upgrade

NOTE

If you want to change from a standalone configuration to a client configuration, you must perform the *Custom Upgrade* option.

The *Typical Upgrade* will keep the standalone configuration and will add networking capabilities. It will not prompt the user to select between a client or a standalone configuration. The *Typical Upgrade* does not make any changes to the MARS PC application location, number of patient slots, or startup information. The *Typical Upgrade* leaves all the patient data in its current location and retains the *System Setup* information.

Custom Upgrade

The *Custom Upgrade* will prompt the user to select between a client or a standalone configuration. The *Custom Upgrade* will prompt the user to change the MARS PC application location, number of patient slots, and startup information. The *Custom Upgrade* option will maintain the original patient data, even if the user changes the MARS application software from the current disk location. The *System Setup* information will be retained.

NOTE

You must have a MARS PC server to use the MARS PC client configuration.

Upgraded MARS PC Workstations (the systems running Windows NT) do not support the Tape Acquisition option.

Begin Upgrade Here

Enter the Administrator Mode

You must be logged on as the administrator before performing software upgrades.

1. Determine the manufacturer name that appears on the front of the system box.
2. Reboot the system and log on as the administrator.
 - ◆ If you have a MARS PC running on a Compaq or Hewlett Packard box:
at the *user name* and at the *password* prompt, type **mei**.
 - or
 - ◆ If you DO NOT have a Compaq or Hewlett Packard box:
at the *user name* prompt, type **MHDAdmin** and at the *password* prompt, type **notnagel**.

Select Typical or Custom Upgrade

To perform a Typical Upgrade go to “**MARS PC Typical Upgrade**” on page 3-8, or to perform a Custom Upgrade go to “**MARS PC Custom Software Upgrade**” on page 3-9.

MARS PC Typical Upgrade

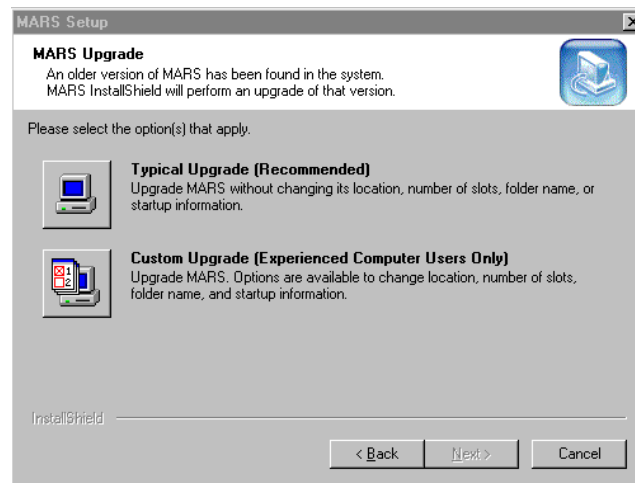
NOTE

Do not run any other applications while installing MARS PC software. Close all windows before inserting the application CD.

You must be in the administrator mode before proceeding with this upgrade.

Insert the MARS PC application CD into the CD drive. Allow the MARS installation program to start automatically.

1. Choose the desired language at the *Choose Setup Language* window.
2. At the *Welcome to the InstallShield Wizard for MARS* window, click *Next*.
3. Read the *License Agreement* window information, and if you agree, click *Yes*.
4. At the *MARS Setup* window, select the *Typical Install (Recommended)* button.



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NOTE

The MARS PC software installation will begin, and it will take approximately 5–15 minutes to install.

5. At the *Installshield Wizard Complete* window, select *Yes, I want to restart my computer now*.
6. Select *Finish*. The software installation is complete.
7. Remove the CD from the drive and store it in a secure location.
8. Go to **“Verify Software Version”** on page 3-13.

MARS PC Custom Software Upgrade

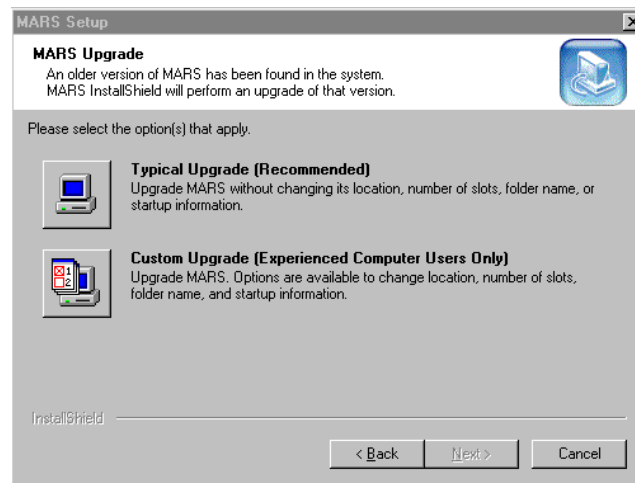
NOTE

Do not run any other applications while installing MARS PC software. Close all windows before inserting the application CD.

You must be in the administrator mode before proceeding with this upgrade.

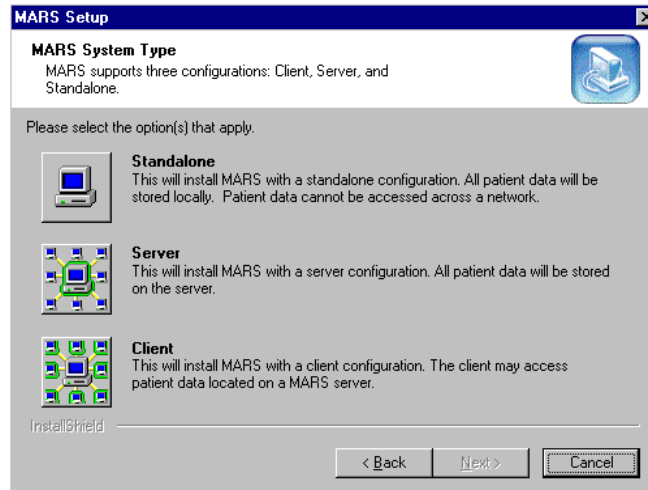
Insert the MARS PC application CD into the CD drive. Allow a few seconds for the MARS installation program to start automatically.

1. Choose the desired language at the *Choose Setup Language* window, and click *OK*.
2. At the *Welcome to the InstallShield Wizard for MARS* window, click *Next*.
3. Read the *License Agreement* window information, and if you agree, click *Yes*.
4. At the *MARS Setup* window, select the *Custom Install (Experienced Computer Users Only)* button.



01A

5. At the *MARS System Type* window, select the *Standalone* or the *Client* button.

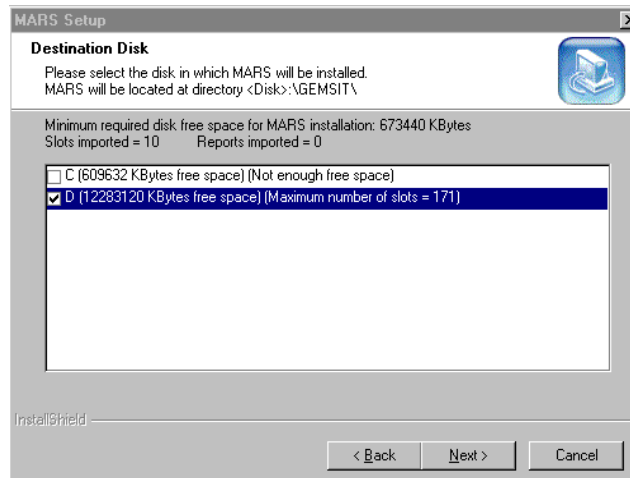


02A

6. At the *Destination Disk* window, select the check box for the *D* drive.

NOTE

If you want a different drive letter as the destination drive, please select one of the drive options displayed in the *Destination Disk* window. If a drive does not have enough space available the “Not enough free space” message will appear next to the drive letter.



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- ◆ Select *Next*.

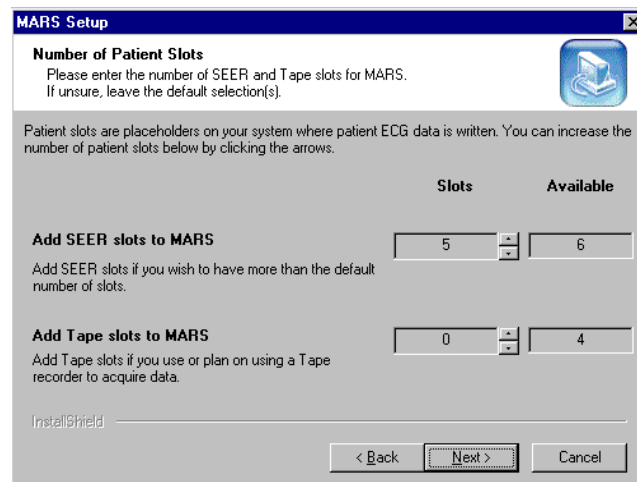
7. The *Number of patient slots* window will only appear for the standalone configuration. If you are upgrading a client configuration, go to the next step.

At the *Number of patient slots* window, enter the desired number of *SEER* slots by clicking on the arrows.

NOTE

When slots are not being imported, the number of slots created minimum number of slots is 5. Enter the fewest number of slots you intend to use. System performance decreases as the number of slots increases. Refer to “[Slot Installation/Time Consumption Report](#)” on page B-3 for specific information.

If slots are imported, the minimum number of slots will equal the number of imported slots. This means if only 3 patient slots are imported, the minimum number of slots will be 3.



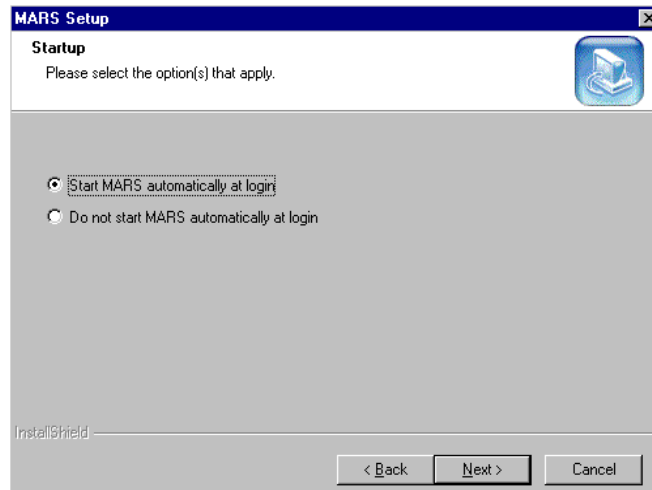
07A

- ◆ Select *Next*.

8. At the *MARS Setup* window:
 - a. If running only MARS PC software, select the *Start MARS automatically at login* option.

or

If also running CardioSoft[®], select the *Do not start MARS automatically at Login* option.



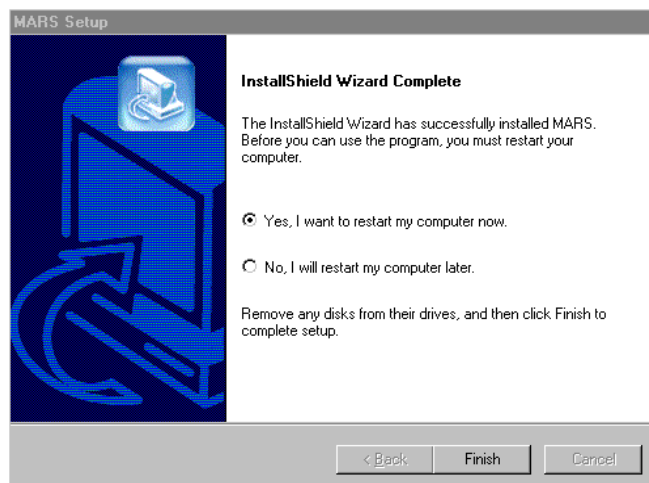
08A

- b. Select *Next*.

NOTE

The MARS PC software installation will begin, and it will take approximately 5–15 minutes to install, depending on the number of slots being created

9. At the *InstallShield Wizard Complete* window, select *Finish*. The MARS PC will reboot. This will take several minutes.



09A

Remove the CD from the drive and store it in a secure location.

10. Go to **“Verify Software Version”** on page 13.

Verify Software Version

11. Start the MARS PC application.
 - a. Click on *Help*.
 - b. Click on *About*.
 - c. Verify that the correct revision appears.

NOTE

If any other revision appears, please call GE Medical Systems *Information Technologies* technical support.

12. The upgrade is complete.

Go to “[Setting Up the Network for Systems Running Windows NT](#)” on page 3-13.

Setting Up the Network for Systems Running Windows NT

Before beginning the network setup, consult with the hospital Information Technology (IT) department to determine if the facility will be using a domain or workgroups. If using workgroups, gather the user name, password, and computer name. If using domain, gather the user account domain, and computer domain information.

