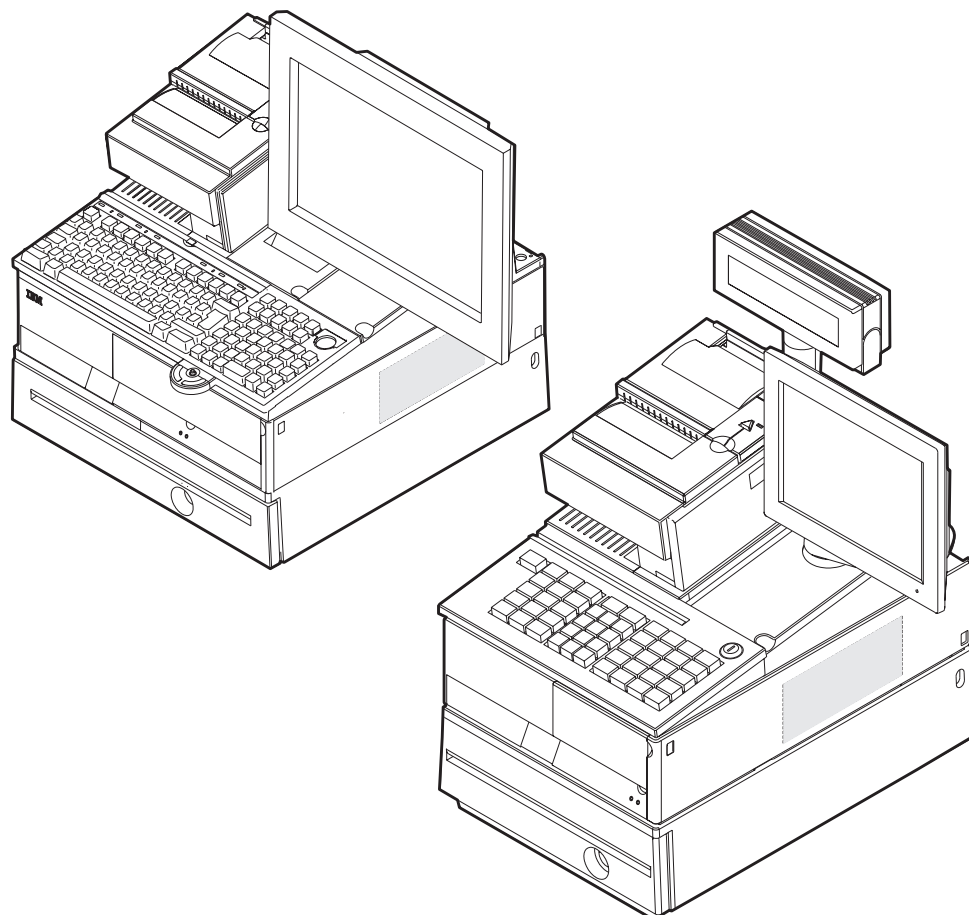


SurePOS 700 Series



SurePOS 700-721/741/781, 722/742/782 Hardware Service Guide



SurePOS 700 Series



SurePOS 700-721/741/781, 722/742/782 Hardware Service Guide

Note

Before using this information and the product it supports, be sure to read the general information under Appendix B, "Safety information," on page 97 and Appendix C, "Notices," on page 103.

Fourth Edition (October 2007)

This edition applies to SurePOS 700 Models 721/741/781 and 722/742/782.

Current versions of Retail Store Solutions documentation are available on the IBM Retail Store Solutions Web site at <http://www.ibm.com/solutions/retail/store/support>. Click **Publications**.

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Preface

About this guide

This guide describes the removal and replacement procedures for the IBM SurePOS 700 Models 721/741/781 and 722/742/782, which are commonly referred to in this guide as the SurePOS 700.

Who should use this guide

This guide is to be used by trained point-of-sale equipment service representatives.

How this guide is organized

This guide is organized as follows:

- Chapter 1, "Introducing the SurePOS 700 Models," on page 1 describes the physical dimensions, features, and options of the product.
- Chapter 2, "Removal and replacement procedures," on page 25 describes the replacement and removal procedures.
- Chapter 3, "Problem determination," on page 73 describes the problem determination procedures.
- Chapter 4, "Diagnostics and configuration settings," on page 79 describes the BIOS setup and other control procedures.
- Appendix A, "Parts catalog," on page 83 lists part numbers for field-replacable units (FRUs).
- Appendix C, "Notices," on page 103 contains trademarks that are referenced in the guide and other miscellaneous notices.
- Appendix B, "Safety information," on page 97 contains translations of the safety notices.
-

Related publications

The following IBM publications are also available from the IBM Retail Store Solutions Web site at <http://www.ibm.com/solutions/retail/store/support>.

- *Safety Information – Read This First*, GA27-4004
- *SurePOS 700-721/741/781, 722/742/782 Planning, Installation, and Operation Guide*, GA27-4328
- *SurePOS 722/742/782, 723/743/783 Operating System Installation Guide*, GA27-4357
- *Point of Sale Options and I/O Devices Service Guide*, GC30-9737
- *SureMark 4610 Printers User's Guide*, GA27-4151
- *SureMark 4610 Printers Hardware Service Guide*, GY27-0355
- *Point of Sale Subsystem Programming Reference and User's Guide*, SC30-3560
- *Point of Sale Subsystem Installation, Keyboards, and Code Pages*, GC30-3623
- *4820 SurePoint Solution Planning, Installation and Service Guide*, GA27-4231
- *4820 SurePoint Solution System Reference*, SA27-4249

Additional information on the CANPOS keyboard is located in the following publication:

- *SurePOS 500/600 Series Systems: Planning, Installation and Operation Guide*, GA27-4254

Sure POS Models 7x1 and 7x2 important driver information

SurePOS Models 7x1 and 7x2 require new POS input/output (I/O) and local area network (LAN) drivers. Existing drivers for Models 4694 and Models 4800 will not work properly with these products. This notice applies to all operating systems: DOS, 4690, Microsoft Windows, and Linux. Additionally, a hard drive image for a predecessor product will not work properly. Be sure to download the appropriate drivers from the IBM Retail Web site at <http://www.ibm.com/solutions/retail/store/support>.

Publications accessibility

The softcopy version of this guide and other related publications are accessibility enabled.

Summary of changes

July 2008

(GA27-4328-04) Added new FRU numbers.

October, 2007

This version (GA27-4328-04) is retitled to specify the SurePOS 700 models to which this publication applies.

March, 2007

Updated Introduction

Updated notices.

Minor wording updates.

August, 2006

This update provides the RoHS-compliant field replacement part numbers.

March, 2006

This version (SA27-4329-02) contains removal and replacement information and field-replacement unit numbers for the front-service housing option.

July, 2005

This version (SA27-4329-01) documents the addition of the SurePOS 700 Models 722, 742, and 782 and other model variations.

Providing feedback

Your feedback is important in helping IBM provide accurate and high-quality information.

You can use either of these ways to provide feedback:

- Go to <http://www.ibm.com/solutions/retail/store>. Click **Support**, then click **Publications**. Click the **publication comments** within the introductory text. Provide the requested information and your comments. Be sure to include the name and form number of the document in the [Publication ID] field.
- Print and complete the form at the end of this document. Return the form to IBM by mail or by giving it to an IBM representative.

If applicable, include a reference to the specific location of the text (for example, the page or table number) on which you are commenting.

Between major revisions of this document, there might be minor technical updates. The latest version of this document is available on the Retail Store Solutions Web site at www.ibm.com/solutions/retail/store/support/publications/.

Chapter 1. Introducing the SurePOS 700 Models

The IBM SurePOS 720 are offered in a wide footprint and a narrow footprint. Your packaging options determine the width of the unit. A unique cover-set feature provides a broad selection of cover options and colors (see Table 1 on page 2).

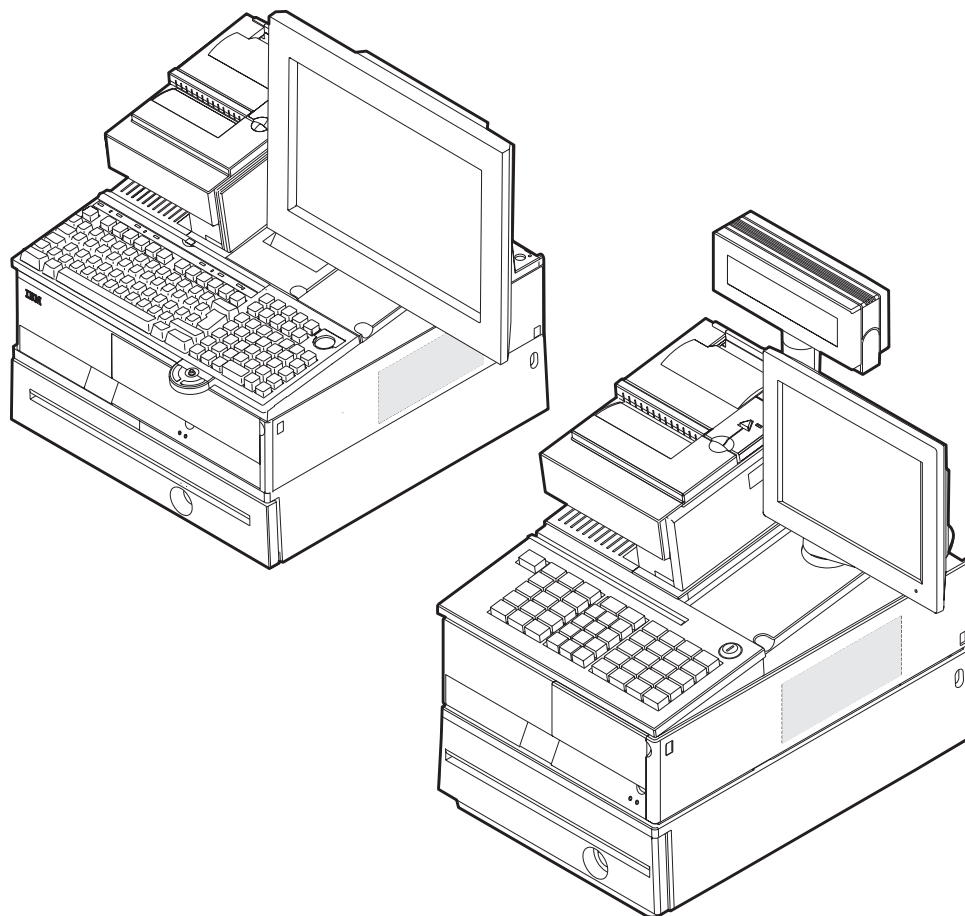


Figure 1. Example of the wide and narrow SurePOS 700 series

Table 1 describes the available models.

Table 1. Models and descriptions

Entry products for cost-sensitive applications:		
SurePOS 720 Model 4800:	721	VIA C3 1.2 GHz
	722	Intel Celeron 2.0 GHz
Value products that balance cost and high performance:		
SurePOS 740 Model 4800:	741	Intel Celeron 2.0 GHz
	C41	Intel Celeron 2.0 GHz without installed POS I/O ports
	742	Intel Celeron D 326, 2.5 GHz
	C42	Intel Celeron D 326, 2.5 GHz without installed POS I/O ports
	E42	Intel Celeron D 326, 2.5 GHz with Microsoft Windows Embedded for Point of Service preloaded
High performance products for intensive POS applications:		
SurePOS 780 Model 4800:	781	Intel Pentium 4, 2.4 GHz
	W81	Intel Pentium 4, 2.4 GHz with Microsoft Windows XP Professional preloaded
	782	Intel Pentium 4 531, 3.0 GHz

For compatibility with your hardware peripherals and software applications, see “Compatibility” on page 22.

Physical characteristics

This section gives you the physical characteristics for the SurePOS 720 as narrow, wide, and wide with uninterruptible power supply (UPS) models.

Dimensions

The dimensions for the wide and narrow models are as follows:

Footprint	Width	Depth	Height	Weight
Wide	442 mm (17.4 in.)	475 mm (18.7 in.)	116 mm (4.6 in.)	11.8 kg (26 lbs)
Narrow	320 mm (12.6 in.)	475 mm (18.7 in.)	116 mm (4.6 in.)	10.0 kg (22 lbs)
Wide with UPS	442 mm (17.4 in.)	475 mm (18.7 in.)	116 mm (4.6 in.)	17.7 kg (39 lbs)

Controls and indicators

Figure 2 on page 3 describes the front panel controls and indicators.

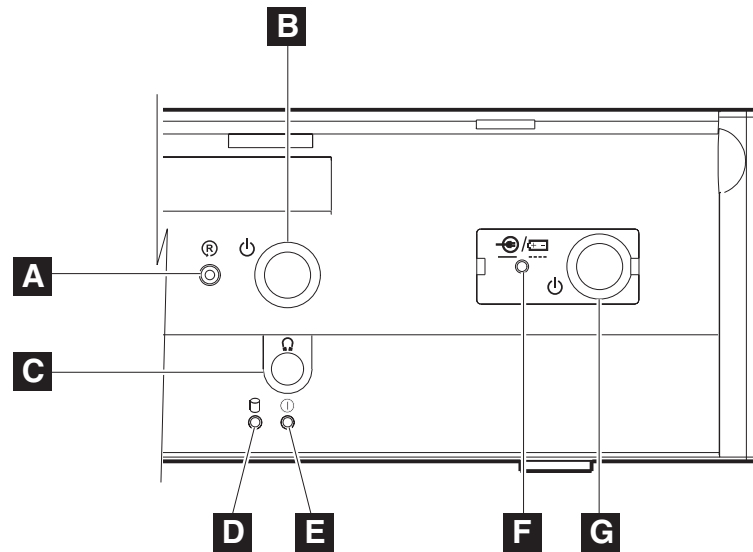


Figure 2. Front panel controls and indicators. Note: Use of the front headphone jack overrides the rear line-out jack.

- A** Recessed dump switch
- B** System power switch
- C** Headphone jack (Models 74* and 78* only)
- D** Hard disk drive indicator
- E** Power indicator
- F** UPS indicator (only with wide footprint and UPS installed; otherwise covered)
- G** UPS switch (only with wide footprint and UPS installed; otherwise covered)

Note: Indicators **F** and **G** display only if you install the optional UPS.

Connectors

SurePOS 720 offer a unique configuration for connecting POS input and output (I/O) devices. Most of the POS-specific I/O function is contained on a riser card that connects into the main processor board.

The SurePOS models support both the RS-485 POS I/O (4694 family), as well as the powered USB I/O, (IBM SurePOS 700 family). A unique tailgate design, which includes IBM SurePorts, allows for different configurations of I/O that you can later upgrade or change in the field. The rear I/O panels are cable-attached to the riser card.

Note: The front panel of Models 740 and 780 provides one 12V POS USB 2.0 and two PC USB 2.0 connectors. See Figure 3.

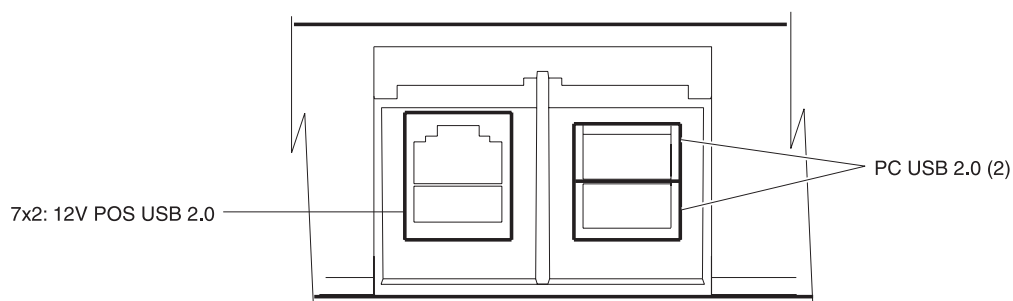


Figure 3. Front panel connectors.

Figure 4 provides an overview of the rear panel for both wide and narrow footprints:

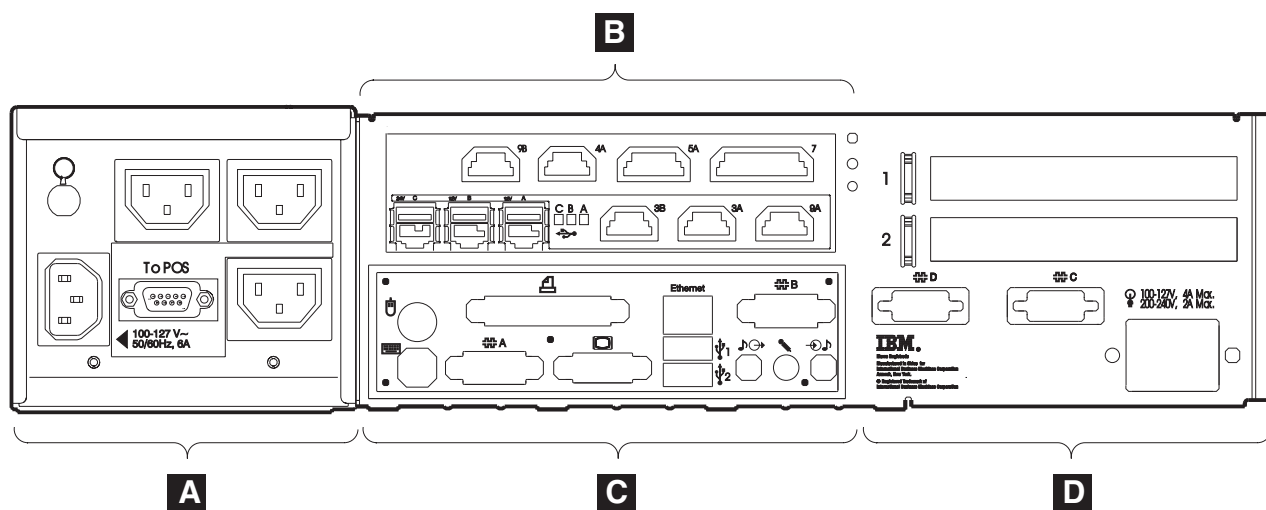


Figure 4. Overview of rear panel

- A** UPS and cable connections for wide models only
- B** IBM SurePorts: USB and/or RS-485 I/O connections
- C** PC I/O on all models
- D** Power inlet and PCI slots (and serial ports on Models 74* and 78*).

Figure 5 shows a closer view of the I/O connections that are available on all models and Table 2 defines the icons on the connections.

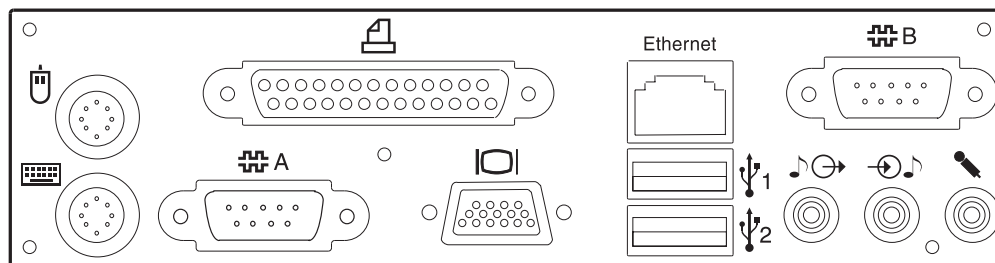














Figure 5. Rear view of input/output available on all models

Table 2. Rear icons and definitions

Icon →	Definition	Icon →	Definition
	Mouse		Display
	IBM PS/2 [®] compatible keyboard		Ethernet local area network (LAN)
	Printer	 	USB (USB 1.1 on Model 721, USB 2.0 on Models 721, 722, 741, 742, 781, and 782)
 A	External serial devices (such as a scale and a scanner).		Line (audio) in
 B			Line (audio) out
	Microphone		

IBM SurePorts Point of Sale connections

Attention

Hot plugging of powered USB devices is not supported.

USB-only configuration: Figure 6 shows the configuration with only USB connections.

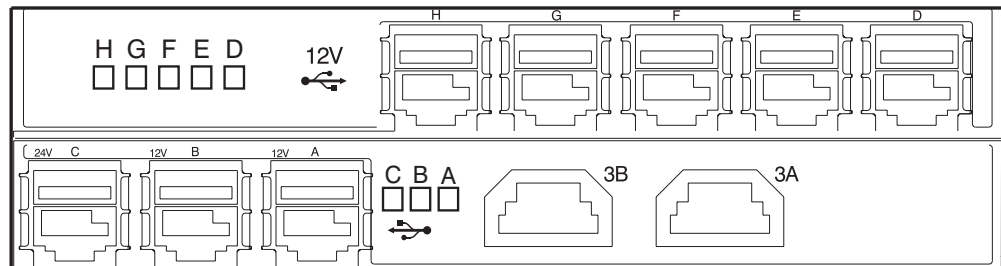


Figure 6. USB-only configuration (models 7x1)

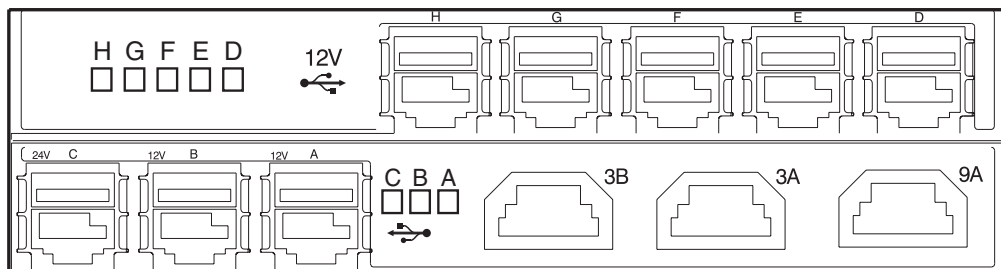


Figure 7. USB-only configuration (models 7x2)

H, G, F, E, D, and C, B, A

All 12-V powered USB ports, except **C**, which is a 24-V USB port.

Note: The letters shown on the USB connectors are used to identify the connector space and the order of connection per card. As an example, for each card, the system first recognizes a device connected to the A USB port before recognizing the device connected to the B USB port. This auto-sensing feature applies to each card; therefore, the system could recognize card 1, USB port B, then C, before recognizing the USB port D on card 2.

3A, 3B

IBM cash drawer ports.

Note: Port 3A automatically detects an IBM cash drawer. Customers with non-IBM cash drawers should read the voltage considerations described in “Cash drawers” on page 18.

9A RS-485 scanner, or a secondary RS-485 display.

RS-485 and USB configuration: Figure 8 shows the RS-485 and USB configuration.

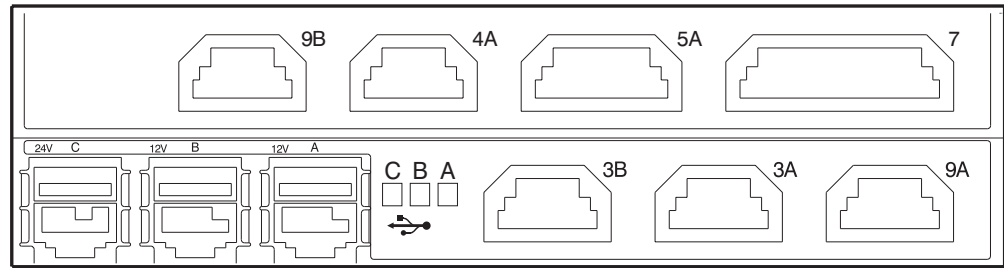


Figure 8. RS-485 and USB configuration

3A, 3B

IBM cash drawer ports.

Note: Port 3A automatically detects an IBM cash drawer. Customers with non-IBM cash drawers should read the voltage considerations described in “Cash drawers” on page 18.

4A IBM RS-485 primary display

5A IBM RS-485 primary POS keyboard

7 RS-485 printer

Note: You cannot connect a RS-485 attached printer and a USB attached printer to a unit at the same time. Only one printer can be connected to the system at a time.

9A, 9B

RS-485 scanner, or a secondary RS-485 display.

C, B, A

USB ports. **C** (left port) is 24 V, **B** and **A** are powered 12 V.

Cooling

Cooling is provided through forced-air cooling by a fan contained in the power supply. Air vents must not be blocked, and the vents must have two inches of clearance from cabinet walls, trash cans, and papers.

Environmental and temperature

The following environmental characteristics apply:

- Operating temperature: +10 to 40°C (+50 to 104°F) with 8% to 80% relative humidity
- Shipping: -40 to +60°C (-40 to +140°F)
- Storage: 0 to +60°C (32 to +140°F)

Power

Attention

Hot plugging of powered USB devices is not supported.

This section describes the power, power switches and power management.

The power requirements for the SurePOS 720:

- Input voltage: 100 - 127 V or 200 - 240 V AC nominal
- Frequency: 50 - 60 Hz, ± 3 Hz
- Power consumption: 60 W typical, 200 W max.

See Table 3 for the maximum continuous DC load rating for each port.

Table 3. Port DC loads.

Notes:

1. Total 12-V current for all external loads is 5 A max. Total 5-V current available for all external loads is 5 A max.
2. Two printers cannot be attached to the system simultaneously.
3. Only one cash drawer can be activated at any time.

24-V printer ports	3.0 A
38-V printer ports	2.1 A
24-V/38-V cash drawer ports	1.0 A 150 mS pulse
12-V ports (RS-485)	1.0 A/port
12-V port (USB)	1.5 A/port
5-V RS-485	1.0 A/port
5-V PS/2 keyboard/mouse	0.5 A/port
5-V in all USB ports	0.5 A/port
Total 12-V current for all external loads is 5 A maximum.	
Total 5-V current for all external loads is 5 A maximum.	

Power switch operation

During normal operation, the power switch on the SurePOS 700 Series operates as you would expect. Push the switch to turn the machine on, push it again and the unit powers off. There are some exceptions:

1. You can program the switch to operate differently. For example, if your operating system supports power management, you can program the switch to behave as a standby or resume switch. For more information, refer to the documentation included with your operating system or power management software.
2. A delay can occur when powering off, if you press the power button when the unit is running its power-on self-test (POST).
3. Sometimes you cannot initiate a controlled shutdown because the application or system is hung. Press and hold the power switch until the unit powers off.

Note: This is not the recommended method of powering off the SurePOS 700 Series. Use it only when no other method is available to power off the

system. If you power off the unit by pressing and holding the power switch, some programmed events do not function until the unit is powered on again. Examples of these programmed events are IBM Wake on LAN®, and others.

Uninterruptible power supply (optional)

The technical characteristics of the uninterruptible power supply (UPS) are as follows:

- Capacity: 500 VA/300 W
- Run time: 2.5 minutes minimum at full-rated (500 VA) load with a new, fully-charged battery
- Output voltage in battery mode: 113 V AC \pm 10% for low range; 220 V AC \pm 10% for high range.
- Frequency (in backup mode): 60 Hz \pm 3 Hz for line frequency > 55 Hz; 50 Hz \pm 3 Hz for line frequency < 55 Hz (output waveform is a stepped sinewave approximation)
- Transfer time: <8 ms typical, 10 ms max, AC to battery

The characteristics of the batteries are as follows:

- Replaceable by persons with typical PC hardware upgrade skills.
- Recharge time is 8 hours typical, with a maximum of 16 hours for a fully depleted battery.
- Battery type is 12-V, 5-AH, sealed, leak-proof, maintenance-free lead-acid type.

Battery life

With a new, fully-charged battery, the UPS is capable of delivering full output for 2.5 minutes. Typical POS configurations require much less power. A typical system unit with LCD operator display can last 15 minutes with a new, fully charged battery, depending on print activity and 60 minutes if the terminal is in standby mode. The battery charge capacity decreases over time and this decrease is accelerated by heavy usage. Regular deep discharges of the battery can dramatically reduce its useful service life. The useful life of a battery in a typical environment is one to three years.

Input voltage

The UPS option cannot sense low- versus high-line voltages. Separate units are designed for low- and high-line voltages. Units cannot be converted between high- and low-line voltage. Figure 10 on page 12 shows the power outlets and connectors of the UPS.

Attention: Damage to the UPS will occur if incorrect line voltage is applied to the unit.

System unit interface

The UPS has an RS-232 (EIA 232)-compatible output that can connect to one of the system unit RS-232 ports to communicate UPS status (AC power loss, low battery) to the operating system (OS), or application. The interface is compatible with the Microsoft Windows default UPS implementations.

Configuration switches

The DIP switches are located on the front panel of the UPS subassembly (see **A** in Figure 9). These switches allow you to select whether the ON or OFF state of the connected system unit controls the operation of the UPS during an AC power outage.