1. Right-click *Network Neighborhood* on the desktop.
2. Select *Properties*.
3. Select *Protocols*.
4. If *TCP/IP Protocol* is not listed, select *Add*.
5. Select *TCP/IP Protocol*.
6. Select *OK*.
7. If *TCP/IP Protocol* is listed, right-click on it and select *Properties*.
8. If you select *YES* at the *DHCP* prompt, go to step 9.

or

If you select *NO* at the *DHCP* prompt, go to step 8.

NOTE

If any *Windows NT Setup* windows appear, click *Continue*.

9. Select *TCP/IP Protocol*.
 - a. Select *Properties*.
 - b. Enter the *IP address*, *Subnet mask*, and *Default gateway* information.
 - c. Select *OK*.
 - d. Select *Yes* at the *Restart your computer?* window.
10. Select the *Identification* tab.
11. Select *Change*.

12. Enter your unique *Computer Name*.
13. If you select *Workgroup*, enter a unique workgroup name or to add MARS workgroup, type **MARSWORKGROUP**.
or
If you select *Domain*, enter the domain name given by the hospital IT department.
14. Select *OK*.
15. Select *Close*.
16. At the *Restart* message, click *Yes*.
17. Go to “**Checkout Procedure**” on page 3-15.

Checkout Procedure

Verify the MARS PC Workstation is operating correctly by following the system checkout procedure. Have the MARS PC Operator's and OEM manuals available for reference.

NOTE

Not all the checkout steps will apply to each MARS PC configuration. For example, not all systems will have a tape acquisition unit, and standalone systems will not have a MARS PC server. Only run the appropriate steps for each configuration.

If you have a MARS PC system which is running the Windows NT operating system, use the checkout procedure located in the original MARS PC Service manual that shipped with that unit. Then use the "**Network Checkout Procedure**" on page 3-20 of this manual to verify the network connections.

Shutdown

1. Power off the MARS PC Workstation using the following safe shutdown procedure:
 - a. Exit the MARS application by clicking *System* on the menu bar.
 - b. Click *Exit* on the pulldown menu. The MARS application will close.
 - c. Open the *Start* menu located in the lower left corner of the display.
 - d. Select *Shut Down*.
 - e. From the *Shut Down* menu, select *Shut down the computer?*
 - f. Select *Yes*.
 - g. At the message, *It is now safe to turn off your computer*, turn off the MARS PC Workstation.

Power On

2. Power on the MARS PC Workstation.
 - a. Turn on the workstation.
 - b. Turn on the monitor power switch. Several screens appear momentarily. Watch for error messages on the screen.

NOTE

If any error messages appear, contact the MARS PC Workstation technical support line.

- c. If using a local parallel printer, turn it on.
- d. Press **Ctrl + Alt + Delete** to access the logon window.
- e. Position the cursor in the *User Name* field and type your user name.

NOTE

The default *User Name* and *Password* is **mei**.

- f. Position the cursor in the *Password* field and type your password.
- g. Click *OK*.
- h. The application software starts and the system screen appears. The system will automatically run a power on self test. Watch for error messages that may appear on the screen.

NOTE

If any error messages appear, contact the MARS PC Workstation Technical Support Line.

Acquiring Data

- 3. Verify that data from a patient data card can be acquired.

NOTE

Refer to the MARS PC Operators Manual for information on acquiring data from a patient data card.

Printing

- 4. Verify printing.
 - a. Select *Patient Select*
 - b. Choose a patient.
 - c. Select *Report Review*.
 - d. Select *Print Page*.

NOTE

Refer to the MARS PC Workstation Operator's Manual for more information on printing.

Archiving Data

- 5. If you have a CD-RW drive verify that you can archive to a CD.

NOTE

Refer to the MARS PC Workstation Operators Manual for more information on archiving data.

Tape Acquisition Unit

NOTE

NT systems do not support tape acquisition units.

- 6. Confirm that the SCSI ID switch is set to 5 on the back of the unit. If it isn't, correct the setting by using a pointed object (such as a pen) to depress the switch. If you set the SCSI ID, you must reboot the MARS PC.

7. If you have a tape acquisition unit, verify the unit can read, display, and print information from a Holter tape.

NOTE

Refer to the MARS PC Operator's Manual for more information on loading the tape and acquiring data.

Remote System Support

8. Verify Remote System Support.
 - a. No modem error messages should be seen on the screen.
 - b. Contact MARS PC Workstation Technical Support to request a RSS link to verify remote access. Have the analog telephone line number available.

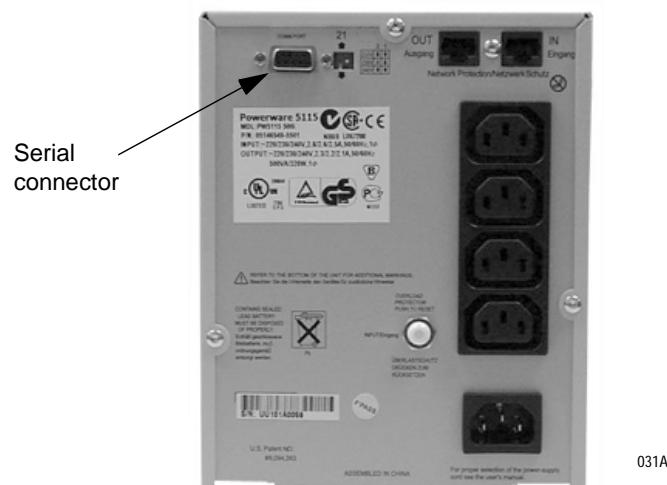
Uninterruptible Power Supply (UPS)

9. Looking at the front of the UPS, determine the manufacturer name on the unit, and
 - a. If you have a Powerware[®] UPS proceed to step 10.
 - b. If you have an APC[®] UPS proceed to step 11.
10. Verify Powerware UPS.

NOTE

This procedure is for the Powerware UPS only. If you have an APC UPS, go to step 11.

- a. Detach the UPS serial cable from the connector on the back of the UPS.



- b. Verify the *Lansafe III Power Monitor* window appears stating *Communications failure with UPS*.
- c. Attach the UPS serial cable.

Verify the *Lansafe III Power Monitor* window appears stating *Communications established with UPS*.

- d. Press and hold the **test button** on the front of the UPS.

Verify the *Lansafe III Power Monitor* window appears stating...*Utility power failure... MARS PC is on battery...shutdown in 5 minutes.*

Verify a message box appears stating *Message from MARS PC to WORKGROUP on...MARSPC is on battery...shutdown in 5 minutes.*

- e. Release the **test button**

Verify the *Lansafe III Power Monitor* window states...*Utility power failure resolved... MARS PC shutdown has been cancelled...MARS PC shutdown has been cancelled.*

Verify a message box appears stating *Message from MARSPC to WORKGROUP on...MARSPC shutdown has been cancelled.*

- f. Unplug the power cable from the wall outlet.

Verify the *Lansafe III Power Monitor* window appears stating...*Utility power failure... MARS PC is on battery...shutdown in 5 minutes.*

Verify a message box appears stating *Message from MARS PC to WORKGROUP on...MARSPC is on battery...shutdown in 5 minutes.*

Verify the system shuts down in 5 minutes.

- g. The checkout procedure is complete.

11. If you have an APC UPS unit look at the back of the unit, and if the model number listed on the label located near the upper left is:

BK500MC then go to step 12.

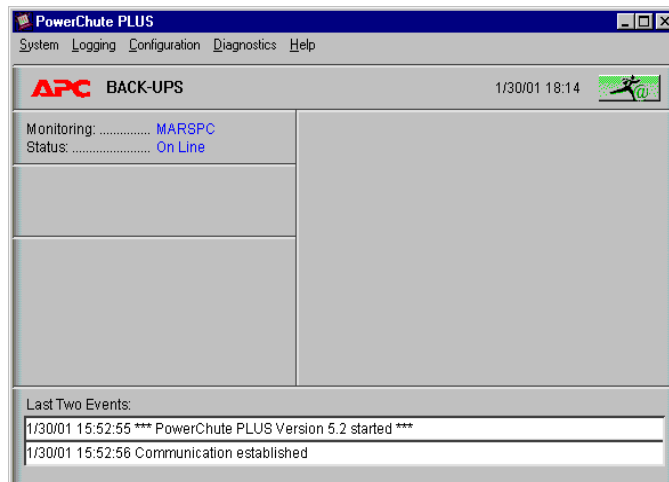
or

BK500MI then go to step 13.

12. Verify domestic APC UPS model number BK500MC.

- a. Select *Start from the PC menu bar.*
- b. Select *Programs.*
- c. Select *Parachute plus.*
- d. Select *Parachute plus.*
- e. At the *Monitor Server* window, select *Attach.*

- f. Verify the following window is displayed on the monitor:



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- g. Verify *Monitoring* is followed by the *System name* and *Status* is *On Line*.

NOTE

In the following steps XXXXXX refers to the system name.

- h. Press up on the UPS Test button and hold it in for approximately 3 seconds. It will beep and the status should change to *On Battery* and the following message will be displayed:

XXXXXX is running on battery power. XXXXXX will shut down in xxx minutes and xxx seconds.

- i. The status should return to *On Line* and the following message will be displayed:

Normal utility power at XXXXXX has been restored.

- j. Click *OK*.
k. Close all windows.
l. The checkout procedure is complete.

13. Verify international UPS model number BK500MI.

- Disconnect the UPS AC power inlet cord.
- An audible alarm will sound once every 5 seconds.
- Confirm the Compaq box is receiving power from the UPS by verifying the power light is lit on the front of the Compaq box.
- Reconnect the UPS AC power inlet cord.
- If the MARS PC has network capabilities, go to “**Network Checkout Procedure**” on page 3-20

or

If the MARS PC does not have network capabilities, go to “**Operating System Language**” on page 3-20.

Network Checkout Procedure

If the MARS PC has network capabilities, perform the following tests that apply:

NOTE

Some of the steps listed below will not apply to all MARS PC configurations.

If necessary, refer to the MARS PC Operator's manual for further assistance.

1. From a client system, use the DOS *Command Prompt* window to ping the MARS PC server to confirm the connection.

- ◆ Type the following: **ping** [space] **computer name**.

NOTE

computer name refers to the server name.

- ◆ Press **Enter**.
- ◆ Verify that the correct IP address appears in the *Reply from xxx.xxx.xxx.xxx* message.

2. Click the *Patient Select* icon from the MARS PC client application.

- ◆ If you were able to ping the MARS PC server, but can't bring up the *Patient Select* option, confirm that the drive share permissions are correct.

3. Print a patient strip review from the standalone or client and server.
4. Verify that the MARS PC client can view the server patient list.
5. Verify that a patient file can be selected and edited from the MARS PC server.
6. If the MARS to MUSE option is enabled, verify that a report can be stored to MUSE from a standalone or client and server.

NOTE

If the *Delete Report* option is selected at the MARS PC the patient report will disappear from the list.

The network checkout is complete.

7. Go to "**Operating System Language**" on page 3-20.

Operating System Language

NOTE

This section is for MARS PC units running the Windows 2000 operating system. This section does not apply to MARS PC units running Windows NT.

The MARS PC operating system is set to English at the factory. Additional languages supported are German, Spanish, French, Italian Swedish and Dutch.

If the desired operating system language is...	then...
English	the network installation is complete.
German, Spanish, French, Italian, Swedish, or Dutch	go to "Setting the Language" on page 3-21.

Setting the Language

1. If necessary, reboot the system to log on as the administrator. At the *user name* type **Administrator**. Type **WERIOP** for the *Password*.
2. Select *Start>Settings>Control Panel*.
3. Select *Regional Options*.
4. Select the *General* tab.
5. Select the correct country for your location, and select the correct language for menus and dialogs.
6. Windows 2000 and Windows 2000 Server units complete step 6:
 - a. Click *Set Default*.
 - b. Select the correct language.
 - c. Click *OK*.

All other units proceed to step 7.
7. Click *OK* to close the *Regional Options* window.
8. Click *Yes* to confirm the change.
9. Log off as the administrator and log on again as administrator.
10. Verify the operating system is in the new language.

For your notes

4 Maintenance

For your notes

Introduction

Maintenance Guides

For further information please reference the appropriate OEM manuals for the recommended maintenance of their product. To download OEM manuals please see “[Downloading OEM Manuals From the Internet](#)” on page 1-7.

If you would like further assistance, please call the MARS PC Workstation Technical Support Line at 1-800-558-7044 or 1-561-575-5000 ext. 4243.

Items Requiring Maintenance

- MARC PC client system box
- MARS PC server system box
- MARS PC standalone system box
- Monitor
- DVD-RW or CD-RW Drive
- Printer
- UPS

Recommended Maintenance

GE Medical Systems *Information Technologies* recommends that you perform the tests described in this chapter:

- Every 6 months as part of routine maintenance
- Whenever internal assemblies are serviced
- More frequently if indicated.

A regular equipment maintenance program helps prevent unnecessary equipment and power failures and also reduces possible health hazards. This chapter contains instructions for the following recommended maintenance:

- Inspecting and cleaning the equipment
- Domestic electrical safety tests
- Workstation power supply test
- Checkout procedure

NOTE

Unless you have an Equipment Maintenance Contract, GE Medical Systems *Information Technologies* does not assume the responsibility for performing the recommended maintenance procedures. The sole responsibility rests with the individual or institution using the equipment. GE Medical Systems *Information Technologies* service personnel may, at their discretion, follow the procedures provided in this manual as a guide during visits to the equipment site.

Required Tools and Supplies

In addition to a standard set of hand tools, you will need the special tools and items listed below to maintain or check out the system.

Table 15. Required Tools and Supplies	
Item	Part Number
DVOM	N/A
Leakage current tester	MT-1216-01 (120V), MT-1216-02 (240V), or equivalent
CD-ROM Cleaning Kits	416627-001
Tape Cleaning and Demagnetizer kit (Used on tape acquisition unit)	3613-902
Holter Installation Tape	3613-602

Power On Procedure

1. Turn on the workstation.
2. Turn on the monitor power switch. Several screens appear momentarily.

NOTE

Watch for error messages on the screen. Reference the OEM Troubleshooting Guide that shipped with the MARS PC Workstation. The Troubleshooting Guide is also available on the Internet. For further information please see "[Downloading OEM Manuals From the Internet](#)" on page 1-7.

3. If using a local parallel printer, turn on the local parallel printer.
4. Press **Crtl + Alt + Delete** to access the logon window.
5. Position the cursor in the *User Name* field and type your user name.*
6. Position the cursor in the *Password* field and type your password.*
7. Click on *OK*. The MARS PC application screen appears.

* The default user name is **mei**. The default password is **mei**. It is possible to change both user name and password; contact your system administrator for more information.

Safe Shutdown Procedure

Make sure to shut down the system properly. Follow this procedure to prevent inadvertent errors from occurring during system shut down.

NOTE

Failure to follow the recommended method to shut down the workstation may result in the loss of data and damage to the workstation.

Exit the MARS PC Application

To exit the MARS application, follow these steps.

1. Click *System* on the menu bar.
2. Click *Exit* on the pulldown menu. The MARS application will close.

Shut Down the Workstation

Once the MARS application has closed, follow these steps to shut down the workstation.

1. Open the *Start* menu located in the lower left corner of the screen.
2. Select *Shut Down* from the *Start* menu.
3. Select *Shut Down* > Select *OK*.

NOTE

If you are shutting the computer down prior to logon, hold down the following keys simultaneously:

Ctrl + Alt + Delete and select the *Shut Down* option.

Inspection and Cleaning

Visual Inspection

Perform a visual inspection regularly. Turn off the unit and remove power before making an inspection or cleaning the unit.

- Check the case and display screen for cracks or other damage.
- Regularly inspect all cords and cables for fraying or other damage. Perform safety tests on any repaired line cords.
- Inspect all plugs, cables, and connectors for bent prongs or pins.
- Verify that all cords, socketed components, and connectors are securely seated.
- Inspect keys and controls for proper operation.
 - ◆ Power switches should not stick in one position.

Check Cooling Fans

Check operation of fans in:

- client workstation box
- server workstation box
- standalone workstation box

With the workstation operating verify that all fans contained in the unit are operating properly.

Cleaning Precautions

Turn off the unit and remove all power before inspecting or cleaning.

Do not immerse any part of the equipment in water.

Do not use organic solvents, ammonia based solutions, or abrasive cleaning agents which may damage equipment surfaces.

Ventilation

Position the workstation box to ensure adequate ventilation. Poor ventilation can cause overheating and damage system components.

- Do not place the workstation box in a position where the ventilation holes in the front and rear are blocked or restricted.
- Do not place the system box near ducts, pipes or equipment which generate heat.

Exterior Cleaning

Clean the exterior surfaces once per month, and more frequently if needed, with a clean, soft cloth and a mild dishwashing detergent diluted in water.

- Wring the excess water from the cloth. Do not drip water or any liquid on the writer assembly, and avoid contact with open vents, plugs, or connectors.
- Dry the surfaces with a clean cloth or paper towel.

Cleaning the Monitor Screen

NOTE

Never use abrasive materials to clean the screen. They can damage the anti-reflective coating.

Wipe the screen with a soft, dry, clean cloth to remove dust.

To remove fingerprints and other soil:

1. Wipe the screen with a soft cloth moistened with a solution of isopropyl alcohol, water and mild detergent.
2. Rinse the screen immediately with a cloth dampened with clean water.
3. Dry the screen with a soft, clean cloth.

Cleaning the System Box Interior

The factory seals the equipment before it leaves. There should be no dust buildup on the surfaces of the interior PCB assemblies and components when you receive it.

Follow these steps to clean the system box interior.

1. Power off the workstation by following the “**Safe Shutdown Procedure**” on page 4-6.
2. Detach the AC power cord before cleaning the interior of the system box.
3. Remove the system box cover to clean the interior. See the OEM’s Service Manual for detailed information.
4. Replace the cover.

WARNING

Turn off power and disconnect power cord from AC power source before removing the cover.

Cleaning the CD-RW Drive or DVD-RW Drive

Follow these steps to clean the CD-RW or DVD-RW drive.

1. Open the CD-RW or DVD-RW drive.
2. Insert the cleaning disk, brushes down, into the drive.
3. Close the CD-RW or DVD-RW drive. The activity led blinks for about 10 seconds.
4. Remove the cleaning disk from the drive.
5. Close the CD-RW or DVD-RW drive

Cleaning the Printer

For maintenance please see the OEM User's manual that shipped with the printer. The manual can also be located on the Hewlett Packard website. For further information please see ["Downloading OEM Manuals From the Internet"](#) on page 1-7.

Cleaning the Tape Acquisition Unit

Cleaning and inspecting the tape acquisition unit involves several steps, including:

- ◆ Demagnetizing and cleaning the tape acquisition unit
- ◆ Cleaning the tape acquisition unit interior

NOTE

Demagnetize the tape acquisition unit, clean the tape drive, and check out the tape acquisition unit on a weekly basis.

Cleaning and Demagnetizing the Tape Drive Using the Cleaning and Demagnetizer Kit (PN 3613-902)

The cleaning and demagnetizing kit performs cleaning of the audio head and demagnetization simultaneously, removing contaminants and magnetism build up.

Use the following steps to clean the tape drive using kit PN 3613-902.

NOTE

While running, the cleaning cassette will emit a buzzing sound much louder than a normal tape. This is normal and does not indicate a problem with the unit.

1. Insert the cleaning cassette into the tape acquisition unit. Gently push the cleaning cassette into the drive opening until the cleaning cassette clicks into place.
2. Turn release lever to its up position.
3. The *Tape Download/Analysis Options* window appears and the cleaning tape runs briefly (less than a second) and stops.

NOTE

An error message may appear, if the correct slot type is not available or all slots are full. Click *Cancel* in the error message box. The

message box will disappear and the cleaning cassette will run normally.

If the cleaning cassette continues to run for more than a few seconds, click *Cancel* in the *Tape Download/Analysis Options* window. This will stop the cleaning process. Contact MARS PC technical support.

4. Click *Cancel* in the *Tape Download/Analysis Options* window. The *Tape Download/Analysis Options* window closes.
5. Push tape lever down to eject tape.

Interior Cleaning

The factory seals the equipment before it leaves. There should be no dust buildup on the surfaces of the interior PCB assemblies and components when you receive it.

However, if dust is an environmental problem, use a commercially available dust remover (compressed air). Follow the manufacturer's directions for its use.

WARNING

Only qualified personnel should disassemble this unit.

Turn off the power and disconnect power cord from the AC power source before removing the cover.

Disassembly Guidelines

Follow these steps to disassemble and reassemble the tape acquisition unit.

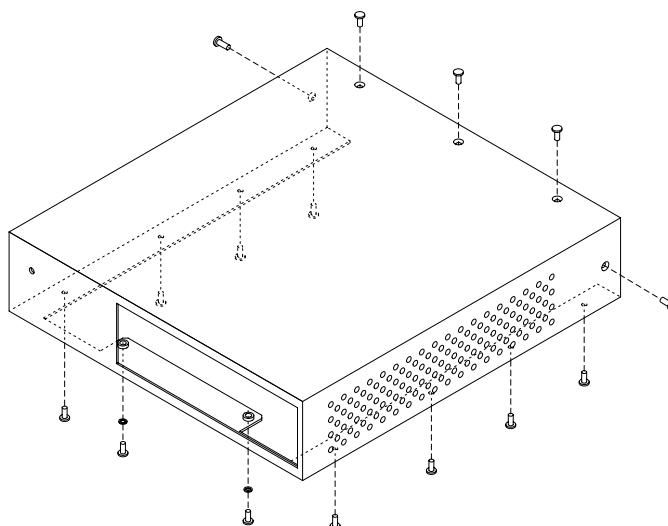
Opening the Unit -

1. Power off the workstation.
2. Turn off the tape acquisition unit power switch.
3. Disconnect the tape acquisition unit power cord from the back of the UPS.
4. Remove the fifteen retaining screws from the tape acquisition unit.

NOTE

The tape acquisition unit uses fifteen screws to secure the cover in place. To reduce EMI emissions, replace all fifteen screws securely

when reassembling the unit.



MD1144-334A

5. Remove the tape acquisition unit cover. Slide the tape acquisition unit cover forward.

Reassembling the Unit

1. Slide the tape acquisition unit cover over the front of the tape acquisition unit.
2. Install the fifteen retaining screws to secure the cover to the unit. Hand tighten all screws.

NOTE

The tape acquisition unit uses fifteen screws to secure the cover in place. To reduce EMI emissions, replace all fifteen screws securely when reassembling the unit.

3. Turn on the tape acquisition unit.
4. Power on the workstation. See **“Power On Procedure”** on page 4-5.

UPS

Battery replacement is recommended every 3-6 years. Please see the OEM User's Guide for the battery replacement procedure.

Checkout Procedure

Follow the **“Checkout Procedure”** on page 3-15.

For your notes

5 Troubleshooting

For your notes

Theory of Operation

The theory of operation provides a very broad overview of the system box hardware and the various MARS PC configurations.

Configurations

There are three different MARS PC network configurations available using a standard Ethernet TCP/IP network. The MARS PC can be configured as a client, a server, or a standalone unit.

Standalone

The MARS PC standalone stores patient data locally, and the saved patient reports can be sent to a MUSE server across the network. The MARS PC standalone cannot receive patient data from other MARS systems.

Client

The MARS PC client allows reports to be edited and printed. The MARS PC client-server configuration allows the MARS PC clients to access and automatically send patient data to the MARS PC server via the network. Patient reports can be sent to a MUSE server.

Server

MARS PC servers store the patient data, and “serve” file requests from other MARS PC clients on the network. All patient data will be stored on the MARS PC server and can be accessed by MARS PC clients. The server can support a maximum of 25 MARS PC clients. The patient reports can also be sent to a MUSE server.

System Box

The system box contains a motherboard, CPU processor(s), hard drive or drives, physical RAM, an internal CD-RW drive, floppy diskette drive, two separate Ethernet network adapters, and a power supply. It also contains four audio ports, an internal speaker, two parallel ports and four serial ports. PCI expansion slots connect directly to the system bus and allow for additional network interface cards and other devices.

The motherboard contains the main ethernet interface for connecting to the network. MARS non-realtime devices such as printers or RSS access units have independent ports.

General Fault Isolation

Assistance

If any assistance is needed during the troubleshooting process please call the Technical Support Line at 1-800-558-7044 or 1-561-575-5000 ext. 4243.

First Things to Ask

If the unit is not working properly, start by asking yourself these basic questions.

1. Are the unit and all peripherals turned on?
2. Have there been any changes in the use, location, or environment of the equipment that could cause the failure?
3. Has the unit been modified in any way, either in software or hardware?
4. Is operator error the cause of the problem? Try to repeat the user's scenario exactly and compare that to the proper operation of the equipment. Check the operator's manual as necessary.

Visual Inspection

A thorough visual inspection of the equipment can save time. Small things — disconnected cables, foreign debris on circuit boards, missing hardware, loose components — can frequently cause symptoms and equipment failures that may appear to be unrelated and difficult to track.

Read the Disassembly Guidelines in the product's OEM manual before you perform an internal visual inspection of the components.

Take the time to make all the recommended visual checks (refer to the following visual inspection chart) before starting any detailed troubleshooting procedures.