Standalone mode: When both switches are set to the OFF or the up position (factory default), the UPS always enters battery mode during an AC outage. The unit remains in battery mode until AC is restored or until the battery is discharged. *On-battery* and *low-battery* signals are available to the associated system when an RS-232 cable connection is in place, but there is no control of the UPS from the system unit. This mode of operation is typical for the *standby* type of power supplies commonly found in the marketplace.

Host-dependent mode: The host-dependent mode is when both DIP switches are set in the ON or down position. During an AC outage, the UPS does not remain in battery mode for more than five seconds unless there is an active RS-232 connection present from a powered-on system unit. If the system unit is powered on, the UPS remains in standby mode. If the system unit is powered off, the unit does not stay in standby mode. When AC power is restored, AC power is again available at the UPS output. This setting is useful for situations where systems units are powered down at the close of business and the main store power is also shut down. This setting prevents the UPS from switching into standby mode and discharging the battery when the store power is removed.

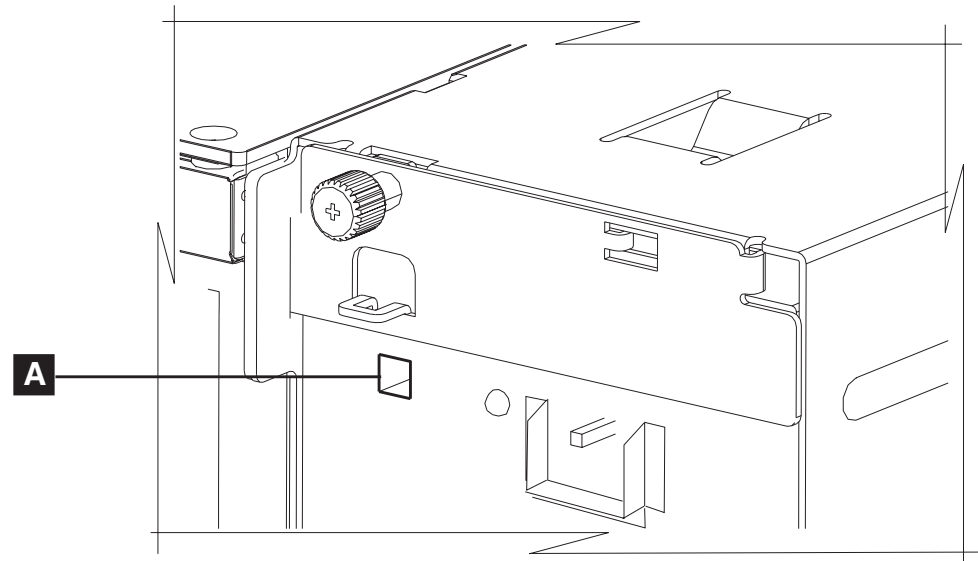


Figure 9. Location of UPS configuration switches

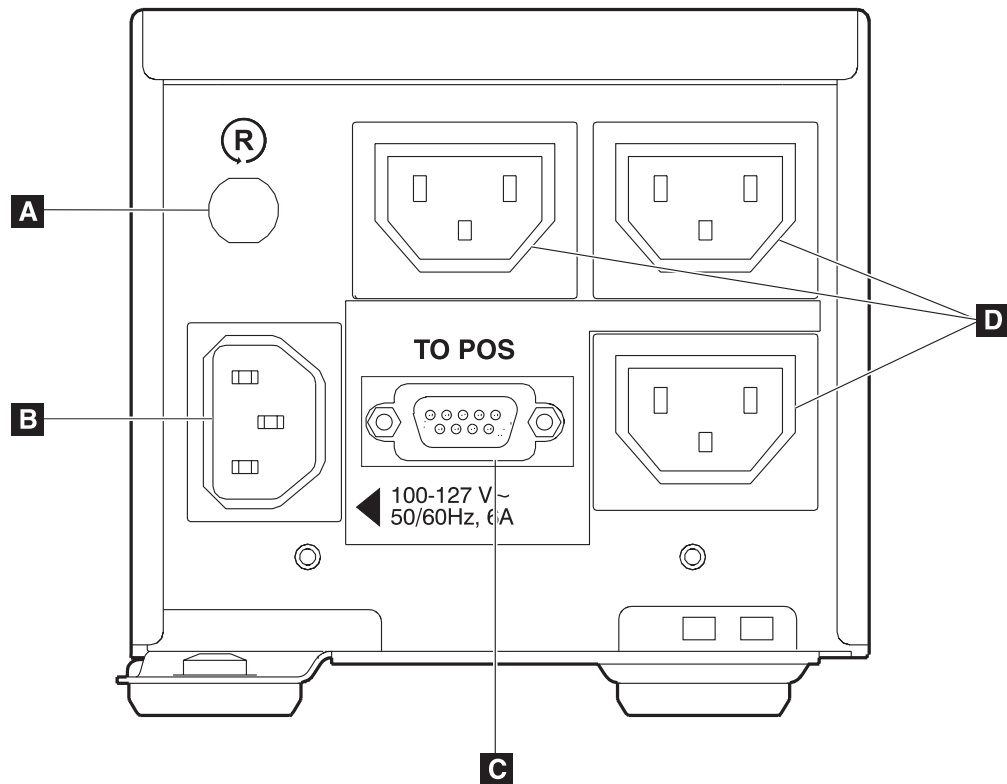


Figure 10. UPS rear view. **A** : Circuit breaker; **B** : Power inlet; **C** : RS-232 port ; **D** : AC outlets

Power management

Power management on the SurePOS 720 is based on the standard desktop PC model. Depending on OS and drivers used, all models are capable of being placed into a standby state with AC power applied. Protection from AC power events is provided by an optional UPS that can be integrated into the wide-footprint unit. Support is provided for the following industry standards and conventions:

- ACPI - APM
- Wake on LAN
- Wake on real-time clock alarm
- Wake on PS/2 keyboard/mouse

Features and options

Table 4. Features and options

Attribute	SurePOS 720, Model 4800-721	SurePOS 720, Model 4800-722	SurePOS 740, Model 4800-741	SurePOS 740, Model 4800-742	SurePOS 780, Model 4800-781	SurePOS 780, Model 4800-782
CPU	VIA C3 1.2 GHz/133MHz	Intel® Celeron™ 2.0 GHz,	Intel Celeron 2.0 GHz/400 MHz	Intel Celeron D 326 2.5 GHz	Intel Pentium®4 2.4 GHz/533Mhz	Intel Pentium 4 531 3.0 GHz
Chipset	Intel 815E/ICH2	Intel 845GV, ICH4	Intel 845GV/ICH4	Intel 915GV, ICH6R	Intel 845GV/ICH4	Intel 915GV, ICH6R
Memory	PC133-MHz SDRAM, 128 MB standard 512 MB max 2 sockets	DDR 333-MHz Max 256 MB standard 2 GB max, 2 sockets		DDR2 533-MHz, 256 MB standard 2 GB max, 2 sockets	DDR 333-MHz Max 512 MB standard 2 GB max, 2 sockets	DDR2 533-MHz Max 256 MB standard 2 GB max, 2 sockets
NVRAM	128 KB					
Hard disk (optional)	Zero or one 40 GB or larger ATA100/7200 RPM		Zero, one or two 40 GB or larger ATA100/7200 RPM	Zero, one or two SATA-I/7200RPM; 40GB	One standard or two 80 GB or larger ATA100/7200 RPM	SATA-I/ 7200RPM: 1 standard, 2 optional
CD- ROM (All optional)	External USB		Internal 24X IDE; external USB; boot support included			
Video	Analog, VGA interface only, no DVI	Analog VGA, standard DVI with adapter card option				
	Integrated into chipset					
	Dual display support via PCI feature card option					
Video memory	64 MB max, shared with system memory					
Audio- Front	None		Front headphone jack			
Audio -Rear	Mic in, Line in/out					
PC I/O	PS/2 keyboard					
	PS/2 mouse		PS/2 mouse			PS/2 mouse
	No USB on front		1 powered USB 2.0 port on front 2x PC USB 2.0 on front	1 powered USB 2.0; 2 PC USB 2.0	1 powered USB 2.0 port on front 2x PC USB 2.0 on front	1 powered USB 2.0; 2 PC USB 2.0
	2x PC USB 1.1 on rear	2x USB 2.0 on rear		2x USB 2.0 on rear	2x USB 2.0 on rear	2x USB 2.0 on rear
	2x RS-232 (unpowered)		4x RS-232 (unpowered)	4x RS-232 (unpowered)	4x RS-232 (unpowered)	4x RS-232 (unpowered)
	parallel printer					
LAN	Intel Ethernet 10/100 Wake on LAN® enabled Wireless support by feature card					

Table 4. Features and options (continued)

Attribute	SurePOS 720, Model 4800-721	SurePOS 720, Model 4800-722	SurePOS 740, Model 4800-741	SurePOS 740, Model 4800-742	SurePOS 780, Model 4800-781	SurePOS 780, Model 4800-782
Slots	2 PCI (no ISA) Approx. 1/2 length (195 mm/7.6 in. max)			2 PCI or 1 PCI and 1 x1 Lane PCI Express	2 PCI (no ISA) Approx. 1/2 length (195 mm/7.6 in. max)	2 PCI or 1 PCI and 1 x1 Lane PCI Express
Diskette Drive	External USB optional					
DVD or CD- RW	External USB					
Standby power	Internal UPS (optional – wide only)					

Video function

The integrated chipset on the system board provides the video function. Video storage uses system DRAM and utilizes technology that provides extra video memory as needed and releases it back to the operating system when not in use.¹

Using the BIOS setup, you can permanently allocate memory to system memory or to video memory. All video subsystems support modes up to 1600 x 1200 resolution.

Video drivers are available for many versions of Windows and Linux; support for the 4690 is embedded in the operating system. DOS uses the video subsystem in standard DOS modes.¹

Local area network

IBM provides special local area network (LAN) drivers for the SurePOS 720, without requiring different drivers for different boards. The product is shipped with integrated, auto-sensing 10/100 Mbps Ethernet support and uses Intel LAN hardware.

Note: Existing LAN drivers for 4694, and earlier models of 4800 are not compatible with SurePOS 720.

Other LAN information is as follows:

- Support is provided for Dynamic Host Configuration Protocol (DHCP) and Preboot Execution Environment (PXE), but not for the Remote Program Load (RPL) or Novell NetWare protocols
- Wireless connectivity is offered through the use of an added PCI feature card
- Compatibility is provided for the following industry standards:
 - IEEE 802.3i 10Base-T/100Base-T physical layer interface
 - IEEE 802.3u auto negotiation

Audio and headphones

The SurePOS 720 of products contain an AC97 compatible audio subsystem. The product is capable of driving conventional speakers or headphones with the line-out output, but cannot drive non-powered speakers (such as the early models of the 4820 display with optional speaker kit). Connecting headphones to the front audio jack disconnects the line-out jack on the rear.

PC speaker tones are coupled into the audio subsystem (line-out).

Note: The front headphone jack is not available on Models 721 and 722.

1. Depends upon your operating system.

PC I/O

The core chipsets have standard interfaces for the following devices:

- PS/2 keyboard and mouse
- Parallel printer
- Two RS-232 ports

Models 741, 742, 781 and 782 contain two additional RS-232 channels. Drivers are required to enable these ports (for all operating systems) and are available through the support page on the Web (<http://www.ibm.com/solutions/retail/store/support> and then select support.) . Because these ports are PCI devices and fully Plug and Play compliant, applications must use OS and BIOS calls to discover their locations in the system's I/O map. Also, these applications must be able to share the PCI interrupt structure, if interrupt support is required.

- **USB**

- Model 721 supports two PC USB 1.1 compatible ports on the rear
- Model 741 and Model 781 support two PC USB 2.0 compatible ports on the rear, and an additional two PC USB 2.0 ports on the front. These models also have a powered 12V POS/USB port on the front, which is driven by the USB controller on the riser card.
- Model 742, and 782 support two PC USB 2.0 compatible ports on the rear and two additional USB 2.0 ports on the front. These models also have a powered 12V POS/USB port on the front (except Model 722), which is driven by the USB controller card on the planar.

Note: USB 1.1 devices can be used with USB 2.0 ports (at USB 1.1 speeds), and USB 2.0 devices will work on USB 1.1 ports (at USB 1.1 speeds).

System memory

All system boards have two memory sockets. The factory-installed base memory occupies one of the sockets. An empty socket depends upon the initial order for base memory. Use only memory provided by IBM Retail. Note that not all third-party memory modules work with every product. IBM performs extensive life and reliability testing to insure that the memory offered by IBM will operate correctly over all voltage and temperature ranges.

Optional USB DASD

External USB drives, such as HDD/ZIP, diskette or memory key, operate with the product; IBM provides USB boot support. You have to test any specific USB device not offered by IBM Retail prior to use. This requirement is especially necessary due to the implementation differences between drive suppliers.

USB support

The SurePOS 720 contain two different USB subsystems. The base subsystem is implemented on the main processor board and uses the core USB support provided by the motherboard chipset. Model 721 supports the USB 1.1 standard; Models 741, 742, 781 and 782 support the USB 2.0 standard. All motherboard USB controllers are Universal Host Controller Interface (UHCI) compliant.

Models 7x1

The POS USB PC ports are all driven from the POS riser card and comply with the USB 1.1 standard. These controllers are all OHCI compliant (except those machines containing the front-powered POS USB 2.0 port).

Models 7x2

The POS USB PC ports are all driven from the POS riser card and comply with the USB 2.0 standard. These controllers are all Universal Host Controller Interface (UHCI) or Enhanced Host Controller Interface (EHCI) compliant.

Unique software interface

For the software programmer, the SurePOS 720 appear as a PCI-based PC system unit with the usual PC peripherals. The unique POS function is packaged on the PCI riser card. The following unique functions are also provided in the system unit:

- Two PCI feature card slots or optionally on the Models 742 and 782, 1 PCI and 1 x1 Lane PCI Express feature card slots
- 128 KB of nonvolatile random access memory (NVRAM)
- A ROM that connects to the system ROM during POST to provide additional function and information
- An interface to the RS-485 (EIA 485) subsystem, if the system is equipped with RS-485 ports. IBM drivers and operating systems isolate these changes from the application.
- An interface to the POS USB subsystem. IBM drivers and operating systems isolate these changes from the application.

I/O devices

SurePOS 720 support a wide range of displays, keyboards, printers, cash drawers, and scanners. See the IBM Retail Stores Web site at <http://www.ibm.com/solutions/retail/store/support>, for a list of currently supported devices.

Note: Additional I/O information is available in the following publications:

USB I/O devices

SurePOS 700 Series: Options and I/O Devices Service Guide,
SY27-0392

RS-485 I/O devices

Store Systems POST I/O Devices Installation and Operation Guide,
GA27-4028

Cash drawers

The SurePOS 720 are preconfigured from the factory to work correctly with all IBM cash drawers. In this automatic mode, the system can correctly detect the difference between IBM 24-V and IBM 38-V cash drawers. Cash drawer port 3A provides auto-sensing function for an IBM cash drawer.

Note: Automatic mode sets the cash drawer operating voltage for both cash drawer ports. If you connect a 24-V cash drawer to port 3A and connect a second drawer, it must also be a 24-V drawer.

If you are using a non-IBM drawer, the automatic mode will not work correctly, and damage to either the cash drawer, system unit, or both is possible. If a customer has two connected cash drawers, both drawers must be the same voltage.

You can configure the cash drawer voltage (24 V or 38 V) by using the configuration options on the POS configuration setup program or with the jumper override. Figure 11 shows the location of the cash drawer voltage jumper on the riser card and a diagram with the position of the jumpers.

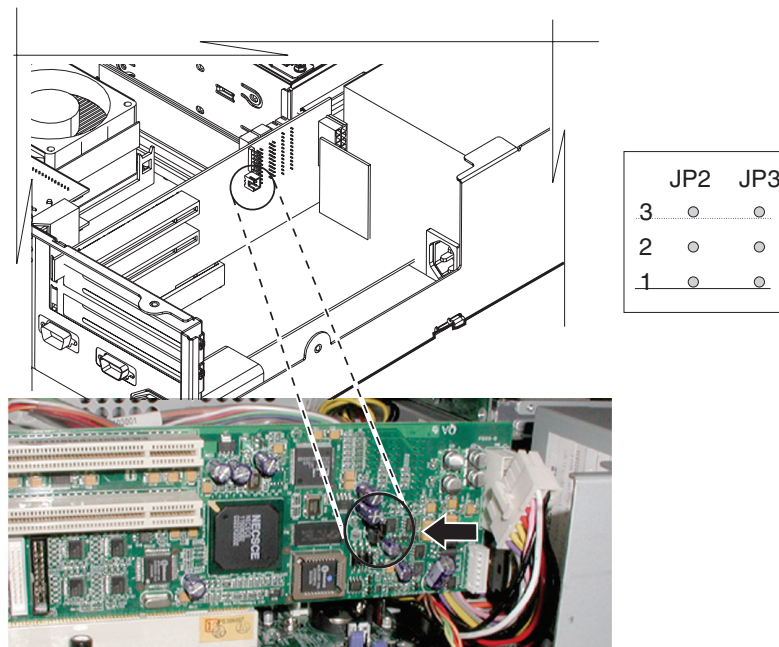


Figure 11. Setting the cash drawer using the jumper override. Tip: Using Adobe Acrobat, you can magnify the digital picture to see a close-up view of the card

Table 5 provides the correct jumper settings for the 24 V and 38 V cash drawers:

Table 5. Cash drawer jumper settings

Voltage	Jumper JP2	Jumper JP3
Automatic setup (default)	Not used	2-3
Manual 24 V	2-3	1-2
Manual 38 V	1-2	1-2

Voltage setting for the 4689 DBCS SurePOS Receipt Journal printer

To operate correctly with the SurePOS Models 721, 741, and 781, customers with the 4689 DBCS SurePOS Receipt Journal printer must set the printer voltage to 24 V. All other RS-485 printers will work correctly with the SurePOS 700 at the default setting of 38 V.

To configure the printer voltage to 24 V, you set the jumpers JP1 and JP2. Both jumpers must have the same setting. Select pins 1-2 for 38 V (default) or pins 2-3 for 24 V. Figure 12 shows the location of the printer jumper.

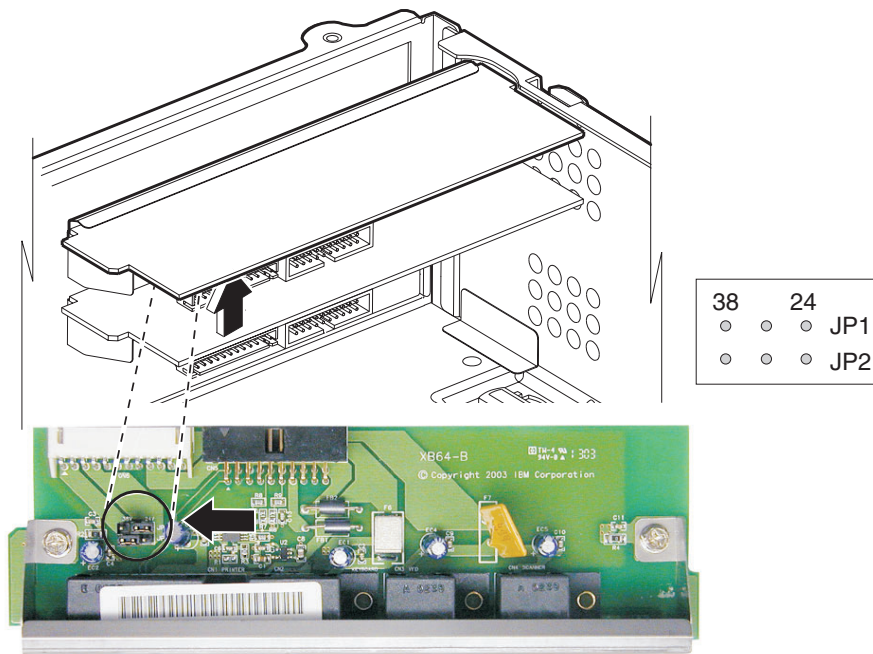


Figure 12. Location of printer jumper on the I/O card. Tip: Using Adobe Acrobat, you can magnify the digital picture to see a close-up view of the card.

Powered USB connectors

The powered USB connectors provide additional power from the host to devices that require more power than is available from the USB standard Type A connector. As shown in Figure 13, additional power is supplied through another set of contacts that are contained within the powered USB connector.

The powered USB receptacle consists of two connectors that are integrated within a common shielded housing. These two connectors are stacked vertically inside the common housing. The *upper connector* contains four contacts that are used for powering the attached device. The *lower connector* is a fully compliant USB Type A connector capable of mating with either a standard USB Type A plug or a powered USB plug. In other words, the bottom half of the connectors are standard USB Type A ports to which USB I/O devices can be attached.

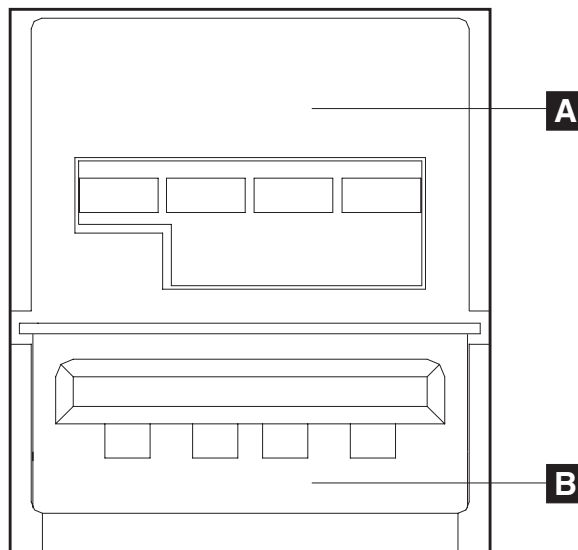


Figure 13. Example of the powered USB port. **A** is the power section of the connector and **B** is the standard USB section of connector.

Powered USB connectors provide the following features:

- Additional power for USB POS I/O devices needing more than 5 V.
- Unique keying and color coding of the 12-V and 24-V connectors, which prevents unintentionally attaching a connector to the wrong type of port.
- Positive mechanical retention latch between the plug and receptacle to prevent inadvertent disconnections.

Non-POS I/O devices

The SurePOS 720 support most of the following non-POS I/O devices:

- Many, but not all, USB mass-storage devices such as diskette drives, CD-ROM, and memory key. Lack of standardization precludes a list of the devices that are not supported. Boot mode is supported for most devices that support USB boot.
- IBM VGA monitors (CRT and LCD)
- Industry-standard PC keyboards, mice, and printers
- Standard USB and RS-232 devices with appropriate drivers, software, and operating systems

System and driver support

This section describes the supported operating systems, BIOS information, and driver requirements.

Operating systems

SurePOS 720 support the following operating systems:

- 4690 OS V4R1
- Windows 2000/SPx
- Windows XP/SP2
- WEPOS (Windows XP Embedded for Point of Service)
- IBM Retail Environment for SUSE Version 2 Novell Linux
- PC DOS

Note: Problem resolution procedures typically require the installation of the latest fix pack.

Drivers

Driver packages are available on the IBM Web site (<http://www.ibm.com/solutions/retail/store/support>) for download for all supported operating systems. A complete list is provided on the web site. Drivers are provided for video, LAN, USB, audio, RS-232 (if required) and POS I/O. In many cases, the default drivers shipped with the operating system will be satisfactory.

BIOS

SurePOS 720 use a technology that allows an upgradeable BIOS. IBM provides utilities to upgrade the BIOS and updates are published on the support Web site. You are responsible to perform BIOS upgrades as required. BIOS upgrades are not covered by IBM warranties or maintenance agreements.

Compatibility

To ensure that the SurePOS 720 operate smoothly with any previous hardware equipment and software programs, carefully review the following requirements.

Hardware

- **All cash drawers.** Customers with non-IBM cash drawers must use the POS I/O configuration screen or jumper override to set the correct operating voltage. Failure to do so may damage the cash drawer or the system unit. See “Cash drawers” on page 18.
- **4820 DVI displays** (Models 741, 742, 781 and 782 only) require a video card that supports Digital Video Interactive (DVI). The output port is installed in the feature card slot. **Note:** DVI displays are only supported on Models 741 and 781.
- **4820 displays with the integrated speaker feature** require a PCI audio card with integrated speaker amplification.
- The maximum length of **PCI card slots** is 195 mm (7.5 in.).

Software

- **New and unique drivers for all operating systems are required for all functions in the product.**
- Software migration considerations:
 - DOS:
 - New LAN drivers are required, with modifications to LAN configuration files such as PROTOCOL.INI
 - Modifications are required to CONFIG.SYS and AUTOEXEC.BAT
 - Applications with hardcoded routines to specific interrupt request (IRQ) levels, I/O addresses, might experience migration problems.
 - Applications requiring COM ports 3 or greater must be capable of using a PCI compliant, Plug and Play device that uses the shared interrupt architecture.
 - Third-party memory modules do not work with every product.
 - Windows and Linux:
 - Reinstall the operating system.
 - After Windows is installed, install the appropriate drivers (downloaded from the IBM Web site), and then install the applications.
 - Existing operating system images for the 4694 or previous models of 4800 are not compatible with the SurePOS 720. However, after you install the operating system, typical HDD imaging utilities should operate correctly.
 - 7x2 IBM 4690 OS must be Version 4, Release 1

Redundant Array of Inexpensive Disks (RAID) program (Models 742 and 782 only)

The RAID² function provides support for redundant hard disk drives. Supported only on the Microsoft Windows operating systems, RAID provides an error message should one of the two hard disk drives experience a failure. For more information, see the *IBM SurePOS 700 Software Installation Guide*.

2. Also referred to as the Redundant Array of *Independent* Disks

Calling for service

When you call IBM for warranty information or service, be sure to have the serial number, machine type and model number available.

Figure 14 shows the location of this information on the SurePOS 720

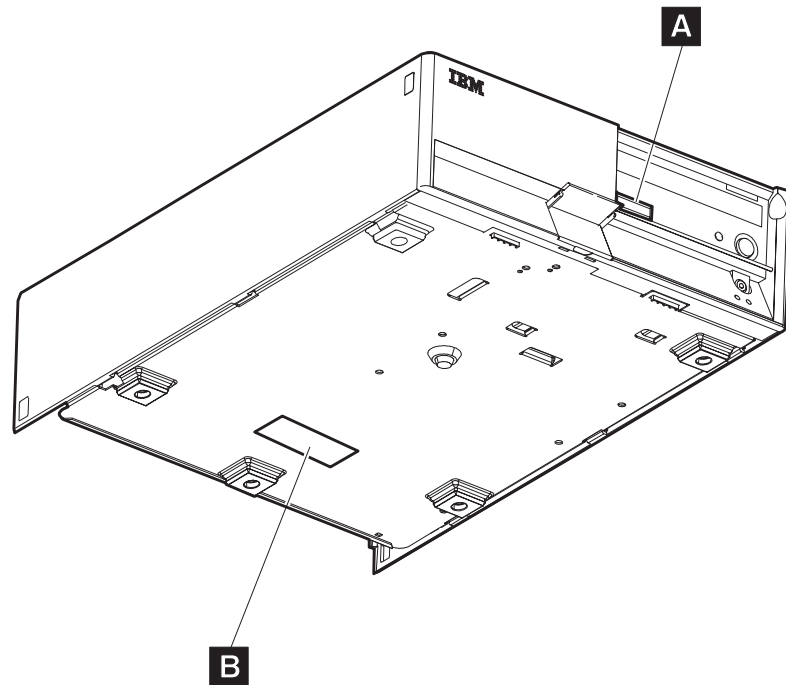


Figure 14. Serial number and machine information

Note: Both positions **A** and **B** show the serial number and machine type-model number.

Chapter 2. Removal and replacement procedures

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This chapter describes how to remove and replace the field replacement parts.

Before you begin

Before you begin any of the following procedures, follow these steps:

1. Switch the power OFF at the system unit.



CAUTION:

Never attempt to service this product with AC power present. Only apply AC power after the machine is fully assembled.

2. Disconnect the power cord from the external power source.
3. Remove any attached devices and I/O connections from the unit.
4. Establish personal grounding before touching the units. For more information, see "Federal Communications Commission (FCC) statement" on page 105.
5. Before servicing the inside of the machine and after you have removed the top cover, verify that no system board LEDs (red) are illuminated. A red LED indicates the presence of power; you must remove the AC power cord before continuing.

Cables, connectors, and headphones

The following tips will assist you when removing and replacing parts for the SurePOS 720.