Table 16. Visual Inspection List	
Area	Look for the following problems
I/O Connectors and Cables	<ul style="list-style-type: none"> ■ Fraying or other damage ■ Bent prongs or pins ■ Cracked housing ■ Loose screws in plugs
Interface Cables	<ul style="list-style-type: none"> ■ Excessive tension or wear ■ Loose connection ■ Strain reliefs out of place

Table 16. Visual Inspection List (Continued)

Area	Look for the following problems
Circuit Boards	<ul style="list-style-type: none"> ■ Moisture, dust, or debris (top and bottom) ■ Loose or missing components ■ Burn damage or smell of over-heated components ■ Socketed components not firmly seated ■ PCB not seated properly in edge connectors ■ Solder problems: cracks, splashes on board, incomplete feedthrough, prior modifications or repairs
Ground Wires/Wiring	<ul style="list-style-type: none"> ■ Loose wires or ground strap connections ■ Faulty wiring ■ Wires pinched or in vulnerable position
Mounting Hardware	<ul style="list-style-type: none"> ■ Loose or missing screws or other hardware, especially fasteners used as connections to ground planes on PCBs
Power Source	<ul style="list-style-type: none"> ■ Faulty wiring, especially AC outlet ■ Circuit not dedicated to system ■ (Power source problems can cause static discharge, resetting problems, and noise.)

Workstation Box

Please refer to the OEM Service manual and Troubleshooting Guide for troubleshooting the MARS PC Workstation box. The OEM Troubleshooting Guide is shipped with the unit, and is also available on the OEM website. For further information please see “[Downloading OEM Manuals From the Internet](#)” on page 1-7.

For further assistance, call the MARS PC Workstation Technical Support Line at 1-800-558-7044 or 1-561-575-5000 ext. 4243.

Error Codes

For a list of Power-On-Self-Test (POST) messages please reference the OEM Troubleshooting Guide that shipped with the MARS PC Workstation. The Troubleshooting Guide is also available on the OEM website. For further information please see “[Downloading OEM Manuals From the Internet](#)” on page 1-7.

Replacing Workstation Box Items

Fault Detection

Use the troubleshooting process located in the OEM Service Manual for the additional SCSI, serial, and parallel boards. See “[Replacing SCSI, Serial or Parallel \(LPT\) Boards](#)” on page 5-6 for additional board locations.

See the OEM Service Manual for additional detailed instructions. If you have a question that is not answered in the OEM Service manual or if you would like further assistance, call the MARS PC Workstation Technical Support Line at 1-800-558-7044 or 1-561-575-5000 ext. 4243.

Replacing SCSI, Serial or Parallel (LPT) Boards

Confirm you have the correct location before removing and replacing any circuit boards.

NOTE

The image will not work if the mother board configuration below is not followed.

The parallel (LPT) board has an additional connector (referred to as LPT 2) on it, which the card reader plugs into. The parallel (LPT) board plugs into the PCI 2 mother board slot. See the Mother Board Slots table below for more information.

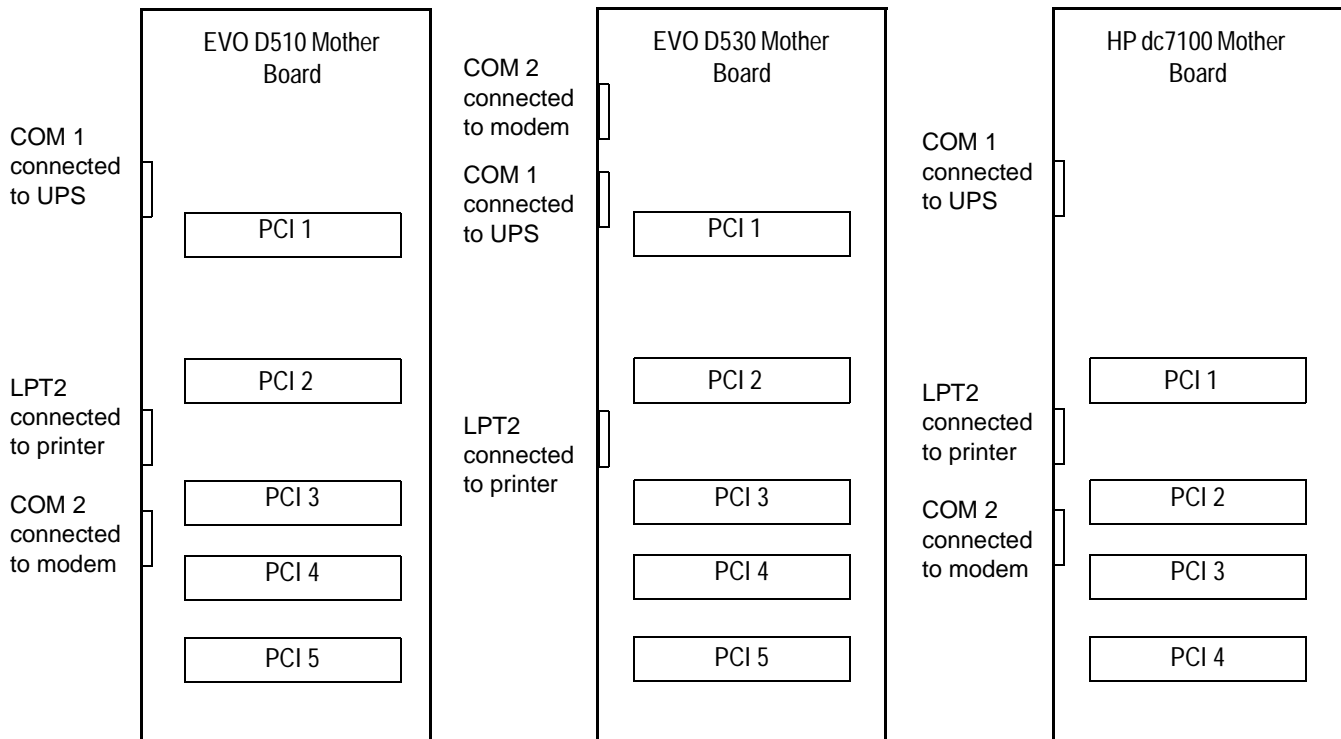


Table 17. Mother Board Slots

PCI Slot Number	Description
1	This slot holds the SCSI board. The SCSI board is required if there is a Tape Acquisition unit attached to the MARS PC Workstation. The Tape Acquisition unit is an optional device.
2	This slot holds the LPT (parallel) board. There is an extra connector on the LPT board, referred to as LPT 3, which connects to the 26 pin ribbon connector on the card reader.
3	This slot is empty.

Table 17. Mother Board Slots (Continued)	
PCI Slot Number	Description
4	This slot holds the serial board.
5	This slot is empty.

Monitor

The monitor is a field replaceable unit.

Fault Detection

If the monitor is not working correctly, try the following:

1. Verify the power and video connections.
2. If necessary follow the proper shut down procedures in the MARS PC Operator's manual to cycle the power.
3. Reference the manual that came with the monitor.
4. Contact tech support for further assistance.

Keyboard

The keyboard is a field replaceable unit.

Mouse

The mouse is a field replaceable unit.

Printer

The printer is a field replaceable unit.

For troubleshooting please see the OEM User's manual that shipped with the printer. The manual can also be located on the Hewlett Packard website. For further information please see ["Downloading OEM Manuals From the Internet"](#) on page 1-7.

Please call the MARS PC Workstation Technical Support Line for further assistance.

Uninterruptible Power Supply

The UPS is a field replaceable unit.

For troubleshooting please see the OEM manual that shipped with the UPS. The manual can also be located on the manufacturer's website. For further information please see ["Downloading OEM Manuals From the Internet"](#) on page 1-7.

NOTE

Only use the serial cable which was shipped with the UPS.

If the UPS is not working correctly, do the following:

1. Verify the connections.
2. Verify the wall outlet is not faulty by plugging the unit into a different outlet. Have a qualified electrician repair any faulty outlets.
3. Press and hold the **test** button for three seconds. If the **test** LED illuminates see the “Troubleshooting” section of the OEM manual for further information.
4. If necessary, contact technical support for further assistance.

RSS Analog Modem

The RSS modem is a field replaceable unit.

The MARS PC Workstation uses a non-networked analog modem for Remote System Support (RSS). The RSS access unit allows GE Medical Systems *Information Technologies* to maintain, and if necessary, to diagnose and to repair the workstation software in a timely manner.

Fault Detection

If the modem is not working correctly, do the following:

1. Verify the connections.
2. Verify the power supply plugged into the modem is working.
3. Verify the software is running by:
 - a. Select *Control panel*.
 - b. Select *Services*.
 - c. Verify *pcAnywhere Host Service* has a status of *Started*.
If necessary start the Host service and configure it to start automatically.
4. Contact technical support to verify that they can remotely access the system.

Tape Acquisition Unit (Optional Device)

The tape acquisition unit is a field replaceable unit.

The tape acquisition is an optional device. The acquisition unit reads and downloads 8500 tapes to the MARS PC.

Fault Detection

If the tape acquisition unit is not working correctly, do the following:

1. Verify the connections.
2. If necessary follow the proper shut down procedures to shutdown and power the computer off; then power the unit on again.

Refer to the operator's manual for the correct shut down procedures.

3. Verify data from a tape can be acquired.

NOTE

Reference the MARS PC operators manual for further assistance on acquiring data from the tape acquisition unit.

Card Reader (Omni Drive)

The card reader is a field replaceable device.

Some MARS PC Workstations are shipped from the factory with an internal card reader device. Other MARS PC Workstations are shipped from the factory with external card reader devices. The card reader reads and downloads SEER MC and SEER Light data cards to the MARS PC.

Fault Detection

If the card reader device is not working correctly, do the following:

1. Verify the connections.
2. If necessary follow the proper shut down procedures to shutdown and power the computer off, and then back on again.
3. Verify the data from a SEER MC data card can be acquired.

NOTE

Refer to the MARS PC operators manual for further assistance on acquiring data from a SEER MC data card.

Replacing the Internal Omni Drive Card Reader

When replacing the internal card reader:

1. Connect the ribbon cable to the LPT-3 connector. The LPT-3 connector is on the parallel port extension card, which is located inside the EVO D510 and EVO D530 system box. See [“Replacing](#)

SCSI, Serial or Parallel (LPT) Boards” on page 5-6 for additional information.

2. Connect the power connector on the card reader to the power supply.

Replacing the External Omni Drive Card Reader

When replacing the external card reader:

1. Remove the old USB OmniDrive unit, noting the port to which it was connected.
2. Connect the USB cable from the new USB OmniDrive to the appropriate USB port.

NOTE

There is no power connection; the external card reader receives power via the USB port.

3. Log in to the system.
4. After logging in, the external card reader will be installed. The *Found New Hardware* window will appear after login to display the drive. If the Hardware Wizard asks for OmniDrive software, insert the MARS PC Support CD. Browse to the location of the OmniDrive software.

If the card reader (Omni Drive) drive letter assigned is other than *O:* it will have to be changed:

- a. Right-click on the *My Computer* icon on the desktop. Select *Manage*.
- b. Click on *Disk Management*.
- c. Right-click on *Disk 1 Removable* and select *Change Drive Letter*.
- d. Select *Edit*.
- e. Select *O:*.
- f. Click *OK*.
- g. Click *Yes*.
- h. Close the *Computer Management* window.

DVD-RW, CD-RW, or Floppy Drive

The DVD-RW, CD-RW and floppy drives are field replaceable units.

For troubleshooting please see the OEM User's manual. The manual is available on the website. For further information please see **“Downloading OEM Manuals From the Internet”** on page 1-7.

If the device is not working properly, do the following:

1. Verify that the device can archive data to the correct media.
Reference the MARS PC operators manual for further assistance on archiving data.
2. Verify the connections.
3. If necessary follow the proper shut down procedures to shutdown and power the computer off; then power the unit on again.
Refer to the operator's manual for the correct shut down procedures.
4. If still not working, replace the unit.

For your notes

6 System Rebuild and Software Reinstall

For your notes

Disk Imaging

A disk image is used to restore the MARS PC Workstation to its original factory state. During the process all existing data and setups will be lost. Disk imaging is only suggested when all other system recovery attempts have failed. This process can take between one to two hours to complete.

CAUTION

When a system is imaged, the hard drive is reformatted and ALL existing data will be lost. Do not proceed with this section if there is any confusion about disk imaging and its impact on the MARS PC Workstation. For further assistance, call technical support before proceeding with this section.

Reimage System for MARS PC Standalone and Client Workstations

This section explains how to reimage the MARS PC standalone and client boxes using the System Rebuild CD.

Before you Begin

Save Activator Codes

Activator codes must be saved to a floppy disk and then copied back to the system box after the rebuild is complete.

1. Select *Start > Windows Explorer*.
2. Select the drive letter where the MARS PC program is installed.

NOTE

This will be the C: drive for workstations running Windows 2000, and generally the D: drive for workstations running Windows NT.

3. Select *gemsit > var > MarsNT > system*.
4. Copy the *.active* file to a floppy disk.

NOTE

Confirm the *.active* file was actually copied to the floppy disk.