- All cables and connectors are keyed; therefore, you cannot insert a cable in an incorrect location.
- When connecting a powered USB cable to the back of the unit, insert the connector with the latch on the bottom. A bottom latch allows for ease in disconnecting. For the front USB cables, insert the connector in the usual manner, with the latch on the top.

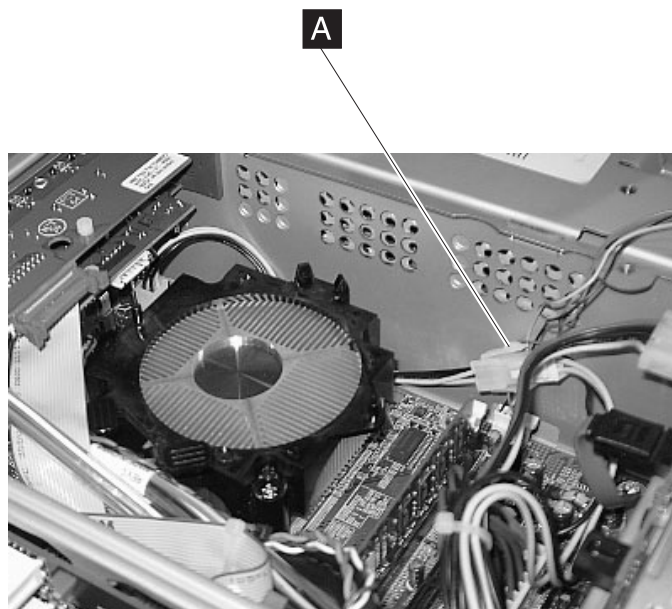


Figure 15. Processor power cable

- For Models 74* and 78*, installing a headphone overrides the line-out speaker.

- Models 742 and 782 contain a processor power cable. See **A** in Figure 15 on page 26
- Model C42 contains a serial ATA connector.
- When routing the cables for the front-service housing option, allow extra length at the connector end by forming a loop before attaching the cable into the cable guide. This extra length prevents undue strain on the connector.

Connecting your cash drawer to SurePOS Models 721, 741, and 781

The SurePOS 720 Models 721, 741, and 781 are preconfigured from the factory to work correctly with all IBM cash drawers. Connecting your IBM cash drawer to port 3A on the system unit activates the auto-sensing circuitry. In this automatic mode, the system can correctly detect the difference between IBM 24-V and IBM 38-V cash drawers.

Note: For both IBM and non-IBM cash drawers: If a customer has two connected cash drawers, both drawers must be the same voltage.

Removing the slanted I/O trays

The slanted I/O tray installs on the top of the system unit and groups the IBM printer and keyboard with specific dimensions. The tray has a raised edge that is low in the front. The sides slope up toward the rear and are higher at the rear than at the front.

The top of the system unit serves as a built-in flat I/O tray. Use this surface when grouping IBM and non-IBM peripheral devices with varying dimensions.

Note: A version of the slanted I/O tray is available that can be placed on the wide-footprint SurePOS 700 in an integrated environment. Other versions of the tray can be placed directly on the counter or on the full-size cash drawer. The cash drawers provide a built-in flat I/O tray.

To remove a slanted I/O tray, follow these instructions:

1. Working from above the system unit, remove the screws from the holes (**A** in Figure 16) inside of each corner of the I/O tray.

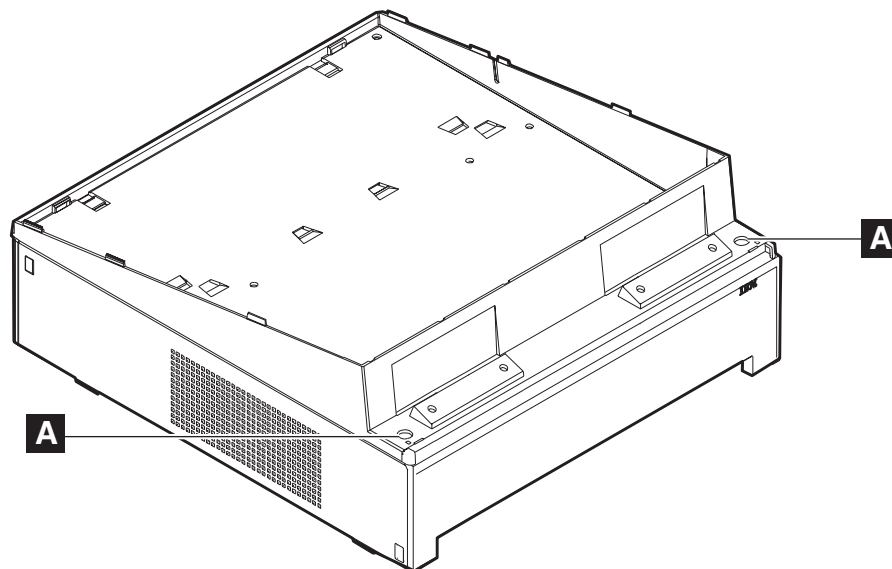


Figure 16. Removing the slanted I/O tray

2. Lift off the I/O tray.
3. To remove the front mount clips, push each of the front mounting tabs forward until it unlatches.
4. To replace the I/O tray, install the clips, place it on top of the system and install the screws.

Removing the covers

The following steps apply to all models and to both the wide and narrow features. The covers consists of the following parts:

- Front bezel
- Hinged rear door (modesty cover)
- Top cover

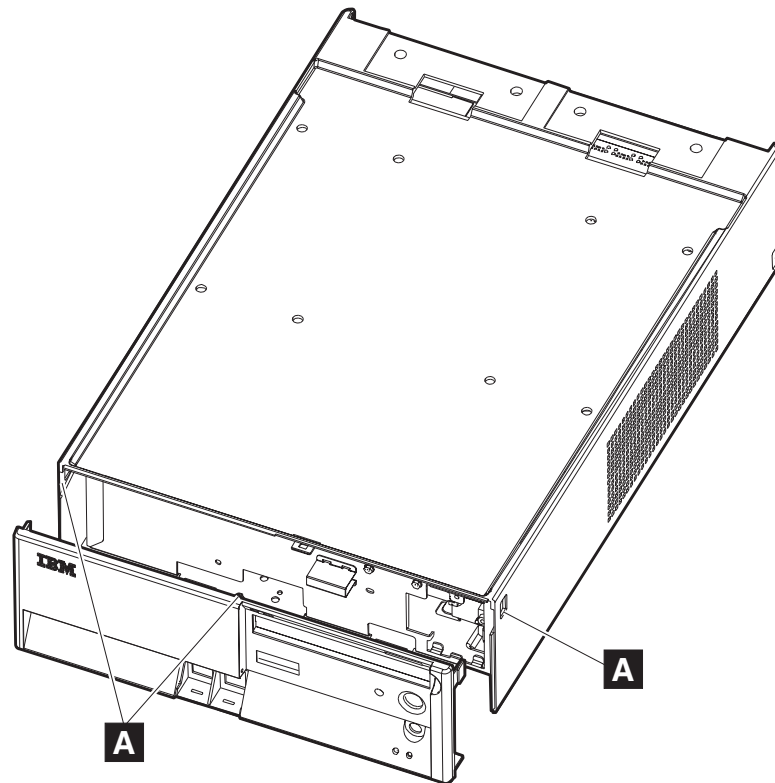


Figure 17. Removing the front bezel

1. Remove the front bezel following these steps:
 - a. See Figure 17. Press the left latch and depress the center latch to loosen the bezel.
 - b. Press the right latch to release the bezel and pull it forward, lifting the bezel from the machine.

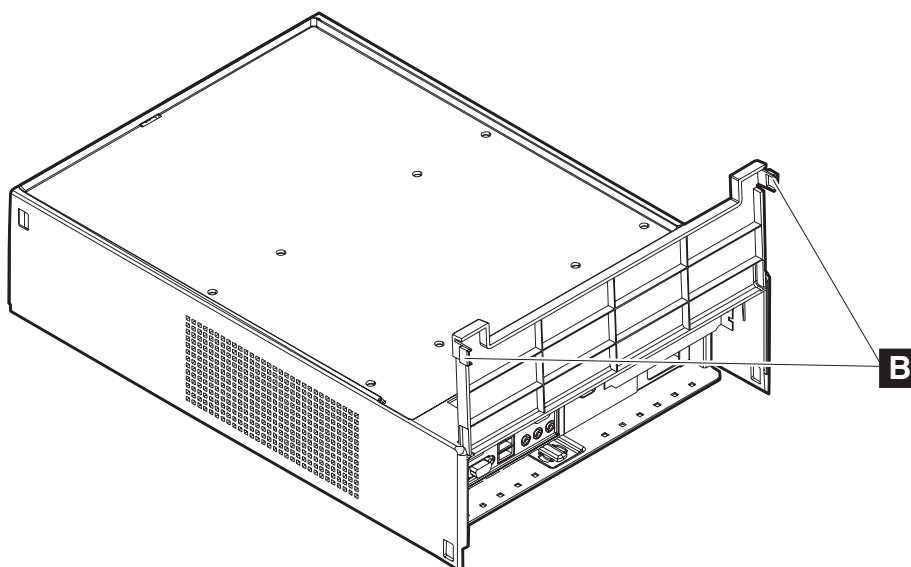


Figure 18. Opening the modesty cover

2. Open the modesty cover by placing your hand firmly in the middle of the modesty cover and pulling. The latches (**B** in Figure 18) will release automatically.

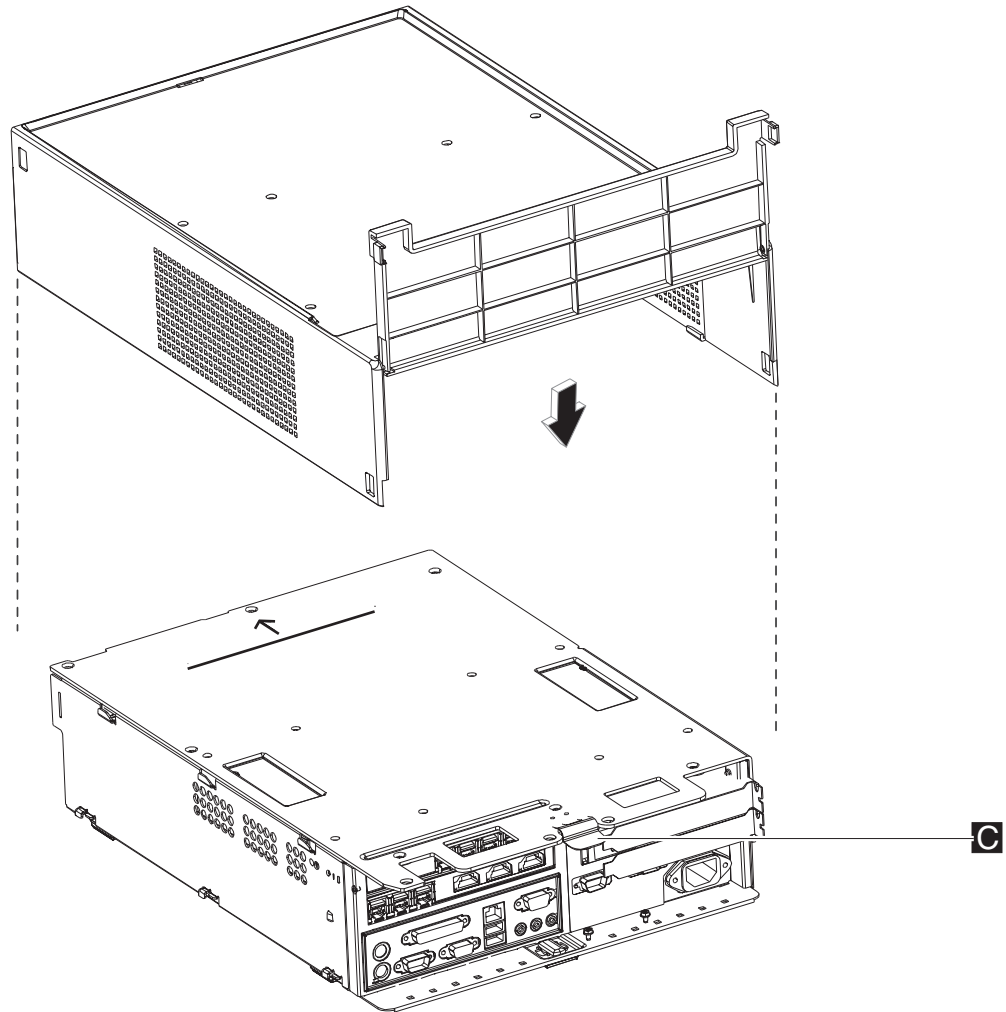


Figure 19. Replacing the top cover

3. See Figure 19 and locate the metal holding clip, **C**, located in the rear center of the top cover. Push this clip downward and push the cover backward a few inches before lifting upward to remove.

To replace the top cover:

1. Hold the cover in position over the system unit so that the front is aligned with the line on the metal top and drop the cover onto the machine. Slide the cover forward to lock into place.
2. Close the modesty cover by pressing downward on the door. Replace the bezel by aligning the hooks on the bottom of the bezel with the slots on the frame and snapping the top into place.

Removing the top plate

To remove the top plate:

1. Remove the front bezel and top cover by following the steps in “Removing the covers” on page 29.

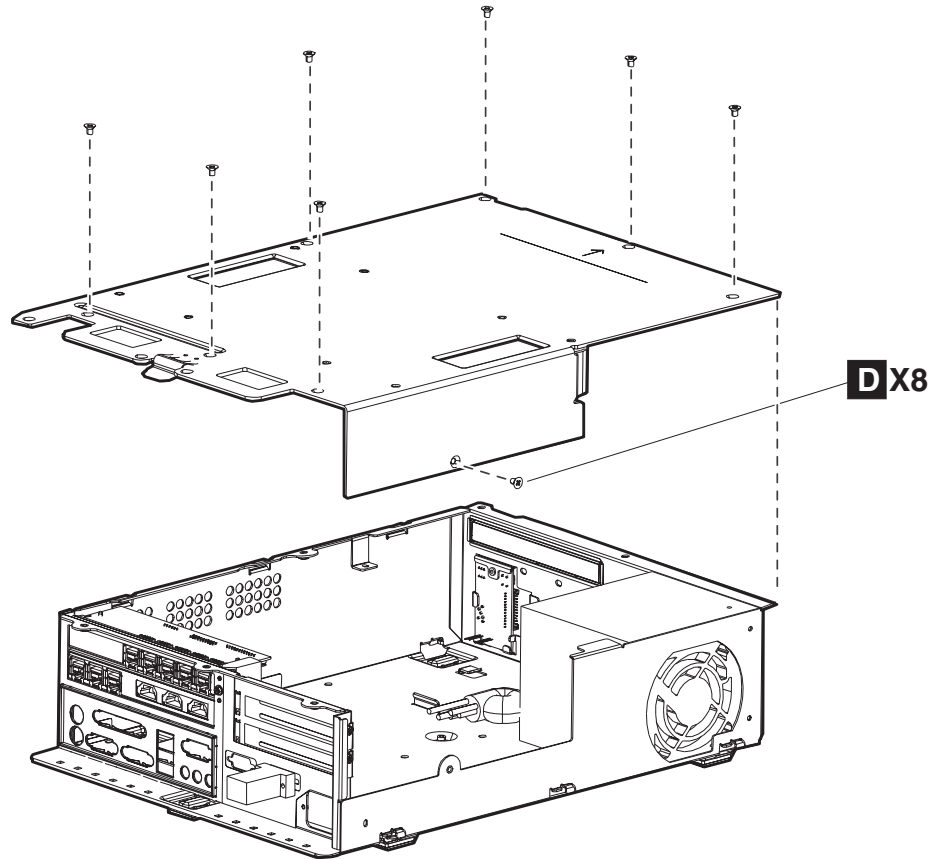


Figure 20. Top plate screws

2. See Figure 20. Locate and remove the eight screws (**D**) holding the top plate.
3. Slide the cover backward and then lift upward to remove.

Important

Before servicing the inside of the machine and after you have removed the top cover, verify that no system board LEDs (red) are illuminated. A red LED indicates the presence of power; you must remove the AC power cord before continuing.

4. To replace, reverse these procedures.

Note: To ensure stability, locate the screw holes imprinted with an arrow. These should contain screws.

Removing the CD-ROM

Follow these steps to remove the CD-ROM:

Models with the front-service housing option

For models with front-service housing installed, follow these instructions:

1. Remove the front bezel as follows:
 - a. See Figure 17 on page 29. Press the left latch and depress the center latch to loosen the bezel.
 - b. Press the right latch to release the bezel and pull it forward, lifting the bezel from the machine.



Figure 21. Opening units with front-service housing

2. See Figure 21. Press upward on the left latch and use the pull-out handle to extend the system unit from the housing until it stops.

Note: Be sure to use a cart to support the system unit if it is completely removed.

3. Open the media access door by removing the two screws.
4. Continue with step 3 on page 34 below.
5. To replace, reverse these steps.

For all other models:

1. Follow the instructions in “Removing the covers” on page 29 to remove the front bezel and top cover.

2. Follow the instructions in “Removing the top plate” on page 32 to remove the top plate.

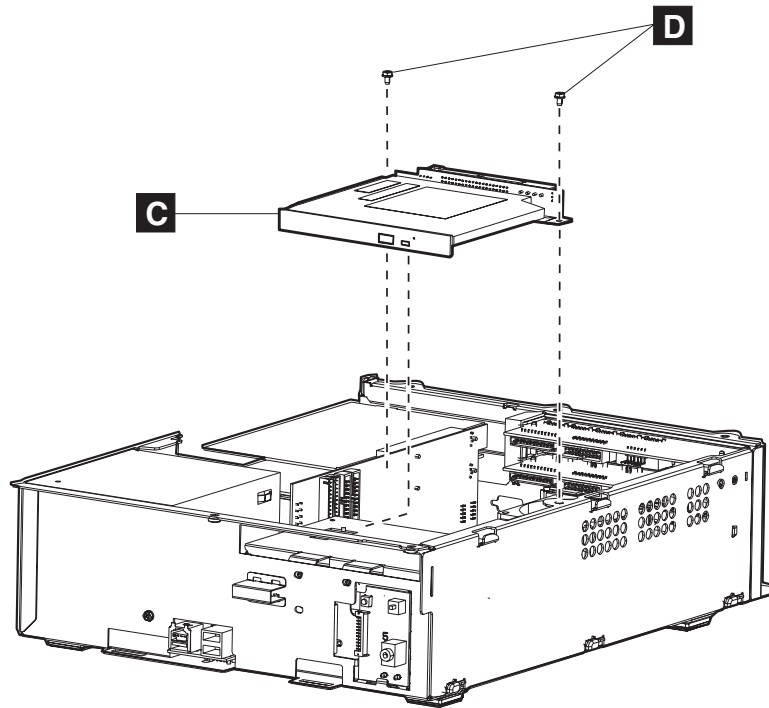


Figure 22. Removing the CD-ROM

3. Unplug the attached cables.

Note: Model C42 connects to the CD-ROM with serial ATA connectors. Unplug these connectors (**A** in Figure 23 on page 35) by squeezing on the latch and pulling outward.

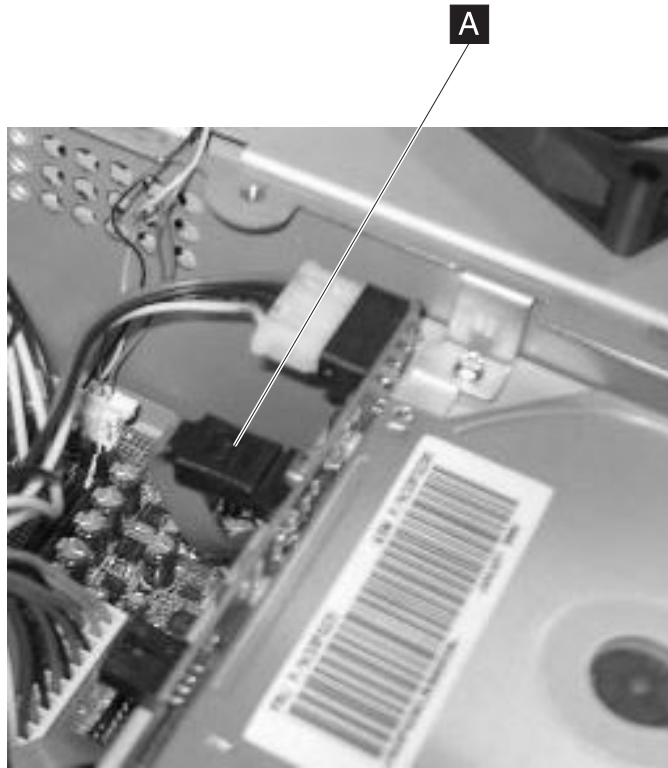


Figure 23. Example of serial ATA connector (Model C42 only)

4. See Figure 22 on page 34 and remove the screws **D** from the front of the unit that hold the CD-ROM **C** in place.
5. Push the CD-ROM backward and lift it from the unit.
6. To replace the CD-ROM, reverse these procedures.

Removing the hard disk drive

Models with the front-service housing option

For models with front-service housing installed, follow these instructions:

1. Remove the front bezel as follows:
 - a. See Figure 17 on page 29. Press the left latch and depress the center latch to loosen the bezel.
 - b. Press the right latch to release the bezel and pull it forward, lifting the bezel from the machine.
2. See Figure 21 on page 33. Press upward on the latch and use the pull-out handle to extend the system unit from the housing.

Note: Be sure to use a cart to support the system unit if it is completely removed.

3. Open the media access door by removing the two screws.
4. If installed, follow the instructions in "Removing the CD-ROM" on page 33.
5. Continue with step 4 on page 37 below.
6. To replace, reverse these steps.

For all other models:

Follow these steps to remove and replace the hard disk drive:

1. Follow the instructions in "Removing the covers" on page 29 to remove the front bezel and top cover.
2. Follow the instructions in "Removing the top plate" on page 32 to remove the top plate.
3. If installed, follow the instructions in "Removing the CD-ROM" on page 33.

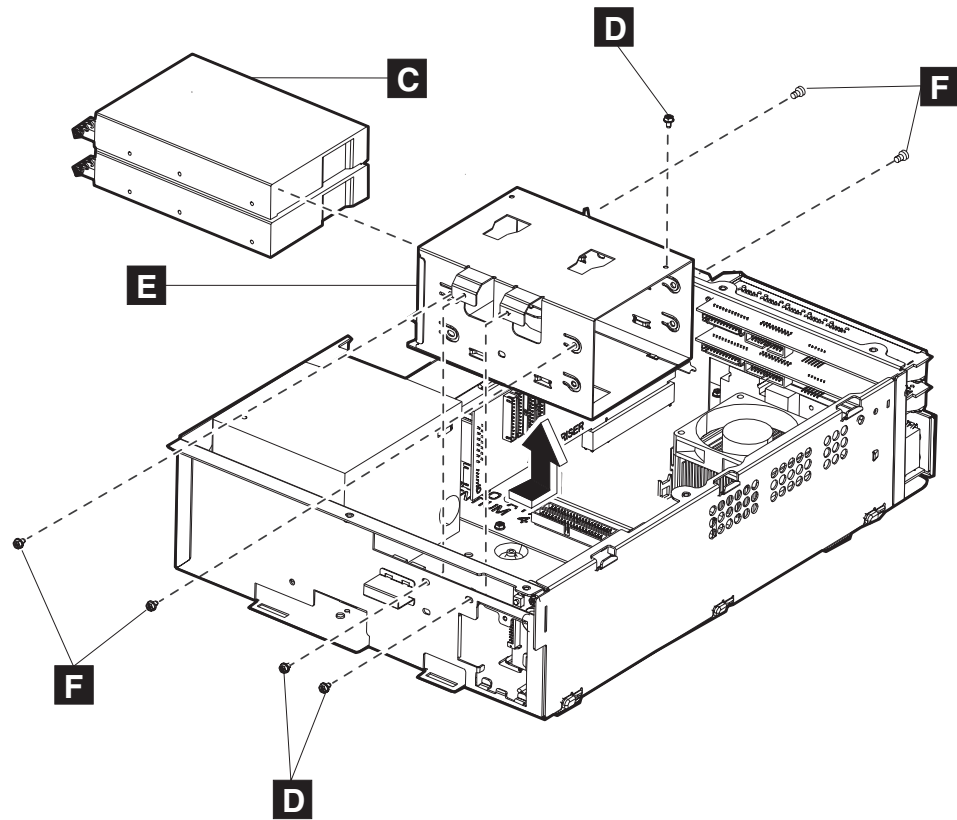


Figure 24. Hard disk drive and brackets

4. See Figure 24 and remove the screws (**D**) holding the hard disk drive bracket (**E**).
5. Grasp and move the hard disk drive and bracket assembly to the left to release the bottom hooks. Then move the unit upward and out.

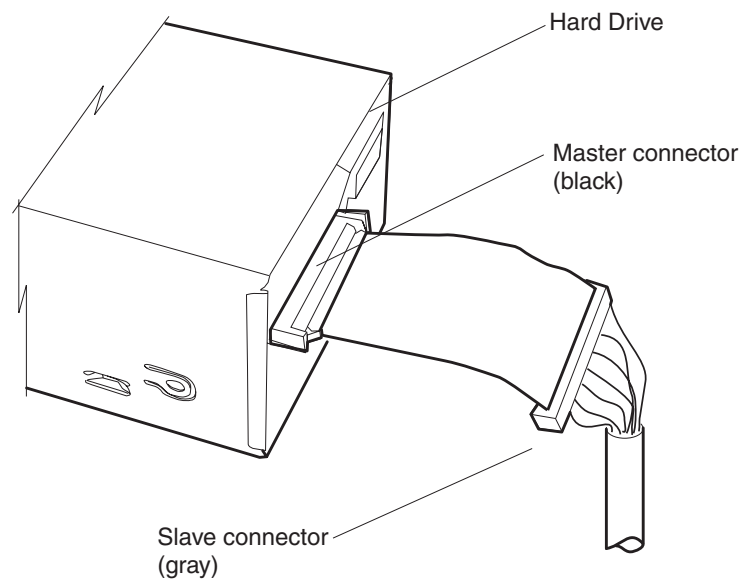


Figure 25. Master and slave connectors

6. Unplug the cables attached to the hard disk drive. See Figure 25 on page 37 and note that the end connector is the master connector, which is black, and should always be plugged into the master hard disk drive. The slave connector, which is gray, is installed to an optional, second hard disk drive in the lower position.
7. Remove the screws (**F** in Figure 24 on page 37) that hold the hard disk drive to the bracket.
8. Slide the hard disk drive (**C** in Figure 24 on page 37) out of the bracket.
9. To replace the hard disk drive, reverse these steps.

Notes:

- a. When re-attaching the cables, be sure to place the extra cable length in the space provided beneath the hard disk drive.
- b. The connector that plugs into the system board is blue.

Removing the exhaust fan (Models 742 and 782 only)

Follow these steps to remove and replace the exhaust fan:

1. Follow the instructions in “Removing the covers” on page 29 to remove the front bezel and top cover.
2. Follow the instructions in “Removing the top plate” on page 32 to remove the top plate.

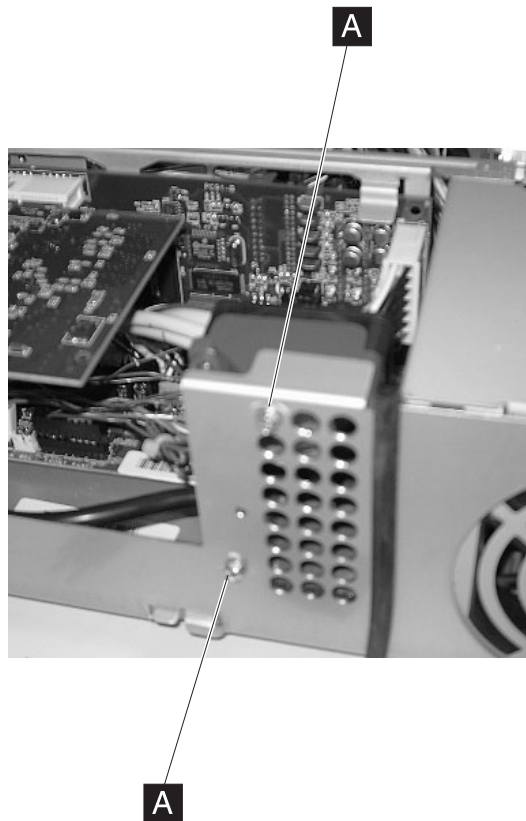


Figure 26. Exhaust fan (Models 742, and 782 only)

3. Locate and remove the two screws (see **A** in Figure 26) holding the exhaust fan in the housing.

4. Carefully remove the fan connector from the card.
5. Lift to remove.

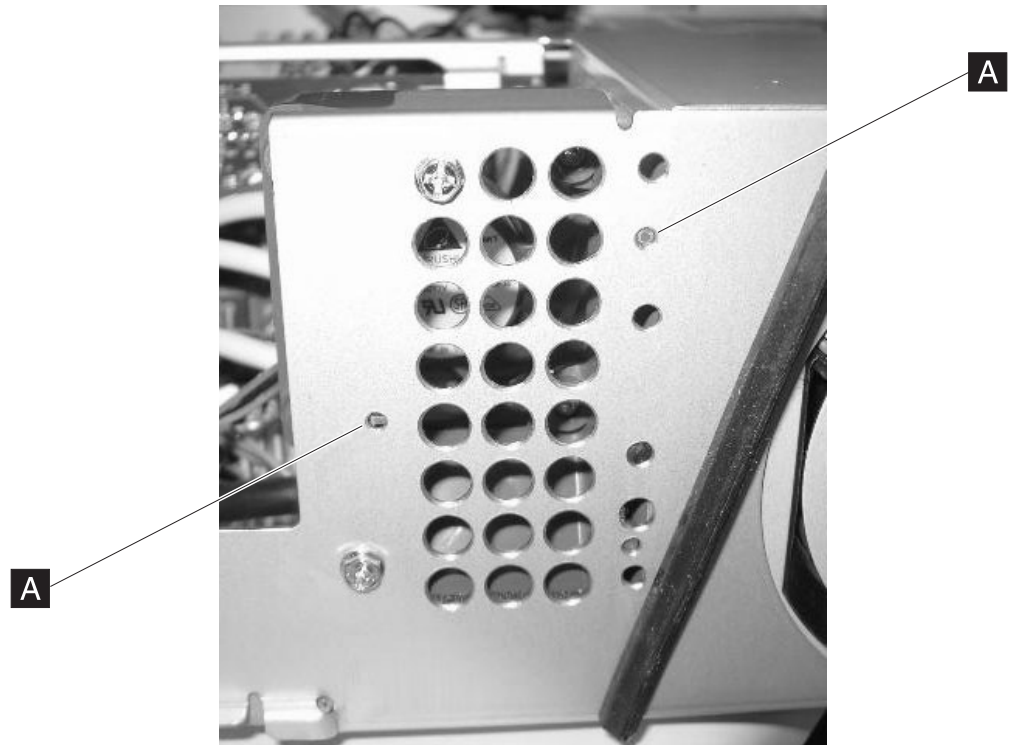


Figure 27. Location of alignment pen holes

6. To replace, align the fan with the two alignment holes (see **A** in Figure 27) on the housing.
7. Tighten the two screws to secure the fan.
8. Attach the connector to the planar board.

Replacing the insulating rubber seal (Models 722, 742, and 782 only)

Follow these steps to replace the insulating rubber seal located on the housing.

1. Follow the instructions in “Removing the covers” on page 29 to remove the front bezel and top cover.



A

Figure 28. Location of alignment pin holes

2. Locate the rubber seal (**A** in Figure 28) on the housing and near the exhaust fan.
3. Pull to remove.

To reinstall:

1. Align the rubber seal with the holes on the chassis, insuring that each cone-shaped protrusion has a matching hole.
2. Using a pair of pliers, pull the cone-shaped protrusions through the holes.

Removing the spline

To remove the spline:

1. Follow the instructions in “Removing the covers” on page 29 to remove the front bezel and top cover.
2. Follow the instructions in “Removing the top plate” on page 32 to remove the top plate.

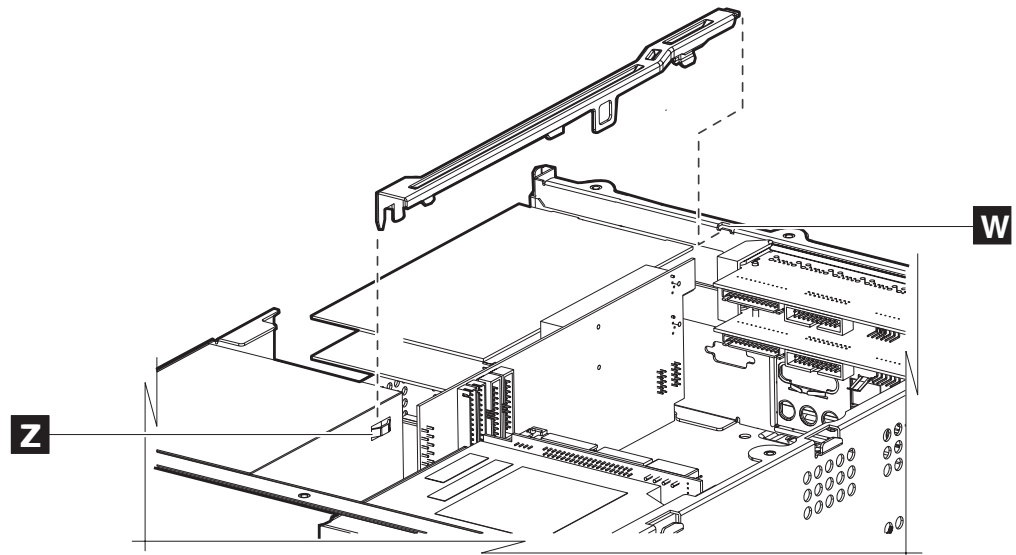


Figure 29. Removing the spline

3. See Figure 29. Locate the spline and lift it upward from notch (**Z** in Figure 29) and then outward from notch (**W**).
4. To replace the spline, reverse these procedures.

Removing the I/O modules

To remove the I/O modules:

1. Follow the instructions in “Removing the covers” on page 29 to remove the front bezel and top cover.
2. Follow the instructions in “Removing the top plate” on page 32 to remove the top plate.
3. If required for your model, follow the instructions in “Removing the air duct (Models 722, 74x, 78x, and C4x)” on page 44
4. If required for your model, follow the instructions in “Removing the processor fan (Models 742, 782 only)” on page 45.
5. Remove any cable attachments from the I/O modules.

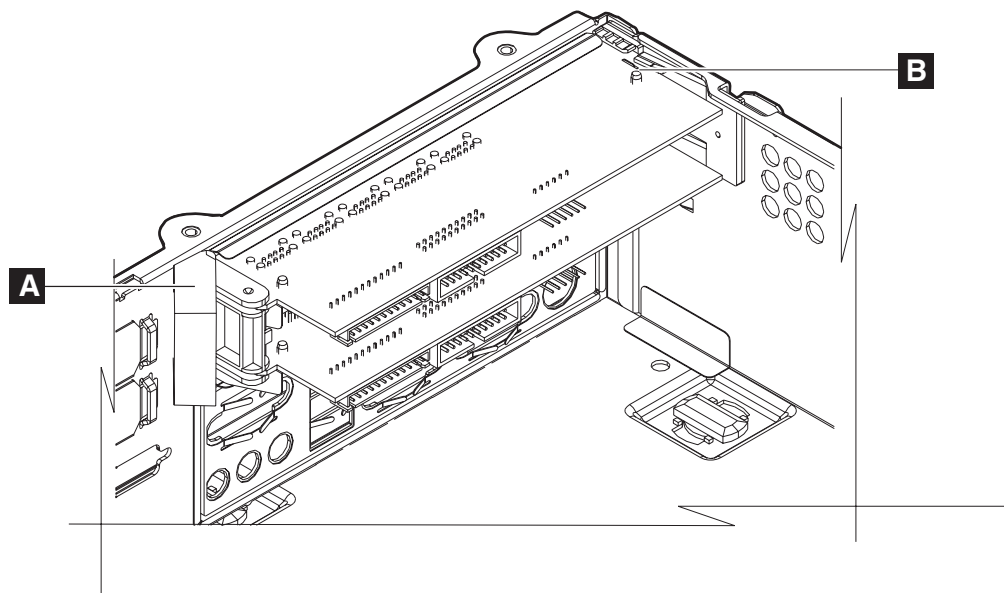


Figure 30. Opened I/O latch

6. See Figure 30. Locate the I/O modules latch, (**A** in Figure 30). Open the latch by grasping and turning it in a clockwise direction.
7. Press tab (**B**) and slide the I/O module out of the slot.
8. To replace an I/O module, reverse these procedures.

Note: Before installing a new RS-485 module, ensure that the jumpers on the new module match the removed, old module.

Removing the I/O module holders

To remove the I/O module holders, follow these steps:

1. Follow the steps in “Removing the covers” on page 29 to remove the covers.
2. For wide machines, follow the instructions “Removing the expansion housing” on page 58 to remove the UPS housing.
3. Follow the steps in “Removing the top plate” on page 32 to remove the top plate.

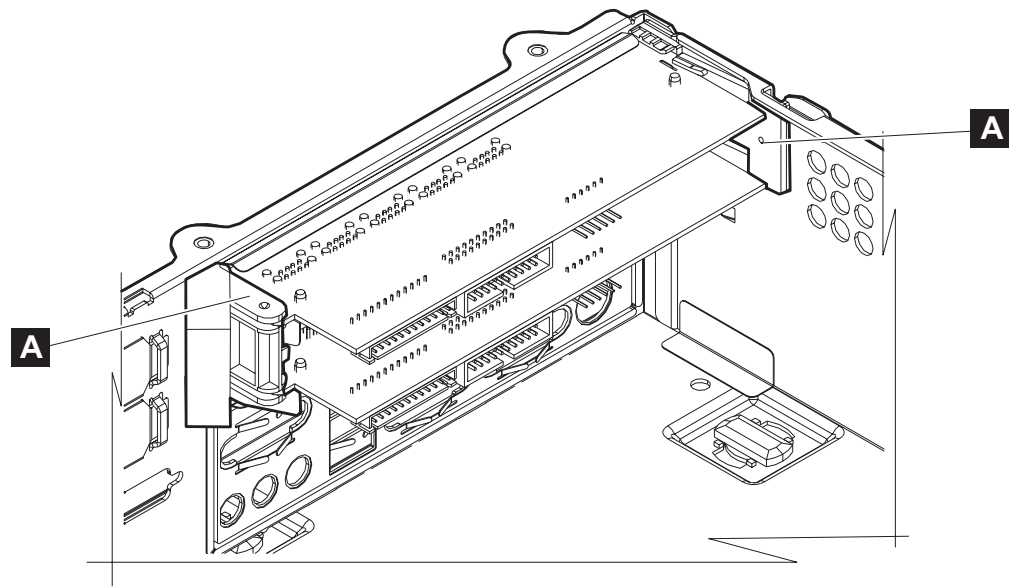


Figure 31. I/O module holders

4. Follow the steps in “Removing the I/O modules” on page 42 to remove the I/O modules.
5. Remove the screws (not shown) securing the I/O module holders (**A** in Figure 31).
6. To replace the I/O module holders, reverse these steps.

Removing the air duct (Models 722, 74x, 78x, and C4x)

To remove the air duct:

1. Follow the instructions in “Removing the covers” on page 29 to remove the front bezel and top cover.
2. Follow the instructions in “Removing the top plate” on page 32 to remove the top plate.

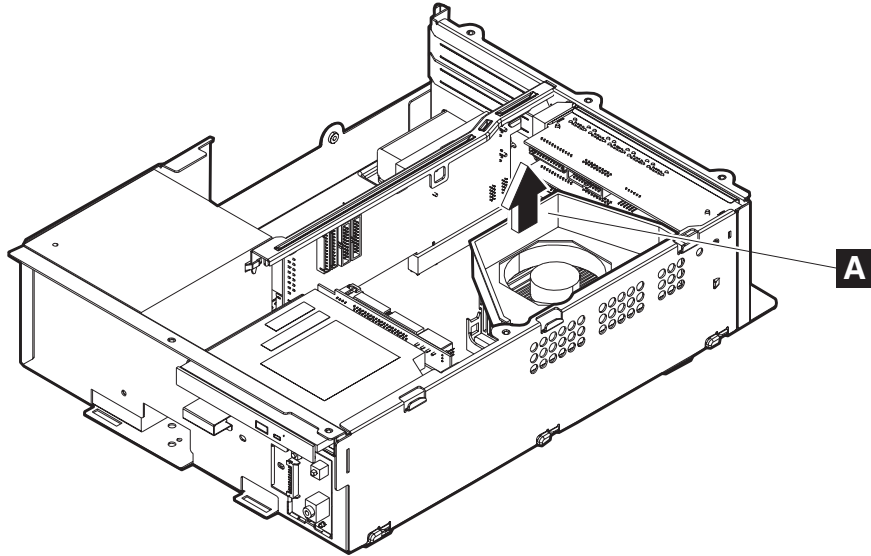


Figure 32. Removing the air duct

3. See Figure 32. Lift the air duct (**A**) from the fan.
4. Reinstall in reverse order.

Removing the processor fan (Models 742, 782 only)

Follow these steps to remove and replace the processor fan:

1. Follow the instructions in “Removing the covers” on page 29 to remove the front bezel and top cover.
2. Follow the instructions in “Removing the top plate” on page 32 to remove the top plate.
3. Follow the instructions in “Removing the air duct (Models 722, 74x, 78x, and C4x)” on page 44.

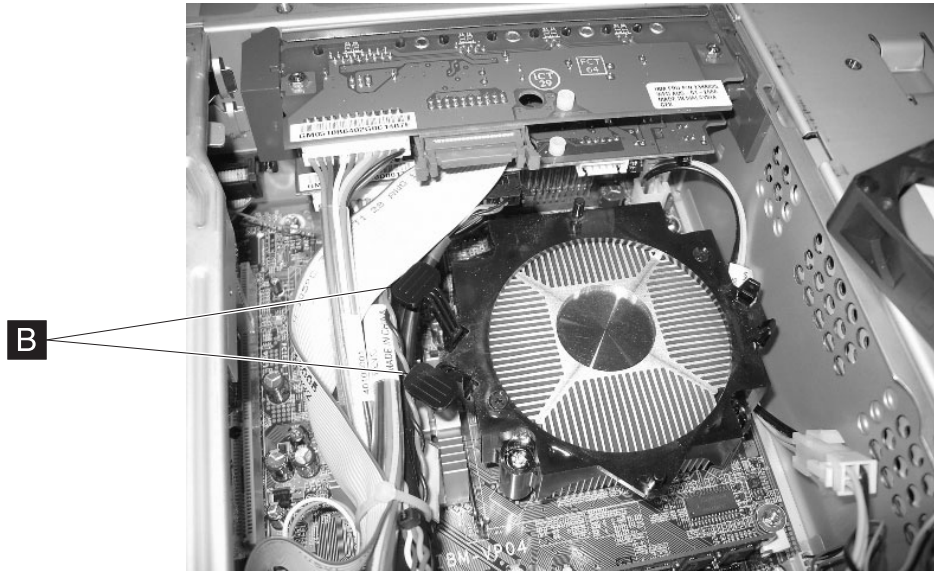


Figure 33. Processor fan and levers

4. Remove the processor fan by pressing down on the levers (**B** in Figure 33) to release the connections.
5. Lift to remove.
6. To replace, align the fan with the board connectors and press down to lock into place.

Removing the heat sink and processor

Attention: Establish personal grounding before touching this unit. For more information, see “Federal Communications Commission (FCC) statement” on page 105.

To remove the heat sink and processor:

1. Follow the instructions in “Removing the covers” on page 29 to remove the front bezel and top cover.
2. Follow the instructions in “Removing the top plate” on page 32 to remove the top plate.
3. If installed, remove the air duct.
4. For Models 7x2, go to step 9 on page 46. For Models 7x1, continue with the steps.

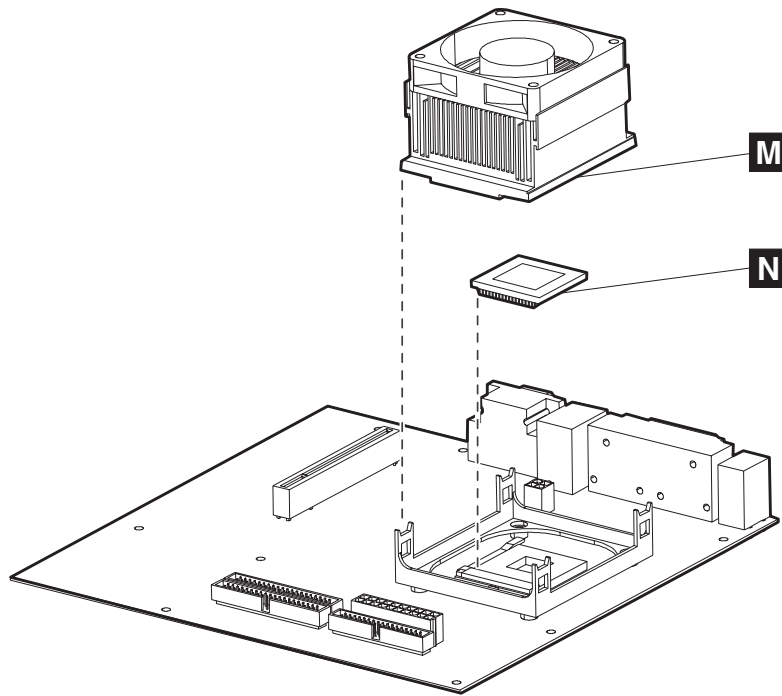


Figure 34. Heat sink and processor

Models 7x1

5. Locate the heat sink latches on each side of the heat sink.
6. Press down to unlock each latch and then lift upward on the heat sink (**M**) to remove.

Note: When the heat sink is removed, you can locate the processor (**N**)

7. See Figure 34. Press down on the processor latch, and move sideways and up to unlock. Lift out the processor, carefully keeping your fingers on each side of the module.
8. Go to step 10.

Models 7x2

9. Loosen the four captured screws to remove the heat sink.

All Models

10. To replace the processor and heat sink, reverse these procedures.

Note: Models 742 and 782 contain a LGA 775 CPU socket. This socket contains very finely pitched pins. You must take care when servicing the CPU as any damage to the socket results in a non-functional system board. Be sure to use the section cup tool provided with the FRU processor.

Removing the control switch card

To remove the control switch card:

1. Follow the instructions in “Removing the covers” on page 29 to remove the front bezel and top cover.

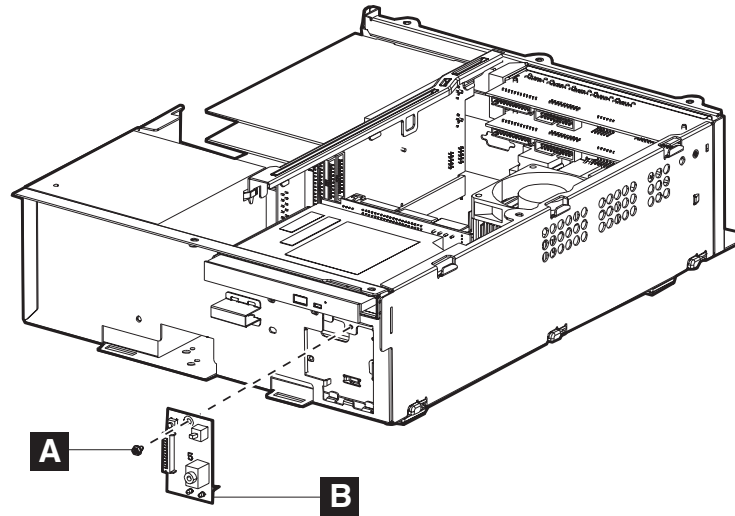


Figure 35. Removing the control switch card

2. See Figure 35. Remove the screw (**A**) holding the card in place.
3. Lift the card from the unit.
4. Unplug the cable that is attached to the card connector (**B**).
5. To replace the card, reverse these procedures.

Removing the power supply

To remove the power supply:

1. Follow the instructions in “Removing the covers” on page 29.
2. Follow the instructions in “Removing the top plate” on page 32.

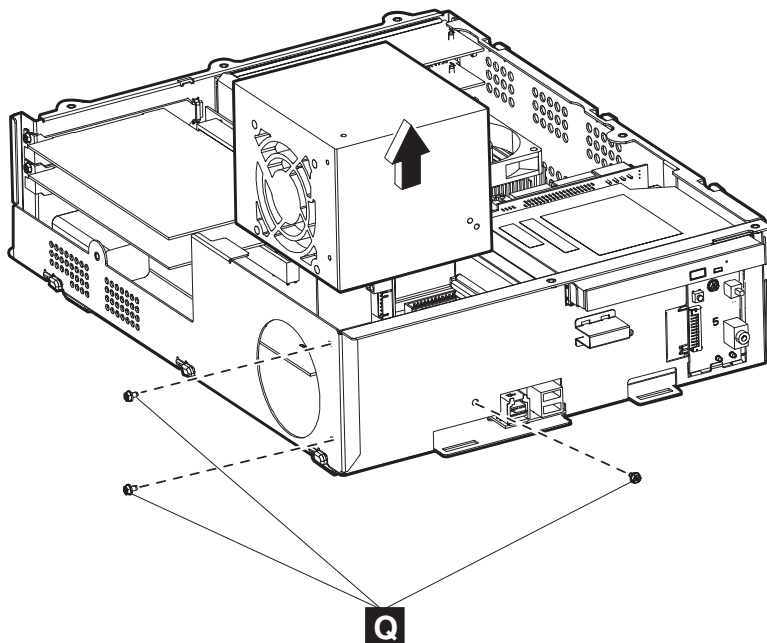


Figure 36. Removing the power supply

3. Follow the instructions in “Removing the spline” on page 41.

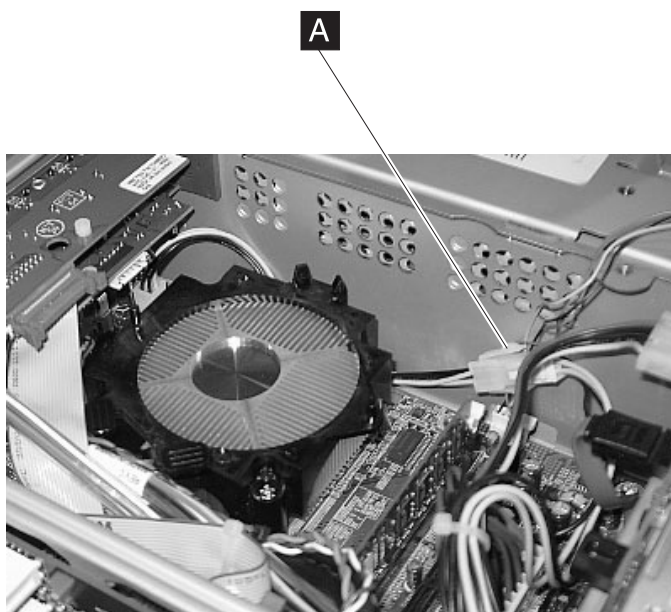


Figure 37. Example of Model 742 and 782 processor power cable

4. Disconnect the internal power cord connected to the power supply.

Note: For Models 742 and 782, disconnect the connector from the processor power cable (see **A** in Figure 37 on page 48).

5. Disconnect all cables.
6. See Figure 36 on page 48. Remove the screws (**Q**) holding the power supply to the housing.
7. Lift to remove the power supply from the unit.
8. To replace the power supply, reverse these procedures.

Removing the riser card

To remove the riser card:

1. Follow the instructions in “Removing the covers” on page 29.
2. Follow the instructions in “Removing the top plate” on page 32.

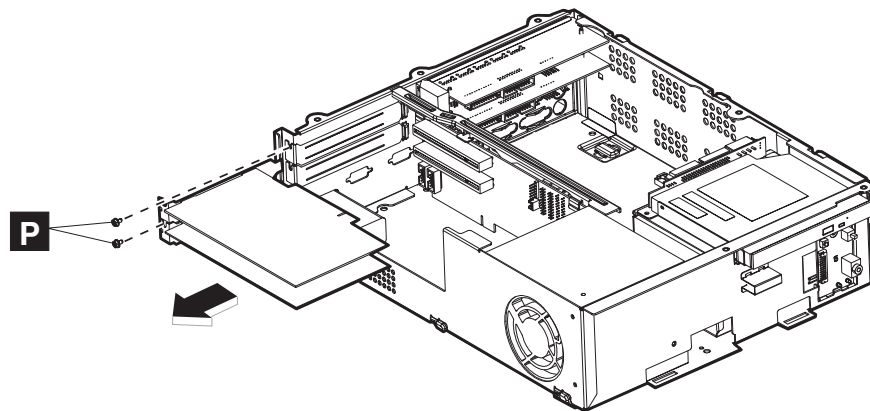


Figure 38. Removing feature cards

3. See Figure 38 to locate any installed feature cards and retaining screws (**P**). Remove the screws and pull outward to remove the feature card.
4. Follow the instructions in “Removing the spline” on page 41.

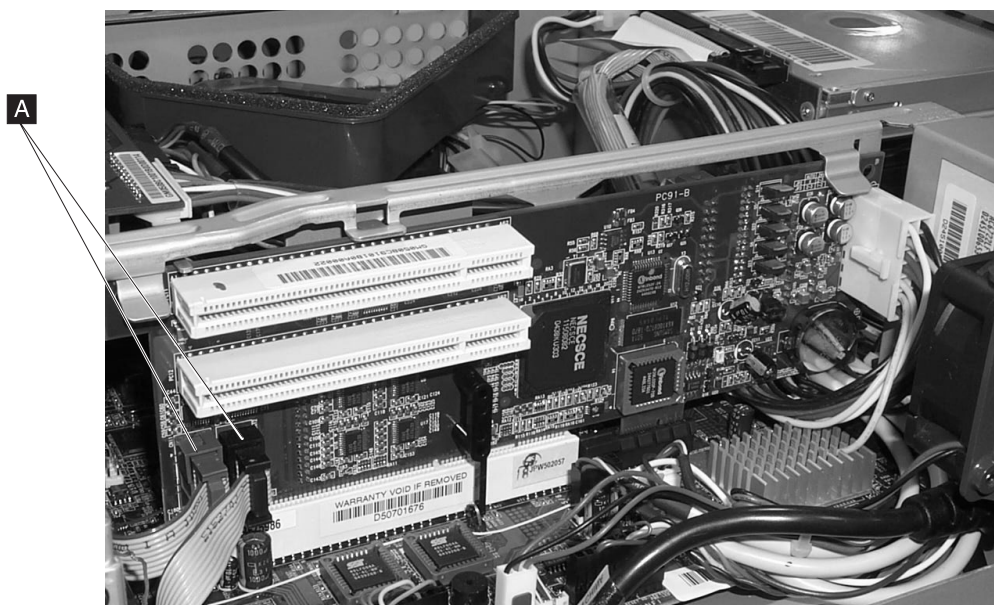


Figure 39. Serial connectors

5. Note the cable routings, and then unplug two serial connectors (if installed) from the left side of the riser card. See **A** in Figure 39.

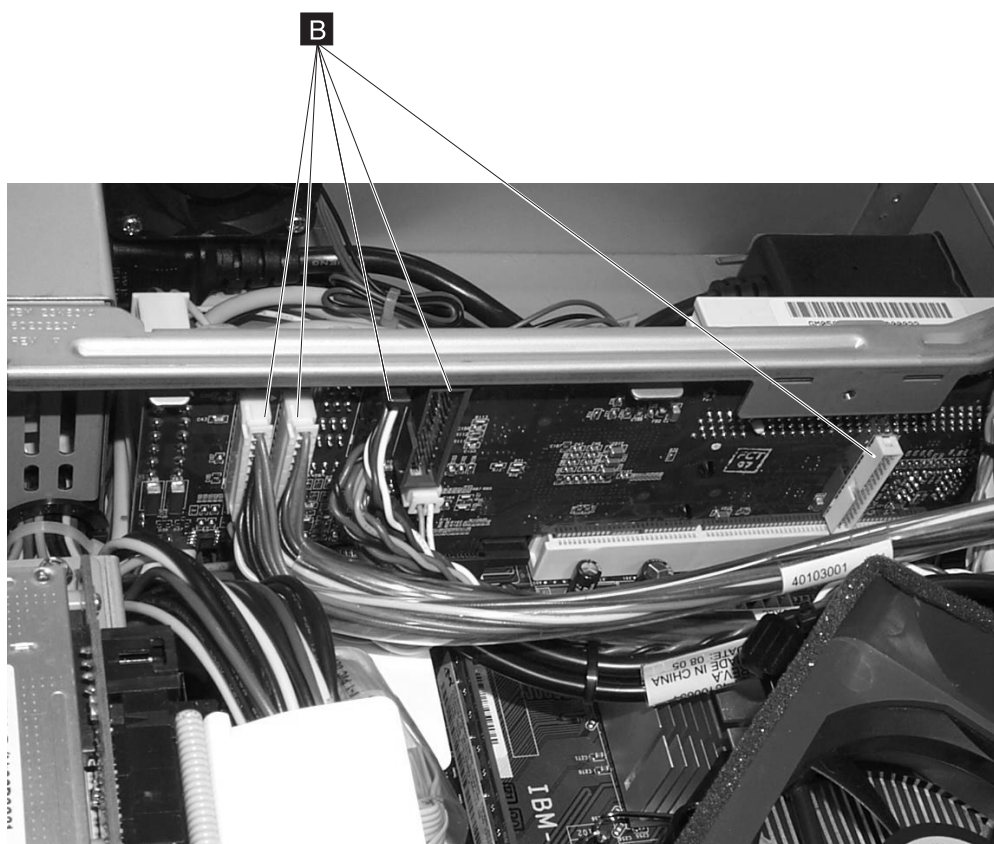


Figure 40. Removing the I/O card cables

6. Remove the four I/O card cables, if installed. See **B** in Figure 40 on page 50. Note the locations for other possible connections.