5. Place the floppy disk in a safe place. You will need to copy the *.active* file back onto the system at the end of this rebuild procedure.
6. If you are reimaging a MARS PC server, please go to **“Reimage System for MARS PC Server Workstations”** on page 6-15.

or

If you are rebuilding a MARS PC standalone or client workstation, go to **“Confirm Your System Box”** on page 6-4.

Confirm Your System Box

1. Confirm which system box you have:

NOTE

If you would like further assistance, please call the MARS PC Workstation Technical Support Line at 1-800-558-7044 or 1-561-575-5000 ext. 4243.

There is a picture of the of the **“Compaq EVO D510 (Front view)”** on page 2-12, a picture of the **“HP EVO D530 (Front view)”** on page 2-15 of this manual, and a picture of the **“HP dc7100 (Front view)”** on page 2-18. As shown in the pictures, the Compaq EVO D510 and the HP EVO D530 are mini-towers with an internal Omni drive (i.e. card reader). The HP dc7100 is a mini-tower WITHOUT an internal card reader.

- a. If you have a convertible mini-tower (Compaq EVO D510, HP EVO D530, or HP dc7100) system box go to “**Begin Rebuild for MARS PC Standalone or Client**” on page 6-5.
- or
- b. If you do not have a convertible mini-tower system box, DO NOT use these rebuild instructions. Go to “**Windows NT System Boxes**” on page 6-5 for further information:

Windows NT System Boxes

Use the system rebuild instructions located in the original Service Manual which shipped with that particular system. Then:

1. After you complete the system rebuild, you must install the MARS PC version 6 application software. Use the upgrade instructions in “**Perform Software Upgrade to v6**” on page 3-6 of this manual.

NOTE

Make sure the activator codes get reinstalled. Refer to “**Reinstall Activator Codes for Standalone Systems**” on page 6-12 for more information.

Perform steps 2 - 4 if the NT system is being added to the network as a client. If it is a standalone system, steps 2 - 4 do not apply.

2. After the application software has been installed, go to “**Uninstall the Modem**” on page 6-14 of this manual.
3. Configure the network by following “**Software Upgrade and Network Setup for Windows NT Systems**” on page 3-5 of this manual.

Begin Rebuild for MARS PC Standalone or Client

NOTE

The following procedures are used to rebuild the MARS PC standalone or client workstations running on Compaq EVO D510, HP EVO D530, and HP dc7100 systems only.

Change the Boot Order

1. Select **Ctrl+ Alt+ Delete** to reboot the system.
2. Hold down the **F10** key during the reboot to enter the *BIOS Setup* window.
3. At the *Password* window type **WERIOP**.
4. Select *English*.
5. Use the left and right **arrow** keys on the keyboard to select *Storage*.
6. Select *Boot Order*.

7. Change the *Boot Order* to the following:

Boot Order	Default Settings
IDE CDROM Drive	First
Diskette Drive (A:)	Second
Hard Drive (C:)	Third
USB Device	Fourth
Ethernet controller	Fifth

8. Verify the settings are correct.
9. Press **F10** to accept the changes.
10. Select *File*.
11. Select *Save Changes and Exit*.
12. Press **F10** to *Save the changes and Exit* window.
13. The system will reboot.
14. At the login prompt:
- Enter **Administrator** for the Username.
 - Enter **WERIOP** for the *Password*.
15. Exit the MARS PC application.
16. Go to **“Insert Rebuild CD”** on page 6-6.

Insert Rebuild CD

- Insert the first rebuild CD into the CD drive.
- Open the *Start* menu located in the lower left corner of the Windows task bar.
- Select *Shut Down > Restart*.
- At the *Do you wish to continue?* prompt, enter **Y**.
- At the *Are you sure?* question, enter **Y**.
- The Symantec *Ghost* window will open and the rebuild will begin.
 - When prompted, insert the second CD and select *OK*.
- At the *A:\>* prompt, remove the CD.
 - Reboot the system by pressing **Ctrl+Alt+Delete**.
- Allow a few minutes for the *License Agreement* window to appear.

NOTE

Several other windows will appear before the *License Agreement* window. Do not respond to any other windows.

- If you agree, select *I accept this agreement*.

- b. Select *Next*.
- 9. At the *Regional Settings* window, select *Next*.
- 10. At the *Personalize Your Software* window, fill in the *Name* and *Organization* boxes with the customer's personal organization information.
- 11. At the *Product Key* window, enter the 25 digit **product key** located on the Microsoft label on top of your system box.

Select *Next*.

NOTE

The next step requires you to enter a unique computer name. There cannot be any other computers on the network with the same name.

- 12. At the *Computer Name and Administrator Password* window:
 - a. Enter a unique *Computer Name*.
 - b. Enter **WERIOP** for the *Administrator Password*.
 - c. Select *Next*.

Enter Modem Information

If you are rebuilding a standalone system, and the modem is attached, answer each question in the *Modem Dialing Information* window:

- 1. At the *Date and Time Settings* window:
 - a. Enter the correct date and time.
 - b. Select the correct time zone.
 - c. Select *Next*.
- 2. At the *Network Settings* window:
 - a. Select *Typical Settings*.
 - b. Select *Next*.
- 3. At the *Workgroup or Computer Domain* window:
 - a. Select *No, this computer is not....*
 - b. Type **MARSWORKGROUP**
 - c. Select *Next*.
 - d. Select *Finish* to reboot the system.

NOTE

If there is a pcAnywhere error message, select *OK*.

- 4. At the *Welcome to the Network Identification* wizard window, select *Next*.
- 5. At the *Users of this Computer* window:
 - a. Select *Users must enter....*
 - b. Select *Next*.

- c. Select *Finish*.
6. At the login prompt:
 - a. Enter **Administrator** for the *Username*.
 - b. Enter **WERIOP** for the *Password*.
 - c. Select *OK*.

NOTE

If there is no modem attached, click *OK* to the pcAnywhere message.

Disable the UPS Software

If you are setting up a machine which will be used WITHOUT a UPS, you need to disable UPS software:

1. Click *Start > Programs > Startup*.
2. Right-click on *LSIII Executor*. Select *Delete*.
3. Click *Yes* to confirm the file deletion.
4. Right-click on the *My Computer* icon on the desktop. Select *Manage*.
5. Expand *Services and Applications*.
6. Click on *Services*.
7. Locate and right-click on *LanSafe III Power Monitor Service*. Select *Properties*.
8. Select *Disabled for Startup Type*.
9. Click *OK*.
10. Close the *Computer Management* window.

Reinstall UPS Drivers

If you are setting up a machine which will be used WITH a UPS, you will need to reinstall the UPS drivers:

1. If the *Found New Hardware Wizard* is displayed, click *Next*.
2. Insert the MARS Support CD in the CD-ROM drive.
3. At the *Install Hardware ...* screen, verify the device is a *Powerware UPS*. Click *Next*.
4. At *Locate Driver Files* screen, click *Next*.
5. Verify that the *Windows found a driver for this device...* message is displayed. Click *Next*.
6. At the *Lansafe III Setup* dialog, click *Yes*.
7. Note that the *LanSafe III Setup* window appears. Click *Install*.
8. In the *Introduction to UPS Groups* window, select *No* and click *Continue*.

9. In the *UPS model selection* window, verify *Powerware 5115* is selected. Click *Continue*.
10. In the *Communication Port Selection* window, verify that *COM 1* is selected. Click *Continue*.
11. In the *UPS Access Code* window, type in **WERIOP** and click *Continue*.
12. In the *Shutdown Timing Options* window, leave default options and click *Continue*.
13. In the *Install Path* window, leave the default path and click *Continue*.
14. A window appears saying that the software was successfully installed. Click *OK*.
15. Click *Finish*.

Installing an External Card Reader

NOTE

This section applies only if a USB external OmniDrive card reader is attached (i.e., to dc7100 convertible mini-tower systems). If this does not apply to your system, proceed to the next section, “[Configuring pcAnywhere](#)” on page 6-9.

After logging in, the external card reader will be installed. The *Found New Hardware* window will appear after login to display the drive.

If the card reader (Omni Drive) drive letter assigned is other than *O:* it will have to be changed:

1. Right-click on the *My Computer* icon on the desktop. Select *Manage*.
2. Click on *Disk Management*.
3. Right-click on *Disk 1 Removable* and select *Change Drive Letter*.
4. Select *Edit*.
5. Select *O:*.
6. Click *OK*.
7. Click *Yes*.
8. Close the *Computer Management* window.

Configuring pcAnywhere

NOTE

For dc7100 convertible mini-tower systems, proceed to “[Reset the Boot Order](#)” on page 6-10. For all other systems, complete the steps outlined in this section.

1. Double click the *Symantec pcAnywhere* icon on the desktop, and the *pcAnywhere Manager* window opens.
2. Select *Tools > Options*.

3. Select *Host Operation*.
 - a. Select *Windows computer name*.
 - b. Select *Default (accelerator enabled)* for *Video mode* selection.

NOTE

For the next step, do NOT select *Apply*.

- ◆ Select *Yes > OK*.
4. If you are rebuilding a standalone workstation go to step 5. If you are building a client workstation, do the following:
 - a. Select the modem in the *pcAnywhere Manager* window.
 - b. Right-click *Delete*.
 - c. Click *Yes* to confirm the deletion.
5. Close the window.
6. Select *Start > Shutdown > Restart*.

Reset the Boot Order

1. Select **Ctrl+ Alt+ Delete** to reboot the system.
2. Hold down the **F10** key during the reboot to enter the *BIOS Setup* window.
3. At the *Password* window, type **WERIOP**.
4. Select *English*.
5. Use the left and right **arrow** keys on the keyboard to select *Storage*.
6. Select *Boot Order*.
7. Change the *Boot Order* to the following:

Boot Order	Default Settings
IDE CDROM Drive	First
Diskette Drive (A:)	Second
Hard Drive (C:)	Third
USB Device	Fourth
Ethernet controller	Fifth

8. Verify that the settings are correct.
9. Press **F10** to accept the changes.
10. Select *File*.
11. Select *Save Changes and Exit*.
12. Press **F10** to *Save the changes and Exit* window.
13. The system will reboot.
14. At the login prompt:

- a. Enter **Administrator** for the *Username*.
 - b. Enter **WERIOP** for the *Password*.
15. To configure a standalone system, go to “**Install MARS PC Standalone Application Software**” on page 6-11
- or
- To configure a client system, go to “**Install MARS PC Client Application Software**” on page 6-12

Install MARS PC Standalone Application Software

Install Options

The MARS PC standalone installation prompts the user to choose between a *custom* or a *typical* install, but in the standalone configuration the two are exactly the same.

The *Typical Install* and the *Custom Install* will prompt the user to change the MARS PC application location, number of patient slots, and startup information. It makes no difference which installation is performed.

Begin Application Installation

1. Insert the MARS PC Application CD into the CD drive. Allow the MARS installation program to start automatically.
2. Choose the desired language at the *Choose Setup Language* window.
3. At the *Welcome to the InstallShield Wizard for MARS* window, click *Next*.
4. Read the *License Agreement* window information, and if you agree select *Yes*.
5. At the *MARS Setup* window, select the *Typical Install (Recommended)* button.
6. At the *MARS System Type* window, select the *Standalone* button.
7. At the *Destination Disk* window, select the check box for the *C drive*.

NOTE

If you want a different drive letter as the destination drive, please select one of the drive options displayed in the *Destination Disk* window. If a drive does not have enough space available the “*Not enough free space*” message will appear next to the drive letter.

Select *Next*.

8. At the *Number of patient slots* window, enter the desired **number** of *SEER* and *Tape* slots by clicking on the arrows.

NOTE

The number of slots created must be a minimum of 5. Enter the fewest number of slots you intend to use. System performance

decreases as the number of slots increases. Refer to “[Slot Installation/Time Consumption Report](#)” on page B-3 for specific information.

Select *Next*.

9. At the *MARS Setup* window:
 - a. If running only MARS PC software, select the *Start MARS automatically at login* option.

or

If also running CardioSoft, select the *Do not start MARS automatically at Login* option.

- b. Select *Next*.

NOTE

The MARS PC software installation will begin, and it will take approximately 5 – 15 minutes to install, depending on the number of slots being created.

10. At the *InstallShield Wizard Complete* window, select *Finish*. The MARS PC will reboot.
11. Remove the CD from the drive and store it in a safe location.
12. Go to “[Reinstall Activator Codes for Standalone Systems](#)” on page 6-12.

Reinstall Activator Codes for Standalone Systems

1. At the login prompt:
 - a. Enter **Administrator** for the *Username*.
 - b. Enter **WERIOP** for the *Password*.
2. Place the floppy disk with the *.active* file into the floppy drive.
3. Select the drive letter where the MARS PC program was installed.

NOTE

This will be the C: drive for workstations running Windows 2000, and generally the D: drive for workstations running Windows NT.