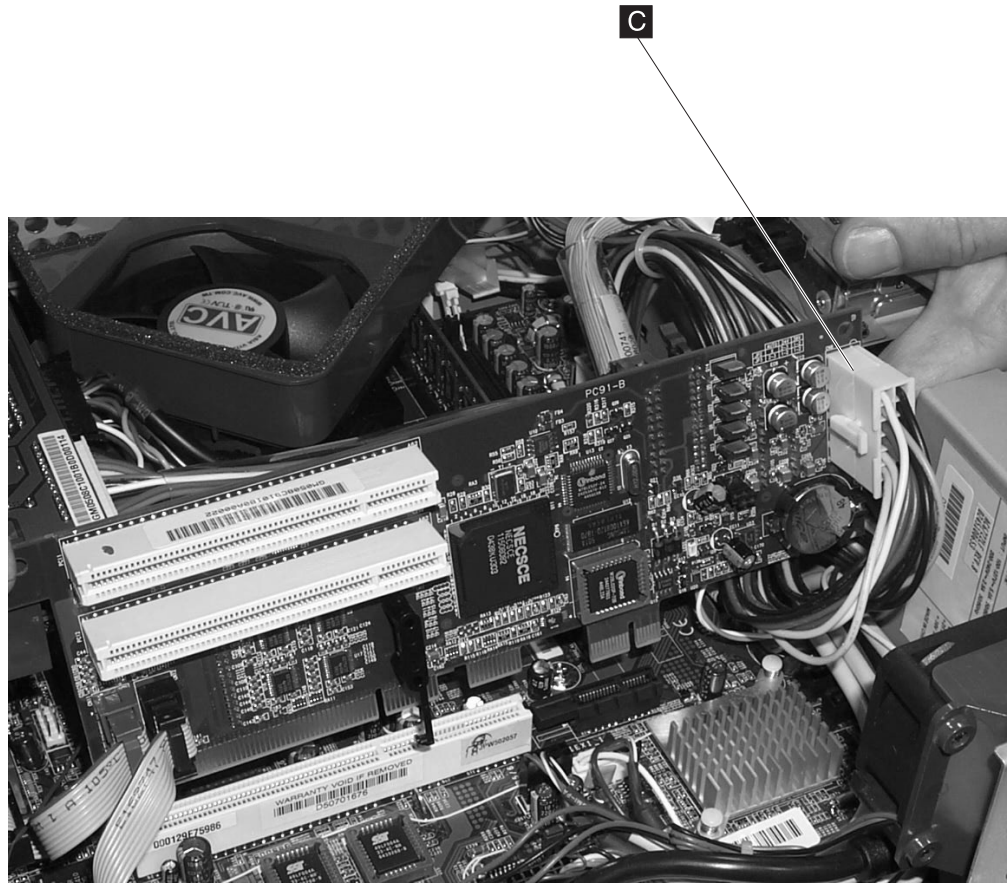


Figure 41. Power connector

7. Remove the power connector from the riser card. See **C** in Figure 41

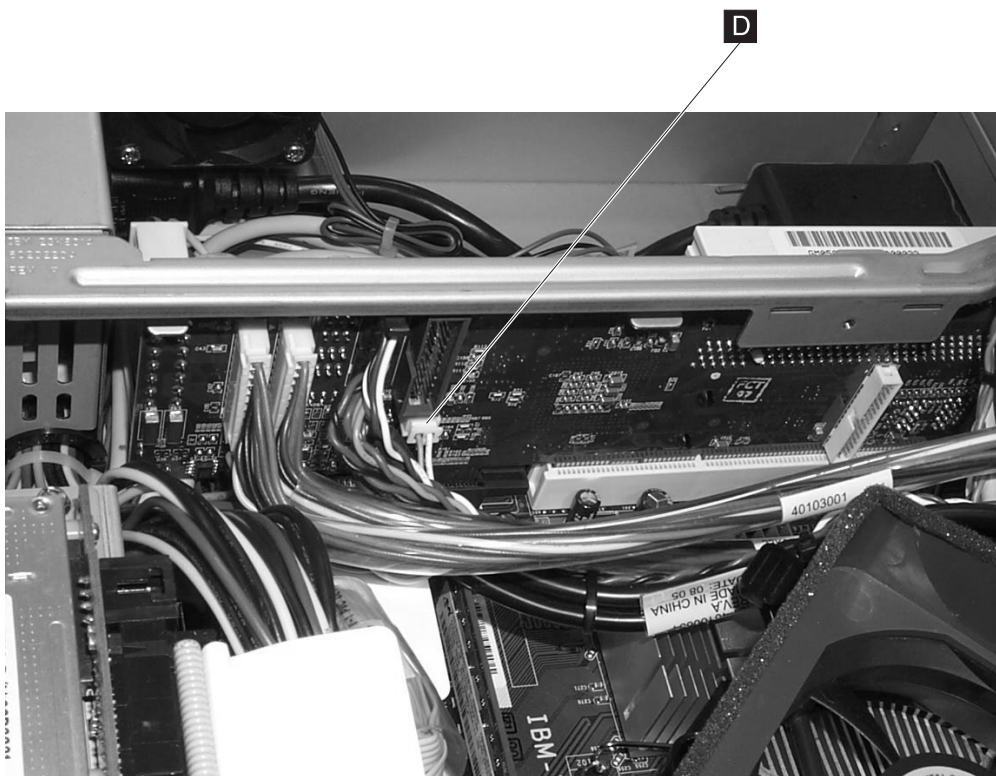


Figure 42. Dump switch

8. Unplug the dump switch from the riser card. See **D** in Figure 42.

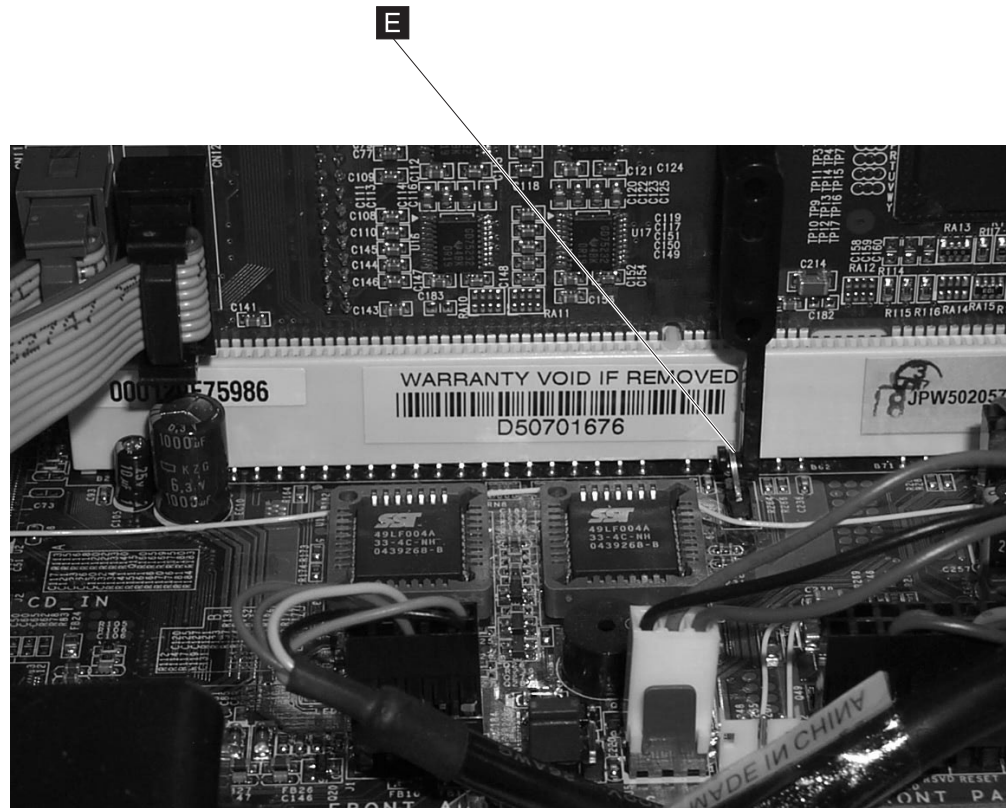


Figure 43. Riser card latch

Model 7x2 only

9. Release the mechanical latch (see **E** in Figure 43) retaining the riser card as follows:
 - a. Tilt the riser toward the latch.
 - b. With your hand, unhook the latch.
10. Lift out the riser card.

All Models

11. To replace the riser card, reverse these procedures.

Note: When replacing the riser card, ensure that the cash drawer voltage setting matches the voltage setting on the old riser card. See “Cash drawers” on page 18 for additional information.

Removing the planar

1. Follow the instructions in “Removing the covers” on page 29.
2. Follow the instructions in “Removing the top plate” on page 32.
3. Follow the instructions in “Removing the riser card” on page 49 and “Removing the I/O modules” on page 42.
4. If installed, remove the air duct. See “Removing the air duct (Models 722, 74x, 78x, and C4x)” on page 44.
5. Follow the instructions in “Removing the processor fan (Models 742, 782 only)” on page 45

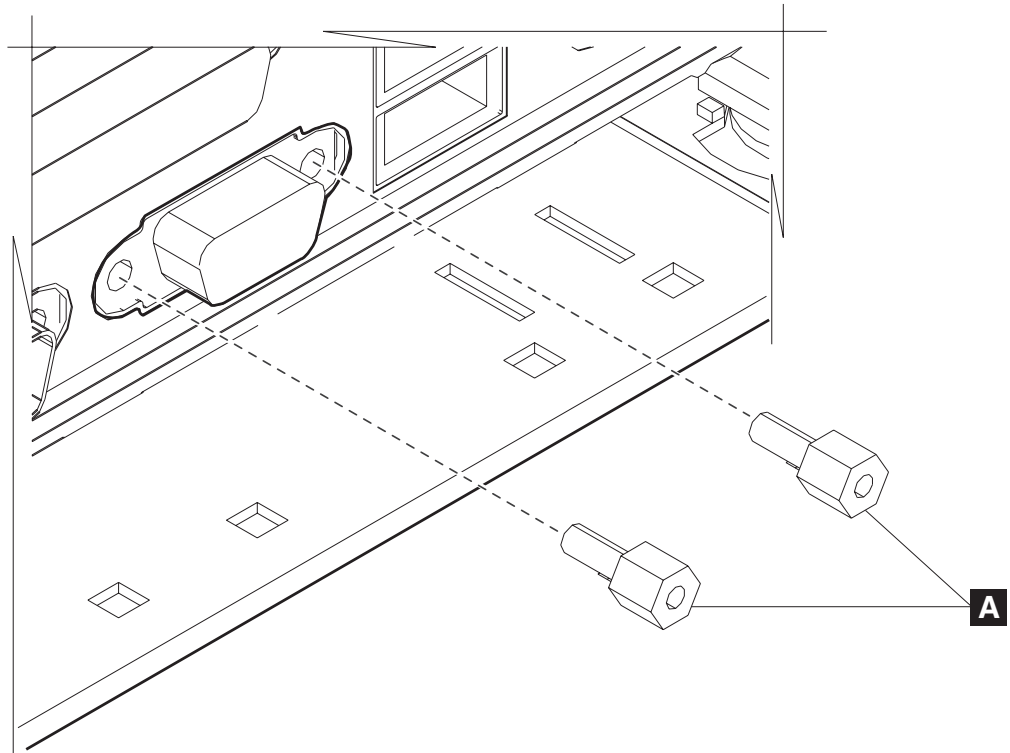


Figure 44. Example of stand-offs

6. Remove the eight standoffs (see **A** in Figure 44) for the parallel, video and serial ports.
7. Unplug all attached cables.

Note: For Models 742 and 782, disconnect the connector from the processor power cable (see **A** in Figure 37 on page 48).

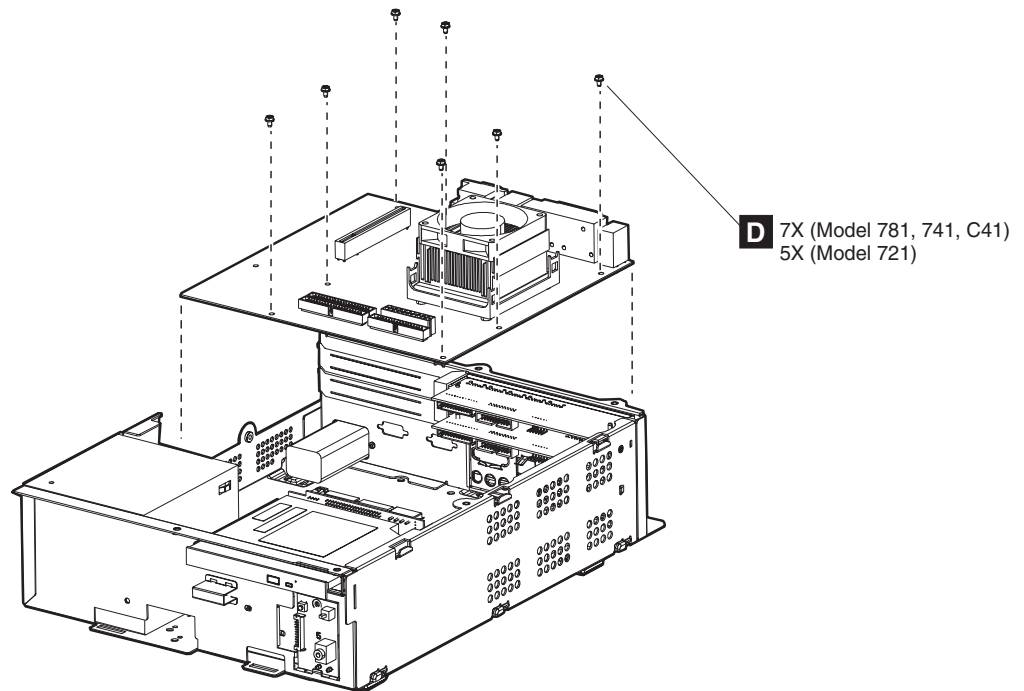


Figure 45. Planar location

8. See Figure 45. Locate and remove the screws from the planar board (**D**). Model 721 has five screws. Models 7x2, 74*, and 78* have seven screws.
9. Lift the planar upward from the housing.
10. To replace planar, reverse these procedures.

Removing the UPS

Note: This procedure applies to the wide machine feature only.

1. Remove the front bezel by referring to Figure 17 on page 29.
2. Unplug and remove all of the power cords and the serial cable, if installed.

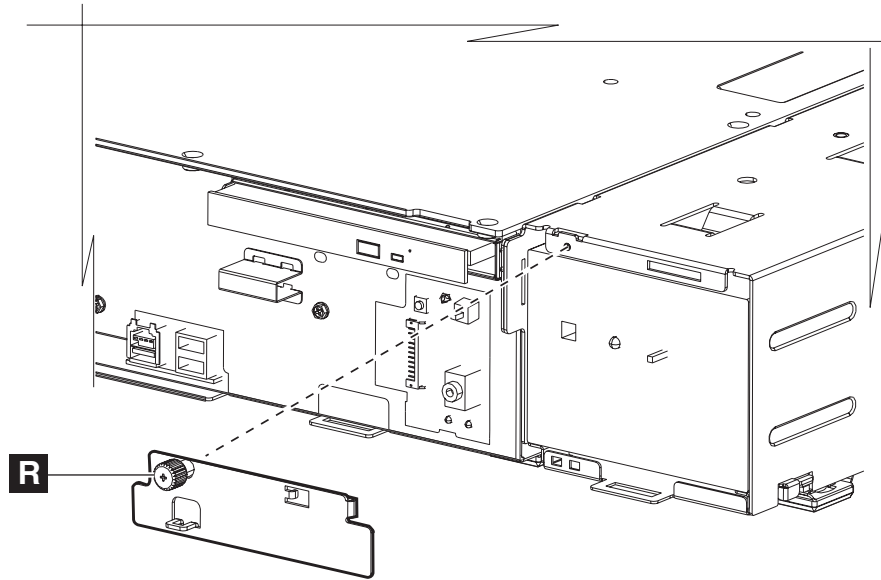


Figure 46. Power supply housing bracket

3. See Figure 46. Untighten the screw (**R**) on the UPS lock.

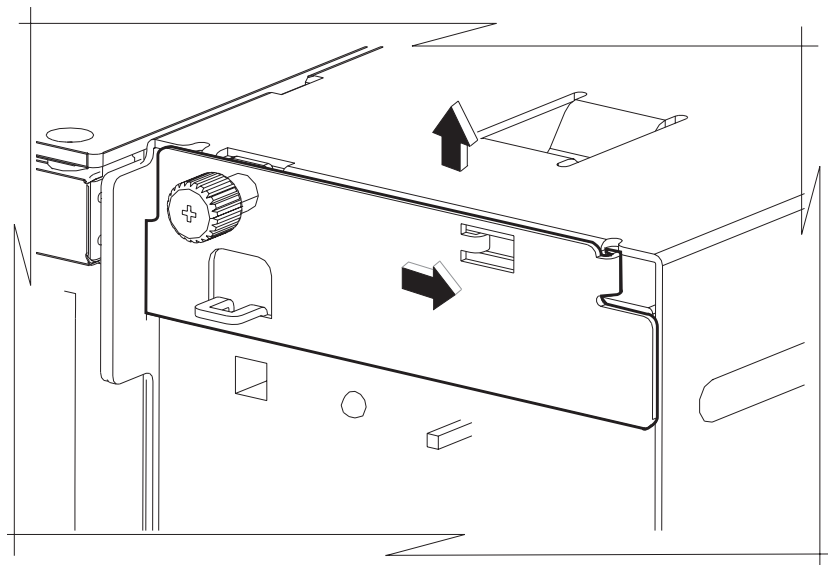


Figure 47. Lifting the bracket

4. Slide the bracket to the right and lift it out of the expansion housing.

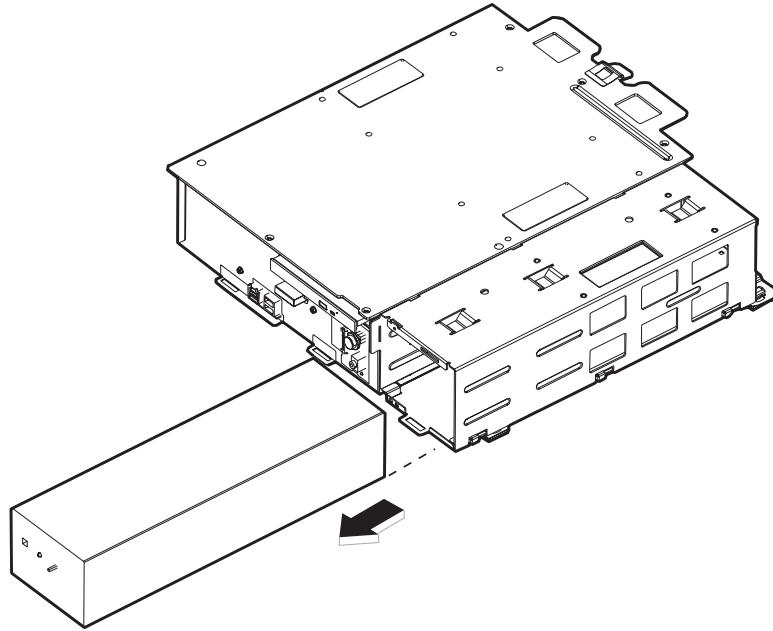


Figure 48. Removing the UPS

5. See Figure 48 and slide the UPS from the expansion housing.
6. To replace the UPS, reverse these procedures and note the following:

Note: Correctly reset the UPS configuration switches. See “Configuration switches” on page 11

Removing the expansion housing

1. Follow the instructions in “Removing the covers” on page 29.
2. Follow the instructions in “Removing the UPS” on page 56.

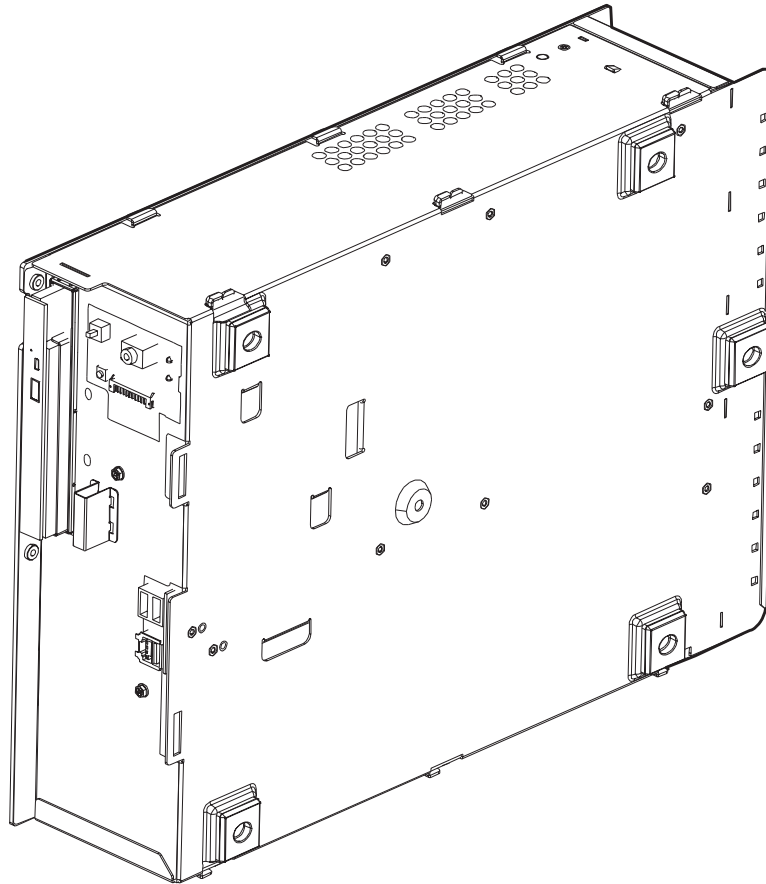


Figure 49. Position of system unit and expansion housing

3. Place the system unit and the expansion housing in the position shown in Figure 49. This position assists with the removal process as the rubber feet do not touch the counter.

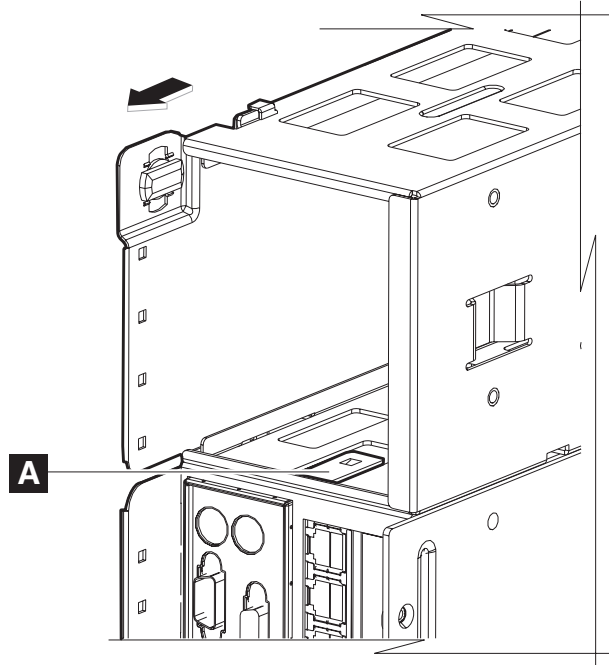


Figure 50. Prying the expansion housing latch upward

4. Locate the latch (**A** in Figure 50) inside of the power supply housing. Using a screwdriver, pry the latch upward.
5. Push the power supply housing backward from the unit until it unlatches.

Note: Before you install the expansion housing, be sure that the latch is flush with the side of the housing, and not bent inward.

6. To install the expansion housing, reverse these procedures.

Note: Be sure the latch (**A** in Figure 50) is engaged and the expansion housing bracket is securely fastened.

Removing the UPS battery

1. Follow the instructions in "Removing the UPS" on page 56.

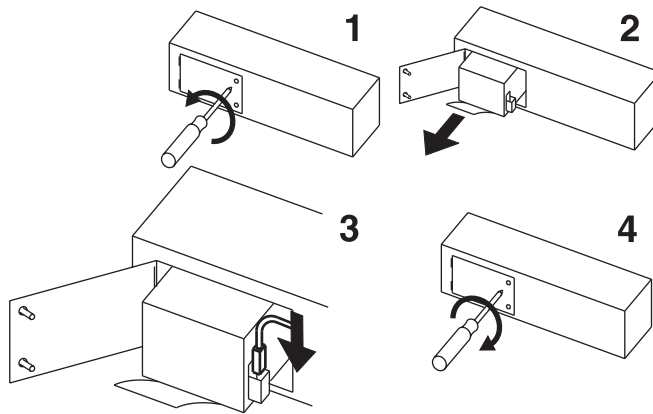


Figure 51. Removing the UPS battery

2. Follow the pictorial directions on connecting the battery to the UPS, noting the exceptions (in bold) below:
 - a. See Figure 51, Picture 1. With the UPS on its side, remove the battery door.
 - b. See Picture 2. Pull the battery out of the UPS such that you can view the wiring and plug.
 - c. **Disconnect** all plugs to the battery.
 - d. Properly dispose of the old battery.
 - e. To install a new battery, reverse these procedures.

Removing the front USB card

1. Follow the instructions in “Removing the covers” on page 29.
2. Follow the instructions in “Removing the top plate” on page 32
3. Follow the instructions in “Removing the hard disk drive” on page 36.
4. Disconnect the cable attached to the USB card.

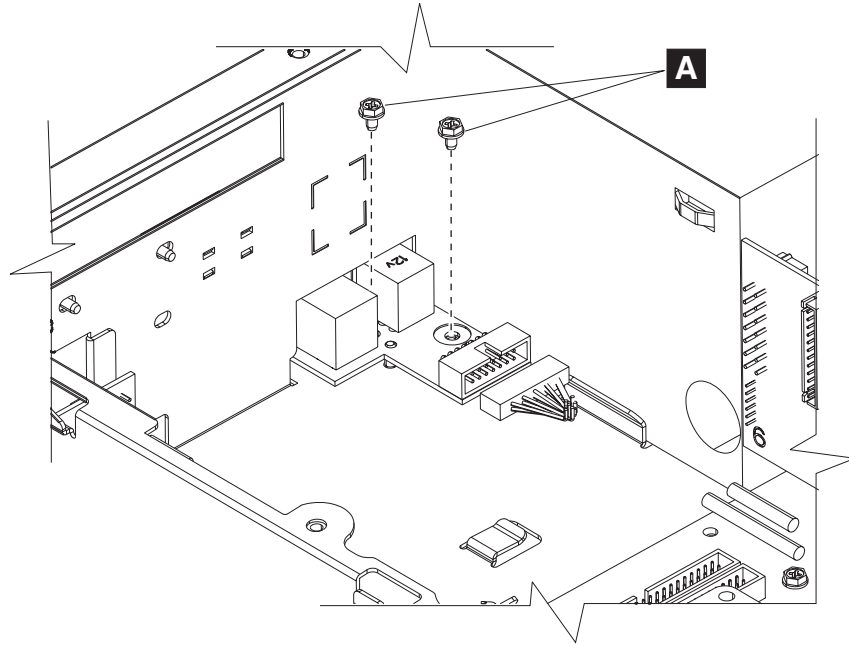


Figure 52. Removing the front USB card

5. Remove the two screws (**A** in Figure 52) holding the USB card to the system unit.
6. Lift card and remove it from the front of the unit.
7. To replace card, reverse these procedures.

Removing the memory modules

1. Follow the instructions in “Removing the covers” on page 29 to remove the front bezel and top cover.
2. Follow the instructions in “Removing the top plate” on page 32 to remove the top plate.
3. Follow the instructions in “Removing the air duct (Models 722, 74x, 78x, and C4x)” on page 44 to remove the air duct.
4. See Figure 53. Locate the memory modules and slots.

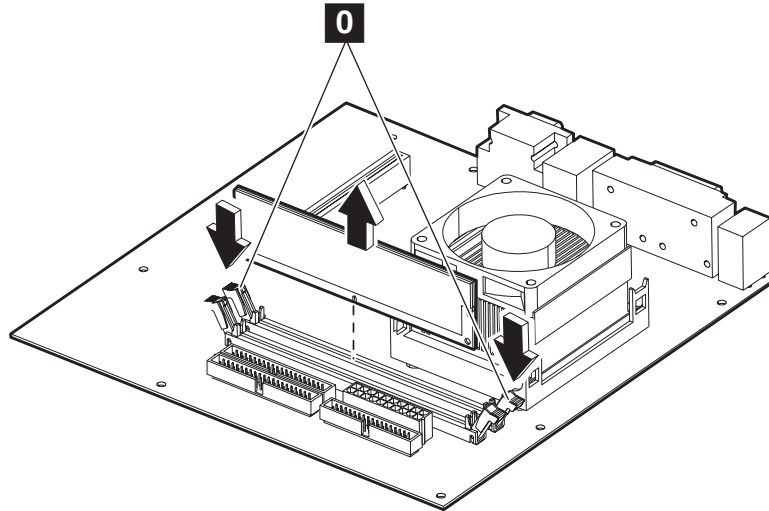


Figure 53. Opening the memory module latches

5. Press downward on the white tabs (**0**) on both sides of the memory-module connectors until they are both at a 45-degree angle. The memory module rises slightly in the connector.
6. Touching only the upper corners of the memory module, lift it gently until the module is free from the connector.

To replace the memory modules, follow these instructions:

1. Note the alignment notches along the bottom of the module where it plugs into the connector.

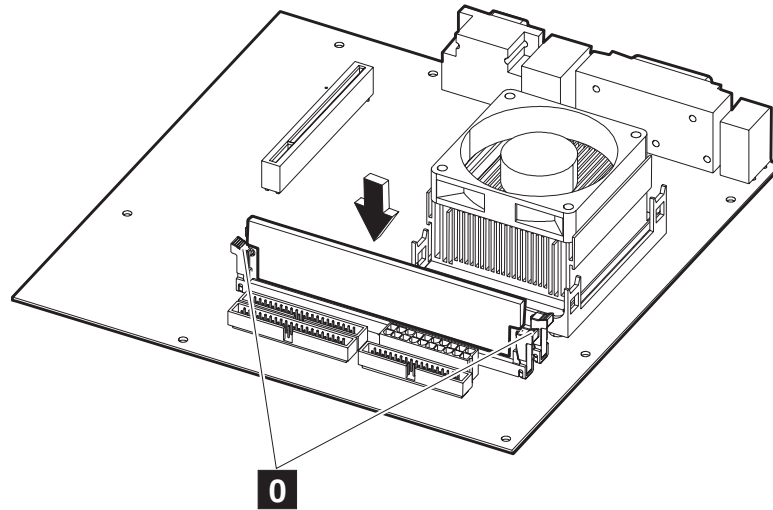


Figure 54. Replacing the memory modules

2. Touching only the top corners of the memory module, align the connector tabs and press down firmly. The white tabs (**0** in Figure 54) on the connector on the planar board will close as the module is inserted. When inserted correctly, the white tabs are completely closed.
3. Replace the top plate, air duct, and covers.

Removing the front service housing components (wide models only)

This section pertains to models with the front service housing option.

Removing the system and bezel latches

Follow these steps to remove the rear and bezel latches from the 4800 unit:

1. Set the unit on a flat surface.
2. See Figure 17 on page 29 and follow the steps to remove the front bezel.
3. Remove the power supply screw holding the system latch and retain for reuse.

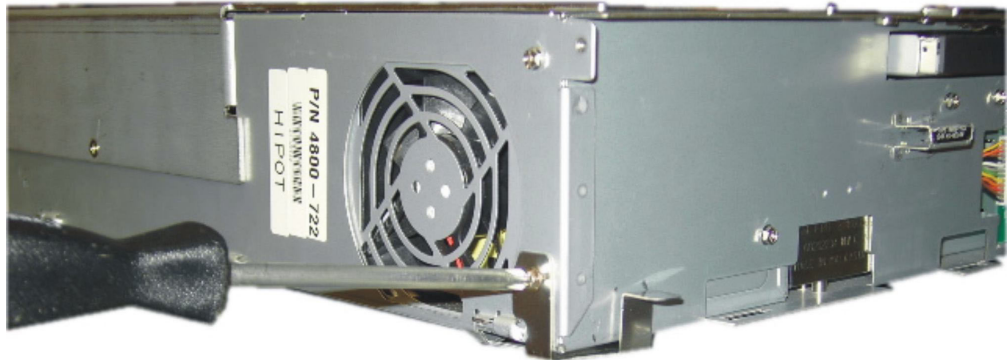


Figure 55. Removing the system latch

4. Remove the system latch and discard.
5. Align the new system latch to the corner of the unit as shown in Figure 55, insert screw and tighten.



Figure 56. Removing the bezel latch

6. See Figure 56 and remove the screw holding the bezel latch and remove the latch.
7. Position the new bezel latch downward.
8. Insert and tighten the screw.

Removing the pull-out handle

Follow these steps to install the pull-out handle:

1. Set the unit on a flat surface.
2. See Figure 17 on page 29 and follow the steps to remove the front bezel.
3. Slide the pull-out handle to the left of the clip and rotate as shown. Slide to the right to remove.



Figure 57. Attaching the pull-out handle

4. To replace, align the handle to the clip at approximately a 45-degree angle. See Figure 57.
5. Place the pull-out handle on the clip and slide it to the right for a secure fit.

Removing the cable guide

Follow these instructions to replace the cable guide:

1. Pull the 4800 unit from the front of housing and place on a cart
2. Remove the velcro strap holding the cables.
3. Remove the screw holding the cable guide.
4. Remove the cable guide from the 4800 unit and also remove the cables.

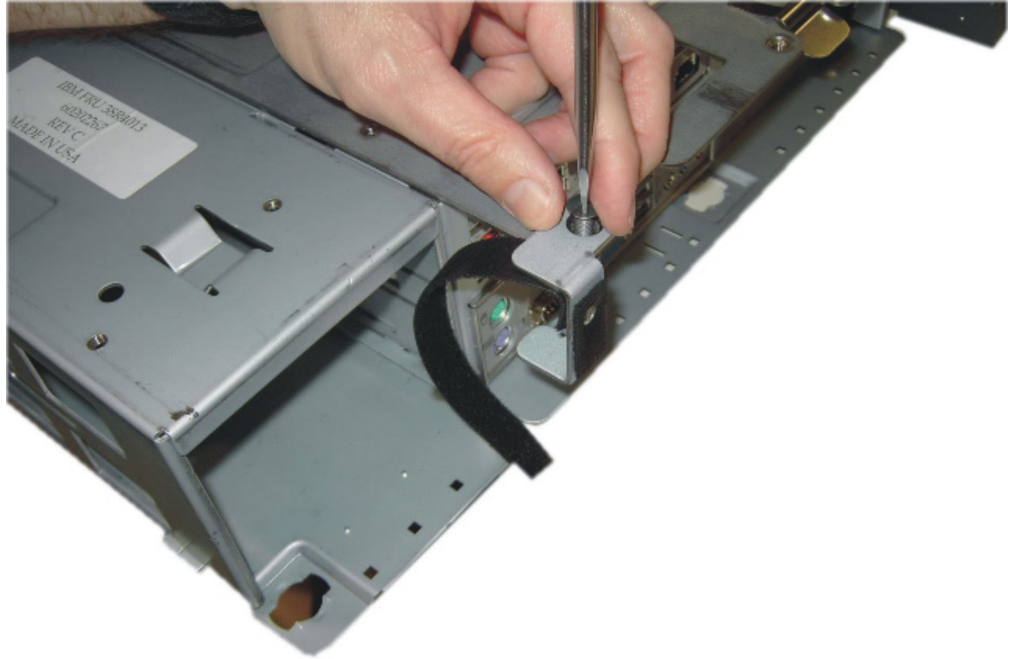


Figure 58. Removing the cable guide

To replace:

5. Reverse these procedures to reinstall the cable guide.

Removing the cable guide arm assembly

1. Pull the 4800 unit from the front of housing and place on a cart
2. Extend the cable guide assembly arm and open the velcro strips from the cable guide and the cable guide arm assembly.
3. Remove all cables from the cable arm assembly and place aside.
4. Remove the cable guide arm assembly by squeezing and lifting it from the bottom peg and then from the top peg.

To replace:



Figure 59. Positioning the cable guide arm assembly

5. See Figure 59. Fold the cable guide arms so that the screw heads are adjacent to each other.



Figure 60. Attaching the cable guide arm assembly

6. See Figure 60. Align the holes on the cable guide arm assembly with the pegs on the 4800 unit. Insert the top peg first and then slightly squeeze the unit to insert the bottom peg.
7. Complete the steps described in “Routing the cables.”

Routing the cables

Important

Ensuring that the cables are neatly routed reduces entanglements and saves space.

For ease of installation, IBM recommends that you route the cables in the following order:

1. Power cord
2. Ethernet
3. Cash drawer and other peripheral devices (mouse, keyboard, printer)

Follow these instructions to route the cables:

1. Complete the instructions described in “Removing the cable guide” on page 66.
2. Open all of the velcro strips on the cable guide and the cable guide assembly arm.

3. For each cable, insert the connector end into the system unit first, then route it through the cable guide. You can close the velcro loop around the cord at this time or later in the cable routing process.



Figure 61. Extra cord length during routing

Tip for routing the mouse, keyboard, and printer cables

When routing these cables, allow extra length at the connector end by forming a loop (see Figure 61) before continuing with the cable into the cable guide. This extra length prevents undue strain on the connector.

4. With the cable guide arm assembly perpendicular to the system unit, continue to route the cable along the outside of the cable guide arm assembly, closing the velcro strips where appropriate to secure.

Note: Do not plug the power cord into the receptacle at this time, or attach the cables to the devices.



Figure 62. Cable assembly arm with cables securely in place

5. After all cables are routed and properly arranged, close the velcro strips.
6. See Figure 62. Ensure that the cables with cable arm assembly is properly secured by freely moving the arm backward and forward. If this action is difficult or impeded, open the velcro strips and rearrange the cables to allow additional slack.
7. Gently close the cable guide assembly arm and lift it behind the latch.

Chapter 3. Problem determination

Problems with the SurePOS 700 can be caused by software errors or hardware failures. This chapter contains problem-analysis tables to help determine the cause of a problem and how to solve it.

When you power on the SurePOS 700, the system runs a power on self test (POST). A successful POST is indicated by:

- A single beep
- The power and UPS status indicators are both on and not blinking.

If the POST is unsuccessful, see “Problem isolation” on page 74.

Preliminary checklist

If you have a problem with the SurePOS 700, first use the following checklist:

1. Make sure that all I/O devices are connected correctly.
2. Make sure that AC power is connected.
3. Make sure that the contrast and the brightness controls on the display are adjusted correctly.
4. Make sure that all installed hardware (such as a memory module, feature card, printer, or mouse) and cables are connected correctly and securely.
5. Power ON and listen for one or two beeps at the completion of the POST.
6. If POST does not complete, power OFF the SurePOS 700 and remove any optional adapters and all I/O devices except a single keyboard and display.
7. If POST still fails to complete, see “Problem isolation” on page 74.

Problem isolation

If the SurePOS 700 fails, follow the procedures that are described in Table 6. If you cannot solve the problem, contact a trained service technician.

Table 6. Actions to isolate the cause of a problem

Problem	Action to perform
The power indicator remains off.	<ol style="list-style-type: none"> 1. Check that the AC power cord is plugged into both the wall outlet and the back of the terminal. 2. Ensure that AC power is present at the wall outlet.
Continuous series of beeps	<ol style="list-style-type: none"> 1. Check to see if memory is bad or missing.
Video display is failing (totally blank screen, no cursor displayed, screen is unreadable, or other display problems).	<ol style="list-style-type: none"> 1. Verify that the video-display cables are securely connected. 2. Ensure that the video-display power cord is plugged in and powered on. 3. Verify that the power indicator on the system unit and the indicator light on the display are lit. 4. Adjust contrast and brightness controls on the display. 5. Use the reference documentation (if available) for the display. 6. Exchange the video display.
Keyboard does not work or only some keys work.	<ol style="list-style-type: none"> 1. Make sure that the keyboard is securely attached to the keyboard port. 2. Move your fingers across the keys. Make sure that no keys are stuck. 3. Make sure that you are on a screen that allows typing. Some screens do not allow you to type on them.
One or more POS I/O devices are failing.	<ol style="list-style-type: none"> 1. Ensure that the I/O devices are securely and correctly connected to the system unit. 2. If the device has its own power cord and power switch, ensure that it has power and that the power switch is on. 3. Exchange the cables. 4. If a POS I/O device is available that is known to be good, substitute it for the failing device to help in isolating the failure.
An optional feature adapter is failing.	See the service information for the adapter.
System does not power off when the power switch is pressed.	Press and hold the power button until the unit powers off. (approximately 5 seconds)

Notes:

1. Some devices that attach to the system have test instructions. Refer to those instructions when testing those devices.
2. Record any error message or symptom so that this information is available when service is called.
3. When using application software, you might receive error messages that apply to the software. Refer to the software manual for explanations of those messages.

Special tools requirements

You may need to order the following tools, which are not included in the toolkit:

- Ethernet wrap plug
- Tri-connector (serial and parallel) wrap plug
- USB mouse, required for POS Device Diagnostics
- PS/2-style or POS keyboard

Using the RAID application

The Redundant Array of Inexpensive Disks (RAID)³ application supports Models 742 and 782 with two hard disk drives and the Microsoft Windows operating system. RAID provides an error message should one of the two hard disk drives experience a failure (see Figure 63).



Figure 63. RAID hard drive failure pop-up

Determining a hard drive failure

When the RAID program indicates a hard drive failure, you can determine which drive has failed using one of the following two methods:

Method one: Clicking on the RAID icon

1. From the Microsoft Windows Task bar, click on the RAID icon. This icon is present only if abnormal activity occurred, such as a failed drive, and during an array rebuilding. The Intel Storage Utility (see Figure 64 on page 76.) opens.

3. RAID is also referred to as the Redundant Array of *Independent* Disks.

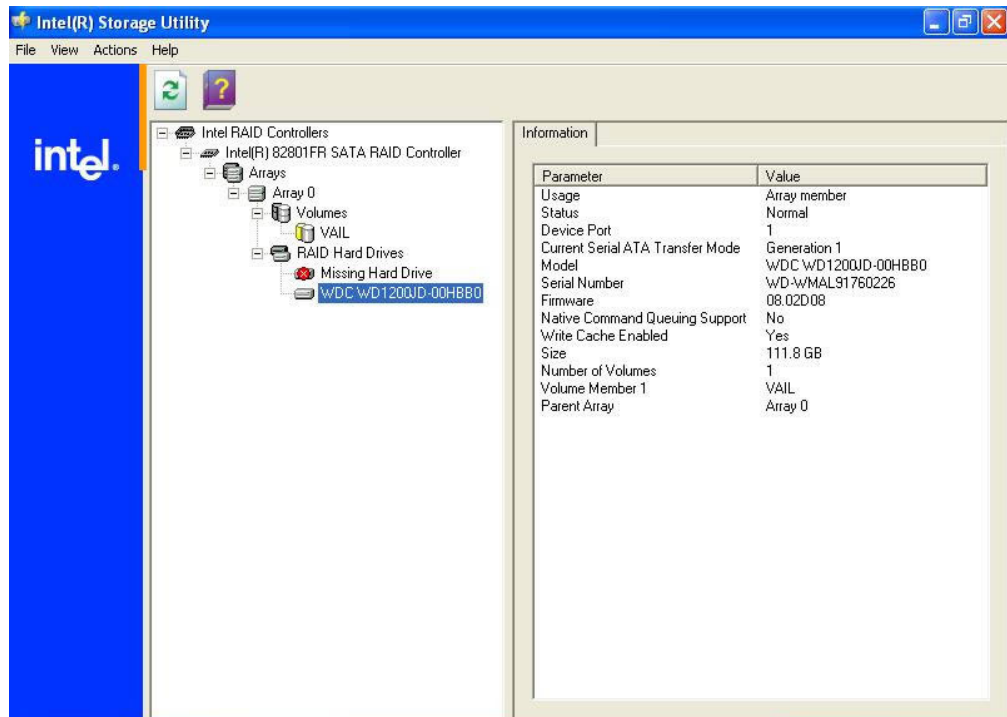


Figure 64. Disk drive failure

2. Determine which hard disk drive has failed by opening the *detected* hard drive (see Figure 64). In the example, the detected hard drive's Device Port is 1; therefore, the failed hard drive is located on Device Port 0.
3. Initiate shutdown and power off the machine (**Start, Shutdown**, press the power switch, or follow the procedure for your business.)
4. Continue with the steps described in "Replacing and rebuilding a hard drive" on page 77.

Method two: Entering RAID during start-up

1. Shutdown and reboot the machine (**Start, Shutdown**, press the power switch, or follow the procedure for your business.)

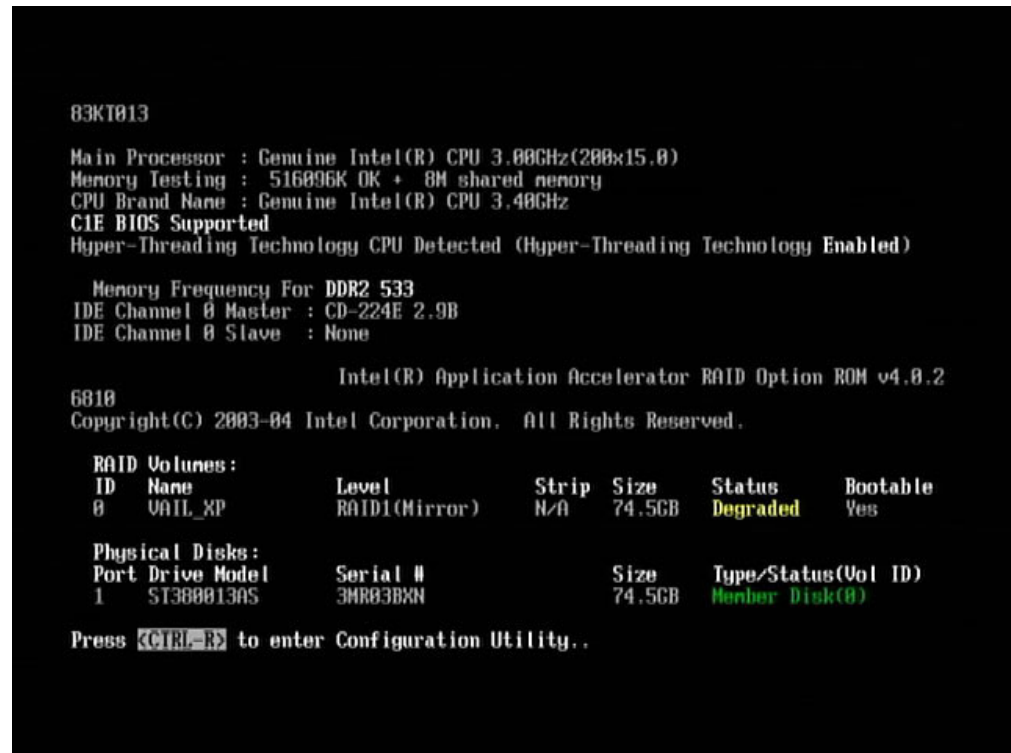


Figure 65. Boot up warning

2. During the reboot, a screen appears that displays information on the failing disk. See Figure 65. Note the Device Port number of the failing disk.
3. Power off the machine.
4. Continue with the steps described in “Replacing and rebuilding a hard drive.”

Replacing and rebuilding a hard drive

Note: Before beginning these procedures, you should have completed one of the two methods on determining the failed hard disk drive.

1. Follow steps one through three in “Removing the hard disk drive” on page 36 to open the machine.
2. Trace the serial ATA cables from the hard disk drives to the system board.

Note: Drive 0 connects to serial ATA connector 0 and Drive 1 connects to serial ATA connector 1.

3. Continue with the instructions in “Removing the hard disk drive” on page 36 to remove and replace the failing hard disk drive.
4. Re-assemble the machine and power on.

After the operating system has loaded, the RAID application will automatically begin re-building the hard disk drive. During this process, you can use the machine normally. Rebuilding time will vary depending upon the size of the partition, amount of data and system activity during the rebuild.

Accessing the RAID setup menu

After enabling the RAID function from the BIOS setup menu, you can enter the setup menu by pressing CTRL and R on the keyboard. Pressing CTRL and R allows you to enter the RAID setup menu before the Windows operating system

starts. Figure 66 is an example of the menu.

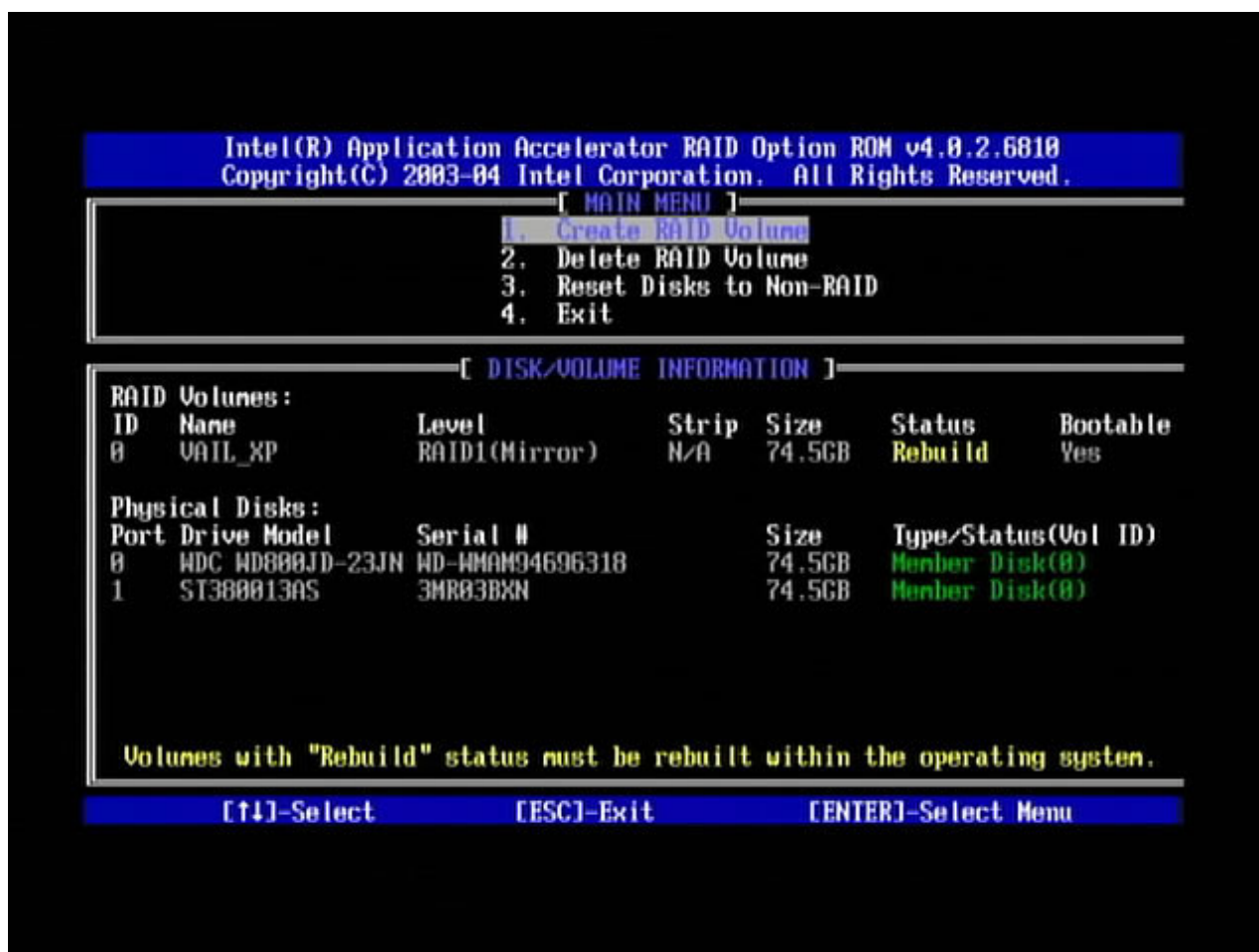


Figure 66. Example of the RAID setup menu

Chapter 4. Diagnostics and configuration settings

This chapter provides information on the diagnostics, CMOS, and configuration settings for the SurePOS 720.

Important Information

SurePOS 720 require new POS I/O and LAN drivers. Existing drivers for Models 4694 and Models 4800 will not work properly with these products. This notice applies to all operating systems: DOS, 4690, Windows, and Linux. Additionally, a hard drive image for a predecessor product will not work properly. Be sure and download the appropriate drivers from the IBM Retail web site: <http://www.ibm.com/solutions/retail/store/support>.

Service and diagnostics

The service and diagnostics programs for the SurePOS 720 are available from the Retail Stores Web site at www.ibm.com/solutions/retail/store.

Follow these steps to run the diagnostics:

1. Download the appropriate diagnostics image from the Web site and copy it to your media.
2. Ensure that your BIOS settings on the terminal are set to allow booting from the media for your installation.
3. Boot your system using the executable file.

Using the BIOS setup program

The BIOS Setup Utility is a program for viewing and configuring system functions. Some examples of these system functions are:

- Setting the system time and date
- Changing the boot device order
- Configuring power management settings
- Cash drawer power configuration
- Setting passwords

The settings controlled by the BIOS Setup utility are stored in nonvolatile memory. The default settings for most system functions controlled by the BIOS Setup Utility are acceptable for the majority of environments.

Navigation and menus

Use an attached PC keyboard to execute, navigate, and configure options. Start the BIOS Setup utility during the POST by pressing **Del** when the system prompts you to enter setup.

Note: If the keyboard is USB-connected, you must connect to a PC USB port, and not a powered-USB port.

Menus allow configuration of different system functions. Menus preceded by the > symbol have submenus. Use the arrow key to navigate the menus and use the **Esc** key to exit them. After you select a submenu, press **Enter** to open it.

Saving settings

Changes made in the BIOS Setup Utility must be saved so they can take affect on the next system boot. Exceptions are the time and date, which are updated and saved immediately. To save changes, select **Save & Exit Setup** on the main menu, or press **F10** at any time. To exit Setup without saving changes, select **Exit Without Saving** or press **Esc** on the main menu.

You can save your settings to a file using the CMOS Save Utility and then copy them to other units using the CMOS Restore Utility. These utilities can be downloaded from the IBM Retail Store Solutions Web site at www.ibm.com/solutions/retail/store

Boot device order

The boot device order is a setting that you can configure. This function controls the devices from which the system can be booted and the order in which they are started. This function is located on the Advanced BIOS Features menu as **First Boot Device**, **Second Boot Device**, and **Third Boot Device**. Navigate to each item and press **Enter** to see a list of available boot devices.

The system default is:

- First Boot Device = USB-HDD
- Second Boot Device = HDD-0
- Third Boot Device = LAN

With this setting, the system attempts to boot first from a diskette in a USB diskette drive, then from hard disk drive 0, then from the LAN. If no items are bootable, the system will repeatedly try the boot list in order until successful.

Restoring CMOS default settings

To clear your CMOS settings and restore the default settings, follow these steps:

Note: Be sure to record your customized settings to reset them later.

1. Power off the system unit and disconnect the AC power cord.
2. Follow the instructions in "Removing the covers" on page 29 to remove the covers and in "Removing the top plate" on page 32 to remove the top plate.