4. Select *gemsit > var > MarsNT > system*.
 5. Copy the *.active* file from the floppy to the *system* folder.

The reimage is complete for the MARS PC standalone system.

Install MARS PC Client Application Software

Client Install Options

The MARS PC client allows the user to choose between a custom or a typical installation. Make sure you understand the difference between the installs before beginning.

The *Typical Install* leaves all the patient data in its current location and retains the system setup information. This is the install most customers will want to perform.

NOTE

After reimaging systems, all patient data and system setup information will be lost.

The *Custom Install* will prompt the user to change the MARS PC application location. For example, you could have the MARS PC application placed on a drive other than the C drive. The *Custom Install* option will maintain the original patient data.

1. Insert the MARS PC Application CD into the CD drive. Allow the MARS installation program to start automatically.
2. Choose the desired language at the *Choose Setup Language* window.
3. At the *Welcome to the InstallShield Wizard for MARS* window, click *Next*.
4. Read the *License Agreement* window information, and if you agree select *Yes*.
5. At the *MARS Setup* window:

If you select the *Typical Install (Recommended)* button, go to “**Typical Install (Client)**” on page 6-13.

If you select the Custom Install button, go to “**Custom Install (Client)**” on page 6-13.

Typical Install (Client)

1. Select *Typical*.
2. Select *Client*.
3. Select *Start MARS Automatically*.
The MARS PC software installation will begin. It will take approximately 5 – 15 minutes to install.
4. At the *Installshield Wizard Complete* window, select *Finish*. The software installation is complete.
5. Remove the CD from the drive and store it in a safe location.
6. Go to Uninstall the Modem “**Uninstall the Modem**” on page 6-14.

Custom Install (Client)

1. Select *Custom*.
2. Select *Client*
3. At the *Destination Disk* window, select the desired drive to which the MARS PC application software should be written. Select *Next*.
4. Select *Start MARS Automatically*.

The MARS PC software installation will begin, and it will take approximately 5-15 minutes to install.

5. At the *Installshield Wizard Complete* window, select *Finish*. The software installation is complete.
6. Remove the CD from the drive and store it in a safe location.
7. Go to Uninstall the Modem “Uninstall the Modem” on page 6-14

Uninstall the Modem

If you are setting up a MARS PC client system, you need to uninstall the MultiTech 5634 ZBA modem.

1. Go to the *Control panel* and double click the *Phone and Modem Options* icon.
2. In the *Phone and Modem Options* window, open the *Modems* tab, highlight MultiTech MT5634ZBA modem, click *Remove*.
3. Click *Yes* to confirm the removal.
4. Click *OK* to close the *Phone and Modem Options* window.
5. Step 5 applies to all systems EXCEPT the dc7100 convertible mini-tower system. For dc7100 systems, skip ahead to step 6.
 - a. Double click the *Symantec pcAnywhere* icon on the desktop.
 - b. In the *pcAnywhere Manager* window, click the *Hosts* button.
 - c. Right click on the *MODEM* icon, click *Properties*, click *Settings* tab, deselect the *Launch with Windows*, click *OK*.
 - d. Right click on the *DIRECT* icon, click *Properties*, click *Settings* tab, select the *Launch with Windows*, click *OK*.
 - e. Close the *pcAnywhere Manager* window.

Steps 6 and 7 refer to dc7100 convertible mini-tower systems only. For all other systems, proceed to step 8.

6. For dc7100 convertible mini-tower systems only: If you are rebuilding a client system, you need to uninstall MultiTech 5634ZBA modem.
 - a. Double-click the *Symantec pcAnywhere* icon on the desktop.
 - b. In *pcAnywhere Manager* window, click *Hosts*.
 - c. Right-click on the *MODEM* icon, click *Properties*.
 - d. Click the *Settings* tab. Deselect *Launch with Windows*. Click *OK*.
 - e. Right-click on the *Direct* icon. Click *Properties*.
 - f. Click *Settings* tab. Select *Launch with Windows*. Click *OK*.
 - g. Close the *pcAnywhere Manager* window.
7. Go to “Reinstall Activator Codes” on page 6-21.

Reimage System for MARS PC Server Workstations

This section explains how to reimage the MARS PC server using the system server rebuild CD.

Change the Boot Order

1. Select **Ctrl+ Alt+ Delete** to reboot the system.
2. Hold down the **F10** key during the reboot to enter the *BIOS Setup* window.
3. At the *Password* window type **WERIOP**.
4. Select *English*.
5. Use the left and right **arrow** keys on the keyboard to select *Storage*.
6. Select *Boot Order*.
7. Change the *Boot Order* to the following:

Boot Order	Default Settings
IDE CDROM Drive	First
Diskette Drive (A:)	Second
USB Device	Third
Hard Drive (C:)	Fourth
Ethernet controller	Fifth

8. Verify that the settings are correct.
9. Press **F10** to accept the changes.
10. Select *File*.
11. Select *Save Changes and Exit*.
12. Press **F10** to *Save the changes and Exit* window.
13. The system will reboot.
14. At the login prompt:
 - a. Enter **Administrator** for the *Username*.
 - b. Enter **WERIOP** for the *Password*.
15. Exit the MARS PC application.
16. Go to **"Insert Server Rebuild CD"** on page 6-16.

Insert Server Rebuild CD

1. Insert the first server rebuild CD into the CD drive.
2. Open the *Start* menu located in the lower left corner of the Windows task bar.
3. Select *Shut Down > Restart > OK*.
4. At the *Do you wish to continue?* question enter **Y**.
5. At the *Are you sure?* question enter **Y**.
6. The Symantec *Ghost* window will open and the rebuild will begin.
When prompted, insert the second CD and select *OK*.
7. When the *A:\>* prompt appears, remove the CD.

Reboot the system by pressing **Ctrl+Alt+Delete**

NOTE

Several windows will run before the *License Agreement* window appears.

8. If you agree with the *License Agreement* window, select *I accept this agreement*.
Select *Next*.
9. At the *Regional Settings* window, select *Next*.
10. At the *Personalize Your Software* window, fill in the *Name* and *Organization* boxes with the customer's personal organization information.
11. At the *Your Product Key* window enter the **product key** number, which is printed on the Microsoft label and located on top of the MARS PC server system box.
Select *Next*.
12. At the licensing modes window, select *Per server*. In the *Number of concurrent connections* window:
 - a. Enter **5** for the number of concurrent connections.
 - b. Select *Next*.

NOTE

The next step requires you to enter a unique computer name. There cannot be any other computers on the network with the same name.

13. At the *Computer Name and Administrator Password* window:
 - a. Enter a unique *Computer Name*.
 - b. Enter **WERIOP** for the *Administrator Password*.
 - c. Select *Next*.
14. Answer each question in the *Modem Dialing Information* window.
15. At the *Date and Time Settings* window:
 - a. Enter the correct date and time.

- b. Select the correct time zone.
- c. Select *Next*.
- 16. At the *Network Settings* window:
 - a. Select *Typical Settings*.
 - b. Select *Next*.
- 17. At the *Workgroup or Computer Domain* window:
 - a. Select *No, this computer is not on a network...*
 - b. Type **MARSWORKGROUP**
 - c. Select *Next*.
 - d. Select *Finish* to reboot the system.
- 18. Login to the system by pressing **Ctrl+Alt+Delete**
- 19. At the login prompt:
 - a. Enter **Administrator** for the *Username*.
 - b. Enter **WERIOP** for the *Password*.
 - c. Select *OK*.

NOTE

If there is a pcAnywhere error message, select *OK*.

Disable the UPS

If you are setting up a machine which will be used WITHOUT a UPS, you need to disable UPS software:

- 1. Click *Start > Programs > Startup*.
- 2. Right-click on *LSIII Executor*. Select *Delete*.
- 3. Click *Yes* to confirm the file deletion.
- 4. Right-click on the *My Computer* icon on the desktop. Select *Manage*.
- 5. Expand *Services and Applications*.
- 6. Click on *Services*.
- 7. Locate and right-click on *LanSafe III Power Monitor Service*. Select *Properties*.
- 8. Select *Disabled for Startup Type*.
- 9. Click *OK*.
- 10. Close the *Computer Management* window.

Reinstall UPS Drivers

If you are setting up a machine which will be used WITH a UPS, you will need to reinstall the UPS drivers:

1. If the *Found New Hardware Wizard* is displayed, click *Next*.
2. Insert the MARS Support CD in the CD-ROM drive.
3. At the *Install Hardware ...* screen, verify the device is a *Powerware UPS*. Click *Next*.
4. At *Locate Driver Files* screen, click *Next*.
5. Verify that the *Windows found a driver for this device...* message is displayed. Click *Next*.
6. At the *Lansafe III Setup* dialog, click *Yes*.
7. Note that the *LanSafe III Setup* window appears. Click *Install*.
8. In the *Introduction to UPS Groups* window, select *No* and click *Continue*.
9. In the *UPS model selection* window, verify *Powerware 5115* is selected. Click *Continue*.
10. In the *Communication Port Selection* window, verify that *COM 1* is selected. Click *Continue*.
11. In the *UPS Access Code* window, type in **WERIOP** and click *Continue*.
12. In the *Shutdown Timing Options* window, leave default options and click *Continue*.
13. In the *Install Path* window, leave the default path and click *Continue*.
14. A window appears saying that the software was successfully installed. Click *OK*.
15. Click *Finish*.

Installing an External Card Reader

NOTE

This subsection applies only if a USB external OmniDrive card reader is attached (i.e., to dc7100 convertible mini-tower systems). If this does not apply to your system, proceed to the next section, [“Configuring pcAnywhere”](#) on page 6-19.

After logging in, the external card reader will be installed. The *Found New Hardware* window will appear after login to display the drive.

If the card reader (Omni Drive) drive letter assigned is other than *O:* it will have to be changed:

1. Right-click on the *My Computer* icon on the desktop. Select *Manage*.
2. Click on *Disk Management*.
3. Right-click on *Disk 1 Removable* and select *Change Drive Letter*.

4. Select *Edit*.
5. Select *O:*.
6. Click *OK*.
7. Click *Yes*.
8. Close the *Computer Management* window.

Configuring pcAnywhere

NOTE

For dc7100 convertible mini-tower systems, proceed to step 4.
For all other systems, complete steps 1 - 5.

1. Double click the *Symantec pcAnywhere* icon on the desktop, and the *pcAnywhere Manager* window opens.
2. Select *Tools > Options*.
 - a. Select *Host Operation*.
 - b. Select *Windows Computer Name*.
 - c. Select *Default (accelerator enabled)* for *Video mode* selection.
 - d. Select *Yes* to the *Video Sub-system* message.
 - e. Select *OK*. The window will close.
3. Close the *pcAnywhere Manager* window.
4. To restart the system, select *Start > Shutdown > Restart*.

Enterprise Servers with 25 Clients

If you are setting up a enterprise server with 25 clients, you must increase the number of installed Windows CAL from 5 to 25:

1. Click *Start > Programs > Administrative Tools > Licensing*.
2. Click on *Product View* tab.
3. Click on *Windows Server*.
4. Click *License > Properties*.
5. Click on *Server Browser* tab.
6. Double click on the name of this server.
7. In the *Properties* window that is displayed for this server, click *Edit*.
8. Verify that *Per Server* licensing mode is selected. Click *Add License*.
9. Verify that *Windows Server* is selected for *Product* in the *New Client Access License* window.
10. Enter **20** for *Quantity*. Click *OK*.
11. In the *Per Server Licensing* window, select *I Agree that...* Click *OK*.
12. Click *OK* to close the *Licensing Mode* window.
13. Click *OK* to close the *Properties* window.

14. Click *OK* to close the *Properties of Windows Server* window.
15. Close the *Enterprise Licensing* window.

Reset the Boot Order

1. Select **Ctrl+ Alt+ Delete** to reboot the system
2. Hold down the **F10** key during the reboot to enter the *BIOS Setup* window.
3. At the *Password* window, type **WERIOP**.
4. Select *English*.
5. Use the left and right **arrow** keys on the keyboard to select *Storage*.
6. Select *Boot Order*.
7. Change the *Boot Order* to the following:

Boot Order	MARS PC Settings
IDE CDROM Drive	Third
Diskette Drive (A:)	First
USB Device	Fifth
Hard Drive (C:)	Second
Ethernet controller	Fourth

8. Verify that the settings are correct.
9. Press **F10** to accept the changes.
10. Select *File*.
11. Select *Save Changes and Exit*.
12. Press **F10** to *Save the changes and Exit* window.
13. The system will reboot.
14. At the login prompt:
 - a. Enter **Administrator** for the *Username*.
 - b. Enter **WERIOP** for the *Password*.
15. Go to **"Install MARS PC Server Application Software"** on page 6-21.