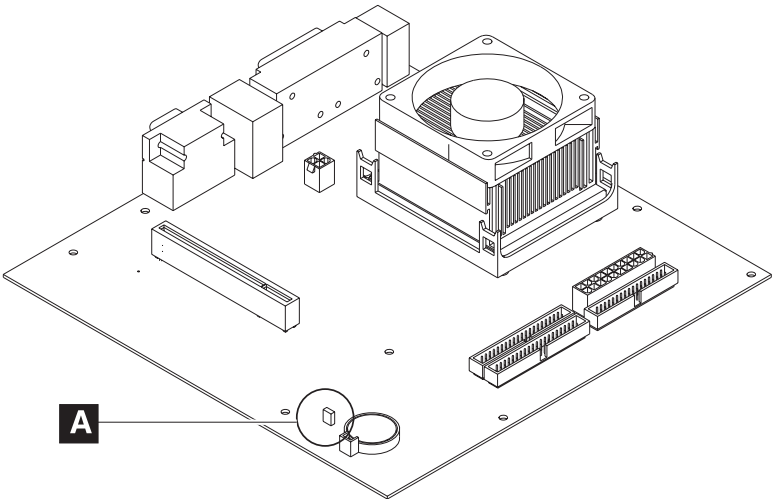


Figure 67. Location of CMOS jumper—Model 741 and 781

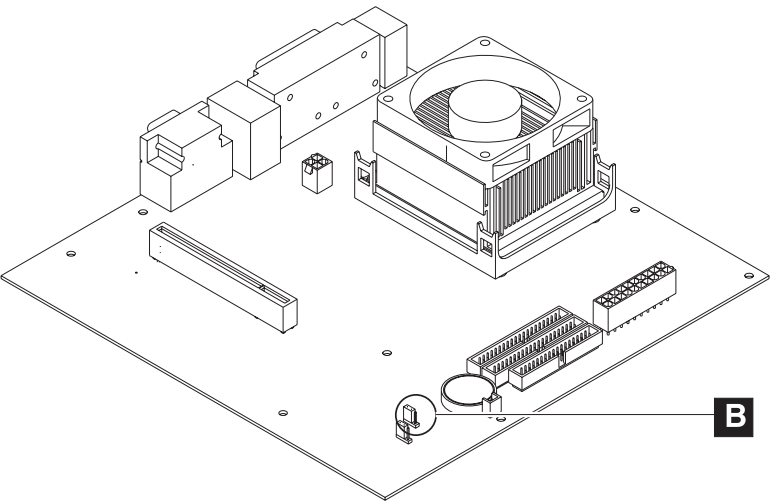


Figure 68. Location of CMOS jumper—Model 721

3. See **A** in Figure 67 or **B** in Figure 68 to locate your CMOS jumper on the planar. See Table 7 for the correct pins and position to clear your CMOS settings.

Table 7. CMOS jumper and pin location by model

Model	CMOS Jumper	Pins for normal operation	Pins to clear CMOS
721	JP5	1-2	2-3
741, 781	JP4		

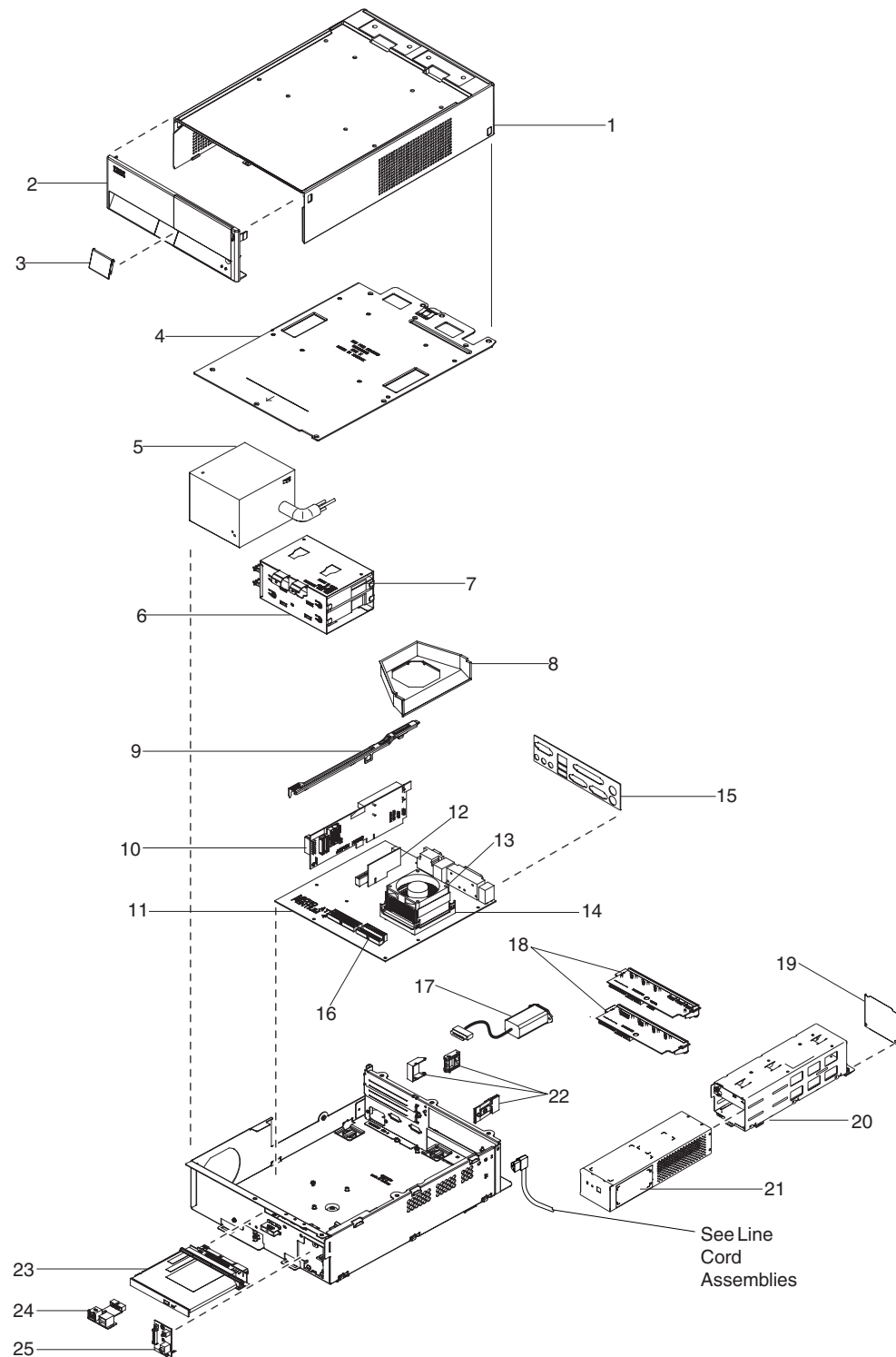
4. Move the pins to position 2-3 and wait for 5 seconds.
5. Return the pins to position 1-2.
6. Re-plug the AC cord and power-on the system. Your system now has the default CMOS settings.

Note: Restoring the CMOS default settings may be necessary if a password is lost or forgotten.

Appendix A. Parts catalog

This section lists the field replacement unit (FRUs) for the SurePOS 720.

Assembly 1: Models 721, 741 and 781

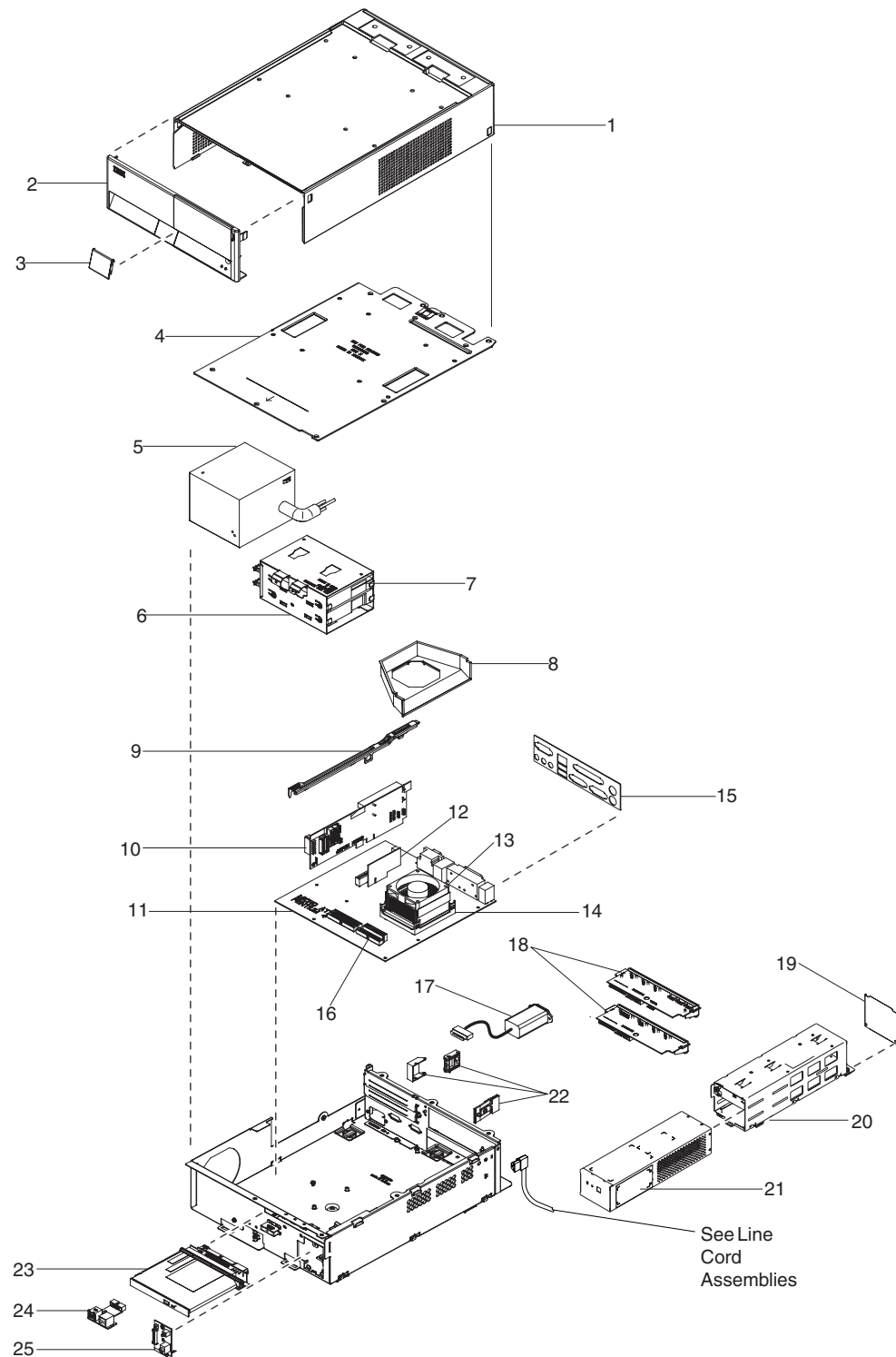


Asm- Index	Part Number	Units	Description
1-			The following cover assemblies include the modesty cover:
-1	23K8005	1	Narrow top cover assembly; storm (light) gray color
-1	23K8006	1	Narrow top cover assembly; iron (dark) gray color
-1	23K8007	1	Wide top cover assembly; storm (light) gray color
-1	23K8008	1	Wide top cover assembly; iron (dark) gray color
-			
-			Each of the front bezel assemblies contain a front door, USB door, CD-ROM blank, UPS blank (if wide) and headphone jack plug:
-2	23K8001	1	Narrow front bezel assembly; storm (light) gray color
-2	23K8002	1	Narrow front bezel assembly; iron (dark) gray color
-2	23K8003	1	Wide front bezel assembly; storm (light) gray color
-2	23K8004	1	Wide front bezel assembly; iron (dark) gray color
-			
-3	23K8009	1	Front USB door; storm (light) gray color
-3	23K8010	1	Front USB door; iron (dark) gray color
-4	23K8013	1	Top plate
-5	23K7988	1	Power supply, Models 741, 781, C41
-5	21R7522	1	Power supply, Models 721, 741, 781, C41
-6	23K8015	1	HDD bracket
-7	23K8048		HDD, 40G, Models 721, 741, and C41
-7	47P9182		HDD, 80G; Model 781 only
-8	23K8012	1	Air duct, Models 741, 781, and C41 only
-9	23K8014	1	Spline
-10	23K8020	1	Riser card
-10	21R7521	1	Riser card for powered RS-232 ports
-			
-			The system boards are without memory or processor; but include heat sink holder:
-11	23K8018	1	System board; Models 741, 781, and C41 only
-11	23K8019	1	System board; Model 721 only
-12	23K8036	1	DVI card assembly with cable (optional)
-13	23K8040	1	Heat sink assembly, Models 741, 781, and C41
-13	23K8041	1	Heat sink assembly, Model 721 only
-	21R7529	1	Heat sink holder (Models 741, 781, and C41 only)
-14	23K8037	1	Processor, Model 781 only
-14	23K8038	1	Processor, Models 741, C41 only
-14	23K8039	1	Processor; Model 721 only, with heat sink
-15	23K8109	1	ATX I/O spring
-16	23K8042	1	Memory, Models 741, 781, and C41, 256 M DDR
-16	23K8043	1	Memory, Models 741, 781, and C41, 512M DDR
-16	23K8044	1	Memory, Models 741, 781, and C41, 1024 M DDR
-16	16K9262	1	Memory, Model 721, 128 M SDRAM
-16	23K8334	1	Memory, Model 721, 256M SDRAM
-16	03R5924	1	Memory, Model 721, 512M SDRAM
-17	23K8034	1	Power inlet and cord
-			For Models 721, 741, and 781 only:
-18	23K8023	1	I/O module (common without port 9; USB ports are USB 1.1)
-18	23K8024	1	I/O module (common with port 9; USB ports are USB 1.1)
-18	23K8025	1	I/O module (RS-485)
-18	23K8026	1	I/O module (USB 1.1)
-18	21R7426	1	I/O module (3 powered RS-232 ports)
-18	21R7427	1	I/O module (powered RS-232, USB 2.0 ports, cash drawer port)
-	23K8035		I/O module blank; Model C41 only

Asm-Index	Part Number	Units	Description
-19	23K8110	1	Expansion housing close-out (if no UPS installed)
-20	23K8017	1	Expansion housing (wide machines only)
-21	23K8050	1	UPS; high voltage (optional)
-21	23K8051	1	UPS; low voltage (optional)
-21	23K8052	1	UPS battery**
-			**The SurePOS 700 UPS batteries are a consumable item and, as such, the customer is responsible for battery replacement. IBM warrants the original UPS battery for 1 year from the ship date to the customer or distributor. Replacement batteries (P/N 23K8052) for the US and Canada can be purchased by calling 1-800-IBM-CALL (1-800-426-2255). Customers outside the US and Canada should contact their IBM representative.
-	45P6222	2	Battery, for the system board and the riser
-22	23K8011	1	I/O module mounting kit (left and right holders with mounting screws)
-23	23K8049	1	CD-ROM Assembly, 24x, (drive and bracket assembled), Models 741, 781, and C41
-	41A3590	1	CDROM blanking shield
-24	42M5848	1	Front USB card; Models 741, 781, and C41
-	23K8046	1	Front USB blank shield; Model 721 only
-25	23K8022	1	Switch/LED card with Headphone jack; Models 741, 781, and C41
-25	23K7987	1	Switch/LED card without headphone jack; Model 721 only
-	23K8054	1	Miscellaneous hardware: 10 M3 screws, 8 M4 flathead screws, 4 6-32 screws, 2 main feet, one center foot, PCI blank, 8 rubber plugs for cover (for both storm (light) gray and iron (dark) gray colors), 1 headphone jack plug (for both storm (light) gray and iron (dark) gray colors), 1 I/O card bumper
-	23K8346	1	Vertical stand, storm (light) gray
-	23K8347	1	Vertical stand, iron (dark) gray
-			
-			Optional adapter cards:
-	10N0519	1	Dual display adapter
-	08L2684	1	NVRAM adapter
-	35P5409	1	Token Ring adapter
-			
-			Cables:
-	23K8027	1	Cable, HDD signal (optional)
-	21R7530	1	Cable, HDD (primary) for Model C41
-	21R7531	1	Cable, HDD (secondary), and CD-ROM, for Model C41
-	23K8028	1	Cable, CD-ROM signal; Models 741, 781
-	23K8029	1	Cable, I/O module power; Models 721, 741, and 781
-	23K8030	1	Cable, I/O module signal (black connectors); Models 721, 741, and 781
-	23K7992	1	Cable, I/O module signal (blue connectors) Models 741, 781, and C41
-	23R7430	1	Cable, I/O module signal, RS-232 (black connector), Models 721, 741, and 781
-	21R7431	1	Cable, I/O module signal, RS-232 (white connector), Models 721, 741, and 781
-	23K8031	1	Cable, front USB; Models 741, 781, and C41
-	23K8032	1	Cable, switch/LED card
-	23K8474	1	Cable, serial port (black connectors)
-	23K7993	1	Cable, serial port (blue connectors)
-	23K8033	1	Cable, UPS communication (optional)
-	74P4409	1	Cable, UPS power
-	21R7525	1	Cable, OEM cash drawer dongle (to be used with non-IBM cash drawers only)

Updated July 14, 2008

Assembly 2: Models 722, 742, and 782

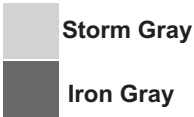
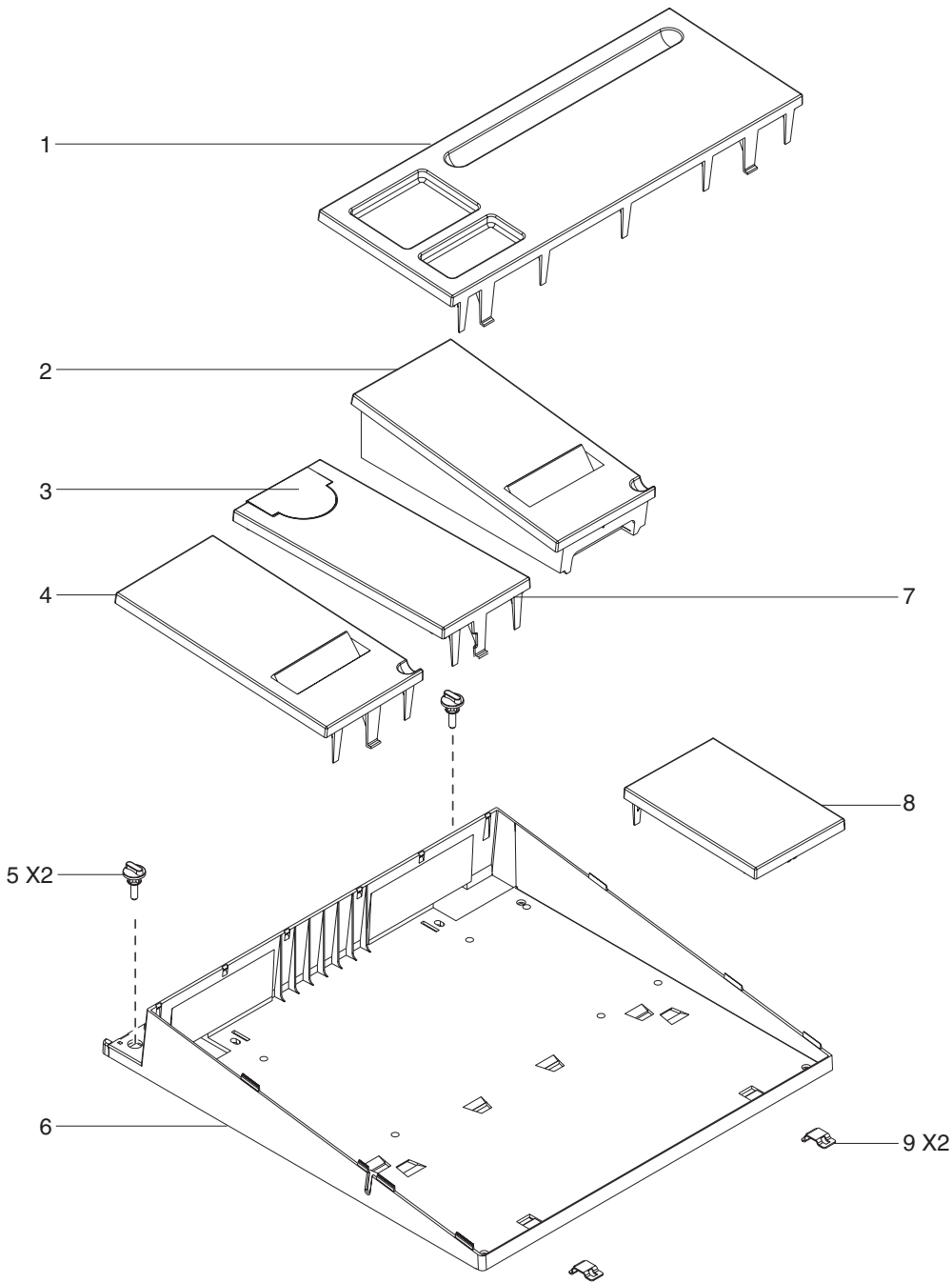


Asm- Index	Part Number	Units	Description
2-			The following cover assemblies include the modesty cover:
-1	41A3588	1	Narrow top cover assembly; storm (light) gray color
-1	41A3361	1	Narrow top cover assembly; iron (dark) gray color
-1	41A3362	1	Narrow top cover assembly; litho gray color
-1	41A3363	1	Wide top cover assembly; storm (light) gray color
-1	41A3364	1	Wide top cover assembly; iron (dark) gray color
-1	41A3365	1	Wide top cover assembly; litho gray color
-			
-			Each of the front bezel assemblies contain a front door, USB door, CD-ROM blank, UPS blank (if wide) and headphone jack plug:
-2	41A3354	1	Narrow front bezel assembly; storm (light) gray color
-2	41A3355	1	Narrow front bezel assembly; iron (dark) gray color
-2	41A3356	1	Narrow front bezel assembly; litho gray color
-2	41A3357	1	Wide front bezel assembly; storm (light) gray color
-2	41A3586	1	Wide front bezel assembly; iron (dark) gray color
-2	41A3587	1	Wide front bezel assembly; litho gray color
-			
-3	23K8009	1	Front USB door; storm (light) gray color
-3	23K8010	1	Front USB door; iron (dark) gray color
-3	21R7507	1	Front USB door; litho gray
-4	38R4012	1	Top plate
-5	42M5840	1	Power supply, Pi (Model 722 only)
-5	41A3636	1	Power supply, Leadyear (Model 722 only)
-5	42M5842	1	Power supply, Pi (Model 742, 782 only)
-5	41A3638	1	Power supply, Leadyear (Model 742, 782 only)
-6	41A3376	1	HDD bracket
-7	41A3549		HDD, 40G, IDE attached (Model 722 only)
-7	41A3640		HDD, 40G; SATA attached (Model 742 only)
-7	41A3641		HDD, 80G, SATA attached (Model 782 only)
-8	23K8012	1	Air duct (intake), (Model 722 only)
I -8	42M6117	1	Air duct (intake), (Model 742, 782 only)
-9	23K8014	1	Spline
-10	42M5846	1	Riser card (2 PCI slots)
-10	42M5847	1	Riser card (with PCI express slot)
-			
-			The system boards are without memory or processor; but include FDD header:
-11	42M5844	1	System board; Model 722
-11	42M5845	1	System board; Model 742, 782
-13	41A3378	1	Heat sink assembly with fan, Model 722
I -13	42M6111	1	Heat sink assembly without fan, Model 742
I -13	42M6115	1	Heat sink assembly without fan, Model 782
I -13	42M6113	1	Processor fan, model 742, 782 contains reversing fan controls)
I -13	42M6147	1	Processor fan, model 742,782 (fan only, without fan control card or cable)
I -	42M6119	1	Fan control, CPU, reversing (not shown), Model 742, 782
-	41A3379	1	Exhaust fan with duct (not shown), Model 742, 782
-14	41A2823	1	Processor, Celeron 2.0 G, Model 722
-14	42M5891	1	Processor, Celeraon 2.5 G, Model 742
-14	42M5892	1	Processor; Intel P4 3.0 G, Model 782
-15	23K8109	1	ATX I/O spring
-16	42M5899	1	Memory, 128 M DDR, Model 722
-16	42M5900	1	Memory, 256 M DDR, Model 722
-16	42M5901	1	Memory, 512 M DDR, Model 722
-16	42M5902	1	Memory, 1 G DDR, Model 722

Asm- Index	Part Number	Units	Description
-16	41A3517	1	Memory, 256 M DDR2, Model 742, 782
-16	41A3518	1	Memory, 512 M DDR2, Model 742, 782
-16	41A3519	1	Memory, 1024 M DDR2, Model 742, 782
-17	41A3569	1	Power inlet and cord
-			
-18	42M5852	1	I/O module (RS-485; 38V or 24V printer port)
-18	42M5851	1	I/O module (USB 2.0)
-18	42M5853	1	I/O module (common; USB ports are USB 2.0)
-18	42M5854	1	I/O module (3 powered RS-232 ports)
-18	42M5855	1	I/O module (powered RS-232, USB 2.0 ports, and CD)
-	23K8035	1	I/O module blank; Model C42 only
-19	23K8110	1	Expansion housing close-out (if no UPS installed)
-20	42M5898	1	Expansion housing (wide machines only)
-21	42M5860	1	UPS; high voltage (optional)
-21	42M5861	1	UPS; low voltage (optional)
-21	23K8052	1	UPS battery**
-			**The SurePOS 700 UPS batteries are a consumable item and, as such, the customer is responsible for battery replacement. IBM warrants the original UPS battery for 90 days from the ship date to the customer or distributor. Replacement batteries (P/N 23K8052) for the US and Canada can be purchased by calling 1-800-IBM-CALL (1-800-426-2225). Customers outside the US and Canada should contact their IBM representative.
-	45P6222	2	Battery, for the system board and the riser
-22	41A3428	1	I/O module mounting kit (left and right holders with mounting screws)
-23	42M5882	1	CD-ROM assembly, 24X, drive and bracket assembled, IDE attached; Models 742 and 782 only
-23	42M5858		CD-ROM assembly 24X, drive and bracket assembled, SATA attached\ Model C42 only
-23	42M5859		DVD plus R/W, drive with bracket assembled, SATA attached, Model C42 only
-	41A3590	1	CD-ROM blanking shield
-	06P5223	1	External FDD
-	41D7531	1	External CD-ROM drive
-24	42M5848	1	Front USB card;
-	23K8046	1	Front USB blanking shield
-25	42M5849	1	Switch/LED card with Headphone jack; Models 742, 782
-25	42M5850		Switch/LED card without headphone jack; Model 722
-	42M5910	1	Miscellaneous hardware: 10 M3 screws, 8 M4 flathead screws, 4 6-32 screws, 2 main feet, one center foot, PCI blank, 8 rubber plugs for cover (for all colors), 1 headphone jack plug (for all colors), 1 I/O card bumper and port standoff, fire shield labels, system board standoff, power supply outlet seal
-	41A3542	1	Vertical stand, storm (light) gray
-	41A3543	1	Vertical stand, iron (dark) gray
-	41A3544	1	Vertical stand, litho gray
-			
-			Optional adapter cards:
-	42M5866	1	Dual display adapter
-	42M5867	1	DVI adapter
-			
-			Cables:
-	41A3404	1	Cable, HDD signal (IDE)
-	41A3405	1	Cable, HDD signal (SATA)
-	41A3533	1	Cable, CD-ROM signal (IDE)
-	41A3408	1	Cable, CD-ROM signal (SATA)

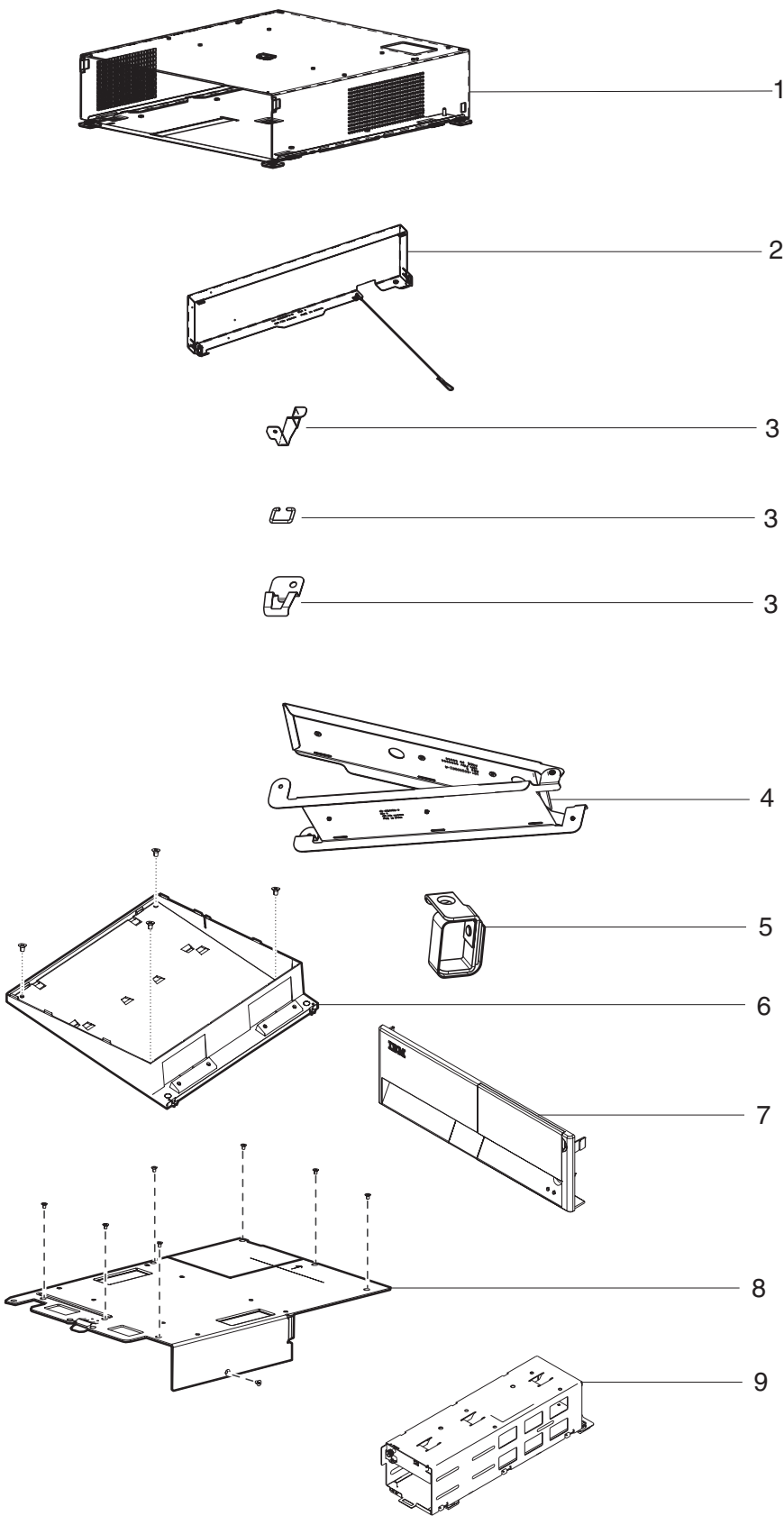
Asm- Index	Part Number	Units	Description
–	41A3538	1	Cable, I/O module power
–	41A3570	1	Cable, I/O module USB 2.0 signal (blue connectors)
–	41A3540	1	Cable, I/O module RS-485 signal (blue connectors)
–	41A3539	1	Cable, I/O module common signal (black connectors)
–	41A3571	1	Cable, I/O module signal, RS-232 signal (black connectors)
–	41A3572	1	Cable, I/O module signal, RS-232 signal (white connectors)
–	41A3541	1	Cable, front USB
–	41A3477	1	Cable, switch/LED card
–	41A3537	1	Cable, serial port (black connectors)
–	41A3535	1	Cable, serial port (blue connectors)
–	41A3531	1	Cable, Ethernet
–	41A3434	1	Cable, processor power extension
–	39M5380	1	Cable, UPS power
–	42M5651	1	Cable adapter, cash drawer adapter (SDL to RJ11)
–	42M5862	1	Cable, UPS communications
–	41A3552	1	Cable, UPS adapter to NEMA 5-15R
–	41A3554	1	Cable, T power connector
–	42M5873		Cable, RS-232 converter (15 pin, 9 pin standard)
–	41A3553	1	Universal coupler cord

Assembly 3: Slanted I/O tray



Asm- Index	Part Number	Units	Description
3-1	41A3567	1	Keyboard replacement filler panel, pearl white
-1	41A3566	1	Keyboard replacement filler panel, iron (dark) gray
-2	30L6322	1	Printer filler/narrow credit card holder, pearl white/storm (light gray
-2	41A3547	1	Printer filler/narrow credit card holder, iron (dark) gray
-3	30L6230	1	Filler insert for display filler panel, pearl white
-3	10N1247	1	Filler insert for display filler panel, iron (dark) gray
-4	30L6217	1	Credit card holder, pearl white
-4	41A3548	1	Credit card holder, iron (dark) gray
-5	30L6240	2	Screw, molded, storm (light) gray
-5	10N1346	2	Screw, molded, iron (dark) gray
-5	93F1779	1	Screw, molded litho gray
-6	14J1009	1	Slanted I/O tray, storm (light) gray
-6	14J1010	1	Slant tray, iron (dark) gray
-6	14J1255	1	Slant tray, litho gray
-	30L6320	1	Tabletop integration tray, storm (light) gray
-	41A3584	1	Tabletop integration tray, iron (dark) gray
-	41A3546	1	Tabletop intergration tray, litho gray
-	41A3578		Cash drawer slant tray; litho gray
-			
-	47L7995		Display filler panel, character/graphics
-	47L7994		Printer filler panel, DBCS
-7	30L6218	1	Display filler panel, pearl white
-7	10N1248	1	Display filler panel, iron (dark) gray
-8	30L6216	1	Keyboard filler panel, pearl white
-8	41A3557	1	Keyboard filler panel, iron (dark) gray
-9	41A3574	2	Mounting clip
-			
-	16K8692	1	Single station printer filler panel (pearl)
-	47P9273	1	Single station printer filler panel (iron)
-			
-	59G9136	1	Tape holder (pearl/storm)
-			
-	39M6989		PS/2 preferred keyboard

Assembly 4: Front service assembly



Asm- Index	Part Number	Units	Description
4-1	42J3148		Housing with modesty cover, iron (dark) gray
-1	42J3188		Housing with modesty cover, storm gray
-1	42J3189		Housing with modesty cover, litho gray
-2	42J3150		Modesty cover, iron (dark) with lanyard
-2	42J2446		Modesty cover, storm with lanyard
-2	42J2447		Modesty cover, litho with lanyard
-3	42J2455		Miscellaneous parts:
-			Clip, Bezel
-			Screw, Bezel Clip
-			Stop, Chassis
-			Handle, Pull out
-			Retainer, arm
-4	42J3155		Cable guide arm assembly
-5	42J3158		Cable guide
-6	42J3160		Tray, plastic, iron (dark) gray
-6	42J2448		Tray, plastic, storm gray
-6	42J3187		Tray, plastic, litho gray
-7	41A3586		Bezel, wide iron gray
-7	41A3357		Bezel, wide storm gray
-7	41A3587		Bezel, wide litho gray
-	42J3162		Screws, display foot mounting
-8	42J3163		Top plate
-8	42J3164		Door, HDD
-9	38R4013		UPS housing

Line cord assemblies

Table 8. Power cords for all models

Part number	Length	Country
39M5065	2.8M Non-locking	Argentina
39M5066	4.3M	Argentina, Paraguay, Uruguay
39M5100	4.3M	Australia, NZ, Papua, New Guinea
39M5093	4.3M, 220 Volt	Bahamas, Barbados, Bermuda, Bolivia, Canada, Cayman Islands, Columbia, Costa Rica, Dominican Rep., El Salvador, Ecuador, Guatemala, Haiti, Honduras, Jamaica, Mexico, Netherlands Antilles, Nicaragua, Panama, Peru, Philippines, U.S., Venezuela
39M5162	2.8M Non-locking	Chile
39M5163	4.3M	Chile
39M5204	4.3M	China (PR)
39M5078	2.8M Non-locking, 120 Volt	Colombia, Venezuela, Peru, Ecuador, Brazil
39M5128	4.3M Non-locking	Denmark
39M5121	4.3M	European plug, Albania, Austria, Belgium, Bulgaria, Croatia, Czech Republic, Egypt, Finland, France, Germany, Greece, Hungary, Iceland, Indonesia, Macedonia, Netherlands, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovakia, former Yugoslavia, Spain, Sweden, Turkey, Korea
39M5149	4.3M Non-locking	Hong Kong, Ireland, Malaysia, Singapore, U.K., Guyana, Trinidad (West Indies)
39M5142	4.3M	Bangladesh, Pakistan, South Africa, Sri Lanka
39M5224	4.3M	India
39M5170	4.3M Non-locking	Israel
39M5163	4.3M Non-locking	Italy
39M5191	4.3M Non-locking	Japan
39M5065	2.8M Non-locking	Paraguay, Uruguay
39M5142	4.3M Non-locking	South Africa
39M5156	4.3M Non-locking	Switzerland
39M5252	4.3M	Taiwan
39M5077	1.8M Non-locking	U.S. (Required in Chicago), Canada, Latin America
39M5079	4.3M Non-locking, 120 Volt	U.S., Bahamas, Barbados, Bermuda, Bolivia, Canada, Cayman Islands, Columbia, Costa Rica, Dominican Republic, El Salvador, Ecuador, Guatemala, Haiti, Honduras, Jamaica, Mexico, Netherlands Antilles, Nicaragua, Panama, Peru, Philippines, Saudi Arabia, Thailand, Venezuela
39M5107	4.3M Locking	U.S.

Appendix B. Safety information



Danger:

Before you begin to install this product, read the safety information in *IBM Safety Information — Read This First*, GA27-4004. This booklet describes safe procedures for cabling and plugging in electrical equipment.



Gevaar:

Voordat u begint met de installatie van dit produkt, moet u eerst de veiligheidsinstructies lezen in de brochure *Veiligheidsinstructies—Lees dit eerst*, GA27-4004. Hierin wordt beschreven hoe u elektrische apparatuur op een veilige manier moet bekabelen en aansluiten.



Perigo:

Antes de começar a instalar este produto, leia as informações de segurança contidas em *Informações Sobre Segurança—Leia Isto Primeiro*, GA27-4004. Esse folheto descreve procedimentos de segurança para a instalação de cabos e conexões em equipamentos elétricos.



Fare!

Før du installerer dette produkt, skal du læse sikkerhedsforskrifterne i *Sikkerhedsforskrifter—Læs dette først* GA27-4004. Vejledningen beskriver den fremgangsmåde, du skal bruge ved tilslutning af kabler og udstyr.



Gevaar

Voordat u begint met het installeren van dit produkt, dient u eerst de veiligheidsrichtlijnen te lezen die zijn vermeld in de publikatie *IBM Safety Information — Read This First*, GA27-4004. In dit boekje vindt u veilige procedures voor het aansluiten van elektrische apparatuur.



VAARA

Ennen kuin aloitat tämän tuotteen asennuksen, lue julkaisussa *Turvaohjeet—Luetämä ensin*, GA27-4004, olevat turvaohjeet. Tässä kirjasessa on ohjeet siitä, miten sähkölaitteet kaapeloidaan ja kytketään turvallisesti.



Danger

Avant d'installer le présent produit, consultez le livret *Informations pour la sécurité—Lisez-moi d'abord*, GA27-4004, qui décrit les procédures à respecter pour effectuer les opérations de câblage et brancher les équipements électriques en toute sécurité.



Vorsicht

Bevor mit der Installation des Produktes begonnen wird, die Sicherheitshinweise in *Sicherheitsinformationen—Bitte zuerst lesen*, IBM Form GA27-4004. Diese Veröffentlichung beschreibt die Sicherheitsvorkehrungen für das Verkabeln und Anschließen elektrischer Geräte.

**Vigyázat**

Mielőtt megkezdi a berendezés üzembe helyezését, olvassa el a *IBM Safety Information — Read This First*, GA27-4004 könyvecskében leírt biztonsági információkat. Ez a könyv leírja, milyen biztonsági intézkedéseket kell megtenni az elektromos berendezés huzalozásakor illetve csatlakoztatásakor.

**Pericolo**

prima di iniziare l'installazione di questo prodotto, leggere le informazioni relative alla sicurezza riportate nell'opuscolo *Informazioni di sicurezza—Prime informazioni da leggere* in cui sono descritte le procedure per il cablaggio ed il collegamento di apparecchiature elettriche.

**Fare**

Før du begynner å installere dette produktet, må du lese sikkerhetsinformasjonen i *Sikkerhetsinformasjon—Les dette først*, GA27-4004 som beskriver sikkerhetsrutinene for kabling og tilkobling av elektrisk utstyr.

**Perigo**

Antes de iniciar a instalação deste produto, leia as informações de segurança *Informações de Segurança—Leia Primeiro*, GA27-4004. Este documento descreve como efectuar, de um modo seguro, as ligações eléctricas dos equipamentos.



Peligro

Antes de empezar a instalar este producto, lea la información de seguridad en *Información de Seguridad—Lea Esto Primero*, GA27-4004. Este documento describe los procedimientos de seguridad para cablear y enchufar equipos eléctricos.



Varning—livsfara

Innan du börjar installera den här produkten bör du läsa säkerhetsinformationen i dokumentet *Säkerhetsföreskrifter—Läs detta först*, GA27-4004. Där beskrivs hur du på ett säkert sätt ansluter elektrisk utrustning.

危險：安裝本產品之前，請先閱讀
"IBM Safety Information--Read
This First" GA27-4004 手冊中所提
供的安全注意事項。這本手冊將會說明
使用電器設備的纜線及電源的安全程序。

Opasnost: Prije nego sto počnete sa instalacijom produkta,
pročitajte naputak o pravilima o sigurnom rukovanju u
Upozorenje: Pravila o sigurnom rukovanju - Prvo pročitaj ovo,
GA27-4004. Ovaj privitak opisuje sigurnosne postupke za
priključivanje kabela i priključivanje na električno napajanje.

Upozornění: než zahájíte instalaci tohoto produktu, přečtěte si
nejprve bezpečnostní informace v pokynech „Bezpečnostní
informace“ č. GA27-4004. Tato brožurka popisuje bezpečnostní
opatření pro kabeláž a zapojení elektrického zařízení.

Κίνδυνος: Πριν ξεκινήσετε την εγκατάσταση αυτού του προϊόντος,
διαβάστε τις πληροφορίες ασφάλειας στο φυλλάδιο *IBM Safety
Information-Read this first*, GA27-4004. Στο φυλλάδιο αυτό
περιγράφονται οι ασφαλείς διαδικασίες για την καλωδίωση των
ηλεκτρικών συσκευών και τη σύνδεσή τους στην πρίζα.

危険： 導入作業を開始する前に、安全に関する
小冊子 GA27-4004 の「最初にお読みください」
(Read This First)の項をお読みください。
この小冊子は、電気機器の安全な配線と接続の
手順について説明しています。

위험: 이 제품을 설치하기 전에 반드시
"주의: 안전 정보-시작하기 전에"
(GA27-4004) 에 있는 안전 정보를
읽으십시오.

סכנה : לפני שמתחילים בהתקנת מוצר זה, יש לקרוא את הוראות הבטיחות בחוברת
Caution: Safety Information - Read This First, GA27-4004
חוברת זו מתארת את הוראות הבטיחות לחיבור הכבלים ולחיבור לחשמל של ציוד חשמלי.

خطر: قبل عملية بدء تركيب هذا المنتج، قم بقراءة معلومات
الحماية الموجودة في التحذير: معلومات الحماية – Read This First
GA27-4004 . يقوم هذا الكتيب بوصف اجراءات الأمان
لتوصيل الأدوات الكهربائية بالكابلات والمقبس الكهربائي.

ОПАСНОСТ

Пред да почнете да го инсталирате овој продукт, прочитајте ја информацијата за безбедност:

"Предупредување: Информација за безбедност: Прочитајте го прво ова", GA27-4004.

Оваа брошура опишува безбедносни процедури за каблирање и вклучување на електрична опрема.

Uwaga:

Przed rozpoczęciem instalacji produktu należy zapoznać się z instrukcją:

"IBM Safety Information - Read This First", GA27-4004.

Zawiera ona warunki bezpieczeństwa przy podłączaniu do sieci elektrycznej i eksploatacji.

ОСТОРОЖНО: Прежде чем устанавливать этот продукт, прочтите Инструкцию по технике безопасности в документе "Внимание: Инструкция по технике безопасности -- Прочестъ в первую очередь", GA27-4004. В этой брошюре описаны безопасные способы каблирования и подключения электрического оборудования.

Nebezpečenstvo: Pred inštaláciou výrobku si prečítajte bezpečnosté predpisy v

Výstraha: Bezpečnosté predpisy - Prečítaj ako prvé, GA27-4004. V tejto brožúrke sú opísané bezpečnosté postupy pre pripojenie elektrických zariadení.

Pozor: Preden začnete z instalacijo tega produkta preberite poglavje: "Opozorilo: Informacije o varnem rokovanju-preberi pred uporabo," GA27-4004. To poglavje opisuje pravilne postopke za kabliranje,

危險：

開始安裝此產品之前，請先閱讀安全資訊。

注意：

請先閱讀 - 安全資訊 GA27-4004

此冊子說明插接電器設備之電纜線的安全程序。

危险：

在开始安装本产品之前，请阅读

IBM Safety Information - Read This First, GA27-4004 中的安全信息。

此手册描述了如何安全地连接和插拔电气设备。

Appendix C. Notices

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This information is for planning purposes only. The information herein is subject to change before the products described become available.

Electronic emission notices

Federal Communications Commission (FCC) statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. IBM is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

European Union EMC Directive conformance statement

This product is in conformity with the protection requirements of EU Council Directive 2004/108/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility. IBM cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of non-IBM option cards.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 22/European Standard EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

Attention: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

European Community contact:

IBM Technical Regulations
Pascalstr. 100, Stuttgart, Germany 70569
Telephone: 0049 (0)711 785 1176
Fax: 0049 785 1283
E-mail: tjahn@de.ibm.com

Industry Canada Class A Emission Compliance statement

This Class A digital apparatus complies with Canadian ICES-003.

Avis de conformité aux normes d'Industrie Canada

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Germany

Zulassungsbescheinigung laut dem Deutschen Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG) vom 30. August 1995 (bzw. der EMC EG Richtlinie 89/336).

Dieses Gerät ist berechtigt in Übereinstimmung mit dem Deutschen EMVG das EG-Konformitätszeichen - CE - zu führen.

Verantwortlich für die Konformitätserklärung nach Paragraph 5 des EMVG ist die IBM Deutschland Informationssysteme GmbH, 70548 Stuttgart

Informationen in Hinsicht EMVG Paragraph 3 Abs. (2) 2:

Das Gerät erfüllt die Schutzanforderungen nach EN 50082-1 und EN 55022 Klasse A.
--

EN 55022 Klasse A Geräte müssen mit folgendem Warnhinweis versehen werden:

"Warnung: dies ist eine Einrichtung der Klasse A. Diese Einrichtung kann im Wohnbereich Funkstörungen verursachen; in diesem Fall kann vom Betreiber verlangt werden, angemessene Maßnahmen durchzuführen und dafür aufzukommen."

EN 50082-1 Hinweis:

"Wird dieses Gerät in einer industriellen Umgebung betrieben (wie in EN 50082-2 festgelegt), dann kann es dabei eventuell gestört werden. In solch einem Fall ist der Abstand bzw. die Abschirmung zu der industriellen Störquelle zu vergrößern."

Anmerkung:

Um die Einhaltung des EMVG sicherzustellen sind die Geräte, wie in den IBM Handbüchern angegeben, zu installieren und zu betreiben.

Australia and New Zealand

Attention: This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

Chinese Class A warning statement

Attention: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

中华人民共和国“A类”警告声明

声 明

此为 A 级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对其干扰采取切实可行的措施。

Japanese power line harmonics compliance statement

高調波ガイドライン適合品

高調波ガイドライン適合品

Japanese Voluntary Control Council for Interference (VCCI) statement

Attention: This product is a Class A Information Technology Equipment and conforms to the standards set by the Voluntary Control Council for Interference by Technology Equipment (VCCI). In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

Korean communications statement

Please note that this device has been approved for business purposes with regard to electromagnetic interference. If you find this is not suitable for your use, you may exchange it for a non-business purpose one.

A급 기기(업무용)

이 기기는 업무용으로 전자파적합등록을 받은 기기이오니
판매자 또는 이용자는 이점을 주의하시기 바라며, 만약
구입하였을 때에는 구입한 곳에서 가정용으로 교환하시기
바랍니다.

Taiwanese Class A warning statement

警告使用者：
這是甲類的資訊產品，在
居住的環境中使用時，可
能會造成射頻干擾，在這
種情況下，使用者會被要
求採取某些適當的對策。

Taiwan contact information

台灣IBM 產品服務聯絡方式：
台灣國際商業機器股份有限公司
台北市松仁路7號3樓
電話：0800-016-888

IBM Taiwan Product Service Contact Info:
IBM Taiwan Corporation
3F, No 7, Song Ren Road, Taipei Taiwan
Telephone: 0800-016-888

Cable ferrite requirement

All cable ferrites are required to suppress radiated EMI emissions and must not be removed.

Electrostatic Discharge (ESD)

Attention: ESD damage can occur when there is a difference in charge between the part, the product, and the service person. No damage will occur if the service person and the part being installed are at the same charge level.

ESD Damage Prevention

Anytime a service action involves physical contact with logic cards, modules, back-panel pins, or other ESD sensitive (ESDS) parts, the service person must be connected to an ESD common ground point on the product through the ESD wrist strap and cord.

The ESD ground clip can be attached to any frame ground, ground braid, green wire ground, or the round ground prong on the AC power plug. Coax or connector outside shells can also be used.

Handling Removed Cards

Logic cards removed from a product should be placed in ESD protective containers. No other object should be allowed inside the ESD container with the logic card. Attach tags or reports that must accompany the card to the outside of the container.

Product Recycling and disposal

This unit must be recycled or discarded according to applicable local and national regulations. IBM encourages owners of information technology (IT) equipment to responsibly recycle their equipment when it is no longer needed. IBM offers a variety of product return programs and services in several countries to assist equipment owners in recycling their IT products. Information on IBM product recycling offerings can be found on IBM's Internet site at <http://www.ibm.com/ibm/environment/products/prp.shtml>.

Español:

Esta unidad debe reciclarse o desecharse de acuerdo con lo establecido en la normativa nacional o local aplicable. IBM recomienda a los propietarios de equipos de tecnología de la información (TI) que reciclen responsablemente sus equipos cuando éstos ya no les sean útiles. IBM dispone de una serie de programas y servicios de devolución de productos en varios países, a fin de ayudar a los propietarios de equipos a reciclar sus productos de TI. Se puede encontrar información sobre las ofertas de reciclado de productos de IBM en el sitio web de IBM <http://www.ibm.com/ibm/environment/products/prp.shtml>.



Notice: This mark applies only to countries within the European Union (EU) and Norway.

Appliances are labeled in accordance with European Directive 2002/96/EC concerning waste electrical and electronic equipment (WEEE). The Directive determines the framework for the return and recycling of used appliances as applicable throughout the European Union. This label is applied to various products to indicate that the product is not to be thrown away, but rather reclaimed upon end of life per this Directive.

Remarque : Cette marque s'applique uniquement aux pays de l'Union Européenne et à la Norvège. L'étiquette du système respecte la Directive européenne 2002/96/EC en matière de Déchets des Equipements Electriques et Electroniques

(DEEE), qui détermine les dispositions de retour et de recyclage applicables aux systèmes utilisés à travers l'Union européenne. Conformément à la directive, ladite étiquette précise que le produit sur lequel elle est apposée ne doit pas être jeté mais être récupéré en fin de vie.

注意: このマークは EU 諸国およびノルウェーにおいてのみ適用されます。

この機器には、EU 諸国に対する廃電気電子機器指令 2002/96/EC(WEEE) のラベルが貼られています。この指令は、EU 諸国に適用する使用済み機器の回収とリサイクルの骨子を定めています。このラベルは、使用済みになった時に指令に従って適正な処理をする必要があることを知らせるために種々の製品に貼られています。

In accordance with the European WEEE Directive, electrical and electronic equipment (EEE) is to be collected separately and to be reused, recycled, or recovered at end of life. Users of EEE with the WEEE marking per Annex IV of the WEEE Directive, as shown above, must not dispose of end of life EEE as unsorted municipal waste, but use the collection framework available to customers for the return, recycling, and recovery of WEEE. Customer participation is important to minimize any potential effects of EEE on the environment and human health due to the potential presence of hazardous substances in EEE. For proper collection and treatment, contact your local IBM representative.

Disposal of IT products should be in accordance with local ordinances and regulations.

Battery return program

This product may contain sealed lead acid, nickel cadmium, nickel metal hydride, lithium, or lithium ion battery. Consult your user manual or service manual for specific battery information. The battery must be recycled or disposed of properly. Recycling facilities may not be available in your area. For information on disposal of batteries outside the United States, go to <http://www.ibm.com/ibm/environment/products/batteryrecycle.shtml> or contact your local waste disposal facility.

In the United States, IBM has established a return process for reuse, recycling, or proper disposal of used IBM sealed lead acid, nickel cadmium, nickel metal hydride, and other battery packs from IBM equipment. For information on proper disposal of these batteries, contact IBM at 1-800-426-4333. Please have the IBM part number listed on the battery available prior to your call.

For Taiwan:



Please recycle batteries.

For the European Union:



Notice: This mark applies only to countries within the European Union (EU)

Batteries or packaging for batteries are labeled in accordance with European Directive 2006/66/EC concerning batteries and accumulators and waste batteries and accumulators. The Directive determines the framework for the return and recycling of used batteries and accumulators as applicable throughout the European Union. This label is applied to various batteries to indicate that the battery is not to be thrown away, but rather reclaimed upon end of life per this Directive.

Les batteries ou emballages pour batteries sont étiquetés conformément aux directives européennes 2006/66/EC, norme relative aux batteries et accumulateurs en usage et aux batteries et accumulateurs usés. Les directives déterminent la marche à suivre en vigueur dans l'Union Européenne pour le retour et le recyclage des batteries et accumulateurs usés. Cette étiquette est appliquée sur diverses batteries pour indiquer que la batterie ne doit pas être mise au rebut mais plutôt récupérée en fin de cycle de vie selon cette norme.

バッテリーあるいはバッテリー用のパッケージには、EU 諸国に対する廃電気電子機器指令 2006/66/EC のラベルが貼られています。この指令は、バッテリーと蓄電池、および廃棄バッテリーと蓄電池に関するものです。この指令は、使用済みバッテリーと蓄電池の回収とリサイクルの骨子を定めているもので、EU 諸国にわたって適用されます。このラベルは、使用済みになったときに指令に従って適正な処理をする必要があることを知らせるために種々のバッテリーに貼られています。

In accordance with the European Directive 2006/66/EC, batteries and accumulators are labeled to indicate that they are to be collected separately and recycled at end of life. The label on the battery may also include a chemical symbol for the metal concerned in the battery (Pb for lead, Hg for mercury and Cd for cadmium). Users of batteries and accumulators must not dispose of batteries and accumulators as unsorted municipal waste, but use the collection framework available to customers for the return, recycling and treatment of batteries and accumulators. Customer participation is important to minimize any potential effects of batteries and accumulators on the environment and human health due to the potential presence of hazardous substances. For proper collection and treatment, contact your local IBM representative.

This notice is provided in accordance with Royal Decree 106/2008 of Spain: The retail price of batteries, accumulators and power cells includes the cost of the environmental management of their waste.

For California:

Perchlorate material – special handling may apply

Refer to <http://www.dtsc.ca.gov/hazardouswaste/perchlorate>.

The foregoing notice is provided in accordance with *California Code of Regulations Title 22, Division 4.5, Chapter 33: Best Management Practices for Perchlorate Materials*. This product/part includes a lithium manganese dioxide battery which contains a perchlorate substance.

Flat panel displays

The fluorescent lamp in the liquid crystal display contains mercury. Dispose of it as required by local ordinances and regulations.

Monitors and workstations

Connecticut - Please see the web site of the Department of Environmental Protection at <http://www.ct.gov/dep> for information about recycling covered electronic devices in the State of Connecticut, or telephone the Connecticut Department of Environmental Protection at 1-860-424-3000.

Oregon - For information regarding recycling covered electronic devices in the state of Oregon, go to the Oregon Department of Environmental Quality site at <http://www.deq.state.or.us/lq/electronics.htm>.

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SurePOS 700 Series
SurePOS 700-721/741/781, 722/742/782
Hardware Service Guide

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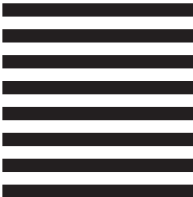
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