Install MARS PC Server Application Software

Install Option

The MARS PC server allows the user to choose between a *custom* or a *typical* install. In this instance, the two are exactly the same.

The *Typical Install* and the *Custom Install* will prompt the user to change the MARS PC application location, number of patient slots, and startup information. It makes no difference which install is performed.

1. Insert the MARS PC server Application CD into the CD drive. Allow the MARS installation program to start automatically.
2. Choose the desired language at the *Choose Setup Language* window.
3. At the *Welcome to the InstallShield Wizard for MARS* window, click *Next*.
4. Read the *License Agreement* window information, and if you agree select *Yes*.
5. At the *MARS Setup* window, select the *Typical Install (Recommended)* button.
6. At the *MARS System Type* window, select *Server*.
7. At the *Destination Disk* window, select *Next*.
8. At the *Number of Patient Slots* window **enter** the desired number of slots.
9. At the *MARS Setup* window:
 - a. If running only MARS PC software, select the *Start MARS automatically at login* option.
 - or
 - b. If also running CardioSoft, select the *Do not start MARS automatically at Login* option.

NOTE

The system setup will begin. The time it takes for the setup to complete depends on the number of slots chosen.

10. At the *Installshield Wizard Complete* window, select *Yes, I want to restart my computer now*.
11. Remove the CD from the drive and store it in a safe location.
12. Select *Finish*. The software installation is complete.
13. Go to **“Reinstall Activator Codes”** on page 6-21.

Reinstall Activator Codes

1. At the login prompt:
 - a. Enter **Administrator** for the *Username*.
 - b. Enter **WERIOP** for the *Password*.

2. Place the floppy disk with the *.active* file into the floppy drive.
3. Select the drive letter where the MARS PC program was installed.

NOTE

This will be the C: drive for workstations running Windows 2000, and generally the D: drive for workstations running Windows NT.

4. Select *gemsit > var > MarsNT > system*.
5. Copy the *.active* file from the floppy to the *system* folder.
6. Go to [“Network Setup for Windows 2000 Systems”](#) on page 3-3.

Setting the Operating System Language

The MARS PC operating system is set to English at the factory. Additional operating system languages supported are German, Spanish, French, Italian Swedish and Dutch. Determine which operating system language the customer wants.

If the desired operating system language is	then go to
English	“Network Setup for Windows 2000 Systems” on page 3-3.
German, Spanish, French, Italian, Swedish, or Dutch	“Setting the Language” on page 6-22.

Setting the Language

1. Login the system as Administrator (password: WERIOP).
2. Select *Start > Settings > Control Panel*.
3. In the control panel, select *Regional Options*.
4. In the *Regional Options* window, select the *General* tab.
5. Select the correct country for your locale, and select the correct language for menus and dialogs.
6. Click *OK* to close the *Regional Options* window.
7. Click *Yes* to confirm the change.
8. Log off as the Administrator, and re-login as Administrator, to verify the operating system is in the new language.
9. Go to [“Network Setup for Windows 2000 Systems”](#) on page 3-3.

7 Parts List

For your notes

Introduction

Ordering Parts

The parts list in this chapter lists all the FRU items that may need to be ordered. If you need any additional information or troubleshooting assistance please contact Technical Support at 1-800-558-7044 or 1-561-575-5000 ext. 4243.

To order parts please contact the Service Parts department at the address or telephone number listed on the "How to Reach Us" page provided at the beginning of this manual

Table 1. System Boxes

GEMSIT Part Number	Description	QTY
2008849-003	Compaq EVO D510 mini-tower box	1
2020338-001	HP EVO D530 CMT (convertible mini-tower)	1
2025413-001	HP dc7100 CMT (convertible mini-tower)	1

Table 2. Compaq EVO D510 Mini Tower Internal System Box

Compaq Part Number	Description	Qty
250185-001	100/7200 ATA Hard Drive - 80Gb	1
286711-001	40/12/40X CD-RW Drive	1
289983-001	Mother Board	1
305579-001	2.8GHZ CPU (533MHz front side bus, 512KB L2 cache, 478-pin socket)	1
285649-001	DDR DRAM 256 MB	1
302652-001	Serial Ribbon Cable	1
278644-001	Floppy Diskette Drive 3.5	1
153099-001	Battery	1
289575-001	Chassis fan assembly	1
283984-001	Internal serial port	1
299172-001	Front cover plastic panel	1
277979-001	Power Supply dual voltage	1
257047-001	IDE Ribbon Cable	1

Table 3. HP EVO D530 CMT Internal System Box

HP Part Number	Description	Qty
250185-001	100/7200 ATA Hard Drive - 80Gb	1
325308-001	48X/24X/48X CD-RW Drive	1
323091-001	Mother Board (does not include processor)	1
335813-001	2.8GHZ CPU (533MHz front side bus, 512KB L2 cache, 478-pin socket)	1
335698-001	DDR SDRAM DIMM Memory 256 MB	1
333505-001	Floppy Diskette Drive 3.5	1
153099-001	Battery	1
330457-001	Chassis fan	1
341899-001	Internal serial port	1
336443-001	Front cover plastic panel	1
308615-001	Power Supply	1
336448-001	IDE cable-Ultra ATA dual device	1

Table 4. HP dc7100 CMT Internal System Box

HP Part Number	Description	Qty
345713-005	100/7200 ATA Hard Drive - 80Gb	1
358688-001	8x DVD+R/+RW Drive	1
365865-001	Mother Board (does not include processor)	1
367594-001	2.8GHZ CPU (800MHz front side bus, 1MB L2 cache, 478-pin socket)	1
335698-005	DDR SDRAM DIMM Memory 256 MB	2
333505-005	Floppy Diskette Drive 3.5	1
153099-001	Battery	1
366641-001	Chassis fan	1
283984-005	Internal serial port	1
371116-001	Front cover plastic panel	1
344987-001	Power Supply	1
366640-001	IDE cable-Ultra ATA dual device	1

Table 5. Printers

GEMSIT Part Number	Description	QTY
2008159-001	HP 1200 LaserJet Printer	1
2014596-005	HP 4200N LaserJet Printer	1
2025143-001	HP 4250N LaserJet Printer	1

Table 6. Keyboards

GEMSIT Part Number	Description	QTY
2016193-001	English Keyboard	1
2016193-003	Danish Keyboard	1
2016193-006	French Keyboard	1
2016193-007	German Keyboard	1
2016193-008	Italian Keyboard	1
2016193-011	Spanish Keyboard	1
2016193-012	Swedish/Finnish Keyboard	1

Table 7. Compaq EVO D510 and HP EVO D530 OEM Hardware

GEMSIT Part Number	Description	QTY
2008751-001	Adapter MARS compact flash to PC card	1
70124944	Internal PCMCIA Card reader	1
2017036-001	Black Bezel 3.5 to 5.25 (for card reader)	1
2016200-001	I/O serial board	1
2016199-001	I/O parallel board	1
2015936-001	SCSI board (optional)	1
2016502-001	Cable internal	1

Table 8. HP dc7100 OEM Hardware

GEMSIT Part Number	Description	QTY
2015936-001	SCSI board (optional)	1
2025508-001	External OMNI USB linear flash card reader	1
2025507-001	Single external USB-serial RS232 connector cable	2

	Table 9. Monitors	
GEMSIT Part Number	Description	QTY
2000594-016	Compaq 17 inch Monitor	1
2001732-002	Sony 21 inch Monitor CPD-G520P	1
2013547-001	NEC 1880SX Flat Panel Display 18 inch	1
2023609-001	NEC 1980SX Flat Panel Display 19 inch (white/beige)	1
2024188-001	NEC 1980SX Flat Panel Display 19 inch (black)	1

	Table 10. Peripherals	
GEMSIT Part Number	Description	QTY
2003771-002	Powerware PW5115, 500, 110V	1
2003772-003	Powerware PW5115, 500i, 230V	1
2002242-001	RSS MultiTech Analog Modem (Domestic)	1
2002241-001	RSS MultiTech Analog Modem (International)	1
900466-101	Tape Acquisition Drive (US only)	1
900466-102	Tape Acquisition Drive (International)	1
2005410-001	SCSI Cable	1

	Table 11. Miscellaneous	
GEMSIT Part Number	Description	QTY
3613-902	Tape Cleaning and Demagnetizer kit (Used on Tape Acquisition Unit)	1

Appendix A: Technical Descriptions

For your notes

Table 1. Compaq EVO D510 Mini-Tower Workstation Specifications

Manufacturer/Model	Compaq EVO D510 Mini tower
Processor	Intel Pentium 4 (1.8G/P4 CPU)
Standard L2 Cache	256 KB
System memory	2 GB (maximum)
Hard drive capacity	20 GB
Chipset	Intel 845G
Front side bus	400 MHz
Number of serial ports	4
CD-ROM drive	16X CD-ROM Drive
Dimensions (H x W x D)	17.65 x 6.6 x 16.8 inches (44.8 x 16.8 x 42.7 cm)
Weight	26 lbs. (11.8 kgms)
Rated Input Voltage	100 to 127 VAC or 200-240 VAC
Rated Input Current	6A @ 100VAC/3A@ 220VAC
Maximum Rated Power	220W
BTU/hr	1061 BTU/hr Maximum (338W input)

Table 2. HP EVO D530 CMT (Convertible Mini-Tower) Workstation Specifications

Manufacturer/Model	HP EVO D530 CMT(Convertible Mini tower)
Processor	Intel Pentium 4 (3.2G/P4 CPU)
Standard L2 Cache	512 KB
System memory	2 GB (maximum)
Hard drive capacity	80 GB
Chipset	Intel 865G
Front side bus	533 MHz
Number of serial ports	4
CD-ROM drive	48X/24X/48X CD-RW Drive
Dimensions (H x W x D)	17.65 x 6.6 x 17.8 inches (44.8 x 16.7 x 45.2 cm)
Weight	32.5 lbs. (14.74 kgms)
Rated Input Voltage	100 to 127 VAC or 200-240 VAC
Rated Input Current	6A @ 100VAC/3A@ 220VAC
Maximum Rated Power	240W
BTU/hr	1260 BTU/hr Maximum

Table 3. HP dc7100 CMT (Convertible Mini-Tower) Workstation Specifications	
Manufacturer/Model	HP dc7100 CMT(Convertible Mini tower)
Processor	Intel Pentium 4 (3.2G/P4 CPU) with Hyperthread
Standard L2 Cache	1MB
System memory	4 GB (maximum)
Hard drive capacity	80 GB
Chipset	Intel 915G Express
Front side bus	800 MHz
Number of serial ports	2
DVD+R/+RW Drive	8X 4.7 GB DVD+R/+RW Drive
Dimensions (H x W x D)	17.65 x 6.6 x 17.8 inches (44.8 x 16.7 x 45.2 cm)
Weight	32.5 lbs. (14.74 kgms)
Rated Input Voltage	100 to 120 VAC or 200-240 VAC
Rated Input Current	6A @ 100VAC/3A@ 220VAC
Maximum Rated Power	340W
BTU/hr	1575 BTU/hr Maximum

Table 4. 21-inch Sony Color Monitor CPD G520P

CRT (cathode ray tube)	21 inches, FDTrinitron 90 -degree deflection
Viewable Image Size:	19.8" measured diagonally
Aperture Grille Pitch:	0.24mm
Maximum Resolution:	2048 x 1536 @ 85Hz
Signal Inputs:	Analog RGB: 0.7Vp-p, 75 ohm termination Sync Signal: Separate or composite sync: TTL 2k ohms, polarity free Sync on Green: 0.3Vp-p, negative
AC input voltage/current	100-240V AC; 50-60Hz; 2.0-1.0 A
Power Consumption	135 W (approximate)
Dimensions (W x H x D):	19.75 x 19.5 x 19.2 inches
Weight:	66.2 lbs

Table 5. NEC MultiSync LCD 1850X

LCD Module	18 inches,matrix, thin film transistor (TFT), liquid crystal display (LCD),0.28 mm dot pitch, XtraView+ technology, RGB vertical stripe color filter arrangement, 240 cd/m2 white luminance typical, 300:1 contrast ratio - typical
Active Display Area:	Horizontal: 14.1 inches / 359 mm Vertical: 11.3 inches / 287 mm (Dependent upon signal timing used)
Current Rating	0.8A @ 100 - 120V / 0.4A @ 220 - 240V
AC input voltage/current	Universal 100 (110-240V) 50-60Hz Internal
Power Consumption	65 W (Power Save Mode: 3W)
Viewing Angle	Left/Right: 85° Up: 85° Down: 85°
Operating Temperature	+41° F to +95° F / +5° C to +35° C
Operating Humidity Range	30% to 80%
Dimensions (W x H x D):	Net (with stand): 15.7 in (W) x 17.5 in (H) x 8.6 in (D) 398 mm (W) x 452 mm (H) x 218 mm (D) Net (without stand): 15.7 in (W) x 13.7 in (H) x 2.9 in (D) 398 mm (W) x 349 mm (H) x 74.4 mm (D) Gross: 21.1 in. (W) x 21.6 in. (H) x 12.3 in. (D) 535 mm (W) x 548 mm (H) x 312 mm (D)
Weight:	Net (with stand): 18.7 lbs. / 8.5 kg

Table 6. NEC MultiSync LCD 1980SX	
LCD Module	19-inch (19.0" viewable image size), active matrix, thin film transistor (TFT), liquid crystal display (LCD), 0.294 mm dot pitch, XtraView+ technology, RGB vertical stripe color filter arrangement, 250 cd/m2 white luminance typical, 600:1 contrast ratio - typical, 25ms response time - typical
Active Display Area	Horizontal: 15.0 inches / 380 mm Vertical: 11.8 inches / 300 mm (Dependent upon signal timing used)
Current Rating	0.7A @ 100 - 120V / 0.35A @ 220 - 240V (without Option soundbar) 0.8A @ 100 - 120V / 0.45A @ 220 - 240V (with Option soundbar)
AC input voltage/current	Universal 100 (110-240V) 50-60Hz Internal
Power Consumption	36 W (Power Save Mode: <1W)
Viewing Angle	Left/Right: 85° Up: 85° Down: 85°
Operating Temperature	+41° F to +95° F / +5° C to +35° C
Operating Humidity Range	30% to 80%
Dimensions (W x H x D)	Net (with stand): 16.2"(W) x 14.4-19.5"(H) x 7.9"(D) 412.2mm(W) x 364.8-494.8mm(H) x 200mm(D) Net (without stand): 16.2"(W) x 13.3"(H) x 3.1"(D) 412.2mm(W) x 337mm(H) x 80mm(D)
Weight	Net (with stand): 20.5 lbs. / 9.3kg

Table 7. Compaq 17-inch Color Monitor (V720)	
CRT size:	17-inch High-contrast Flat Faceplate
Viewable Image Size:	16" viewable
Horizontal Dot Pitch	.20 - .25 mm
Digital Dot Pitch	.25 - .28 mm
Max Resolution	1600 Dots x 1200 Lines
Text Mode	720 x 400/ 70 Hz
Horizontal Frequency	30 - 86 KHz
Vertical Frequency	50 - 160 KHz
Maximum Power Rating	100 W
Synch Input	TTL separate synch
Signal Cable	Captive 15-pin D-sub video cable

Table 7. Compaq 17-inch Color Monitor (V720) (Continued)

Dimensions (W x D x H)	15.66 x 16.22 x 15.74 inch (398 x 412 x 400 mm)
Weight	35.7 lb. (16.2 kg)
Power Consumption	100 W maximum
Power Saver State	< 3 W
Operating Temperature	32° F-104° F (0° C - 40° C)
Operating Humidity	20%-80% (Non-Condensing)

Table 8. Card Reader Unit (internal)

Item	Description
Type	Omni Drive Professional
Pc Card Slots	1 Type III slot, front side
Interface	Centronics interface (printer port) SPP, EPP automatic configuration
Data Transfer Speed	up to 1 mbyte/sec
Types of PC Card	SRAM Linear flash ATA/flash hard disk type II, III
Weight	1.32 lbs. or 600 g
Operating temperature	0 C to +70 C
Storage Temperature	-20 C to +85 C
Humidity	max. 90%, non-condensing
Power Supply	5 V DC from PC via keyboard adapter

Table 9. Card Reader Unit (external)

Item	Description
Type	Omni Drive USB
PC Card Slots	1x Type II front slot
Interface	USB 1.1 (12 MBit/s)
Data Transfer Speed	up to 1 MByte/sec
Types of PC Card	SRAM; ATA Flash, ATA Hard Disk; CompactFlash, SmartMedia, MultiMedia, Secure Digital cards, a.o. with adapter
Dimensions	109 mm x 35 mm x 135 mm
Weight	approx. 300 g

Table 9. Card Reader Unit (external)	
Item	Description
Operating temperature	0 C to +70 C
Storage Temperature	-20 C to +85 C
Humidity	max. 90%, non-condensing
Power Supply	DC 5 V from PC via USB bus optional additional power supply via AC adapter

Table 10. SEER Tape Acquisition	
Item	Description
Type	GE Medical Systems <i>Information Technologies</i> Tape Acquisition Unit
Nominal Voltage Range	100-120 VAC or 200-240 VAC (auto sensing)
Nominal Frequencies	50 Hz or 60 Hz (auto sensing)
Maximum Power Consumption	55 Watts
Processor	DSP56002 microprocessor
Processor Clock Speed	66 MHz
Tape Drive	Braemer CD350 Holter playpack tape drive
Media	
Cassette Tape	C-60 or C-120 cassette tapes
Interface Ports	One SCSI
Channels	1 or 2 (user selectable) and clock track
Resolution	12 bits
Sampling Frequency	128 samples/sec (real time)
Playback Speed	
Cassette	1000 times real time
Frequency Response	0.66 to 50 Hz overall (recorder to system)
Phase Response	Linear, less than 6 degrees phase shift at 0.5 Hz
Tape Playback Options	The tape is played back at approximately 1000 times real time. Analog amplifiers with gain and phase equalization optimized for Holter tape processing are provided for all channels. Tape speed variations are compensated by a time warp filter circuit synchronized to the clock track on the tape.
Effective Sampling Rates	
8500	Cassette, 1 mm/sec; phase-locked, 128 samples/sec
Physical Specifications	
Height	2.8 in (7.1 cm)

Table 10. SEER Tape Acquisition (Continued)	
Item	Description
Width	9.6 in (24.4 cm)
Depth	10.4 in (26.4 cm)
Weight	5.1 lb (2.3 kg)

Table 11. Hewlett Packard 1200 LaserJet Printer	
Item	Description
Speed	15 ppm
Resolution	1200 dpi
Duty Cycle	10,000 single sided pages per month
Power Consumption	
Printing	285 watts average
Standby Mode and Power Save	7 watts
Power Requirements	<ul style="list-style-type: none"> ■ 110-120 v (+/-10%), 50-60 Hz (+/-2); 127V, 60 Hz or ■ 220v (+/-10%), 50-60 Hz (+/-2) ■ 220-240v (+/-10%), 50 Hz (+/-2)
Dimensions (h x w x d)	10.0 x 16.3 x 19.1 in. (25.3 x 41.5 x 48.6 cm)
Weight	16.1 lbs. (7.3 kg)

Table 12. Hewlett Packard 4200N LaserJet Printer	
Item	Description
Speed	35 ppm letter size
Resolution	1200 dpi
Memory, Standard	48 MB
Memory, Maximum	416 MB
First page out	<9 sec.
Power requirements	110-127 v (50-60 Hz) /220-240 v (50-60 Hz)
Operating Temperature	50-90 ° F (10-32 ° C)
Dimensions (h x w x d)	16.2 x 41.1 x 21.5 in. (412 mm x 1045 mm x 547 mm)
Weight	45.0 lbs. (20.0 kg)

Table 13. Hewlett Packard 4250N LaserJet Printer

Item	Description
Speed	45 ppm letter size
Resolution	1200 dpi
Memory, Standard	48 MB
Memory, Maximum	512 MB
First page out	<8 sec.
Power requirements	110-127 v (50-60 Hz) /220-240 v (50-60 Hz)
Operating Temperature	50-90 ° F (10-32 ° C)
Dimensions (h x w x d)	16.5 x 17.8 x 14.8 in. (418 mm x 451mm x 498 mm)
Weight	45.0 lbs. (20.0 kg)

Table 14. Powerware PW5115 500 UPS, 120 volt

Item	Description
Dimensions (W x H x D)	15.0 x19.3 x 27.0 cm (5.9 x 7.6 x 10.6 inches)
Weight	7.8 kg (17.2 lbs)
Electrical Input	
Nominal Voltage	110v, 120v selectable
Voltage Range	+/-20% for nominal voltage at full load
Nominal Frequency	45-65 Hz, 50/60 Hz auto-sensing
Efficiency (normal mode)	95%
Overcurrent Protection	Resettable input overcurrent protector
Electrical Output	
Power Levels	500 VA, 320W
Power Factor	500 VA, 0.64
Regulation(Battery Mode), Nominal voltage +/-5%	110v, 120v
Regulation (Normal Mode)	-10% to 6% of nominal voltage
Voltage waveform	Sine Wave
Overcurrent Protection	Inverter saturation current limited
Battery	
Voltage	500VA: 12Vdc
Type	Sealed, maintenance-free, valve-regulated, lead-acid

Table 15. Powerware PW5115 500i UPS, 230 volt	
Item	Description
Dimensions (W x H x D)	15.0 x19.3 x 27.0 cm (5.9 x 7.6 x 10.6 inches)
Weight	7.8 kg (17.2 lbs)
Electrical Input	
Nominal Voltage	220v, 230v, 240v selectable
Voltage Range	+/-20% for nominal voltage at full load
Nominal Frequency	45-65 Hz, 50/60 Hz auto-sensing
Efficiency (normal mode)	95%
Overcurrent Protection	Resettable input overcurrent protector
Electrical Output	
Power Levels	500 VA, 320W
Power Factor	500 VA, 0.64
Regulation(Battery Mode), Nominal voltage +/-5%	220v, 230v, 240v
Regulation (Normal Mode)	-10% to 6% of nominal voltage
Voltage waveform	Sine Wave
Overcurrent Protection	Inverter saturation current limited
Battery	
Voltage	500VA: 12Vdc
Type	Sealed, maintenance-free, valve-regulated, lead-acid

Table 16. Environmental — System-wide	
Power	15 amps
Operating Conditions	
Temperature	10 to 35° C (50 to 90° F)
Relative Humidity	20% to 80%
Maximum Altitude	2,500 meters (8,200 feet)
Storage/Transport Conditions	
Temperature	-20 to 43 degrees C (-40 to 110 degrees F)
Relative Humidity	8% to 80%
Maximum Altitude	10,350 meters (34,000 feet)

Table 17. Safety	
Certification	<ul style="list-style-type: none"> UL listed CSA certified TUV certified EN 60950 (UL 1950) CE marking for Council Directive 93/42/EEC
Type of Protection Against Electrical Shock	Class 1
Degree of Protection Against Ingress of Liquids	Ordinary
Handling of Disposable Supplies and Other Consumables	<ul style="list-style-type: none"> ■ Use only parts and accessories manufactured or recommended by GE Medical Systems <i>Information Technologies</i>. ■ Follow manufacturer's instructions for use for disposable/consumable product. ■ Follow local environmental guidelines concerning the disposal of hazardous materials (e.g. lead acid batteries).
Patient Mode of Operation	Continuous
Patient Leakage Current	Not applicable
Degree of Protection Against Electrical Shock	Not applicable
Maintenance Frequency	<ul style="list-style-type: none"> ■ Recommended user daily visual inspection and cleaning. ■ Recommended six-month routine maintenance checks and test procedures performed by qualified technical personnel.
Repair Guidelines	Calibration instructions, equipment descriptions, and all other service information to repair those parts of the equipment designated as field repairable by qualified technical personnel is available in the service manual.

B Appendix B – Configuring Patient Slots

For your notes

Slot Installation/Time Consumption Report

This report is based on a Compaq EVO D510 computer (2.8 GHz CPU, 256 Mb RAM). The operating system is Windows 2000 professional.

Each SEER slot file takes 57Mb. Each tape slot file takes 83 Mb.

Standalone System Slot Install Time Duration and Performance Considerations

Slot Installation				Performance Impact		
Hardware	Number of SEER Slots Installed	Number of Tape Slots Installed	Installation Time	Start MARS Application	Start Patient Select	Start Function (Strip Review)
D510 with Win2k Pro	50	0	7 min 45 sec	<1 sec	<1 sec	<1 sec
D510 with Win2k Pro	100	50	14 min 35 sec	1 sec	1 sec	<1 sec
D510 with Win2k Pro	500	100	35 min	1.5 sec	8 sec	1 sec
D510 with Win2k Pro	900	100	51 min	2 sec	17 sec	1 sec

Client-Server Slot Install Time Duration and Performance Considerations

Slot Installation				Performance Impact			
Hardware	Number of SEER Slots Installed	Number of Tape Slots Installed	Installation Time	Network Speed	Start MARS Application from Client	Start Patient Select from Client	Start Function (Strip Review) from Client
D510 with Win2k Server	100	50	27 min	100 Mb per sec	1 sec	2 sec	1 sec
D510 with Win2k Server	100	50	27 min	10 Mb per sec	1 sec	2 sec	1 sec
D510 with Win2k Server	500	100	71 min	100 Mb per sec	1 sec	9 sec	1 sec
D510 with Win2k Server	500	100	71 min	10 Mb per sec	1 sec	10 sec	1 sec

Installation time can differ between different hardware and operating systems.

For your notes

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